

February 16, 1999

To: Board of Directors (Budget and Finance Committee--Action)

From: General Manager _____

Submitted by: Lambertus H. Becker
Chief Financial Officer _____

Subject: Adoption of the Long Range Finance Plan - 1999 Update

RECOMMENDATIONS

Based on the discussions and analysis presented in the 1999 Update of the Long Range Finance Plan, the following recommendations are presented for Board consideration and action:

1. That the Board replace the current working capital policy with a minimum/maximum reserve policy for revenue shortfalls:
 - a) The minimum level would be set at the percent of projected fixed costs to be recovered by water sales revenues for the following 18 months (approximately 17.5 percent).
 - b) The maximum level would be set at the percent of projected fixed costs to be recovered by water sales revenues for the minimum reserve level period and the following two years (approximately 17.5 percent).
 - c) The minimum reserve will be held in the Revenue Remainder Fund.
 - d) Reserves up to the maximum level, above the minimum, will be held in the Water Rate Stabilization Fund.
 - e) Subject to annual Board approval any remainder above the maximum reserve level would be used in lieu of additional debt or to buy down existing debt as required to maintain Metropolitan's fixed charge coverage ratio at or above the level of 1.2 times. To the extent that this target is projected to be achieved, reserves above the maximum level would then be available for any lawful purpose.
2. That the Board establish a new Pay-As-You-Go (PAYG) policy based on quantitative analysis designed to optimize existing financial constraints. Staff would analyze Metropolitan's financial condition each year and recommend a PAYG level sufficient to maintain smooth revenue requirements, low water rates, strong financial ratios, and appropriate reserve levels.
3. That Metropolitan's flow of funds be revised so that the final fund will be the Water Rate Stabilization Fund (WRSF) and the \$200 million cap on the WRSF will be eliminated.

4. That the Self-Insured Retention Fund be established as a restricted fund for the purpose of maintaining Metropolitan's \$25 million reserve for emergency repairs and claims.
5. That the minimum amount to be held in the PAYG Fund on June 30 of each fiscal year be 1/2 of the projected PAYG expenditures budgeted from current revenues for the following fiscal year.
6. That a financing not be done to reimburse Metropolitan's General Fund for expenditures incurred for construction of the Union Station Headquarters Building.
7. That the Board adopt amendments to the Administrative Code to implement such recommendations, as shown in Exhibit A.

REPORT

Transmitted with this letter is the proposed 1999 Update of the Metropolitan Water District's Long Range Finance Plan (LRFP). This is the fourth update of Metropolitan's first LRFP, which was completed in December 1986. The original LRFP was followed by updates in 1987, 1988, and 1995.

The 1999 update presents a comprehensive strategy for financing the operating and capital programs of Metropolitan in an efficient and economical manner using the financial tools legally available to Metropolitan. Detailed cost, revenue, and rate projections are based on the fiscal year 1999-00 Revenue Requirements and are used to analyze alternatives to current financial policies and practices. The overall goal of Metropolitan's financial planning is to maintain flexibility to deal with changing conditions within a framework of solid financial policies that will ensure a reliable high quality water supply for Southern California at the lowest possible cost. Major changes in LRFP recommendations since the August 1998 Board letter are underlined in this Board letter and the attached 1999 LRFP. These include the recommendation for a two-year maximum reserve and that there be no financing done to reimburse the General Fund for construction costs for the Union Station Headquarters building.

The 1999 update has been a cooperative process involving Metropolitan's staff, the Board of Directors (through the Budget and Finance Committee), and the member agencies (through the MWD/Member Agency Finance Work Group). The October 1997 report from the MWD/Member Agency Finance Work Group (FWG), the third party financial assessments of Metropolitan prepared in 1996 by the accounting firm of KPMG Peat Marwick, and the Barrington Wellesley Group (BWG) (an outside consultant retained by one of Metropolitan's member agencies) have been an important part of the LRFP update process. All three reports contained detailed analyses and recommendations that were carefully considered and are reflected in the updated LRFP as deemed appropriate.

As described in the Executive Summary, a key focus of the LRFP is on the financial challenges currently facing Metropolitan. There are indications that Metropolitan's historically strong financial condition is weakening. Projections show that increasing fixed costs associated with the Capital Improvement Program, the State Water Project, Colorado River supplies, and the Bay-Delta improvements could lead to the erosion of efforts to control water rates and charges to the member agencies. As fixed costs increase, the mismatch between fixed costs and variable water revenues increases and makes it more important to maintain strong reserve levels. Also of

concern are the negative trends in Metropolitan's most important financial ratios: Debt service coverage, fixed charge coverage, and the debt/equity ratio. For example, debt service coverage and fixed charge coverage will decline from 5.7 times and 1.6 times in FY 1995, to approximately 2.0 times and 1.1 times, respectively, over the forecast period.

Key issues to be considered by the Board of Directors in its consideration of the recommendations made in the LRFP were presented at the Board's July 1998 meeting. These issues have been updated and are as follows:

Water Sales Projections

Chapter 2 shows water sales for FY 1999-00 are projected to increase about 200,000 acre-feet from FY 1998-99, while sales projections for years 1999-00 through 2001-02 are cumulatively about 300,000 acre-feet lower than estimates used in August 1998. This is mainly due to increased local water supplies from the recent above normal rainfall in Metropolitan's service area. As a result of the lower sales estimates projected water revenues over the next three years are over \$100 million lower than prior estimates.

Chapter 3 of the LRFP addresses Metropolitan's financial sensitivity to water sales. It is important to note that current projections of relatively stable and moderate water rates increases are based in part on projections of increasing retail water demands and increasing Metropolitan water sales. If such increases do not occur or are lower than projected, water rates may need to be higher than currently projected. Historically, Metropolitan's water sales have varied in the range of +/- 20 percent, which translates to revenue variations of up to \$125 million per year.

Financial Modeling

An important part of the LRFP process has been the development of a detailed financial modeling program that has allowed numerous financial scenarios to be studied. Financial projections have been made under alternative assumptions. Variables such as interest rate levels, water sales, future supply costs, construction expenditures, and water management program costs can be examined at various levels for their effect on Metropolitan's financial condition.

Capital Funding

A major focus of the LRFP is on funding the Capital Improvement Program (CIP). Metropolitan's current policy is to fund the CIP 80 percent with debt and 20 percent from current revenues on a PAYG basis. An alternative capital funding methodology being recommended would determine the mix between debt and PAYG in a more dynamic manner based on determining the PAYG levels in order to meet financial objectives. Financial constraints such as revenue bond debt service coverage, fixed charge coverage, the debt to equity ratio, short-term debt levels, credit rating strength, appropriate reserve levels and rate impacts would be examined annually to establish an optimal PAYG level within the targets and constraints set by the Board.

The analysis will be performed each year as part of the budget process, using the financial model described above, to test various levels of PAYG construction to determine the optimal level needed to maintain financial stability and strength. Current projections indicate that required PAYG levels using this method will average about 21 percent per year over the 10-year planning period. Variations over or under the 21 percent level will depend on water sales, reserve levels, CIP expenditures and changes in other financial constraints.

Reserve Levels

Metropolitan's current working capital policy is to hold \$25 million for emergency repairs and claims (the self-insured retention) and \$150 million for current year revenue shortfalls. The Water Rate Stabilization Fund (WRSF) is capped at \$200 million with amounts above the cap transferred to the PAYG Fund to meet the Board's current 20 percent PAYG policy.

To provide more rate certainty and predictability, the LRFP proposes that the working capital reserve policy be replaced with a minimum/maximum reserve policy based on probability studies of the wet periods that effect Metropolitan's water sales. The minimum reserve level would be based on an 18 month revenue shortfall estimate and the maximum level would be based on either an additional two or three years.

The reserves are necessary to provide funds in the event of lower than expected sales (and revenues) due to wet weather. An analysis of historical weather data and its impact on sales was used to estimate the net revenue impact of two or three consecutive years of wet weather. The net revenue impact is equal to approximately 17.5 percent of the fixed costs recovered by the water rate or \$318 million for a maximum reserve level defined by a "two year wet period" and \$415 million for a maximum reserve level defined by a "three year wet period". These reserve levels were tested by overlaying 70 historical hydrologies (series of years consisting of actual combinations of wet, dry and normal years) and corresponding sales levels on expected future costs. This analysis demonstrated that a maximum reserve based on a "two year wet period" has a 14 percent chance that reserves would drop below the minimum reserve level by the year 2002 and that the Board would have to take action to reduce costs or raise rates. However, if the maximum reserve level is defined by the "three year wet period" there is a 1 percent chance that reserves will fall below the minimum reserve level by the year 2002. This defines the relative levels of financial risk that the Board must consider in choosing between maximum reserve levels.

If reserve levels fall below the minimum or exceed the maximum level, the General Manager would make recommendations to the Board for action, consistent with Recommendation No. 1, to either restore the reserves or use the excess reserves for a lawful purpose. Current projections at June 30, 1999 indicate that after a forecasted \$80 million draw on the Water Rate Stabilization Fund, available reserves are estimated to be \$284 million. This would be 11 percent below the recommended two-year maximum reserve of \$318 million and 120 percent above the \$129 million minimum reserve.

Bay Delta Improvements

Bay Delta improvements are being discussed as part of the Cal-Fed process. Improvements to the Bay Delta will have a significant financial impact to Metropolitan over the next decade. Projected costs for Bay Delta improvements assume that an isolated facility is on line by 2010. If an isolated facility is on line by 2010, Metropolitan would commence payments for environmental and construction costs as soon as fiscal year 2001-02. The cost for fiscal year 2001-02 is projected to be \$31 million, and the annual cost for each year thereafter is projected to be \$62 million.

Headquarters Building Financing

The construction of Metropolitan's new headquarters building was financed from the General Fund. As discussed in Chapter 6, a number of financing options were evaluated including a lease-

leaseback financing arrangement and the use of the MWD Asset Financing Corporation to issue fixed and/or variable rate debt. Given Metropolitan's current reserve levels and increasing debt service costs, staff is recommending not to proceed with a headquarters financing. Even without issuing debt for the Headquarters Building, Metropolitan's debt service costs are projected to increase to \$306 million by fiscal year 2007-08, this is approximately a 65 percent increase over current levels.

Eastside Reservoir Cost Increase

The projected cost of the Eastside Reservoir Project has increased by \$220 million over the original project estimate of \$1.97 billion. The projected cost increases for the project may result in increased financing costs to Metropolitan. If the \$220 million cost increase is funded from debt, then beginning in FY 2000-01, debt service payments will increase by approximately \$13 million per year. Current projections indicate that the additional financing costs can be covered from funds available in the Water Rate Stabilization Fund with no additional impact on water rates.

Industry Restructuring

There is the possibility that the water industry may undergo significant changes with increased competition in a manner similar to the electric industry. In order for Metropolitan to position itself to survive in a more competitive environment, it is imperative that decisions made now be prudent and farsighted. Water rates, debt levels, credit ratings, and other balance sheet considerations need to be controlled with competition in mind. Metropolitan should consider steps to reduce its debt to equity ratio in order to strengthen its competitive position in the water industry. Increasing debt levels should be controlled through the use of appropriate levels of PAYG and careful consideration of future capital expenditures.

Other Considerations

The LRFP also recommends the establishment of a separate restricted fund, the Self-Insured Retention Fund, to hold \$25 million for emergency repairs and claims against Metropolitan, and a realignment of Metropolitan's cash flow to make the Water Rate Stabilization Fund (WRSF) the final fund in the cash flow. The \$200 million cap on the WRSF would be removed. This will allow the maximum reserve level in Recommendation 1 to be held in the WRSF and be used for the purposes described.

Also, as part of the alternative flow of funds, the fiscal year ending balance required in the PAYG Fund will be changed from 100 percent to 50 percent of the amount budgeted for PAYG expenditures from current revenues for the following fiscal year. This will provide adequate cash flow for the PAYG program without holding a higher reserve level than needed.

The LRFP is a dynamic document to be updated on a periodic basis as financial conditions change. It is intended that the LRFP will continue to be a comprehensive reference manual covering all aspects of Metropolitan's finances. The LRFP consists of an Executive Summary, eight chapters, and six appendices. The eight chapters are:

1. Summary of Previous Long Range Finance Plan Recommendations and Actions
2. Cost and Revenue Projections

3. Financial Sensitivity to Water Sales
4. Fund Policies
5. Pay-As-You-Go Construction
6. Capital Financing Options
7. Investments
8. Risk Management

The six appendices are:

1. Capital Financing Definitions/Parameters
2. Statement of Investment Policy
3. Asset/Liability Management
4. Cash vs. Accrual Financial Reporting
5. Basic Model for Loss Forecasting
6. Glossary of Terms

Implementation of Revised Financial Policies

If the above recommendations are adopted by your Board for fiscal year 1998-99, the minimum and maximum reserve levels will be determined using the estimates of fixed costs contained in the 1999 Update of the Long Range Finance Plan covering the 18-month minimum reserve period and the following 2 years for the maximum reserve level. The 17.5 percent factor described in Recommendation 1 will be applied to the fixed cost estimates to set the minimum and maximum reserve levels.

The initial determination of the minimum and maximum reserve levels for the following fiscal years will be made as part of the Revenue Requirements estimates adopted by the Budget and Finance Committee in December of each year. The Revenue Requirement projections presented by the General Manager will include estimates of fixed costs covering the 18-month minimum reserve period and the following 2 years for the maximum reserve level. The 17.5 percent factor described in Recommendation 1 will be applied to the fixed cost estimates to set the preliminary minimum and maximum reserve levels.

During the budget process the estimates of fixed costs will be revised as appropriate based on the latest information available. The final determinations of the minimum and maximum reserve levels will be set when the Board adopts the Annual Budget in June for the following fiscal year.

For fiscal year 1998-99, the PAYG amount will remain as set by the Board in the 1998-99 Annual Budget. For the following fiscal years the initial PAYG amount will be determined during the Revenue Requirements process based on targeting Metropolitan's key financial constraints: debt service coverage, fixed charge coverage, debt to equity ratio, credit ratings, short-term debt levels

and desired reserve levels. The final budgeted PAYG amount will be set with the Board's adoption of the Annual Budget in June of each year based on the latest information available.

However, if reserve levels are higher than the maximum reserve level at the beginning of a fiscal year, those monies will be used in lieu of additional debt or to buy down existing debt, as described in Recommendation 1 to maintain Metropolitan's fixed charge coverage ratio at or above the level of 1.2 times. To the extent that this target is projected to be achieved, reserves above the maximum level would then be available for any lawful purpose.

Administrative Code Amendments

Attached as Exhibit A are proposed amendments to Metropolitan's Administrative Code consistent with the recommendations made in this letter. Additions are shown by underlining and deletions are shown with strikeouts.

California Environmental Quality Act

The recommendations contained in this letter are exempt from the provisions of the California Environmental Quality Act (CEQA) under State CEQA Guidelines 15378 (b)(5) since they constitute the creation of government funding mechanisms which do not involve commitment to any specific project which may result in a potentially significant physical impact on the environment or which will be used to fund projects which have CEQA documentation in place prior to construction of any facility or facilities.

KN/EG/mb

Attachment 9-2A

Attachment 9-2B

Attachment 9-2A**EXHIBIT A****§ 5109. Pay-As-You-Go Funding.**

To preserve debt capacity for evolving or unexpected financial needs, the Board's objective shall be to fund annually on a pay-as-you-go basis that portion of the capital program expenditures of the District sufficient to maintain stable water rates and charges, strong financial ratios and appropriate reserve levels. The amount of annual pay-as-you-go expenditures shall be determined by the Board as part of the annual budget process and shall include the costs of:

- (a) Capital facilities or projects totaling \$1,000,000 or less.
- (b) Capital assets with estimated payback periods or useful lives shorter than the calculated average life of alternative long-term bond financing.
- (c) Capital improvement program studies.
- (d) Other capital facilities or projects, or portions thereof, as determined by the Board to meet the above objective.

The costs relating to provisions (a) through (d) above shall be paid from operating revenues, including revenues derived from water standby or availability service charges or benefit assessments, and proceeds from disposals of surplus property made available for expenditure by the Board in the Pay-As-You-Go Fund

§ 5200. Funds Established.

To provide for accountability of public moneys in accordance with applicable federal and state law and regulations, bond covenants, tax and non-arbitrage certificates, bond counsel letters of instruction and Board policies, the following funds active or prospectively active have been established in the Treasury of the District:

- (a) General Fund (Fund No. 1001, established 1929). Moneys not specifically allocated or appropriated may be placed in this fund and used for general purposes of the District. Expenditures for reimbursable work and water conservation capital and indirect costs under the contract with Imperial Irrigation District are paid from this fund.
- (b) Pay-As-You-Go Fund (Fund No. 5001, established 1988). Used to finance certain capital program expenditures from current revenues in accordance with Section 5109, subject to the conditions contained in Section 5202(b).
- (c) 1931 General Obligation Bond Interest and Redemption Fund (Fund No. 3001, established 1932). Used to pay debt service on 1931 authorization general obligation bonds of the District from ad valorem property taxes subject to the conditions contained in Section 5201(a).

(d) State Contract Fund (Fund No. 5701, established 1960). Used for the payment of capital charges under the State Water Contract, including the capital charges for off-aqueduct power facilities, subject to the conditions contained in Section 5201(d).

(e) Special Tax Fund (Fund No. 5702, established 1951). Annexation fees (cash payments and special tax collections) are deposited in this fund and transferred to the State Contract Fund to pay a portion of State Water Contract capital charges.

(f) Replacement Reserve Fund (Fund No. 6002, established 1960, inactive as of 1967). May be used to set aside funds for the purchase of replacements.

(g) 1966 General Obligation Bond Construction Fund (Fund No. 4502, established 1967). Proceeds from the sale of District general obligation bonds are deposited in this fund and are applied exclusively to the purposes for which the bonds were authorized.

(h) 1966 General Obligation Bond Interest and Principal Fund (Fund No. 3002, established 1967). Used to pay debt service on District 1966 authorization general obligation bonds from ad valorem property taxes subject to the conditions contained in Section 5201(a).

(i) Optional General Obligation Bond Redemption Fund (Fund No. 3006 established 1980, amended 1993). Used for the purpose of redeeming untendered refunded general obligation bonds.

(j) Waterworks Revenue Bond Construction Fund (Fund No. 4001, established 1975). Proceeds from the sale of revenue bonds issued prior to 1987 (the Prior Lien Waterworks Revenue Bonds) were deposited in this fund and are applied exclusively to the purposes for which the bonds were authorized.

(k) Water Revenue Fund (Fund No. 1002, established 1975). Receipts from water sales are deposited in this fund and are transferred to various other funds in accordance with revenue bond covenants and Board resolutions to pay in order of priority:

- (1) Operation and maintenance expenditures;
- (2) Principal of, premium, if any, and interest on the Prior Lien Waterworks Revenue Bonds and any required deposits into any reserve funds or accounts therefore;
- (3) The interest on and bond obligation of Subordinate Lien Water Revenue Bonds and Parity Obligations issued pursuant to Master Resolution 8329 (the Master Resolution) adopted by the Board on July 9, 1991 and any Supplemental Resolutions thereto;
- (4) All other payments required for compliance with the Master Resolution, and any Supplemental Resolutions;
- (5) Principal of and interest on Commercial Paper Notes and other amounts due a provider of a liquidity facility;

(6) Deposits into the Water Standby Charge Fund in accordance with resolutions imposing such charges; and

(7) Any other obligations which are charges, liens, or encumbrances upon or payable from net operating revenues.

Moneys remaining at the end of the each month, after the foregoing transfers, are transferred to the Revenue Remainder Fund.

(l) Operation and Maintenance Fund (Fund No. 1003, established 1975). Used to pay all operation and maintenance expenditures, including State Water Contract operation, maintenance, power and replacement charges, subject to the conditions contained in Section 5201(f).

(m) Waterworks Revenue Bond Interest and Principal Fund (Fund No. 2001, established 1975). Used to pay the debt service on Prior Lien Waterworks Revenue Bonds of the District, subject to the conditions contained in Section 5201(b).

(n) Waterworks Revenue Bond Reserve Fund (Fund No. 2501, established 1975). Used to maintain debt service reserve for Prior Lien Waterworks Revenue Bonds, subject to the conditions contained in Section 5201(b).

(o) Revenue Remainder Fund (Fund No. 1004, established 1975). Used to maintain working capital and certain designated funds in accordance with Section 5200(k), and may be used for any lawful purpose by the District, subject to the conditions contained in Section 5202.

(p) Note Interest and Principal Fund (Fund No. 2004, established 1981). Used to pay debt service on District revenue bond anticipation notes, in accordance with covenants for such notes.

(q) Optional Revenue Bond Redemption Fund 1975 (Fund No. 2006, established 1985, amended 1993). Used for the purpose of redeeming the untendered refunded revenue bonds.

(r) Water Rate Stabilization Fund (Fund No. 5501, established 1987). Used to reduce future water revenue requirements or, as directed by the Board, for other lawful purposes, in accordance with Section 5202.

(s) Water Treatment Surcharge Stabilization Fund (Fund No. 5502, established 1988). Used to mitigate required increases in the surcharge for water treatment or, as directed by the Board, for other lawful purposes, in accordance with Section 5202.

(t) Revolving Construction Fund (Fund No. 5003, established 1988). Capital expenditures made from this fund are to be reimbursed from proceeds of security sales to the extent such expenditures are authorized uses of debt proceeds under the Act, subject to the conditions and restrictions contained in Section 5201(g).

(u) Series G 1966 General Obligation Bond Construction Fund (Fund No. 4504, established 1989). Proceeds from the sale of the District's Series G 1966 General Obligation

bonds are deposited in this fund and applied exclusively to the purposes for which the bonds were authorized.

(v) Series G 1966 General Obligation Bond Interest and Principal Fund (Fund No. 3008, established 1989). Used to pay debt service on the District's Series G 1966 General Obligation bonds from ad valorem taxes subject to the conditions contained in Section 5201(a).

(w) Series G 1966 General Obligation Bond Excess Earnings Fund (Fund No. 6001, established 1990). Used to separately hold rebatable arbitrage interest earnings transferred from the Series G 1966 General Obligation Bond Construction Fund, computed on an annual basis in accordance with federal regulations.

(x) Series G 1966 General Obligation Bond Reserve for Interest and Principal Fund (Fund No. 3009, established 1990). Used to satisfy debt service requirements if there are insufficient funds available in the Series G 1966 General Obligation Bond Interest and Principal Fund.

(y) Employee Deferred Compensation Fund (Fund No. 6003, established 1976). Compensation deferred by employees under Section 457 of the Internal Revenue Code of 1986, as amended, is deposited in this fund and is withdrawn in accordance with Articles 2 and 3 of Chapter 7 of Division VI of this Administrative Code.

(z) San Joaquin Reservoir Fund (Fund No. 6004, established 1980). Used for the purposes contained in the San Joaquin Reservoir Trust Agreement between the District and the other entities who share joint ownership of the facility.

(aa) Iron Mountain Landfill Closure/Postclosure Maintenance Trust Fund (Fund No. 6005, established 1990). Used as a trust fund to maintain moneys sufficient to cover the costs of closure and postclosure maintenance of the District's solid waste landfill facility at Iron Mountain, in accordance with regulations of the California Integrated Waste Management Board, and subject to the conditions contained in Section 5201(l).

(bb) Commercial Paper Note Series A, Construction Fund (Fund No. 5004, established 1991). Proceeds from the sale of Series A, commercial paper are deposited in this fund and are applied exclusively to the purposes for which the notes were authorized.

(cc) Commercial Paper Note, Series A, Payment Fund (Fund No. 3501, established 1991). Used to pay debt service on commercial paper of the District, subject to the conditions contained in Section 5201(h).

(dd) Commercial Paper Note, Series A, Excess Earnings Fund (Fund No. 6006, established 1991). Used to separately hold rebatable arbitrage interest earnings transferred from the Commercial Paper Note Series A Construction Fund, computed on an annual basis in accordance with federal regulations.

(ee) Water Revenue Bonds, Issue of 1991 Construction Fund (Fund No. 4002, established 1991). Net proceeds from the sale of these subordinate revenue bonds were deposited in this fund and are used exclusively for the purposes for which the bonds were authorized.

(ff) Water Revenue Bond Service Fund (Fund No. 2009, established 1991). Used to pay debt service on subordinate water revenue bonds after payment of Prior Lien Waterworks Revenue Bonds, including reimbursement of any payments made by providers of credit as liquidity enhancement for the bonds.

(gg) Water Revenue Bonds, Issue of 1991 Reserve Fund (Fund No. 2502, established 1991). Proceeds from the sale of these subordinate revenue bonds, in an amount equal to the 1991 Bond Reserve Requirement, were deposited in this fund. Used to satisfy debt service requirements if there are insufficient funds available in the Water Revenue Bond Service Fund.

(hh) Water Revenue Bonds, Issue of 1991 Excess Earnings Fund (Fund No. 6007, established 1991). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the First Supplemental Resolution for these subordinate bonds.

(ii) Water Standby Charge Fund (Fund No. 1005, established 1992). Used to separately hold revenues attributable to water standby charges; amounts deposited in this fund are used exclusively for the purpose for which the water standby charge was authorized.

(jj) Water Revenue Bonds, Issue of 1992 Construction Fund (Fund No. 4003, established 1992). Net proceeds from the sale of these subordinate revenue bonds were deposited in this fund and are used exclusively for the purposes for which the bonds were authorized.

(kk) Water Revenue Bonds, Issue of 1992 Reserve Fund (Fund No. 2503, established 1992). Proceeds from the sale of these subordinate bonds, in an amount equal to the 1992 Bond Reserve Requirement, were deposited into this fund. Used to satisfy debt service requirements if there are insufficient funds available in the Water Revenue Bond Service Fund.

(ll) Water Revenue Bonds, Issue of 1992 Excess Earnings Fund (Fund No. 6008, established 1992). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Second Supplemental Resolution for these subordinate bonds.

(mm) Water Revenue Refunding Bonds, 1993 Series A Interest and Principal Fund (Fund No. 2010, established 1993). Used to pay debt service on the subordinate water revenue refunding bonds after payment of Prior Lien Revenue Bonds.

(nn) Water Revenue Refunding Bonds, 1993 Series A Excess Earnings Fund (Fund No. 6009, established 1993). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Fourth Supplemental Resolution for these refunding bonds.

(oo) Water Revenue Refunding Bonds, 1993 Series A Construction Fund (Fund No. 4004, established 1993). Funds released from the Water Revenue Bond Reserve Fund due to the reduction in reserve requirements are deposited to this fund and used exclusively for construction purposes.

(pp) Waterworks General Obligation Refunding Bonds, 1993 Series, A3, Interest and Principal Fund (Fund No. 3010, established 1993). Used to pay debt service on the District's 1993 Series A3, general obligation refunding bonds.

(qq) Waterworks General Obligation Refunding Bonds, 1993 Series, Excess Earnings Fund (Fund No. 6010, established 1993). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Resolution for these refunding bonds.

(rr) Waterworks General Obligation Refunding Bonds, 1993 Series A1 and A2, Escrow Account Fund (Fund No. 6011, established 1993). Proceeds from the sale of the 1993 Series A1 and A2, general obligation refunding bonds are deposited in this fund and used to pay debt service on the 1993 Series A1 and A2, general obligation refunding bonds through March 1, 1999 and March 1, 1996, respectively. At these dates the funds available will be used to effect partial refunding of certain bonds for which the bonds were issued.

(ss) Waterworks General Obligation Refunding Bonds, 1993 Series A3, Refunding Fund (Fund No. 6012, established 1993). Proceeds from the sale of the 1993 Series A3 bonds are deposited into this fund and used to defease certain maturities of outstanding prior general obligation bonds and to pay for certain costs.

(tt) Water Revenue Refunding Bonds, 1993 Series A, Refunding Fund (Fund No. 6013, established 1993). Proceeds from the sale of the 1993 Series A bonds, along with certain other available moneys of the District, are deposited into this fund and used to defease certain maturities of outstanding prior revenue bonds and to pay for certain costs.

(uu) Water Revenue Refunding Bonds, 1993 Series B, Refunding Fund (Fund No. 6014, established 1993). Proceeds from the sale of the 1993 Series B bonds, along with certain other available moneys of the District, are deposited into this fund and used to defease certain maturities of outstanding prior revenue bonds and to pay for certain costs.

(vv) Water Revenue Refunding Bonds, 1993 Series B, Interest and Principal Fund (Fund No. 2011, established 1993). Used to pay debt service on these subordinate water revenue refunding bonds after payment of Prior Lien Revenue Bonds.

(ww) Water Revenue Refunding Bonds, 1993 Series B Reserve Fund (Fund No. 2504, established 1993). Proceeds from the sale of these subordinate bonds, in an amount necessary to maintain the Bond Reserve Requirement, were deposited in this fund. Used to satisfy debt service requirements if there are insufficient funds available in the Water Revenue Refunding Bonds, 1993 Series B Interest and Principal Fund.

(xx) Water Revenue Refunding Bonds, 1993 Series B Excess Earnings Fund (Fund No. 6015, established 1993). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Fourth Supplemental Resolution for these refunding bonds.

(yy) Waterworks General Obligation Refunding Bonds, 1993 Series B Refunding Fund (Fund No. 6016, established 1993). Proceeds from the sale of the 1993 Series B Bonds are deposited into this fund and used to defease certain maturities of outstanding prior general obligation bonds and to pay for certain costs.

(zz) Waterworks General Obligation Refunding Bonds, 1993 Series B Interest and Principal Fund (Fund No. 3011, established 1993). Used to pay debt service on the District's 1993 Series B general obligation refunding bonds.

(aaa) Waterworks General Obligation Refunding Bonds, 1993 Series B Excess Earnings Fund (Fund No. 6017, established 1993). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Fourth Supplemental Resolution for these refunding bonds.

(bbb) Water Transfer Fund (Fund No. 1007, established 1995). Used for moneys set aside for the purchase of water through transfers or similar arrangements, and for the costs of filling the Eastside Reservoir Project.

(ccc) Water Revenue Bonds, 1995, Series A Interest and Principal Fund (Fund No. 2012, established 1995). Used to pay debt service on these subordinate water revenue refunding bonds after payment of debt service on Prior Lien Revenue Bonds.

(ddd) Water Revenue Bonds, 1995, Series A Construction Fund (Fund No. 4005, established 1995). Net proceeds from the sale of these subordinate revenue bonds were deposited in this fund and are used to pay costs of construction of the District's capital improvement program.

(eee) Water Revenue Bonds, 1995 Series A Excess Earnings Fund (Fund No. 6018, established 1995). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Sixth Supplemental Resolution for these bonds.

(fff) Commercial Paper, Series B, Note Payment Fund (Fund No. 3502, established 1995). Used to pay debt service on Series B commercial paper notes of the District, subject to the conditions contained in Section 5201(h).

(ggg) Commercial Paper Note, Series B Construction Fund (Fund No. 5005, established 1995). Proceeds from the sale of Series B commercial paper notes are deposited in this fund and are applied exclusively to the purposes for which the notes were authorized.

(hhh) Commercial Paper Note, Series B Excess Earnings Fund (Fund No. 6019, established 1995). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and resolutions authorizing these notes.

(iii) Water Revenue Refunding Bonds, 1996 Series B Interest and Principal Funds (Fund No. 2013, established 1996). Used to pay debt series on these subordinate water revenue refunding bonds after payment of debt service on Prior Lien Revenue Bonds.

(jjj) Water Revenue Refunding Bonds, 1996 Series B Reserve Fund (Fund No. 2505, established 1996). Proceeds from the sale of these subordinate revenue bonds in an amount equal to the Bond Reserve Requirement of fifty percent of maximum annual debt service on the 1996 Series B Bonds, were deposited and are required to be maintained in this fund.

(kkk) Water Revenue Refunding Bonds, 1996 Series B Excess Earnings Fund (Fund No. 6021, established 1996). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Fourth Supplemental Resolution for these refunding bonds.

(lll) Water Revenue Refunding Bonds, 1996 Series A, Interest and Principal Fund (Fund No. 2014, established 1996). Used to pay debt service on these subordinate water revenue refunding bonds after payment of debt service on Prior Lien Revenue Bonds.

(mmm) Water Revenue Refunding Bonds, 1996 Series A Excess Earnings Fund (Fund No. 6023, established 1996). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provision of the Tax and Nonarbitrage Certificate and the Fifth Supplemental Resolution for these refunding bonds.

(nnn) Water Revenue Bonds, 1996 Series C, Interest and Principal Fund (Fund No. 2015, established 1996). Used to pay debt service on these subordinate water revenue bonds after payment of debt service on Prior Lien Revenue Bonds.

(ooo) Water Revenue Bonds, 1996 Series C Construction Fund (Fund No. 4006 established 1996). Net proceeds from the sale of these subordinate revenue bonds were deposited in this fund and are used to pay costs of construction of the District's capital improvement program.

(ppp) Water Revenue Bonds, 1996 Series C Excess Earnings Fund (Fund No. 6025, established 1996). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Seventh Supplemental Resolution for these bonds.

(qqq) Water Revenue Bonds, 1997 Authorization, Series A, Interest and Principal Fund (Fund No. 2016, established 1997). Used to pay debt service on these subordinate water revenue bonds after payment of debt service on Prior Lien Revenue Bonds.

(rrr) Water Revenue Bonds, 1997 Authorization, Series A Construction Fund (Fund No. 4007, established 1997). Net proceeds from the sale of these subordinate revenue bonds were deposited in this fund and are used to pay cost of construction of the District's capital improvement program and certain costs of issuance of these bonds.

(sss) Water Revenue Bonds, 1997 Authorization, Series A Excess Earnings Fund (Fund No. 6026, established 1997). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Eighth Supplemental Resolution for these bonds.

(ttt) Water Revenue Bonds, 1997 Authorization, Series B Construction Fund (Fund No. 4008, established 1998). Net proceeds from the sale of these subordinate revenue bonds were deposited in this fund and are used to pay cost of construction of the District's capital improvement program and certain costs of issuance of these bonds.

(uuu) Water Revenue Bonds, 1997 Authorization, Series B, Interest and Principal Fund (Fund No. 2017, established 1998). Used to pay debt service on these subordinate water revenue bonds after payment of debt service on Prior Lien Revenue Bonds

(vvv) Water Revenue Bonds, 1997, Authorization, Series B Reserve Fund (Fund No. 2507, established 1998). Proceeds from the sale of these subordinate revenue bonds in an amount equal to the Bond Reserve Requirement of \$1,000,000 were deposited and are required to be maintained in this fund.

(www) Water Revenue Bonds, 1997 Authorization, Series B Excess Earnings Fund (Fund No. 6027, established 1998). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Eighth Supplemental Resolution for these bonds.

(xxx) Water Revenue Bonds, 1997 Authorization, Series C Construction fund (Fund No. 4009, established 1998). Net proceeds from the sale of these subordinate revenue bonds were deposited in this fund and are used to pay cost of construction of the District's capital improvement program and certain costs of issuance of these bonds.

(yyy) Water Revenue Bonds, 1997 Authorization, Series C, Interest and Principal Fund (Fund No. 2018, established 1998). Used to pay debt service on these subordinate water revenue bonds after payment of debt service on Prior Lien Revenue Bonds.

(zzz) Water Revenue Bonds, 1997 Authorization Series C Reserve Fund (Fund No. 2508, established 1998). Proceeds from the sale of these subordinate revenue bonds in an amount equal to the Bond Reserve Requirement of \$1,000,000 were deposited and are required to be maintained in this fund.

(aaaa) Water Revenue Bonds, 1997 Authorization, Series C Excess Earnings Fund (Fund No. 6028, established 1998). Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Eighth Supplemental Resolution for these bonds.

(bbbb) Water Revenue Refunding Bonds, 1998 Series A Interest and Principal fund (fund No. 2019, Established 1998.) Used to pay debt service on these water revenue bonds.

(cccc) Water Revenue Refunding Bonds, 1998 Series A Reserve Fund (Fund No. 2509, established 1998.) Proceeds from the sale of these revenue bonds in an amount equal to the Bond Reserve Requirement of \$15,000,000 were deposited and are required to be maintained in this fund.

(dddd) Water Revenue Refunding Bonds, 1998 Series A Excess Earnings Fund (Fund No. amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Fourth Supplemental Resolution for these bonds.

(eeee) Costs of Issuance Funds (Fund No. 6035, established 1998.) Net proceeds from the sale of the Water Revenue Refunding Bonds, 1998 Series A, Waterworks General Obligation Refunding Bonds, 1998 Series A and Waterworks General Obligation Bonds, Election 1966, Series H were separately deposited in this fund and are used to pay certain costs of issuance of the particular bond issue with respect to which they were deposited.

(ffff) Waterworks General Obligation Refunding Bonds, 1998 Series A, Interest and Principal Fund (Fund No. 3013, established 1998.) Used to pay debt service on these general obligation refunding bonds.

(gggg) Waterworks General Obligation Refunding Bonds, 1998 Series A Excess Earnings Fund (Fund No. 6032, established 1998.) Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Resolution for these bonds.

(hhhh) Series H 1996 General Obligation Bond Interest and Principal Fund (Fund No. 3014, established 1998.) Used to pay debt service on these general obligation bonds.

(iiii) Series H 1966 General Obligation Bond Construction fund (Fund No. 4505, established 1998.) Net proceeds from the sale of the Series H 1966 general obligation bonds were deposited in this fund and are applied exclusively to the purposes for which such bonds were authorized, as provided in Ordinance No. 105.

(jjjj) Series H 1996 General Obligation Bond Excess Earnings Fund (Fund No. 6033, established 1998.) Used to separately hold in trust for payment to the Federal Government amounts deposited in accordance with the provisions of the Tax and Nonarbitrage Certificate and the Resolution for these bonds.

(kkkk) Self-Insured Retention Fund (Fund No. 6029, established 1999). Used to separately hold amounts set aside for emergency repairs and claims against the District, as provided in Section 5201(o).

§ 5201. Restricted Funds.

Cash and securities to be held in the various ledger funds shall be as follows:

(a) For the 1931 General Obligation Bond Interest and Redemption Fund and the 1966 General Obligation Bond Interest and Principal Fund, the Series G 1966 General Obligation Bond Interest and Principal Fund, the Waterworks General Obligation Refunding Bonds, 1993 Series A and Series B, Interest and Principal Fund, the Waterworks General Obligation Refunding Bonds, 1998 Series A Interest and Principal fund, and the Series H 1966 General Obligation Bond Interest and Principal fund, the cash and securities in each as of June 30, shall be at least equal to the debt service for the ensuing 18 months, less revenues anticipated to be derived from the next succeeding tax levy specifically for such debt service.

(b) For the Waterworks Revenue Bond Interest and Principal Fund, the Water Revenue Bond Service Fund, the Waterworks Revenue Bond Reserve Fund, the Water Revenue Bonds, Issue of 1991 Reserve Fund, the Water Revenue Bonds, Issue of 1992 Reserve Fund, the Waterworks General Obligation Refunding Bonds, 1993 Series A and Series B Interest and Principal Funds, the Water Revenue Refunding Bonds, 1993 Series B Reserve Fund, the Water Revenue Refunding Bonds, 1996 Series B Reserve Fund, the Water Revenue Bonds, 1997 Authorization, Series B Reserve Fund, the Water Revenue Bonds, 1997 Authorization, Series C Reserve Fund and the Water Revenue Refunding Bonds, 1998 Series A Reserve Fund, cash and securities in each shall be at least equal to the minimums required by the resolutions of issuance for such bonds.

(c) For the 1966 General Obligation Bond Construction Fund, the Series G 1966 General Obligation Bond Construction Fund, the Waterworks Revenue Bond Construction Fund, the Commercial Paper Note Series A Construction Fund, the Water Revenue Bonds, Issue of

1991 Construction Fund, the Water Revenue Bonds, Issue of 1992 Construction Fund, the Water Revenue Refunding Bonds, 1993 Series A Construction Fund, the Water Revenue Bonds, 1995 Series A Construction Fund, the Commercial Paper Note, Series B Construction Fund, the Water Revenue Bonds, 1996 Series C Construction Fund, the Water Revenue Bonds, 1997 Authorization, Series A Construction Fund, the Water Revenue Bonds, 1997 Authorization, Series B Construction Fund and the Water Revenue Bonds, 1997 Authorization, Series C Construction Fund and the Series H 1996 General Obligation Bond Construction Fund, there shall be no minimum requirements; provided that any cash and securities in such funds shall be restricted to use for the purposes such finances were required.

(d) For the State Contract Fund, cash and securities on hand June 30 and December 31 shall equal the capital payments to the State Department of Water Resources that are due on July 1 of the same year and January 1 of the following year, respectively.

(e) For the Special Tax Fund, there shall be no minimum requirement.

(f) For the Operation and Maintenance Fund, cash and securities shall be at least equal to the minimum required by the resolutions of issuance for revenue bonds.

(g) For the Revolving Construction Fund, there shall be no minimum requirement. Cash and securities in this fund, unless restricted as to use by resolution of the Board, shall be available for transfer to the Water Rate Stabilization Fund and the Water Treatment Surcharge Stabilization Fund at the discretion of the Board.

(h) For the Commercial Paper, Series A, Note Payment Fund, and the Commercial Paper, Series B, Note Payment Fund, the District shall deposit amounts sufficient to pay principal of, and interest on, such Commercial Paper Notes in an amount at least equal to one-half of the projected interest payments due on such notes in the subsequent fiscal year.

(i) For the Water Standby Charge Fund, there shall be no minimum requirement; provided that any cash and securities in such fund shall be restricted to use for the purposes such moneys were authorized.

(j) For the Series G 1966 G.O. Bond Excess Earnings Fund, the Commercial Paper Note, Series A and Series B Excess Earnings Funds, the Water Revenue Bond Issue of 1991 and Issue of 1992 Excess Earnings Funds, the Water Revenue Refunding Bonds, 1993 Series A and Series B Excess Earnings Funds the Waterworks General Obligation Refunding Bonds, 1993 Series A and Series B Excess Earning Funds, the Water Revenue Bonds, 1995 Series A Excess Earnings Fund, the Water Revenue Refunding Bonds, 1996 Series A and B Excess Earning Funds, the Water Revenue Bonds, 1996 Series C Excess Earnings Fund, the Water Revenue Bonds, 1997 Authorization, Series A Excess Earnings fund, the Water Revenue Bonds, 1997 Authorization, Series B Excess Earnings Fund, the Water Revenue Bonds, 1997 Authorization , Series C Excess Earnings Fund, the Water Revenue Refunding Bonds, 1998 Series A Excess Earnings Fund, the Waterworks General Obligation Refunding Bonds, 1998 Series A Excess Earnings Fund and the Series H 1996 General Obligation Bond Excess Earnings Fund, the minimum requirement shall be the amounts deposited into this fund in accordance with the provisions of the Tax and Nonarbitrage Certificates and Resolutions for the Bonds.

(k) For the Waterworks General Obligation Refunding Bonds, 1993 Series A1 and A2, Escrow Account Fund, the minimum requirement shall be the amounts necessary to pay the principal, if any, and the interest on the Series A1 and A2 Bonds to the crossover date, and to defease certain maturities of outstanding prior general obligation bonds.

(l) For the Iron Mountain Landfill Closure/Postclosure Maintenance Trust Fund, cash and securities as of June 30, shall be at least equal to the General Manager's latest estimates of closure and postclosure maintenance costs.

(m) For the Optional General Obligation Bond Redemption Fund and the Optional Revenue Bond Redemption Fund, the minimum requirement shall be the amount necessary to redeem such untendered, refunded bonds which have been called for redemption.

(n) For the Water Transfer Fund, all amounts budgeted or pledged for purchase of water through transfers or similar arrangements, and for the costs of filling the Eastside Reservoir Project, shall be set aside in such fund and used solely for such purpose. On July 1, 2004, any amount remaining shall be transferred to the Water Rate Stabilization Fund.

(o) For the Self-Insured Retention Fund, all amounts in such fund shall be set aside and used solely for emergency repairs and claims against the District. The minimum cash and securities to be held in such fund as of June 30 of each year shall be \$25 million.

§ 5202. Fund Parameters.

The minimum cash and securities to be held in the various ledger funds as of June 30 of each year shall be as follows: (a) For the Revenue Remainder Fund, cash and securities on hand on June 30 of each year shall be equal to the portion of fixed costs of the District estimated to be recovered by water sales revenues for the eighteen months beginning with the immediately succeeding July 1. Such funds are to be used in the event that revenues are insufficient to pay the costs of the District.

(b) For the Pay-As-You-Go Fund, cash and securities on hand on June 30 of each year shall be at least equal to one-half of the estimated amount needed to fund pay-as-you-go expenditures, as defined in Section 5109, during the next fiscal year.

(c) Amounts remaining in the Revenue Remainder Fund and Pay-As-You-Go Fund collectively on June 30 of each year after meeting the requirements set forth in Section 5202(a) and (b) shall be transferred to the Water Rate Stabilization Fund and, to the extent required under Section 5202(d), to the Water Treatment Surcharge Stabilization Fund.

(d) After making the transfer of funds as set forth in Section 5202(c), a determination shall be made to substantially identify the portion, if any, of such transferred funds attributable to collections of treatment surcharge revenue in excess of water treatment cost. Such funds shall be transferred to the Water Treatment Surcharge Stabilization Fund to be available for the principal purpose of mitigating required increases in the surcharge for water treatment. If such determination indicates a deficiency in treatment surcharge revenue occurred during the fiscal year, a transfer of funds shall be made from the Water Treatment Surcharge Stabilization Fund as needed to reimburse funds used for the deficiency. Notwithstanding the principal purpose of the

Water Treatment Surcharge Stabilization Fund, amounts assigned to this fund shall be available for any other lawful purpose of the District.

(e) Amounts in the Water Rate Stabilization Fund shall be held for the principal purpose of maintaining stable and predictable water rates and charges. The amount to be held in the Water Rate Stabilization Fund shall be targeted to be equal to the portion of the fixed costs of the District estimated to be recovered by water sales revenues during the two years immediately following the eighteen-month period referenced in Section 5202(a). Funds in excess of such targeted amount shall be utilized for capital expenditures of the District, in lieu of the issuance of additional debt, or for the redemption, defeasance or purchase of outstanding bonds or commercial paper of the District, as determined by the Board. Provided that the District's fixed charge coverage ratio is at or above 1.2, amounts in the Water Rate Stabilization Fund may be expended for any lawful purpose of the District.

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Attachment 9-2B

**The following 176 pages are attachments to
Board Letter Item 9-2**



METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

L O N G
R A N G E
F I N A N C E
P L A N

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LONG RANGE FINANCE PLAN 1999 UPDATE EXECUTIVE SUMMARY

PURPOSE

The 1999 update to the Metropolitan Water District's Long Range Finance Plan is the fourth update of the original Long Range Finance Plan. The original plan was completed in December 1986 and followed by updates in 1987, 1988 and 1995.

The 1999 update presents a comprehensive strategy for financing the operating and capital programs of the District in an efficient and economical manner using the financial tools legally available. Detailed cost, revenue and rate projections are included to show the effects of the financing strategy within the context of the District's overall financial operations. The overall goal of the District's financial planning is to maintain flexibility to deal with changing conditions within a framework of solid financial policies and ensure a reliable high quality water supply for Southern California at the lowest possible cost.

The 1999 update has been a dynamic cooperative process involving Metropolitan's staff, the Board of Directors (through the Budget and Finance Committee) and the member agencies (through the MWD/Member Agency Finance Work Group). The October 1997 report from the MWD/Member Agency Finance Work Group and the third party financial assessments prepared by the accounting firm of KPMG Peat Marwick and the Barrington Wellesley Group (an outside consultant hired by a member agency) have been an important part of the process.

METROPOLITAN'S FINANCIAL CHALLENGES

There are indications that Metropolitan's financial strength is weakening. Projections show that increasing fixed costs associated with the Capital Improvement Program, the State Water Project, Colorado River supplies and the Bay-Delta improvements could lead to the erosion of efforts to control water rates and charges to the member agencies. As fixed costs increase, the mismatch between fixed costs and variable water revenues increases and makes it more important to maintain strong reserve levels. Also of concern are the negative trends in Metropolitan's most important financial ratios: debt service coverage, fixed charge coverage, and the debt/equity ratio. Revenue bond debt service coverage has dropped to 3.4 times from a level of 7.4 times five years ago, and is

projected to drop to 2.0 times during the next ten years. Fixed charge coverage is currently 1.6 times and is projected to drop to 1.1 times during the next ten years (fixed charge coverage refers to Metropolitan's ability to pay all debt service payments plus the capital component of the State Water Contract from net operating revenues). Metropolitan's revenue bond and commercial paper debt/equity ratio has risen to 71 percent from a level of 51 percent five years ago, and is projected to increase to 74 percent during the next ten years. The LRFP seeks to address these issues and provide solutions that will best serve Metropolitan's customers.

In the numerous meetings held with the FWG to ensure that the interests and concerns of the member agencies are thoroughly addressed in the LRFP, all parties agreed on the importance of keeping Metropolitan's financial condition strong to maintain its high credit quality. This is important for Metropolitan to continue to provide service to its customers at the lowest possible cost. Within this context the following major issues emerged:

◆ WATER SALES PROJECTIONS

Chapter 3 of the LRFP addresses Metropolitan's financial sensitivity to water sales. Such factors as population growth, economic growth, conservation, local supplies, Los Angeles Aqueduct deliveries and groundwater production are important variables affecting Metropolitan's water sales. It is important to note that projections of relatively stable and moderate water rate increases are based in part on projections of increasing retail water demands and increasing Metropolitan water sales. If such increases do not occur or are lower than projected, water rates may need to be higher than currently projected. Historically, Metropolitan's water sales on an annual basis have varied in the range of +/- 20 percent, which translates to revenue variations of up to \$125 million per year.

Water sales for the 1997-98 cash year (May 1997 through April 1998) were 121,000 acre-feet below the budgeted amount of 1.75 million acre-feet, reflecting above normal rainfall during the year. Because of the recharge of local surface and groundwater storage, the current estimate of Metropolitan cash water sales for 1998-99 has been reduced to 1.5 million acre-feet from the original estimate of 1.83 million acre feet. This underscores the importance of establishing a sound revenue shortfall reserve policy.

◆ FINANCIAL MODELING

An important part of the LRFP process has been the enhancement of Metropolitan's detailed financial modeling program that has allowed numerous financial scenarios to be studied. Financial projections have been made under alternative assumptions. Variables such as interest rate levels, water sales, future supply costs, construction expenditures and water management program costs can be examined at various levels for their effect on Metropolitan's financial condition. As discussed in Chapter 5, financial modeling will play an important role in determining future Pay-As-You-Go (PAYG) construction levels.

◆ CAPITAL FUNDING

Funding the Capital Improvement Program (CIP) is a major focus of the LRFP. Metropolitan's current policy is to fund the CIP 80 percent with debt and 20 percent from current revenues on a PAYG basis. The recommended alternative capital funding methodology being recommended would determine the mix between debt and PAYG in a more dynamic manner based on determining the PAYG levels in order to meet financial objectives. Financial constraints and goals such as revenue bond debt service coverage, fixed charge coverage, the debt to equity ratio, short-term debt levels, credit rating strength, appropriate and desired reserve levels and rate impacts would be examined annually to establish an optimal PAYG level within the targets and constraints set by the Board.

The analysis will be performed each year as part of the budget process, using the financial model described above to test various levels of PAYG construction to determine the optimal level needed to maintain financial stability and strength. Current projections indicate that required PAYG levels using this method will average about 21 percent per year over the 10-year planning period. Variations over or under the 21 percent level will depend on water sales, reserve levels, CIP expenditures and changes in other financial constraints.

◆ RESERVE LEVELS

Metropolitan's current working capital policy is to hold \$25 million for emergency repairs and claims (the self-insured retention) and \$150 million for current year revenue shortfalls. The Water Rate Stabilization Fund (WRSF) is capped at \$200 million with amounts above the cap transferred to the PAYG Fund to meet the Board's current 20 percent PAYG policy.

To provide more rate certainty and predictability, the LRFP proposes that the working capital reserve policy be replaced with a minimum/maximum reserve policy based on probability studies of the wet and dry periods that affect Metropolitan's water sales. The minimum reserve level would be based on an 18 month revenue shortfall estimate and the maximum level would be based on either an additional two or three years. wet period.

The reserves are necessary to provide funds in the event of lower than expected sales (and revenues) due to wet weather. An analysis of historical weather data and its impact on sales was used to estimate the net revenue impact of two or three consecutive years of wet weather. As referenced in Table 5, page 4-19, the net revenue impact is equal to approximately 17.5 percent of the fixed costs recovered by the water rate. This equals \$318 million for a maximum reserve level defined by a "two year wet period" and \$415 million for a maximum reserve level defined by a "three year wet period." These reserve levels were tested by overlaying 70 historical hydrologies (series of years consisting of actual combinations of wet, dry and normal years) and corresponding sales levels on expected future costs. This analysis demonstrated that a maximum reserve based on a "two year wet period" has a 14 percent chance that reserves would drop below the minimum reserve level by the year 2002 and that the Board would have to take action to reduce costs or raise rates. However, if the maximum

reserve level is defined by the "three year wet period" there is a 1 percent chance that reserves will fall below the minimum reserve level by the year 2002. This defines the relative levels of financial risk that the Board must consider in choosing between maximum reserve levels.

Studies have shown that using a percentage of projected fixed costs to determine the reserve amounts closely reflects the reserve amounts determined in the probability studies contained in Chapter 4. Historically, Metropolitan's water sales have varied from estimates by as much as a range of +/- 20 percent per year. Using 17.5 percent to set reserve levels near the levels determined by the statistical analysis, the minimum 18-month reserve would be \$129 million, the two year wet period maximum reserve level would be \$318 million, and the three year wet period maximum reserve level would be \$415 million. The percentage of fixed costs method makes the calculation of reserve levels simpler and easier to understand.

If reserve levels fall below the minimum or exceed the maximum level, the General Manager would make recommendations to the Board for action, consistent with Recommendation No. 1, to either restore the reserves or use the excess reserves for a lawful purpose.

◆ HEADQUARTERS BUILDING FINANCING

The construction of Metropolitan's new headquarters building was financed from the General Fund. As detailed in Chapter 6, a number of financing options are discussed regarding the headquarters building including the use of the MWD Asset Financing Corporation (MWDAFC) to issue debt and reimburse the General Fund for approximately \$129 million of these expenditures. Some member agencies participating in the MWD/Member Agency Finance Work Group have indicated that given the current level of Metropolitan's funds there may be some merit to reviewing whether it is necessary to issue debt to reimburse the General Fund. Their approach would effectively reduce Metropolitan's debt obligations by \$129 million and reduce future debt service costs. They feel that in lieu of the reimbursement, existing reserve funds should be used to fund the projected \$80 million shortfall in the 1998-99 budget. Staff has studied this issue and is recommending that a financing and subsequent reimbursement to the General Fund not be done.

◆ INDUSTRY RESTRUCTURING

An important factor driving the recommendations in the LRFP is the expectation that the water industry may undergo significant changes with increased competition in a manner similar to the electric industry. Electric utilities nationally, and especially in California, are working diligently to improve their financial positions. It is clearly recognized that those utilities with the strongest financial positions will be the ones most able to take advantage of the opportunities presented by deregulation and increased competition.

In order for Metropolitan to succeed and prosper in such an environment, it is imperative that prudent decisions are made that maintain Metropolitan's sound financial position. A key indicator of a municipal utility's financial strength, as measured by the Rating Agencies and the investment community, is debt service coverage. Debt service

coverage is calculated by dividing net revenues by debt service, measuring the amount that net revenues exceed or “cover” debt service. The higher the coverage level, the greater the margins of protection afforded bondholders. For example, a municipality with 2.00x debt service coverage, would have to face a 100% decline in net revenues before there would be a potential non-payment of debt service. Similarly, a municipality with only 1.10x debt service coverage, would only have to have net revenues decline 10% before there could be a potential default on annual debt service payments.

Debt service is also an important indicator of the ability of a municipal utility to generate revenues for non-recurring expenditures, such as pay-as-you-go (PAYG) capital expenditures, retiring long-term debt, and maintaining adequate financial reserves. This assumes, however, that, there are no additional payments to be made after debt service. If this assumption is true, coverage will also represent the amount of unencumbered revenues available for PAYG or other non-recurring expenditures. From an investor or rating agency perspective, higher PAYG is viewed positively, as this represents non-debt funded capital improvements. Similarly, the use of net revenues, available after debt service, for debt retirement or adding to financial reserves, would also be viewed favorably.

However, certain, municipal utilities such as Metropolitan have additional recurring expenditures that are funded after debt service. In Metropolitan’s case, these expenditures are the capital component of annual payments to the California Department of Water Resources (DWR). Rating agency analysts and investors will, in these cases, also evaluate the margins by which the utility can cover these costs, even though they are funded after debt service. These analysts expect that a financially sound utility must consistently demonstrate an ability to comfortably fund all recurring costs, whether they are operating expenses, debt service payments or other contract payments.

In keeping with the original concept of debt service coverage, a broader measure of financial strength will also be used in cases where there are recurring costs funded after debt service. A fixed-charge or all-in coverage calculation measures the degree that net revenues cover, or exceed, debt service and all other recurring charges. It is noted that while many other municipal utilities have recurring expenditures that are funded after debt service, Metropolitan is unique in terms of the magnitude of these payments relative to debt service costs.

It is especially important, therefore, that Metropolitan demonstrate that it not only can fund its debt service costs, with ample coverage, but that all of its recurring fixed costs will be funded by a comfortable margin, indicative of Metropolitan’s Aa2/Aa bond ratings. While there are no specific coverage levels associated with specific rating categories, the recommended coverage levels of 2.00x for debt service and 1.20x for all fixed charges, should provide satisfactory financial margins. In terms of annual debt service, a 2.00x debt service coverage level is in-line with high-grade municipal utilities with Aa/AA ratings. The fixed charge coverage of 1.20x provides a reasonable, though not excessive, margin, which should assure that all fixed charges will be funded from annual revenues, even assuming possible negative variances in revenues or expenditures. Increasing debt levels should be controlled through the use of appropriate levels of PAYG and careful consideration of future capital expenditures.

UNDERLYING FINANCIAL POLICIES AND OBJECTIVES

A number of financial policies and objectives have been developed by the Board of Directors over the years that form the basis for the material presented in the Long Range Finance Plan. The following is a summary of these policies and objectives.

ADOPTED BOARD POLICIES

The following policies were in effect when the 1999 update of the Plan was initiated:

- ◆ The Board has established a goal to finance approximately 20 percent of the Capital Improvement Program on a pay-as-you-go basis.
- ◆ Metropolitan's water standby charge will be maintained in the future as an option for the member agencies to pay all or part of their readiness-to-serve charges.
- ◆ Working Capital was set to equal the sum of \$25 million for emergency repairs and claims against the District, and \$150 million for general purposes in the event that revenues are insufficient to pay the costs of the District.
- ◆ The authority for investment of District funds has been delegated to the Treasurer under a Statement of Investment Policy adopted by the Board. This policy establishes three fundamental criteria for investments in the following order of importance: 1) Safety of principal, 2) Liquidity, and 3) Return on investment.
- ◆ The Water Rate Stabilization Fund was capped at \$200 million, with amounts available over the cap at year end transferred to the Pay-As-You-Go Fund.
- ◆ The Water Transfer Fund was established to accrue monies for water storage and transfer programs, and to fund the filling of the Eastside Reservoir Project.
- ◆ The General Manager was authorized to purchase MWD bonds in the secondary market, up to \$75 million at or below par value.
- ◆ With adoption of the Rate Refinement Task Force recommendations in 1996 the Board determined that the overall impact of increases in rates and charges will not exceed 3 percent per year, to the extent feasible.

POLICIES AND GOALS NOT FORMALLY ADOPTED BY THE BOARD:

- ◆ The District property tax rate will be held constant (.0089 percent of assessed value) until the tax levy reaches the limit set in the MWD Act. Thereafter, the rate will decrease as general obligation bonds are retired.
- ◆ Increases in the District's operations and maintenance budget will be limited to levels that reflect established industry-wide business principles and objectives.
- ◆ Colorado River water imports will be maximized to take advantage of the District's least expensive source of water supply.

THE FOLLOWING PROPOSED BOARD GOALS WILL GUIDE METROPOLITAN'S CAPITAL FINANCING STRATEGY (AS DISCUSSED IN CHAPTER 6):

- ◆ The goal will be to reduce the revenue bond debt to equity ratio will be reduced to 60 percent or less, over time, to reserve debt capacity for unforeseen needs and to keep Metropolitan competitive in the water industry.
- ◆ The goal will be to maintain revenue bond debt service coverage of at least 2 times, to the extent feasible, with an overall target of 2.3 times which is the median coverage level for all U.S. municipal utilities as determined by Moody's Investors Service.
- ◆ Up to 25 percent of outstanding debt will be maintained in a variable rate mode to lower overall cost of debt financing, without assuming undue risk.
- ◆ Metropolitan's fixed charge coverage ratio will be targeted at 1.2 times to the extent feasible, thereby insuring that Metropolitan can fund fixed obligations from annual revenues.

PLAN SUMMARY

CHAPTER 1 — SUMMARY OF PREVIOUS LONG RANGE FINANCE PLAN RECOMMENDATIONS AND ACTIONS

Chapter 1 recounts the content, recommendations and Board actions resulting from the original 1986 Long Range Finance Plan and the subsequent updates to the plan in 1987, 1988 and 1995. The most significant actions are summarized as follows:

- ◆ Establishment of the Water Rate Stabilization Fund,
- ◆ Payoff of the District's \$26 million unfunded PERS liability,
- ◆ Amendment of the State Water Contract to eliminate "one-shot" capital payments when the project interest rate increased,
- ◆ Establishment of the Revolving Construction Fund,
- ◆ Establishment of the Pay-As-You-Go (PAYG) Fund,
- ◆ Authorization of a \$200 million commercial paper program, and
- ◆ Implementation of the District's water standby charge,
- ◆ \$200 million cap on the Water Rate Stabilization Fund,
- ◆ The Pay-As-You-Go Fund as the last in Metropolitan's flow of funds,
- ◆ Establishment of the Water Transfer Fund, and
- ◆ Authority to purchase Metropolitan's bonds in the secondary market at par or less.

Chapter 1 also describes the formation and use of the MWD/Member Agency Finance Work Group to involve the member agencies in the Long Range Finance Plan Process.

CHAPTER 2 — COST AND REVENUE PROJECTIONS

Metropolitan’s financial strategies and objectives can be distinguished between capital and operational issues. This chapter focuses on projections of the annual costs and revenues associated with the operation and maintenance of Metropolitan’s water supply facilities and programs. Included in these projections are the debt service payments and pay-as-you-go construction costs that support the Capital Improvement Program.

Cost Projections This section provides information on the District’s future expenditures based on the latest available cost information. Overall, total expenditures are expected to increase annually due to a variety of factors. Specifically addressed are cost projections for MWD O&M, the MWD Capital Improvement Program, the State Water Contract, Colorado River water supply programs, water transfers and exchanges, and water management programs.

Total costs are estimated to increase from \$883 million in 1998-99 to approximately \$1.0 billion in 2002-03, a total increase of \$37million per year.

The cost projections are presented in detail in Chapter 2. The following is a 5-year summary of total cash needs and sources:

Cash Needs: (\$ in Millions)	98-99	99-00	00-01	01-02	02-03
State Water Project	\$ 257.3	\$ 287.1	\$ 299.0	\$ 320.0	\$ 347.0
Colorado River Supplies	26.5	35.0	44.8	48.2	47.9
Water Management Programs	25.4	30.1	36.7	42.8	44.7
Capital Financing Program	355.0	354.1	365.6	373.2	363.1
O&M and Oper. Equip.	220.5	214.7	218.9	223.3	227.7
Water Transfer Deposits(1)	24.0	(9.2)	(22.5)	(3.2)	—
Reserve Adjustments	(25.8)	4.1	17.7	17.7	0.5
Total	\$ 883.0	\$ 916.0	\$ 960.1	\$ 1,021.8	\$ 1,030.9

Sources: (\$ in Millions)	98-99	99-00	00-01	01-02	02-03
Water Revenue	\$ 600.0	\$ 673.0	\$ 704.9	\$ 757.3	\$ 786.2
Taxes (Ad Valorem)	85.9	87.7	89.4	91.2	93.0
Readiness-to-Serve Charge	80.0	84.0	92.0	100.0	104.0
Connection Maintenance Charges	3.0	3.0	3.0	3.0	3.0
Interest on Investments	43.5	37.9	39.3	40.4	42.3
Power and Misc.	16.6	16.6	17.1	17.4	17.5
Total	\$ 829.1	\$ 902.2	\$ 945.7	\$ 1,009.2	\$ 1,046.0

(1) Net of ESRP fill costs.

Note: These projections do not include construction expenditures from bond proceeds.

Revenue Projections This section discusses the various sources of revenues including the following:

- ◆ Water Revenues
- ◆ Ad Valorem Property Taxes
- ◆ Readiness-to-Serve Charges/Water Standby Charges
- ◆ Connection Maintenance Charges
- ◆ Other Revenues

The section concludes with projections of revenues from the various sources, including projections of future water rates. There is also a discussion of the changing relationship over time between the District's firm revenues (primarily property taxes and readiness-to-serve charges) and variable revenues from the sale of water. It shows that tax revenues have steadily declined since water sales began in the early 1940's. The readiness-to-serve charge will supplement the firm tax revenue and allow the District to maintain a level of about 30 percent firm revenues throughout the duration of the Capital Improvement Program. Together with revenue from projected minimum "firm" water sales, this lessens the mismatch between variable revenues and fixed costs. However, there is a need to hold adequate reserves for weather and water supply related shortfalls in water revenues.

CHAPTER 3 — FINANCIAL SENSITIVITY TO WATER SALES

This chapter discusses the variability in Metropolitan's water sales to help explain the importance of holding reserves in order to avoid unplanned water rate increases due to water sales decreases caused by weather.

Metropolitan provides its member agencies with both treated and untreated supplemental supplies of imported water from the Colorado River and the State Water Project. Depending on the class of service and type of water (treated or untreated) needed by a member agency, Metropolitan delivers imported water at wholesale rates ranging from \$233 per acre-foot for untreated, interruptible Seasonal Storage Service to \$431 per acre-foot for treated Full Service deliveries. In Fiscal Year 1997-98, water sales revenue of \$622 million accounted for 73 percent of Metropolitan's total revenues. Because it is a supplemental supplier for some of its member agencies, making up any shortfall in local water supplies, and fluctuations in retail level demands caused by weather translate into even greater fluctuations in the demand for imported water, Metropolitan's sales can vary as much as ± 20 percent in any given year due to the effects of weather alone.

CHAPTER 4 — FUND POLICIES

This Chapter describes Metropolitan's current reserve policies and presents alternatives to meet changing financial needs.

Metropolitan currently holds cash and investments in various funds (accounts) designated for certain purposes as follows:

- ◆ Operating Funds
- ◆ Debt Service Funds
- ◆ Construction Funds
- ◆ Rate Stabilization Funds
- ◆ State Water Contract Fund
- ◆ Trust and Other Funds

Within these categories Metropolitan maintains 60 active funds which are designated according to purpose. Depending on legal limitations, the individual funds are either restricted (can only be used for a designated purpose), or unrestricted (can be used for any lawful purpose at the discretion of the Board). The primary focus of this chapter is on policies regarding the use of discretionary or unencumbered funds.

As discussed above, the main alternative presented in this chapter is to replace the current working capital reserve policy with a minimum/maximum reserve policy to provide financial protection against water revenue shortfalls. This chapter provides alternative methods for the Board to set the minimum and maximum reserve levels. Statistical studies were performed to examine the financial risk associated with various reserve levels and it appears that basing reserve levels on a percentage of fixed costs to be paid during periods of revenue shortfalls provides a straight-forward and easily understood method of setting reserve levels that closely match the levels developed in the statistical models.

Also discussed in this chapter is the establishment of a separate fund to hold Metropolitan's \$25 million self-insured retention and a realignment of cash flow to make the Water Rate Stabilization Fund the final fund in the cash flow.

CHAPTER 5 — PAY-AS-YOU-GO CONSTRUCTION

This chapter examines Metropolitan's methodology for determining an appropriate level of pay-as-you-go construction (PAYG) versus the use of debt financing to pay for the Capital Improvement Program. The methods analyzed include:

Current Policy 20% of the Capital Improvement Program funded by PAYG.

1988 Policy 20% of the Capital Improvement Program funded by PAYG, but no prior year PAYG reserves available to fund PAYG program (all PAYG funding provided by current year revenues).

75% of Depreciation and Amortization PAYG program to be set at levels equal to 75 percent of annual depreciation and amortization expense of the District.

Depreciation PAYG program to be set at levels equal to annual depreciation expense of the District.

Capital Program (Project) PAYG program to be set at levels equal to projected CIP expenditures for certain types of capital programs (as determined by the Board) such as asset integrity, system reliability projects, and projects with shorter useful lives.

Dynamic Model to Optimize Financial Constraints An alternative PAYG method to determine the mix between debt and PAYG in a dynamic manner based on varying the PAYG levels in order to meet financial objectives. As discussed earlier, financial constraints such as revenue bond debt service coverage, fixed charge coverage, the debt to equity ratio, credit rating strength, appropriate reserve levels and rate impacts would be examined annually, within the context of maintaining rate stability, in a long range cash flow model to calculate an annual PAYG level that results in smooth water revenue requirements over the planning period.

This chapter includes results of surveys of the PAYG policies of both private and municipal utilities. In general, a level of PAYG construction funding in the range of 20 percent shows a positive correlation to high credit ratings. Also included is an analysis of the impacts of alternative PAYG methodologies on financial indicators and financial constraints.

◆ DEBT REDUCTION

In order for the District to remain competitive in the water industry in the future, a reduction of current levels of debt would be required. Metropolitan potentially faces competition from private water purveyors and public agencies that may seek to use its facilities to import and sell water at lower rates. It is imperative that Metropolitan make prudent financial decisions to keep its rates competitive to ensure its continued sound financial operation. The District's current revenue bond and commercial paper debt to equity ratio is 71 percent.

For the District to remain competitive in the future with increasing competition in the water industry, Metropolitan should try to reduce its debt to equity level. A change in the financing mix of the capital improvement program would be necessary in order to gradually reduce debt to equity levels.

Staff anticipates that PAYG expenditures would need to be increased above 20% per year, when funds are available, to gradually reduce the District's debt to equity levels. This can be achieved using an alternative PAYG method as discussed above with the use of available reserves. Increasing PAYG levels from current revenues would put more pressure on water rates in the short term. In order for the District to remain competitive in the future, increased levels of PAYG should be funded from reserves accumulated during periods of higher than projected revenues or lower than projected expenditures. Funding PAYG in this manner would not put additional pressure on water rate increases.

The PAYG amount would be calculated and first presented to the Board as part of the annual revenue requirements process. The PAYG amount would be based on the level needed to maintain long term financial stability as measured by the ratios and constraints mentioned above. The recommended level would also depend on the projected level of reserves under the overall revenue requirements projection. If monies are projected to be available above the maximum reserve level, without increases in water rates, the PAYG amount would include those funds to the extent that Metropolitan's fixed charge coverage was projected to be less than 1.2 times.

CHAPTER 6 — CAPITAL FINANCING OPTIONS

◆ DEBT MANAGEMENT

Metropolitan has a wide variety of capital financing options available to fund the CIP. This chapter analyzes the strategies associated with using those options to finance capital improvements in the most efficient and cost effective manner. These strategies involve such factors as the timing and sizing of bond issues, the relative mix between long-term and short-term debt, variable versus fixed-rate debt, competitive versus negotiated sales and other related factors.

◆ INVESTMENT OF BOND PROCEEDS

The investment of bond proceeds is regulated by the federal laws that grant tax exemption to the bonds. These restrictions make it critically important that Metropolitan pay close attention to the investment of proceeds and develop a strategy to guide the investment and disbursement of all bond proceeds.

Under the Internal Revenue Code of 1986 earnings from the investment of bond proceeds that exceed the cost of the borrowed funds, must be rebated to the federal government unless the funds are spent within prescribed time periods. Any earnings in excess of that, known as positive arbitrage, must be rebated to the federal government. However, no rebate is required if bond proceeds are spent in accordance with the following schedule (the 2-year expenditure schedule), measured from the issue date: (i) at least 10% of the proceeds are spent within 6 months, (ii) at least 45% within 1 year, (iii) at least 75% within 18 months, and (iv) 100% within 2 years.

◆ CAPITAL FINANCING STRATEGY

Metropolitan's ten-year \$4.0 billion Capital Improvement Program (CIP), which began in the 1995-96 fiscal year, has been planned to ensure continued water supply reliability and the best drinking water quality modern technology can provide for current and future residents of Southern California. This section of Chapter 6 shows that the cost of this program can be managed at the lowest cost to the customers by efficiently utilizing the financial resources available to the Metropolitan Water District. It includes a 10-year projection of the use of debt and PAYG to accomplish the financing objectives.

Chapter 6 also discusses financial ratios to be used as guidelines for capital financing strategy. These include Metropolitan's debt to equity ratio, debt service coverage, variable rate debt level and fixed charge coverage.

CHAPTER 7 — INVESTMENTS

This chapter discusses Metropolitan’s Board-approved investment policy, particularly changes that have been made in the last several years. It also provides definitions of the securities eligible for purchase under the investment policy. These include:

- ◆ United States Treasury Bills.
- ◆ United States Treasury Notes and Bonds.
- ◆ Government National Mortgage Association Notes and Bonds.
- ◆ Federal Agency Securities.
- ◆ State Obligations.
- ◆ California Local Agency Obligations.
- ◆ Banker’s Acceptances.
- ◆ Negotiable Certificates of Deposit.
- ◆ Repurchase Agreements.
- ◆ Time Deposits.
- ◆ Shares of Beneficial Interest.
- ◆ Medium Term Corporate Notes.
- ◆ Mortgage Backed and Asset Backed Obligations.
- ◆ Local Agency Investment Fund Deposits.
- ◆ Commercial Paper.

Metropolitan’s Statement of Investment Policy is included as Appendix 2 to the Long Range Finance Plan.

CHAPTER 8 — RISK MANAGEMENT

This chapter describes Metropolitan’s risk management policies including risk financing alternatives, self-insured retention levels, limits of liability and liability insurance levels. The overall insurance program is analyzed within the context of estimates of probable maximum loss levels.

The owner controlled insurance program instituted for the Eastside Reservoir Project and the Inland Feeder is explained. The program is designed to create a strong safety program for all contractors and to deliver higher liability insurance levels at the lowest possible cost. The owner controlled program also includes a project labor agreement with provisions for the use of a workers’ compensation alternative dispute resolution process. It is expected that the program will provide more claims and insurance controls that will result in favorable claims experience and return considerable savings to Metropolitan.

APPENDICES

1. Capital Financing Definitions/Parameters
2. Statement of Investment Policy
3. Asset/Liability Management
4. Cash vs. Accrual Financial Reporting
5. Basic Model for Loss Forecasting
6. Glossary of Terms

RECOMMENDATIONS

Based on the discussions and analysis presented in the 1999 update of the Long Range Finance Plan, the following recommendations are presented for Board consideration and action:

1. That the Board replace the current working capital policy with a minimum/maximum reserve policy for revenue shortfalls.
 - a) The minimum level would be set at the percent of projected fixed costs to be recovered by water sales revenues (approximately 17.5 percent) for the following 18 months.
 - b) The maximum level would be set at the percent of projected fixed costs to be recovered by water sales revenues (approximately 17.5 percent) for the following 2 years, including the minimum reserve level.
 - c) The minimum reserve will be held in the Revenue Remainder Fund.
 - d) Reserves up to the maximum level, above the minimum, will be held in the Water Rate Stabilization Fund.
 - e) Subject to annual Board approval, any remainder above the maximum reserve level would be used in lieu of additional debt or to buy down existing debt as required to maintain Metropolitan's fixed charge coverage ratio at or above the level of 1.2 times. To the extent that this target is projected to be achieved, reserves above the maximum level would then be available for any lawful purpose.
2. That the Board establish a new PAYG policy based on a quantitative analysis designed to optimize existing financial constraints. Staff would analyze Metropolitan's financial condition each year and recommend a PAYG level sufficient to maintain smooth revenue requirements, low water rates, strong financial ratios and appropriate reserve levels.

3. That Metropolitan's flow of funds be revised so that the final fund will be the Water Rate Stabilization Fund (WRSF).
 - a) The \$200 million cap on the WRSF will be eliminated.
 - b) The maximum reserve, above the minimum level, will be held in the WRSF, as described in Recommendation 1.
4. That the Self-Insured Retention Fund be established as a restricted fund for the purpose of maintaining Metropolitan's \$25 million reserve for emergency repairs and claims.
5. That the minimum amount to be held in the Pay-As-You-Go Fund on June 30 of each fiscal year be 1/2 of the projected PAYG expenditures budgeted from current revenues for the following fiscal year.
6. That a financing not be done to reimburse Metropolitan's General Fund for expenditures incurred for construction of the Union Station Headquarters Building.

IMPLEMENTATION OF REVISED FINANCIAL POLICIES

For fiscal year 1999-00, the minimum and maximum reserve levels will be determined using the estimates of fixed costs contained in the 1999 Update of the Long Range Finance Plan covering the 18-month minimum reserve period and the following 2 years for the maximum reserve level. Metropolitan's water sales variability factor of 17.5 percent, described in Chapter 4, will be applied to the fixed cost estimates to set the minimum and maximum reserve levels.

The initial determination of the minimum and maximum reserve levels for the following fiscal years will be made as part of Metropolitan's annual Revenue Requirements estimates adopted by the Budget and Finance Committee in December of each year. The Revenue Requirement projections presented by the General Manager will include estimates of fixed costs covering the 18-month minimum reserve period and the following 2 years for the maximum reserve level. The water sales variability factor of 17.5 percent will be applied to the fixed cost estimates to set the preliminary minimum and maximum reserve levels.

During the budget process the estimates of fixed costs will be revised as appropriate based on the latest information available. The final determinations of the minimum and maximum reserve levels will be set when the Board adopts the Annual Budget in June for the following fiscal year.

For fiscal year 1998-99, the PAYG amount will remain as set by Metropolitan's Board in the 1998-99 Annual Budget. For the following fiscal years the initial PAYG amount will be determined during the Revenue Requirements process based on targeting Metropolitan's key financial constraints: debt service coverage, fixed charge coverage,

debt to equity ratio, credit ratings, short-term debt levels and desired reserve levels. The final budgeted PAYG amount will be set with the Board's adoption of the Annual Budget in June of each year based on the latest information available.

However, if reserve levels are higher than the maximum reserve level at the beginning of a fiscal year, those monies will be used in lieu of additional debt or to buy down existing debt, as described in Recommendation 1.



C H A P T E R

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**SUMMARY OF PREVIOUS LONG RANGE FINANCE PLAN
RECOMMENDATIONS AND ACTIONS
&
THE MWD/MEMBER AGENCY
FINANCE WORK GROUP**

The first Metropolitan Water District Long Range Finance Plan, dated December 1985, was issued in January 1986 and was designated the 1986 Plan. The 1986 Plan reviewed significant financial developments that occurred as a result of the 1983 Assembly Bill 322 which required the District to prepare a report to the California legislature detailing a program to reduce financial reliance on property taxes. As a result of that process the District proposed and obtained a number of amendments to the MWD Act which authorized the District to:

1. Levy a water standby or availability of service charge;
2. Issue short-term revenue certificates (commercial paper);
3. Negotiate the sale of bonds without first having offered such bonds for sale through competitive bidding;
4. Sell bonds without provision for semi-annual interest payments to provide cash flow flexibility; and
5. Issue variable rate demand obligations.

THE 1986 LONG RANGE FINANCE PLAN

It was within the context of the MWD Act amendments that the 1986 Plan was prepared, taking into account the appropriate role that various forms of debt financing should have in the District's future financial structure.

Significant recommendations from the 1986 Plan included:

1. The development of an optimum financial structure which appropriately blends short- and long-term debt financings and pay-as-you-go construction funding to minimize interest costs and debt burdens;
2. Implementation of a water rate stabilization fund;
3. Implementation of a water service charge in the 1990's to supplement declining tax revenues;

4. Reduction of fixed costs, such as payoff of the Public Employees Retirement System unfunded liability; refunding of higher-cost debt; and efforts to minimize State Project charges; and
5. Increased authority to invest MWD funds in banker's acceptances, prime commercial paper, and negotiable certificates of deposit to achieve diversification and improve yield.

Subsequently, acting on staff recommendations, the Board of Directors took the following actions:

1. Established the Water Rate Stabilization Fund (WRSF) for the principal purpose of mitigating future increases in water rates, through a transfer of \$172 million from the Revenue Remainder Fund after working capital reserve requirements were met;
2. Approved payment of \$26 million to PERS to extinguish the District's unfunded actuarial liability, reducing payments to PERS by approximately \$3.5 million per year;
3. Broadened the Treasurer's investment authority by increasing the percent-of-portfolio limitations for investments in commercial paper, banker's acceptances, and negotiable certificates of deposit;
4. Authorized refundings of the 1985 general obligation bonds and the 1983 revenue bonds, resulting in debt service savings of approximately \$50 million; and
5. Approved a Water Revenue Bond Amendment to the State Water Contract to eliminate costly "one-shot" payments associated with increases in the project interest rate, which had been as high \$20 million in years when the Project sold bonds.

THE 1987 LONG RANGE FINANCE PLAN UPDATE

In November 1987 the Long Range Finance Plan was updated to reflect changes in the future construction program being studied by the Planning Division, and new water treatment processes being studied by the Water Quality Division. The 1987 Plan contained projections of the financing requirements for the capital program assuming installation of either oxidation or granular activated carbon facilities at the District's treatment plants. The water rate projections in the 1987 Plan reflected application of funds from the Water Rate Stabilization Fund to mitigate rate increases.

In January 1988 the Board created a Water Treatment Surcharge Stabilization Fund. The purpose of the fund was to mitigate future increases in the water treatment surcharge. Initially, approximately \$8.9 million, plus accrued interest, held in the Water Rate Stabilization Fund was transferred to the Water Treatment Surcharge Stabilization Fund to mitigate future increases in the surcharge.

THE 1988 LONG RANGE FINANCE PLAN

In November 1988 the Long Range Finance Plan was updated to recommend expanded use of Metropolitan's financing authority to produce low-cost, low-risk, and timely project funding while maintaining favorable financial ratios. The strategy also included expanded use of Metropolitan's revenue raising authority to provide for continued orderly water rate management and to preserve financial flexibility for evolving or unexpected financing needs.

The main recommendations from the 1988 Plan were:

1. That the Board authorize the General Manager to study and develop options for the processing and collection of a water availability charge or a water standby charge as permitted under Section 134.5 of the MWD Act;
2. That the Board establish the Revolving Construction Fund to be funded with a loan of \$100 million from the Water Rate Stabilization Fund with repayment to be made, with interest, by 1993; and
3. That the Board establish a Pay-As-You-Go-Fund with a goal of financing 20 percent of the capital program from current revenues, and approve a transfer of approximately \$25 million from the General Fund to finance pay-as-you-go construction during fiscal year 1988-89.

The Board of Directors approved these recommendations at their meeting held in August 1988.

Subsequently, as a result of Long Range Finance Plan recommendations, the Board, in April 1991, adopted a resolution providing for the issuance of up to \$200 million in short-term revenue certificates (commercial paper). In June 1991, the District issued \$60 million in commercial paper notes under this authorization. This \$60 million was issued without a back-up line of credit. In September 1995, the District issued commercial paper notes in the amount of \$70 million, bringing the total to \$130 million. A five-year line of credit was obtained to support this expansion of the program. All subsequent issuances of commercial paper have been backed by lines of credit. The remaining \$70 million of the original \$200 million authorization was issued in August 1996. In April 1996 the Board increased the total commercial paper authorization to \$400 million. In September 1997 an additional \$100 million of commercial paper was issued, bringing the total outstanding to \$300 million. When the commercial program was expanded it was decided to use two remarketing agents. This was done to create a competitive situation in order to insure that Metropolitan's commercial paper was remarketed at the lowest rates available.

In January 1992 the Board adopted a resolution of intent to impose a water standby charge to be collected from property owners within the District's service area, and an availability of service charge payable by the member agencies. After mailing and publishing notifications and holding a series of public hearings, the Board adopted, in May 1992, final resolutions imposing the charges for fiscal year 1992-93. Thereafter, based on an opinion from the California Attorney General, the Board rescinded the availability

of service charge. The water standby charge was implemented and raised approximately \$25 million during 1992-93. The Board adopted the standby charge again for 1993-94, incorporating, by member agency, a fixed portion and a variable portion based on past water usage. Standby charges have been imposed each fiscal year through 1998-99 at the same rate as 1993-94, producing revenues ranging from \$40 to \$50 million per year.

In June 1996, the Board gave the member agencies the option of using revenues from the water standby charge to offset their obligations under the readiness-to-serve charge. Twenty-three of the member agencies chose to use standby charge revenues as a means of paying all or a portion of their readiness-to-serve charge. Standby charges are not imposed within the boundaries of the other 4 member agencies (Beverly Hills, Los Angeles, Santa Monica and West Basin MWD).

In 1996, California voters approved Proposition 218, the "Right to Vote on Taxes" initiative, which placed tight limits on the imposition or increase of standby charges. Metropolitan's standby charge falls within the exemption for existing assessments under this law, which means that it can continue to be imposed in its existing form. However, any increases in the charge and imposition of the charge in new territory are subject to the requirements of Proposition 218.

THE 1995 LONG RANGE FINANCE PLAN

The 1995 Long Range Finance Plan (the 1995 Plan) was the first update since 1988. The 1995 update was coordinated with the Integrated Resource Planning process (a comprehensive review working with the member agencies to determine an optimal mix of local and imported water resources to best achieve the long term requirements of the region) and review of the District's Capital Improvement Program. The plan presented a comprehensive strategy for financing the operating and capital programs of the District in an efficient and economical manner using the financial tools legally available. Detailed cost, revenue and rate projections were included to show the effects of the financing strategy within the context of the District's overall financial operations. The overall goal of the District's financial planning was and is to maintain flexibility to deal with changing conditions within a framework of solid financial policies designed to ensure water rate stability.

The 1995 Plan described a number of financial policies and objectives that have been developed by the Board of Directors over the years. These essentially formed the basis for the material presented in the 1995 Plan. The following is a summary of these policies and objectives:

ADOPTED BOARD POLICIES:

- ◆ Working Capital shall be equal to the sum of \$25 million for emergency repairs and claims against the District, and \$150 million for general purposes in the event that revenues are insufficient to pay the costs of the District.
- ◆ The goal will be to finance approximately 20 percent of the Capital Improvement Program on a pay-as-you-go basis.

- ◆ The water standby charge will be maintained in the future for the member agencies which have elected to pay all or part of their readiness-to-serve charges through the water standby charge.
- ◆ The authority for investment of District funds has been delegated to the Treasurer under a Statement of Investment Policy adopted by the Board. This policy establishes three fundamental criteria for investments in the following order of importance: 1) Safety of principal, 2) Liquidity, and 3) Return on investment.

POLICIES AND GOALS FOLLOWED BY THE BOARD BUT NOT FORMALLY ADOPTED:

- ◆ The District property tax rate will be held constant (.0089 percent of assessed value) until the tax levy reaches the limit set under the MWD Act (see Chapter 2). Thereafter, the rate will decrease as general obligation bonds are retired.
- ◆ The revenue bond debt to equity ratio will be limited to approximately 80 percent to reserve debt capacity for unforeseen needs.
- ◆ The overall impact of increases in rates and charges will not exceed the range of 6 to 7 percent, to the extent feasible (this goal was superseded by the Board's adoption of Phase I of the Rate Refinement Process in 1996 which limited rate increases to 3 percent for a five-year period).
- ◆ The goal will be to maintain debt service coverage of at least 2 times, to the extent feasible.
- ◆ Increases in the District's operations and maintenance budget will be limited to levels that reflect established industry-wide business principles and objectives.
- ◆ Colorado River water imports will be maximized to take advantage of the District's least expensive source of water supply.
- ◆ Up to 15 percent of outstanding debt will be maintained in a variable rate mode to lower overall cost of debt financing, without assuming undue risk.

The 1995 Plan recounted the history of the District's Pay-As-You-Go (PAYG) construction funding and discussed ongoing Board strategies to most efficiently use PAYG funding while balancing the costs for future and current customers in a fiscally responsible manner. A major concern in the capital financing strategy for the CIP was the revenue bond limitation imposed by the MWD Act. At that time projections showed that the use of PAYG and other forms of non-revenue bond financing would be needed in conjunction with available revenue bond debt capacity to fully fund the CIP. The 1995 Plan also identified a wide variety of capital financing options available to the District and analyzed the strategies associated with using those options to finance capital improvements in the most efficient and cost effective manner.

The following recommendations were presented for Board consideration:

That the Board:

1. Reaffirm the policy of maintaining working capital of \$175 million be continued, subject to annual review of adequacy, and authorize the transfer of \$25 million, currently held in excess of the \$175 million, to the Pay-As-You-Go Fund for the purpose of financing pay-as-you-go capital expenditures in accordance with the Board's policy as stated in Administrative Code Section 5109.
2. Establish a cap of \$200 million for the Water Rate Stabilization Fund, and determine that available monies that exceed the cap be placed into the Pay-As-You-Go Fund.
3. Establish the Water Transfer Fund, and authorize the transfer of the \$14 million budgeted for 1995-96 water transfers as the initial deposit into the fund, and provide that the Water Transfer Fund shall be used only for purposes of funding water transfer programs and the costs of filling the completed Eastside Reservoir Project, and designate the expiration date of the Water Transfer Fund as June 30, 2004.
4. Authorize the General Manager to purchase Metropolitan bonds, subject to a maximum purchase price of 100 percent of par value, without regard to maturity dates of the bonds, in an aggregate amount not to exceed \$75 million. Under federal tax regulations, such bonds purchased by Metropolitan must be canceled and retired and may not be held for investment or resold. This authorization would be valid for a period of 12 calendar months following the month of adoption.

In September 1995, the Board of Directors adopted the 1995 Long Range Finance Plan.

THE MWD/MEMBER AGENCY FINANCE WORK GROUP

The MWD/ Member Agency Finance Work Group (Work Group) was established in October 1996 to promote better communication of Metropolitan's financial planning and reporting activities to the member agencies. The Work Group held numerous meetings from November 1996 through July 1997. Representatives of Metropolitan and the following member agencies attended one or more of those meetings:

City of Los Angeles	San Diego County Water Authority
Calleguas MWD	MWD of Orange County
City of Pasadena	City of Glendale
City of Burbank	City of Anaheim
Eastern MWD	City of Torrance
City of Long Beach	Central Basin MWD
West Basin MWD	Three Valleys MWD
City of Fullerton	City of Santa Ana

The initial focus of the Work Group was on the financial assessments of Metropolitan performed by KPMG Peat Marwick (KPMG) and the Barrington-Wellesley Group (BWG). The KPMG report was commissioned by Metropolitan to be performed in conjunction with the BWG report which was commissioned by the City of Burbank. Both reports examined Metropolitan's financial policies, particularly as they related to reserve funds and pay-as-you-go construction expenditures.

The Work Group studied the reports to identify positive and useful aspects that could be incorporated, as appropriate, into Metropolitan's financial policies and capital financing plans. The Work Group did not address Metropolitan's future water rates, alternative revenue structures or any form of new or increased firm revenues. The purpose of the Work Group was to discuss the technical details of the various issues and prepare a report back to the Rate Refinement Task Force, the member agencies and Metropolitan's Board. The Work Group was charged with analyzing the differing positions on the issues and provide an understanding of the pros and cons or advantages and disadvantages of pursuing one position versus another, from a technical standpoint, and provide Metropolitan's Board members background information for decision making purposes.

Representatives from both BWG and KPMG made presentations on their respective reports to the Work Group.

In order to focus the Work Group on the key issues discussed in the BWG and KPMG reports, six position papers were prepared covering the following topics:

1. Working Capital Policy
2. Water Rate Stabilization Fund
3. Pay-As-You-Go Policy
4. Water Transfer Fund
5. Financial Modeling/Reporting
6. Capital Financing

Initially, the position papers described Metropolitan's current policy, the BWG position, the KPMG position and MWD staff comments for each topic. Each position paper contained a section for the member agencies to provide input on the Work Group's position.

During June 1997, the member agency representatives of the Work Group met twice to develop their consensus positions on the issues contained in the position papers. At the request of the member agency representatives, Metropolitan's staff did not actively participate in these discussions, but were available for technical assistance, if needed. These independent meetings of the member agency representatives were an important part of the overall process to ensure that the final report would reflect each member agency's perspective.

The major areas of developing consensus were the following:

- ◆ Many of Metropolitan's reserve policies need to be redefined for clarity, particularly "working capital".
- ◆ The Water Rate Stabilization Fund (WRSF) should be the "last bucket" in the flow of funds so that excess reserves are not accumulated in the Pay-As-You-Go (PAYG) Fund.
- ◆ Reserves for revenue shortfalls should have a minimum and maximum balance as a guideline to trigger Board consideration on rates, cost controls or other actions, and the \$200 million cap on the (WRSF) should be eliminated.
- ◆ The PAYG Fund should be restricted for capital purposes only and the year-end balance in the fund should be 1/2 of the following year's projected PAYG expenditures, to provide adequate cash flow for the subsequent year.
- ◆ Documentation and communication of assumptions used in financial modeling should be improved.

Other areas involving further discussion included:

- ◆ Consideration should be given to increasing the use of variable rate debt as part of the capital financing mix above the current 15 percent policy limit, within an acceptable range of risk, with the goal being to lower the overall cost of debt.
- ◆ The PAYG percentage should be re-evaluated to determine if it is still appropriate given changed conditions since the 20 percent policy was adopted in 1988.

During discussions of the position papers and after a meeting with the Rate Refinement Task Force on August 28, 1997, the following main topics emerged and eventually formed the basis of the Work Group report:

◆ WORKING CASH

The Work Group determined that Metropolitan's current definition of working capital was possibly inconsistent with established industry norms. The concept of "working cash" was developed as an alternative. The O&M Fund was identified as Metropolitan's true working cash. The O&M Fund, as required under revenue bond covenants, holds funds to cover two months of O&M expenditures and is used to handle timing mismatches between receipt of revenues and payments of expenses. Working cash is discussed in Chapter 4, Fund Policies.

◆ SELF-INSURED RETENTION

Metropolitan has historically maintained a self-insured retention reserve of \$25 million for emergency repairs and claims. The monies are held in the Revenue Remainder Fund and have been considered part of the working capital reserve. The Work Group, as part of the redefining of working capital, felt that the self-insured retention should be held in a separate fund and clearly identified as a reserve for this purpose. The Self-insured Retention Fund is discussed in Chapter 4, Fund Policies.

◆ WATER TRANSFER FUND

The Water Transfer Fund is maintained to purchase water for storage programs, to purchase options for future water purchases, and to fund the filling of the Eastside Reservoir Project. The fund has been scheduled to sunset in the year 2004. The Work Group, with the exception of the San Diego County Water Authority, was in agreement with the purpose and management of the fund but felt that it needed to be re-evaluated after the Eastside Reservoir Project becomes operational. The Water Transfer Fund is discussed in Chapter 4, Fund Policies.

◆ REVENUE SHORTFALL RESERVES

As an alternative to the current working capital policy, the Work Group felt that a current year revenue shortfall reserve should be established based on a minimum revenue shortfall reserve level determined to cover reasonably expected revenue shortfalls over an 18-month period. These monies would be held in the Revenue Remainder Fund. A maximum revenue shortfall reserve level would be established based on a 2 or 3 year water sales shortfall and held in the Water Rate Stabilization Fund and Revenue Remainder Fund. This topic is discussed in more detail in Chapter 4.

◆ STRUCTURAL RISK FACTORS

While the minimum and maximum revenue shortfall reserve levels would be set based on estimated water sales variability and revenue shortfalls, it is recognized that certain structural risk factors must also be considered for their potential financial effects. These factors are discussed in more detail in Chapter 4.

◆ CAPITAL FINANCING

Metropolitan's current PAYG policy for financing capital projects is 20 percent of ongoing capital expenditures. It was agreed that an appropriate level of PAYG financing is needed to stabilize capital spending by reducing the amount of debt financing in order to balance the repayment burden placed on future beneficiaries with the benefits to be received by current ratepayers.

◆ FLOW OF FUNDS

Metropolitan's current flow of funds ends with the Pay-As-You-Go Fund into which remaining monies on hand at year-end are placed after all other reserve requirements are satisfied. As part of the 1995 update of the Long Range Finance Plan the Water Rate Stabilization Fund (WRSF) was capped at \$200 million with monies above this level flowing to the PAYG Fund. An alternative flow of funds has been suggested by the Work Group. The alternative would remove the cap from the WRSF and make this fund the last in the flow of funds, after the required balance in the PAYG Fund has been met.

An MWD/Member Agency Finance Work Group report was prepared summarizing the information and positions developed during the process. The report was presented to Metropolitan's Board of Directors in November 1997. The information presented in the report and the position papers will be considered as a part of the update of the Long Range Finance Plan.

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C H A P T E R

2

COST AND REVENUE PROJECTIONS

Metropolitan is committed to meeting the needs of its member agencies in an affordable manner and providing value for rate payer dollars. In order to achieve these goals, the District has identified a number of strategic initiatives. As part of this process, a draft Strategic Plan that identified guiding principles was developed, an integrated resources plan (IRP) has been formulated, a capital improvement program (CIP) has been identified, and a Rate Refinement Process is underway. Metropolitan is also striving to be a more competitive organization to meet the changes currently taking place in the utility industry. This chapter provides information on the District's future costs and revenues based on the assumptions contained in these strategic initiatives and other currently available information. It should be noted that input from member agencies has been provided in the development of each of these programs.

ASSUMPTIONS

Chapter 2 provides a base case upon which the financial impacts of alternative scenarios can be measured. Therefore sales sensitivities, potential costs and revenues associated with wheeling, potential water transfer revenues, different levels of Pay-As-You-Go (PAYG) construction, alternative reserve policies, and potential rate structures are not addressed in this chapter.

Projected costs and revenues for the period 1999-2008 are estimates and are subject to variations inherent in all such projections. Consequently, the estimates should not be viewed as precise predictions but rather as indications of expected trends, given certain expenditure, revenue, and financing assumptions. The assumptions included in this chapter are based on current Board policy and goals and represent management's best estimates of results at this time. The rationales for the assumptions are included under the appropriate sections. The underlying assumptions used throughout this chapter are as follows:

- ◆ An increase in total water demands from 1.50 million acre-feet (MAF) to about 2.1 MAF by the year 2008,*
- ◆ A steady rate of economic growth in the service area,
- ◆ Continued success of Metropolitan's cost containment and competitive efforts, and

* It should be noted that 1.50 MAF is approximately 300,000 AF lower than normal demands. This is the result of the effects of the unusually wet weather conditions of El Niño on the service area in 1998.

- ◆ Increases in Metropolitan's effective water rate will not exceed three percent in any year throughout the ten year period.

It should be noted that this base case reflects the sales, revenues, and costs associated with the San Diego County Water Authority/Imperial Irrigation District (SDCWA/IID) water transfer agreement.

FINANCING ASSUMPTIONS INCLUDE:

- ◆ Funding 80 percent of the CIP from debt issuance and 20 percent from pay-as-you-go (PAYG),
- ◆ Annual PAYG expenditures from current year revenues will not exceed \$90 million,
- ◆ Variable rate debt will comprise 15 percent of total outstanding, and
- ◆ Long-term bond and short-term financing rates of six percent and four percent, respectively.

REVENUE ASSUMPTIONS INCLUDE:

- ◆ Rates and charges will be set at levels sufficient to meet all expenditure obligations while meeting Rate Refinement objectives,
- ◆ Tax rate to remain constant at .0089 percent of assessed valuation,
- ◆ Tax revenues will not exceed the statutory maximum defined in Section 124.5 of the MWD Act, and
- ◆ Interest earnings rate of six percent.

OTHER ASSUMPTIONS INCLUDE:

- ◆ MWD O&M cost escalation of 2.0 percent per year,
- ◆ MWD capital construction costs escalation of 5.0 percent per year for projects which have not had construction contracts awarded,
- ◆ Maximizing Colorado River Aqueduct water imports, and
- ◆ Funding water conservation, recycling and groundwater recovery projects to meet the goals established in the IRP.

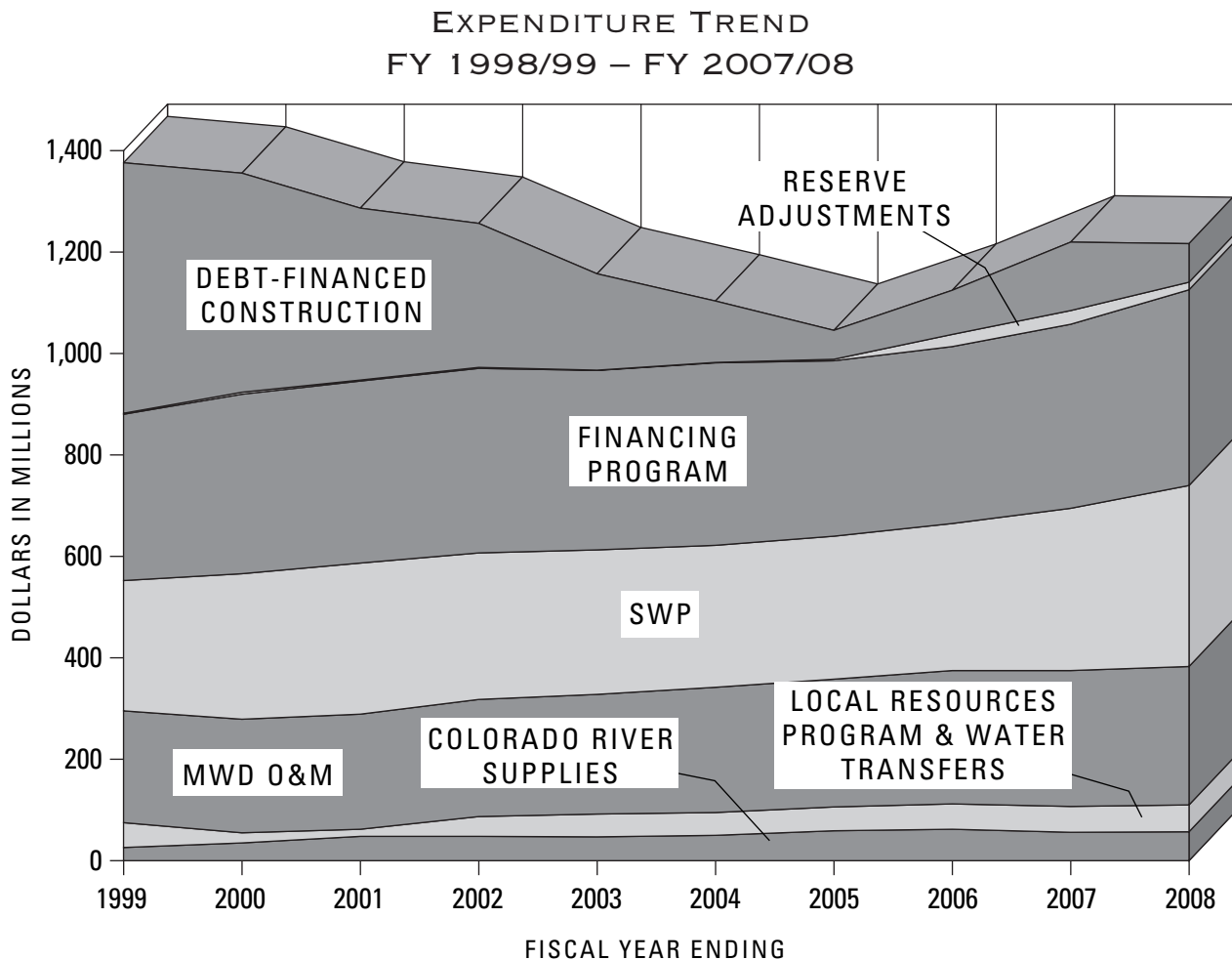
COST PROJECTIONS

Fiscal Year 1998-99 total expenditures are estimated to be \$1.4 billion. Expenditures are projected to decline to \$1.2 billion in 2004-2005, then increase to \$1.39 billion in 2007-08. These fluctuations are mainly due to the timing of construction expenditures.

Annual costs, which excludes debt financed construction and construction funded from PAYG reserves, are projected to increase from \$879 million in 1998-99 to \$1.164 billion in 2007-08 as Metropolitan continues to support programs to secure future water

supplies, including the CALFED process for a Bay-Delta solution, improve water reliability within its service area, ensure compliance with State and Federal water quality regulations, and support facilities expansion programs while meeting cost containment objectives. The two largest cost drivers are MWD's capital financing program and the State Water Project (SWP). Metropolitan's capital financing program is projected to increase from \$351 million in 1998-99 to \$413 million in 2007-08, primarily as the result of the issuance of additional revenue bonds over this period. Costs for the SWP will increase from \$258 million in 1999 to \$360 million in 2007-08. The main factors behind these increases are costs associated with filling the Eastside Reservoir, from 1998-99 through 2001-02, and Metropolitan's share of the costs for Bay-Delta improvements relating to the CALFED Program which begin in 2001-02. These costs are estimated to increase from \$31 million in 2001-02 to \$62 million in 2002-03, remaining at this level through 2007-08. Projected expenditures are shown on Table 1 at the end of this chapter.

The graph below presents the expenditure projections by major category.



STATE WATER PROJECT SUPPLIES

Metropolitan is one of 29 agencies that contracts with the State of California for a water supply from the State Water Project (SWP). Metropolitan's entitlement under its State Water Contract is for 2.01 million acre-feet annually. The District is obligated to pay the capital and minimum operations, maintenance, power, and replacement (OMP&R) charges of the project regardless of the amount of water actually received. In addition, the District pays for power costs to convey SWP supplies. Total SWP costs are projected to increase from \$258 million in 1998-99 to \$360 million in 2007-08, an average annual increase of \$11 million. These increases are due to increased power costs that reflect increased deliveries, for the CALFED Bay-Delta Program, the ERP fill and higher unit costs for power.

The CALFED Bay-Delta Program is a collaborative effort by state and federal agencies to develop a long-term comprehensive plan to restore the ecological health of the Sacramento/San Joaquin Delta (Delta) and the reliability of water supplies delivered through the Delta. The Delta is at the confluence of California's two largest rivers, the Sacramento and San Joaquin Rivers, and is a principal source of water for the State, including the SWP.

The capital charges include repayment of the District's share of the cost of facilities constructed to date as well as the projected costs of new facilities. Facilities improvements which will develop as a result of the CALFED Program will in part be paid by the SWP. Currently, Metropolitan's total share of the program is estimated to be approximately \$1 billion. Annual payments are projected to increase from \$31 million in calendar year 2002 to \$62 million per year thereafter. This increase could cause the water rate to increase by as much as \$30 per acre-foot. This increase is already included in Metropolitan's projected rate increases, as reflected in the "Projected Full Service Treated Water Rate" table on page 2-15. Conversely, Metropolitan's costs for existing facilities will be reduced by about \$10 million as existing debt is retired. Thus Metropolitan's capital costs will increase from \$146 million in 1998-99 to 199 million in 2007-08. If the CALFED Program costs more than \$1 billion, Metropolitan's share would increase, which could result in future water rate increases higher than those currently projected.

The OMP&R charges include operating costs that are not based on quantities of water actually delivered. These include direct O&M costs of conservation and transportation facilities, general O&M associated with a portion of the contractor accounting office, finance and contract administration, power planning for SWP facilities, power costs for pumping water into project reservoirs, and replacement deposits for SWP facilities. It is projected that these costs will remain relatively flat over the next 10 years. It should be noted that the Department of Water Resources only provides escalated costs for the OMP&R component for the upcoming two years. Over the past 10 years, OMP&R costs have increased on average by about three percent. Based on this historical trend, these estimates could be somewhat higher.

Payments for power under the State Water Contract are made through the Variable Power and Off-Aqueduct Power Facilities charges. The variable power costs are directly related to the amount of water pumped each year. The total Off-Aqueduct power costs

are fixed in the year billed and are allocated among contractors based on the amount of water each contractor takes and the power used to deliver that water. Power costs are adjusted in later years based on the amount and cost of power actually used during the billing year. The power requirements are met from a diverse mix of resources including State-owned hydroelectric generating facilities; an ownership share in a coal-fired generating facility; and contracts with several utilities in California, the Pacific Northwest, and the Southwest. Variations in energy markets as well as actual SWP deliveries to Metropolitan make these costs the most volatile component of the State Water Contract costs. Power costs are estimated to increase from \$64 million in 1998-99 to \$106 million in 2007-08 due to increasing SWP deliveries and increasing unit costs for energy. It should be noted that these projections do not include the potential cost impact for SWP transmission due to the deregulation of the power industry.

The table below shows cost projections for the State Water Project supplies by component.

STATE WATER PROJECT COSTS

Dollars in Millions	1998/99	2001/02	2004/05	2007/08
Current Capital	\$ 147	\$ 139	\$ 137	\$ 137
Future Capital	0	31	62	62
OMP&R	111	110	108	110
Off Aqueduct and Variable Power	64	78	75	89
Credits	- 64	-38	-38	-38
Total	\$ 258	\$ 320	\$ 344	\$ 360

◆ COLORADO RIVER SUPPLIES

The District imports water from the Colorado River under water delivery contracts with the U.S. Department of the Interior. The amount of Colorado River water currently available for delivery by Metropolitan to its member agencies is 1.212 million acre-feet per year. A 1963 U. S. Supreme Court decision, *Arizona v. California*, limited California's basic apportionment of Colorado River water to 4.4 million acre-feet per year. As a result, Metropolitan's right to divert water, which is lower in priority than California agricultural rights holders, decreased once the Central Arizona Project began operation in 1985. However, to date Metropolitan's Colorado River supplies have not been limited as sufficient unused and surplus water has been available.

Discussions and negotiations among the California agencies that have interests in the delivery of water from the Colorado River have taken place in response to concerns expressed by the United States Secretary of the Interior with regard to California's long-term use of surplus water. Discussions have focused on the development of a "California Plan." This plan presently under consideration proposes that the California agencies reduce their reliance on surplus Colorado River water and limit usage to the state's basic apportionment of 4.4 million acre-feet of water when hydrology and demands require such limitations.

The Colorado River is the most cost-effective source of supply available to the District due to favorable water and power contracts and overall lower energy use. To ensure that deliveries from the Colorado River Aqueduct are maximized, Metropolitan is pursuing numerous strategies such as voluntary land following and conservation programs, storage of water in groundwater basins, and revisions in Colorado River system reservoir operations as part of the California Plan. It should be noted that Metropolitan will operate the aqueduct so that interim blending targets as well as long-term blending targets are met.

One component of the California Plan is the SDCWA/IID water transfer. Under an Exchange Agreement approved by the Boards of Directors of Metropolitan and SDCWA on November 10, 1998, up to 200,000 AF of IID water purchased by SDCWA will be delivered to Metropolitan and a like quantity of water will be delivered by Metropolitan to SDCWA. The projections assumes that 20,000 AF begins to be exchanged in 2004 increasing by 20,000 AF per year until reaching 200,000 AF. Under the agreement Metropolitan will pay the O&M costs associated with the All American Canal Lining and Coachella Canal Lining projects. The capital costs for lining the canals are being paid by the State of California.

COLORADO RIVER COSTS

Dollars in Millions	1998/99	2001/02	2004/05	2007/08
CRA Power	\$ 21	\$ 30	\$ 33	\$ 36
Colorado River Supply Programs	5	18	26	21
Total	\$ 26	\$ 48	\$ 59	\$ 57

◆ WATER TRANSFERS, EXCHANGES, AND OPTIONS

Voluntary water transfers, exchanges, and options are a critical element for improving the water supply reliability within Metropolitan's service area and accomplishing the reliability goal set by the Board of Directors. To help accomplish this goal, a Water Transfer Fund was established to provide funding for potential water transfers, purchases and/or exchanges from other users of Colorado River, State Water Project, or Central Valley Project supplies; and to accrue monies to be used for the initial fill of the Eastside Reservoir Project. To date, approximately \$39 million has been spent on water transfer programs.

The balance in the fund as of June 30, 1998 was \$35.6 million. Deposits to this fund are anticipated to be \$24 million in 1998-99 and \$10 million in 1999-2000. Withdrawals from the fund for the Eastside Reservoir fill are projected to be \$19.1 million in 1999-00, \$22.5 million in 2000-01 and \$3.2 million in 2001-02.

The two primary water transfer programs which Metropolitan has entered into are with Semitropic Water Storage District and Arvin-Edison Water Storage District. Total storage associated with these two projects is estimated to be 650,000 acre-feet. Approximately \$63 million will have been spent on these projects between 1995-96 and 2005-06. One of the main advantages of the Water Transfer Fund is that monies are available to purchase transfer options or to purchase water for storage during wet periods when purchase prices are lower.

The initial fill of the Eastside Reservoir is currently scheduled to begin in 1999 and continue for approximately four years. The cost is estimated to range between \$45 million and \$80 million depending on the cost of power during the fill period. Accruing the funds gradually over several years will reduce the likelihood of rate spikes during the fill period.

The Water Transfer Fund is scheduled to sunset in 2004 after the Eastside Reservoir is filled. However, it is anticipated that there could be some expenditures for options past that time. Once the reservoir is filled, Metropolitan will evaluate the need for this fund.

The table below shows deposits, expenditures, and balances for the Water Transfer Fund. It should be noted that future hydrologic conditions can change these projected receipts and disbursements significantly.

WATER TRANSFER FUND

\$ in Thousands	1995/96 – 1997/98	1998/99	1999/00	2000/01	2001/02	2002/03 – 2005/06	Total
Beginning Balance	\$ 0	\$ 35,556	\$ 50,523	\$ 39,315	\$ 13,465	\$ 5,752	
Receipts*	74,488	26,582	12,695	1,583	577	173	\$ 116,098
Disbursements							
Semitropic	22,483	4,865	0	0	0	0	\$ 27,348
Arvin-Edison	12,000	6,750	4,750	4,900	5,050	2,600	\$ 36,050
Other	4,449	0	0	0	0	3,325	\$ 7,774
Eastside Fill	0	0	19,153	22,533	3,240	0	\$ 44,926
Ending Year Balance	\$ 35,556	\$ 50,523	\$ 39,315	\$ 13,465	\$ 5,752	\$ 0	

* Includes interest earnings

◆ WATER MANAGEMENT PROGRAMS

To help maximize the use of available water supplies in Southern California and meet the goals set forth in the IRP, the District has embarked on several water management programs. These programs include the Local Resources Program (LRP) and the Conservation Credits Program. It is estimated that the District's annual cost for participation in these programs will be \$52 million by the year 2007-08, up from \$25 million in 1998-99.

Under the LRP, the District provides financial assistance for local water reclamation projects that produce new water supplies. Currently, Metropolitan is participating in 42 water recycling projects. Thirty of these projects are in operation and the remaining 12 projects are under design or construction. Metropolitan also provides financial assistance to 11 projects that recover contaminated groundwater. Metropolitan's contribution to these projects can be as much as \$250 per acre-foot depending on the actual project cost.

The Conservation Credits Program is designed to achieve effective long-term water conservation. Under this program, the District pays either one-half the cost of qualifying water conservation projects or the equivalent of \$154 per acre-foot of water saved.

While the program has targeted ultra-low flush toilets and showerhead replacements, it also addresses residential indoor/outdoor water surveys, large turf area audits, residential landscape water audits, distribution system water audit/leak detection and commercial/industrial conservation measures. The costs of the conservation credits program are projected to increase from \$9 million in 1998-99 to \$12 million in 2007-08.

The table below shows the cost projections for water management programs by component.

WATER MANAGEMENT PROGRAMS

Dollars in Millions	1998/99	2001/02	2004/05	2007/08
Local Resources Program	\$ 16	\$ 33	\$ 37	\$ 40
Conservation Credits Program	9	10	11	12
Total	\$ 25	\$ 43	\$ 48	\$ 52

◆ CAPITAL IMPROVEMENT PROGRAM

The current 10-year CIP (1995-96 through 2004-05) is estimated to be \$4.0 billion. A five percent escalation factor is included in this estimate for projects which have not had construction contracts awarded.

The projects that comprise the CIP in this planning period are driven by the need to maintain water supply reliability, water quality and compliance, and affordability. These projects have been identified from many Metropolitan studies including the IRP, System Overview Study, and operational demands studies on aging facilities. The cornerstones of the CIP are the Eastside Reservoir Project, Inland Feeder, Local Groundwater Storage Program, and Ozonation. Annual capital outlays over the planning period are expected to decrease from \$618 million in 1998-99 to a low of \$151 million in 2004-05. At that point expenditures are projected to increase to \$279 million in 2007-08. The decrease reflects completion of the Eastside Reservoir Project in 1999 and the Inland Feeder in 2004.

The increase in the three last years of the forecast are for Local Groundwater Storage Agreements; Central Pool Augmentation Filtration Plant, Tunnel and Pipeline; West Valley Project; Oxidation Retrofit Program at Diemer, Weymouth & Skinner Filtration Plants; and other miscellaneous projects.

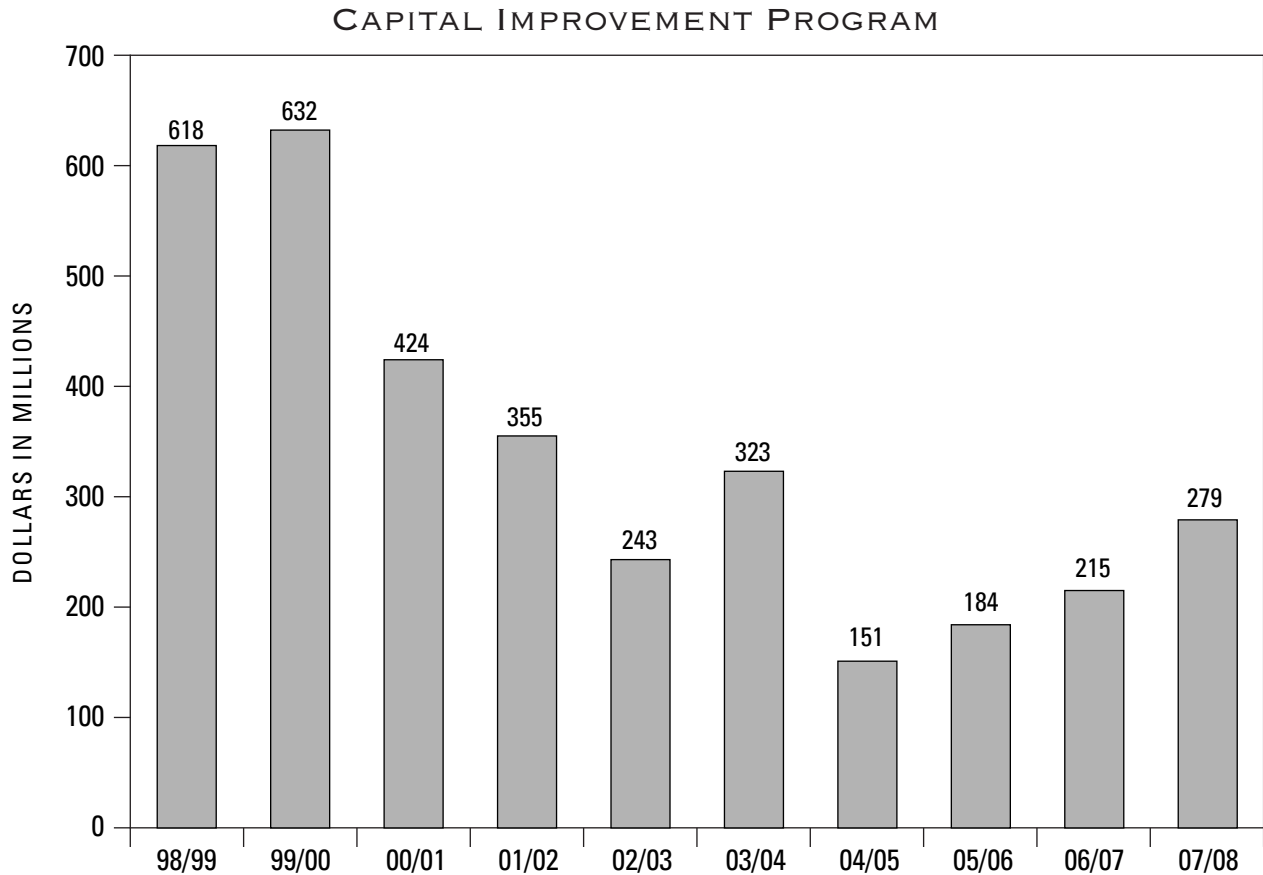
◆ EASTSIDE RESERVOIR COST INCREASE

The projected cost for the Eastside Reservoir Project has increased by \$220 million to \$2.2 billion.

The \$220 million projected overage in the Eastside Reservoir Project may result in increased revenue bond sales by Metropolitan, thereby increasing future debt service payments. If the \$220 million is funded from the issuance of debt, then beginning in fiscal year 2000-01, debt service payments will increase by approximately \$13 million per year. If other cost reductions are realized that permit issuing less debt for this overrun, then the debt service costs would be reduced accordingly. While the \$13 million increase in debt service would equal a \$6 per acre-foot increase to the water rate, cur-

rent projections show that the additional financing costs can be covered from the Water Rate Stabilization Fund with no additional impact on water rates.

The graph below shows anticipated CIP expenditures over the next ten years.



◆ MWD FINANCING PROGRAM

The CIP is financed by a variety of methods and techniques. The District's current policy is to finance the CIP primarily through the issuance of long-term and short-term debt, together with pay-as-you-go (PAYG) funding of up to 20 percent of the construction program. (See Chapter 5 for additional discussion regarding PAYG)

Annual debt service costs for outstanding and projected revenue and general obligation bonds, commercial paper, as well as projected PAYG outlays from operating revenues to pay for the construction program, are projected to be \$413 million in 2007-08, an average annual increase of about \$6 million per year from the current level of \$355 million. Funding for general obligation bond debt service is provided from ad valorem taxes, which will decline as outstanding bonds are retired. Fixed interest rate revenue bond debt service, variable rate revenue bond debt service, and PAYG outlays are primarily funded from water sales revenues.

As the major CIP projects are completed, PAYG expenditures will decline unless additional reserves are available to fund the PAYG program. Fiscal Year 1998-99 is one of the peak years for CIP expenditures, with PAYG providing \$105 million of which \$90

million is funded from current revenues. The balance is funded from PAYG monies on hand from previous years. By 2007-08 it is anticipated that PAYG expenditures will be approximately \$56 million.

The table below shows the projected composition of debt service and PAYG expenditures over the next ten years.

DEBT SERVICE AND PAYG COSTS

Dollars in Millions	1998/99	2001/02	2004/05	2007/08
Revenue Bond Debt Service	\$ 180	\$ 243	\$ 271	\$ 294
General Obligation Bond Debt Service	57	51	51	51
Commercial Paper Interest	6	8	12	12
Headquarters Construction	22	0	0	0
Pay-As-You-Go Construction	90	71	30	56
Total	\$ 355	\$ 373	\$ 364	\$ 413

◆ HEADQUARTERS BUILDING EXPENDITURES AND REIMBURSEMENT

In accordance with Board authority, the headquarters building project was funded on a current basis from the General Fund.

Total expenditures for the headquarters building are anticipated to be \$135 million, of which \$129 million may be reimbursed to the General Fund (the \$6 million difference is proceeds from the sale of the old headquarters building). A number of financing options for reimbursement to the General Fund have been evaluated by staff.

A more detailed discussion of the financing options is included in Chapter 6, Capital Financing Options.

◆ OPERATIONS AND MAINTENANCE

MWD operations and maintenance (O&M) costs include projections for District labor, materials, outside services, and other miscellaneous costs to operate and maintain the Colorado River Aqueduct, the water treatment and distribution system, and general administrative expense. Currently, O&M costs are projected to increase from \$220 million in 1998-99 to \$266 million in 2007-08. New facilities that are scheduled to become operational during this time frame include the Eastside Reservoir Project, Inland Feeder, San Diego Pipeline No. 6, the South County Pipeline, and ozone retrofits at the filtration plants. Future ozone treatment plant O&M costs are based on the operating costs of the ozone demonstration plant. The additional costs associated with new storage/conveyance facilities are projected to be offset by increased efficiencies and cost reductions in other areas.

Metropolitan is committed to reduce the projected increases in O&M through productivity improvements including re-engineering processes, streamlining procedures, and continued automation of manual systems. The installation of the Supervisory Control and Data Acquisition System (SCADA), a computerized system that opens and closes valves and reports back data that are used to control flow and energy generation along the distribution system, is part of an overall effort to control costs.

Implementation of a maintenance management system will enable Metropolitan to streamline maintenance procedures, improve productivity through better scheduling, reduce unscheduled system outages and reduce inventory parts. Other efforts are underway including an aggressive employee training and tuition reimbursement program, the development of multi-skilled flexible work teams particularly at the treatment facilities, employee succession plans, as well as continuous improvement. It is anticipated that through automation and the development of self-directed, multi-skilled work teams, existing personnel can be redeployed to operate and maintain new facilities with a minimal increase in staff, if any.

Additionally, a Business Development Program was implemented in 1997 to assist Metropolitan transition into the 21st century. Metropolitan is identifying those areas of unique capabilities and areas of expertise that can be marketed. Estimated costs are projected to be approximately \$2.5 million in 1998-99 which is anticipated to be offset by \$3.6 million in revenues from these endeavors.

◆ ADJUSTMENTS IN RESERVES

Metropolitan must make adjustments in reserve balances to meet revenue bond covenants and board policies each month. Working capital reserves currently amount to \$175 million. This provides \$25 million for emergency repairs and any claims brought against the District, and \$150 million for general purposes in the event that revenues fall short of requirements. Chapter 4 includes a more detailed discussion of working capital and reserves.

◆ AFFORDABILITY, COST CONTAINMENT, AND COMPETITIVE MANAGEMENT

Over the years, Metropolitan has had to adjust the way in which it manages the financing of the regional imported water supply of Southern California. For example, in 1990, it became apparent that water supplies available at the District would not be sufficient to meet the water demands of its member agencies. As a result, an aggressive water allocation plan, the Incremental Interruption and Conservation Plan, was put in place to provide financial incentives for member agencies to efficiently utilize water supplies. In addition a cost reduction plan was developed to trim revenue requirements and mitigate the need to raise water rates. These measures were very successful and the finances of the District stabilized.

In January and February of 1995, financial pressures hit the District from another direction. Heavy rainfall across the State produced ample water supplies in Northern California, but significantly depressed demand for imported water in Southern California as regional groundwater basins and surface storage reservoirs were naturally replenished. As a result of the heavy rainfall, water sales revenues were lower than anticipated; and cost containment strategies were developed to offset the reduced revenues.

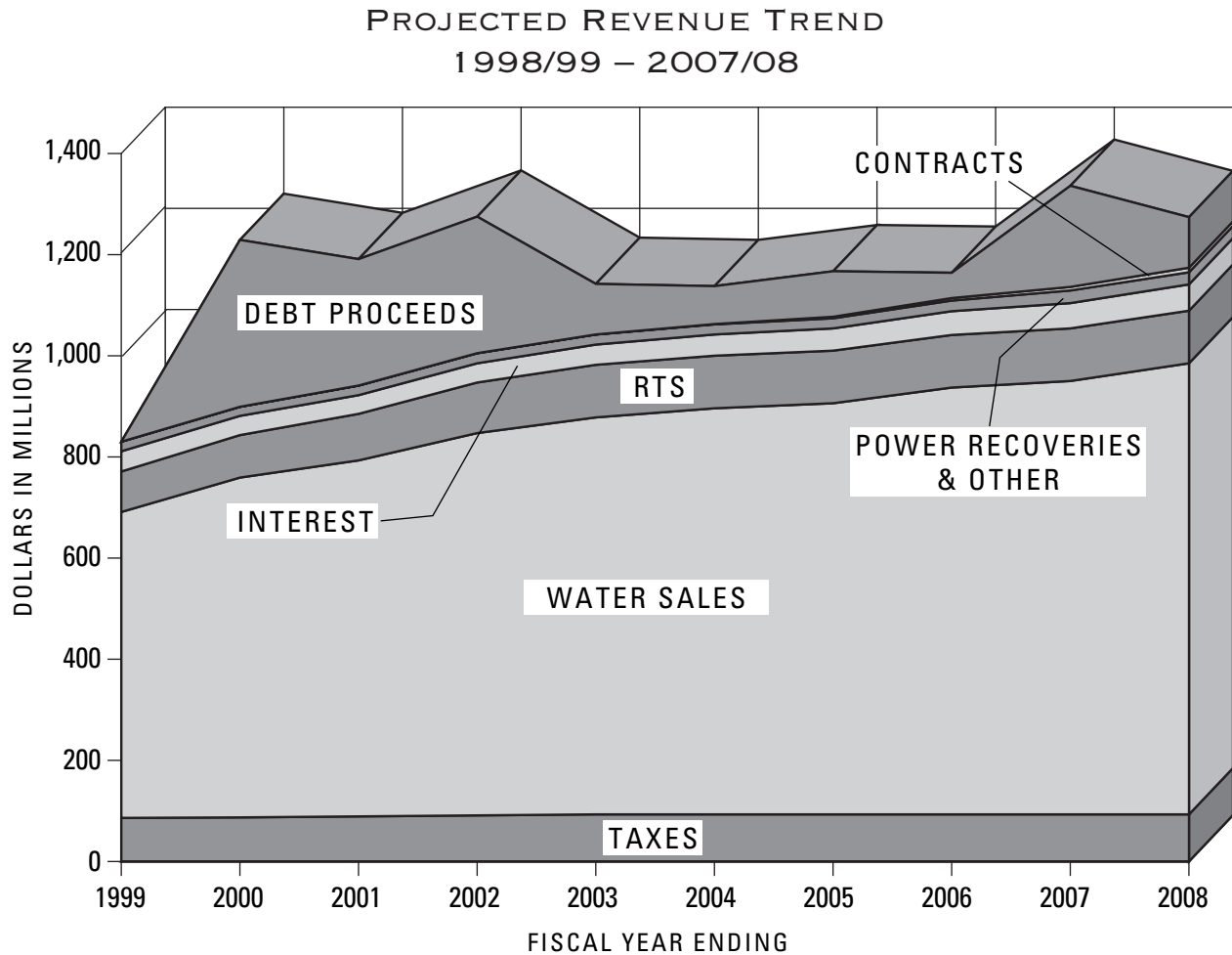
Currently, Metropolitan's push toward competitiveness is driven by the realization that we are not unique in the service we provide, and that, in fact, our customers could seek professional water resource management services elsewhere from a growing list of domestic and international participants. In order to survive in a new era of customer-driven utilities, Metropolitan must be prepared to provide outstanding customer service in a competitive market. Metropolitan is meeting this challenge in part by instituting

changes within the organization based upon fundamental principles of private enterprise. As outlined above, technology, and innovation are playing a major role in this transformation.

REVENUE PROJECTIONS

Revenues are projected to increase from \$850 million in 1998-99 to \$1.1 billion in 2007-08. Financing the CIP, paying increasing costs for the State Water Project, and securing additional sources of water will be the main factors that increase revenue requirements over the next ten years. In addition, another source of funds is proceeds from debt sales to cover capital construction expenditures. The amount of these proceeds vary from year to year depending on projected CIP cash flows. Projected revenues and proceeds from debt sales are shown on Table 2 at the end of this chapter.

The graph below presents the debt proceeds and revenue projections by major category.



◆ REVENUE STRUCTURE/RATE REFINEMENT

Metropolitan's current revenue structure, which was implemented in July 1995, provides additional revenue stability through the implementation of the Readiness-to-Serve Charge. The District's principal source of revenue is water sales. Water revenues are projected to range from 75 percent to 84 percent of total revenues through the year 2007-08. At present, other sources of revenue include taxes, interest income, readiness-to-serve charges (partially collected through a standby charge on real property), connection maintenance charges, sales of hydroelectric power, and miscellaneous revenues. The revenue structure also includes a New Demand Charge. Several unresolved issues surround this charge and the rate structure. Currently, Metropolitan is not collecting revenues from this charge.

Following the implementation of the current revenue structure, a Rate Refinement Process (RRP) was initiated to resolve issues of financing the resources and facility strategies of the Integrated Resource Plan (IRP) and develop recommendations to improve Metropolitan's rate structure. Phase I of the RRP focused on establishing guidelines for setting rates and charges for the five year period 1997-2001. Specific recommendations were adopted regarding:

- ◆ Rate Management Objectives and Overall Rate Levels, including a commitment that Metropolitan's effective water rate will not exceed three percent in any year until year 2001
- ◆ Readiness-to-Serve Charge, with annual increases of \$8 million per year to a maximum of \$104 million.
- ◆ New Demand Charge
- ◆ Peaking
- ◆ Agricultural Water Rate
- ◆ Treatment Surcharge
- ◆ Short- and Long-Term Water Storage Programs
- ◆ Connection Maintenance Charge

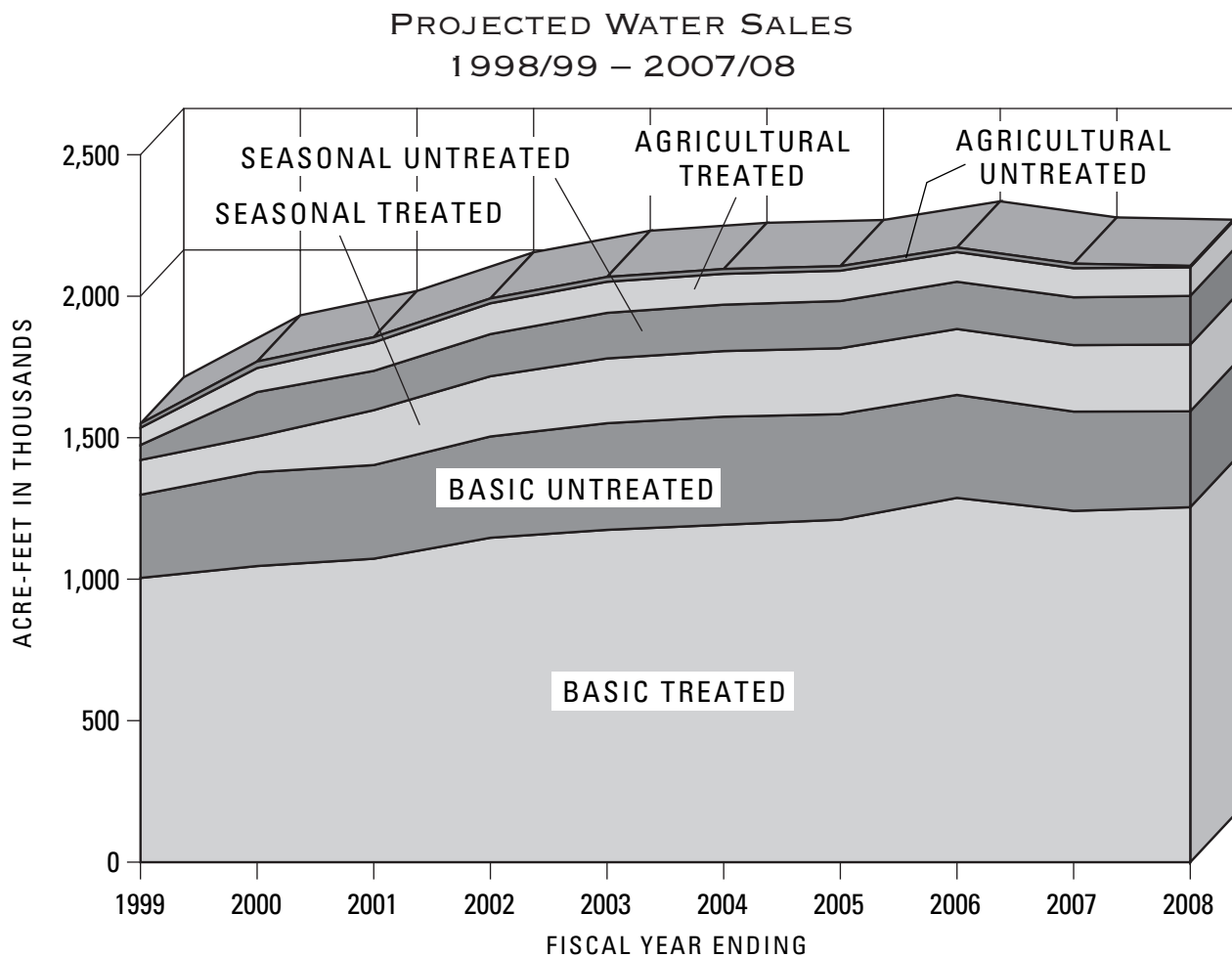
Metropolitan is continuing to work with its member agencies to determine if the current rate structure is appropriate for the future.

◆ WATER SALES

Metropolitan's principal source of revenue is and will continue to be from water sales, over the planning horizon. Water rates and water revenue requirements are established by the Board of Directors on an annual basis.

From 1980-81 to 1989-90 required water revenues were determined by using a proportionate use formula for allocating costs between water users and taxpayers. Under this formula, costs defined as capital costs were allocated between water users and taxpayers according to a ratio determined by the percent usage of the total capacity of the District's water delivery systems. All operating costs were paid by water users. Since fiscal year 1991-92, water revenues are determined after calculation of the tax levy. Calculation of the tax levy is discussed later in this chapter.

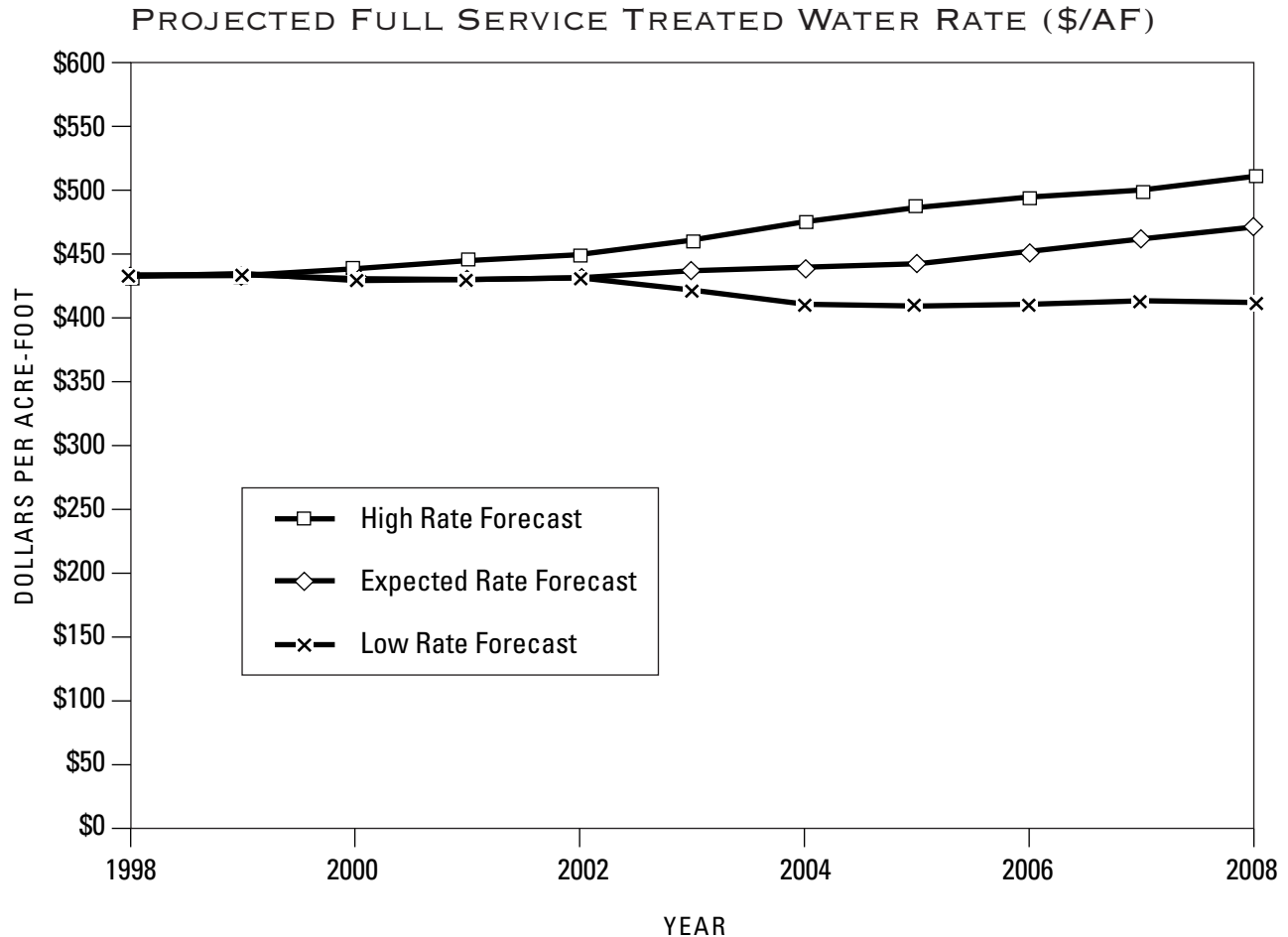
Water sales are estimated to account for 75 percent to 84 percent of total revenues through fiscal year 2007-08. Current estimates indicate that water sales will increase from 1.5 MAF in fiscal year 1998-99 to 2.1 MAF in fiscal year 2007-08. It should be noted that 1.5 MAF is approximately 300,000 below normal demand estimates. This is due to the effects of the unusually wet weather conditions of El Nino on the service area during 1998. It is estimated that sales should return to normal levels over the next five years. Additionally, these estimates have been reduced to reflect the SDCWA/IID water transfer agreement. However, it should be noted that these estimates are subject to change based on future hydrologic conditions. A discussion of Metropolitan's financial sensitivity to water sales is addressed in Chapter 3. The graph below shows projected water sales by category.



◆ WATER RATES

Metropolitan's water rates are expected to remain at their current levels in the near term. However, by 2008 the treated full service rate is expected to increase by about \$40 per acre-foot. Due to the many variables that impact the water rate forecast and the uncertainty associated with each of these variables, a range of future water rates is

shown in the graph below. The high range was estimated by assuming that average sales are 10 percent lower than expected and that costs are not scaled back from expected levels. Under these assumptions the treated full service rate could increase by as much as \$80 per acre-foot by 2008. On the other hand, if average sales are 10 percent higher than expected, it may be possible to reduce the full service treated water rate depending on Metropolitan's financial condition and goals and whether or not investments in reliability and water quality must be accelerated or increased in order to maintain Metropolitan's service objectives.



◆ TAXES

Metropolitan is empowered under the Metropolitan Water District Act to levy and collect taxes on taxable property within its boundaries for the purpose of carrying on its operations and paying obligations. Property taxes are levied on an annual basis by the Board. Under the statutory limitation set forth in Section 124.5 of the MWD Act (established by the California Legislation in 1984 and referred to as the "Boronkay Compromise"), Metropolitan's tax levy is limited to the total amount required to pay debt service on the general obligation bonds of the District and the district's share of the general obligation bond debt service of DWR for the State Water Project. However,

under the terms of the 1984 legislation, tax levies may exceed the limitation if the Board determines, at a properly noticed public hearing, that a tax in excess of the limitation is essential to Metropolitan's fiscal integrity. Annexation charges collected through the property tax are not included in the statutory limit.

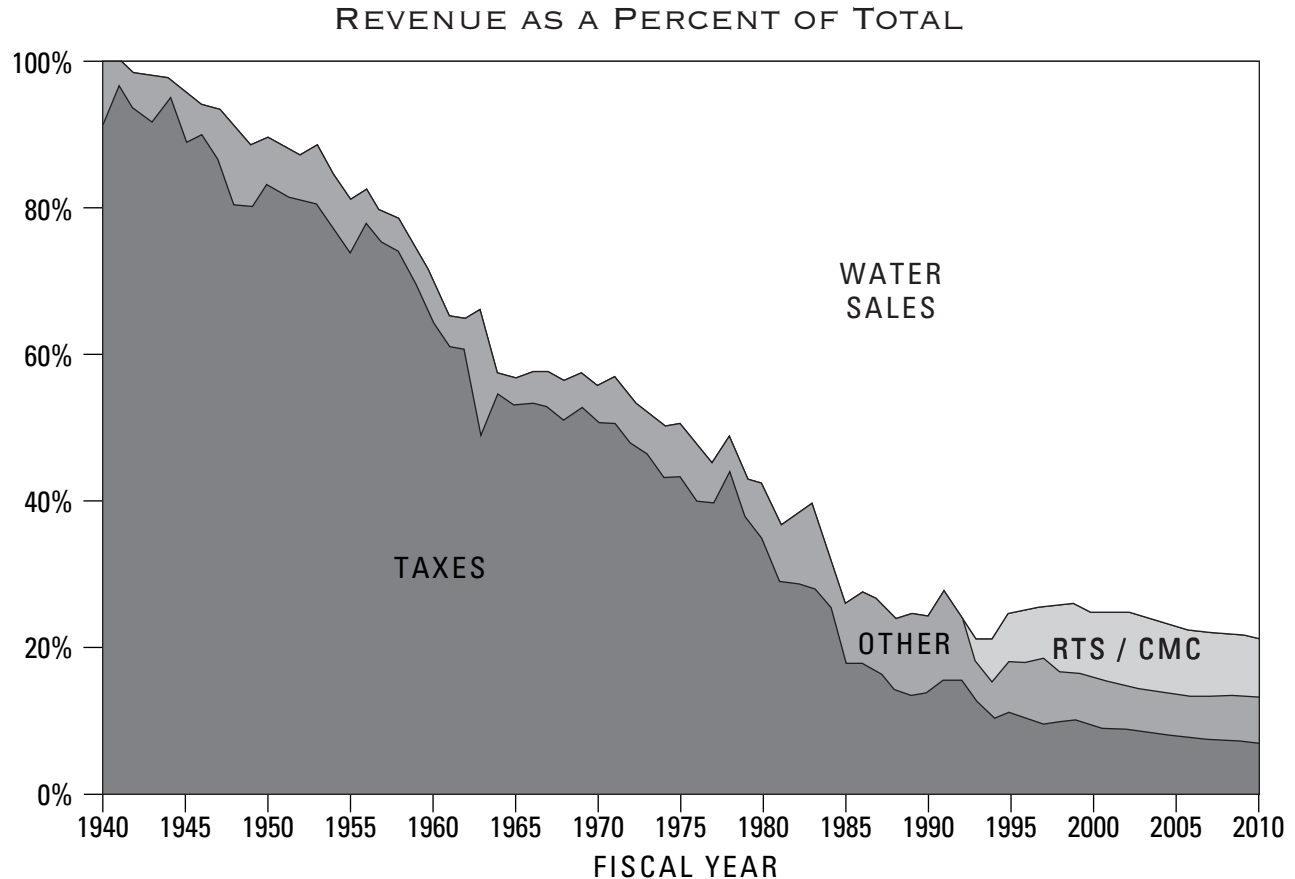
A court of appeals has held that Metropolitan's obligations under the State Water Contract, as well as Metropolitan's own general obligation bonds are voter-approved indebtedness and thus may be collected through property taxes. However, under Section 124.5 of the MWD Act, a finding by the Board of financial necessity would be required to raise the tax levy to the amount needed to pay all State Water Contract charges and all of Metropolitan's general obligation bond debt service.

Since 1991-92, the Board has held the tax rate at .0089 percent of assessed value, which currently produces about \$86 million per year. This is approximately \$20 million below the statutory limit under Section 124.5 of the MWD Act. As a result, certain of Metropolitan's obligations for State Water Project capital payments are paid from water sales and other income. The Board currently may increase property taxes by \$20 million without exceeding the Section 124.5 limit. As the general obligation bonds of Metropolitan and the State Water Project are retired, the tax rate will have to be gradually reduced to stay within the Section 124.5 limit, although issuance of additional general obligation bonds would increase the statutory tax limitation.

It is anticipated that at the current rate of .0089 percent applied to the escalating assessed value of the service area (2 percent per year) and assuming current levels of Metropolitan and State Water Project general obligation bonds, Metropolitan's tax revenues will reach the statutory limit by fiscal year 2003-04.

The graph below illustrates the percentage mix of revenues of Metropolitan from 1940-2010. During construction of the initial distribution system and expansions of the Colorado River Aqueduct pumping plants, tax revenues (revenues that do not vary with water sales) were the main source of revenues for Metropolitan. Tax revenues continued to be the main source of revenue for Metropolitan through periods of additional expansions of the distribution system, the pumping plants, and the distribution system for the State Water Project. During the late 1970s, water revenues became the principal source of revenue for Metropolitan. As the Capital Improvement Program continues into the 1990s, variable water revenues continue to be the primary source of revenue for Metropolitan.





◆ **ANNEXATION CHARGES**

Metropolitan collects charges for areas that annex to the District. Since 1978 the charges have been paid on a cash basis. For calendar year 1999, the per acre annexation charge is \$3,048. Prior to 1978, annexation charges were primarily collected in installments through the levy of ad valorem taxes. District policy allows the pre-1978 annexed areas to pay annexation charges over a 30 year or 50 year period. An annual tax rate of up to .1875 percent of assessed valuation is applied to the annexed area.

◆ **READINESS-TO-SERVE CHARGE (RTS)**

The RTS is a component of the revenue structure intended to recover costs associated with water supply and system reliability, and water quality for existing users. The potential annual benefits are estimated to be \$248.3 million. Although the RTS charge could be set to recover the entire potential benefit, historically it recovers only a portion of the non-tax supported debt service that has been issued to fund capital improvements for existing users. For fiscal year 1998-99, the RTS collections are estimated to generate \$80 million and is allocated to each member agency based upon a three-year average of historical water purchases from Metropolitan for fiscal years 1993-94, 1994-95, and 1995-96, including water delivered for consumptive demands, and agricultural and storage purposes.

Due to increases in debt service to finance the CIP, the RTS is estimated to increase from \$80 million in 1999 to \$104 million in 2003 in accordance with the RRP recommendations. Should all or a portion of those charges not be collected in any given year, other revenue sources (including water revenues) would have to be used to pay for expenditures.

◆ **STANDBY CHARGE**

Metropolitan's standby charge is authorized by the State Legislature and has been levied by Metropolitan since fiscal year 1992-93. It represents an acknowledgment that ad valorem property taxes and revenues from water rates and charges imposed on Metropolitan's member agencies do not necessarily represent the fairest and most equitable way of recovering debt service for capital improvements from benefiting properties. The charge recognizes that there are economic benefits to land that has access to a public water supply system. The charge is used to pay for the following:

- ◆ Capital payments under the State Water Contract
- ◆ Water storage costs for the Eastside Reservoir Project
- ◆ System improvements including the Inland Feeder Project

Twenty three of the 27 member agencies have requested that the District continue to impose a water standby charge on parcels of land within the member agency's service area. The standby charge for each acre or parcel of less than an acre varies from member agency to member agency, as permitted under the legislation establishing Metropolitan's standby charge. Collections from such a charge are credited against the member agency's RTS charge. Should standby revenues exceed a member agency's RTS charge, the excess is applied as a credit to other obligations owed by the agency. It is estimated that approximately \$42 million will be raised each year from the standby charge through 2007-08.

◆ **NEW DEMAND CHARGE**

The new demand charge (NDC) is calculated to recover the capital costs that are associated with new demands on Metropolitan's system. The NDC per member agency is determined by taking an agency's most current four-year water sales average and comparing that average to the member agency's historic demands as measured during a base period. If the four-year average is greater than the historical average, then a NDC is incurred by the member agency. The NDC has been set at \$1,000 per acre-foot.

At this time, collection of the NDC has been suspended while it is being reviewed by Metropolitan and member agency managers. Metropolitan is evaluating alternative growth charges including connection-based fees with the intent of meeting the broad objective of growth pays its fair share. This forecast does not include any revenues to be received from the NDC.

◆ CONNECTION MAINTENANCE CHARGE

The connection maintenance charge (CMC) recovers a portion of the costs associated with operating and maintaining service connections throughout the District's service area. The charge is based on the capacity and number of connections each member agency has with the District. The charge is \$50 per cubic foot per second of connected capacity per month. The maximum charge per connection is \$5,000 per month, and should generate approximately \$3 million per year through fiscal year 2007-08.

◆ WHEELING

Phase 2 of the RRP included consideration of the rates and charges Metropolitan should impose for transporting non-Metropolitan water through Metropolitan facilities. The Board approved principles for short-term wheeling transactions for member agencies in November 1996. The rates effective in January 1997 were \$262 per acre-foot for firm and \$141 per acre-foot for non-firm wheeling transactions of one year or less. Both these rates are for wheeling by member agencies only. To date, no revenues have been collected nor have any requests to wheel water under these rates been received. Metropolitan filed a validation action to affirm the methodology used to establish these rates. Hearings were held in November 1997 and the Court subsequently issued its decision stating that it could not validate Metropolitan's proposed wheeling rates. Metropolitan is appealing the Court's decision. Due to the court decision and pending appeal, wheeling rates were not adopted for the period beginning January 1, 1999.

◆ CONTRACTS

Under the Exchange Agreement between Metropolitan and the SDCWA, Metropolitan will receive \$90 (increased by 1.55 percent for every year after 1998) per acre-foot for water delivered to SDCWA for the first twenty years of the Agreement. The forecast assumes that 20,000 AF are exchanged in 2004 increased by 20,000 AF per year until reaching 200,000 AF. Income from this contract is estimated to increase from \$658,000 in 2003-2004 to \$9.1 million in 2007-08. It should be noted that the pricing provisions are subject to adjustment after the tenth and twentieth year.

◆ OTHER REVENUES

Other revenues of the District include interest on investments, sales of hydroelectric power, and miscellaneous revenues. Interest revenues are a relatively small portion of the District's annual budget, generally four to five percent. Therefore, the District does not rely on interest revenues to cover a significant portion of operating expenses. Interest revenues are impacted by a number of variables including among others market conditions, investment policies, and cash available for investment.

The District's hydroelectric power recovery plants recover part of the energy required to pump water along the State Water Project and the Colorado River Aqueduct. Annual energy generation sales revenues are anticipated to range between \$14 million and \$19 million per year over the next ten-year period. Power from the hydroelectric plants is sold to the Department of Water Resources and the Southern California Edison Co.

Metropolitan has also undertaken some business initiatives to increase the enterprise value of the District to its member agencies and the region. Through the Business Development program, Metropolitan has identified those areas of unique capabilities and areas of expertise that can be marketed. The new marketing strategies focus on fee-for-service, product commercialization, and utilization of other assets. Leveraging these unique capabilities is another strategy Metropolitan is using to keep water rates as low as possible while positioning itself to be more competitive. Beginning in 1997-98, business enterprise development involves marketing strategies for desalination, marketing of intellectual properties where Metropolitan has the competitive advantage, and implementation of a real property management program. This program is expected to generate about \$3 million in 1998-99.

Miscellaneous revenues include revenues from leases and sales of surplus properties, but are not considered a significant part of the District's budget.

TABLE 1
PROJECTED EXPENDITURES — FISCAL YEARS 1998/99 - 2007/08
DOLLARS IN THOUSANDS

Projected Expenditures	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08
State Water Project	\$257,337	\$287,103	\$298,970	\$320,024	\$346,950	\$342,045	\$344,681	\$351,294	\$352,545	\$360,031
Water Transfer Deposits	24,000	10,000	—	—	—	—	—	—	—	—
Withdrawal From Transfer Fund for ESR Fill	—	(19,153)	(22,533)	(3,240)	—	—	—	—	—	—
CRA Power	21,080	26,087	28,176	30,112	31,415	32,236	33,081	33,952	34,849	35,774
Additional Colorado River Supplies	5,424	8,921	16,599	18,061	16,457	17,558	26,126	28,491	20,835	21,224
Revenue Bond Debt Service	179,520	201,666	224,941	242,480	251,379	263,528	270,726	269,522	280,474	293,969
G.O. Bond Debt Service	56,626	58,258	51,330	51,296	51,243	51,247	51,258	51,220	51,252	51,240
Non-Revenue Bond Variable Debt Service	6,085	4,200	4,500	8,400	12,000	12,000	12,000	12,000	12,000	12,000
PAYG paid from Operating Revenues	90,000	90,000	84,817	70,979	48,515	46,354	30,150	36,835	42,916	55,783
MWD O&M and Operating Equipment	220,500	214,671	218,925	223,263	227,688	238,332	243,189	254,779	260,098	265,506
Conservation Credits Program	9,290	9,569	9,856	10,152	10,456	10,770	11,093	11,426	11,769	12,122
Local Resources Program	16,127	20,537	26,803	32,640	34,246	34,687	36,553	37,992	39,159	40,129
HQ Building Expenditures	22,422	—	—	—	—	—	—	—	—	—
Adjustments in Reserves	(25,755)	4,125	17,745	17,651	532	803	2,584	11,515	13,284	16,036
Subtotal	\$882,656	\$915,984	\$960,129	\$1,021,818	\$1,030,882	\$1,049,560	\$1,061,441	\$1,099,027	\$1,119,188	\$1,163,812
Debt-Financed Construction-Expenditures	494,884	542,357	339,267	283,918	194,059	185,414	120,600	147,340	171,665	223,131
PAYG paid from Prior Year Funds	15,000	—	—	—	—	—	—	—	—	—
Total Costs	\$1,392,541	\$1,458,341	\$1,299,396	\$1,305,736	\$1,224,941	\$1,234,974	\$1,182,042	\$1,246,367	\$1,290,853	\$1,386,944

TABLE 2
PROJECTED REVENUES AND DEBT PROCEEDS
1998/99 - 2007/08
DOLLARS IN THOUSANDS

Projected Receipts	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08
Water Sales	\$ 600,035	\$ 673,045	\$ 704,933	\$ 757,261	\$ 786,206	\$ 803,464	\$ 820,957	\$ 851,886	\$ 869,494	\$ 883,322
Taxes	85,958	87,677	89,431	91,219	93,044	93,543	93,547	93,244	93,000	92,883
Readiness-to-Serve Charge	80,000	80,000	84,000	92,000	100,000	104,000	104,000	104,000	104,000	104,000
Connection Maintenance Charge	3,001	2,978	2,978	2,978	2,978	2,978	2,978	2,978	2,978	2,978
Interest on Investments	43,520	39,589	38,960	39,459	40,876	42,048	44,333	46,566	49,048	49,856
Power Recovery and Miscellaneous	16,648	16,603	17,053	17,362	17,486	17,813	18,238	19,413	20,783	21,427
Contracts	–	–	–	–	–	658	2,673	4,750	6,891	9,097
Total Receipts	\$ 829,162	\$ 899,892	\$ 937,355	\$1,000,280	\$1,040,590	\$1,064,504	\$1,086,726	\$1,122,838	\$1,146,194	\$1,163,563
Debt Proceeds	\$ 288,000	\$ 100,000	\$ 377,822	\$ 183,696	\$ 99,735	\$ 180,173	\$ 73,701	\$ 142,315	\$ 167,094	\$ 212,844
Total Revenues and Debt Proceeds	\$1,117,162	\$ 999,892	\$1,315,177	\$1,183,976	\$1,140,325	\$1,245,377	\$1,160,428	\$1,265,153	\$1,313,378	\$1,376,407



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C H A P T E R

3

FINANCIAL SENSITIVITY TO WATER SALES

INTRODUCTION

Metropolitan provides its member agencies with both treated and untreated supplemental supplies of imported water from the Colorado River and the State Water Project. Depending on the class of service and type of water (treated or untreated) needed by a member agency, Metropolitan delivers imported water at wholesale rates ranging from \$233 per acre-foot for untreated, interruptible Seasonal Storage Service to \$431 per acre-foot for treated Full Service deliveries. In Fiscal Year 1997-98, water sales revenue of over \$622 million accounted for over 70 percent of Metropolitan's total revenues. Because it is a supplemental supplier for some of its member agencies, making up any shortfall in local water supplies, and fluctuations in retail level demands caused by weather translate directly into the demand for imported water, Metropolitan's sales can vary as much as ± 20 percent in any given year due to the effects of weather alone. This chapter discusses the variability in Metropolitan's water sales to help explain the importance of holding reserves in order to protect the water rate from changes due to weather.

MWD SALES

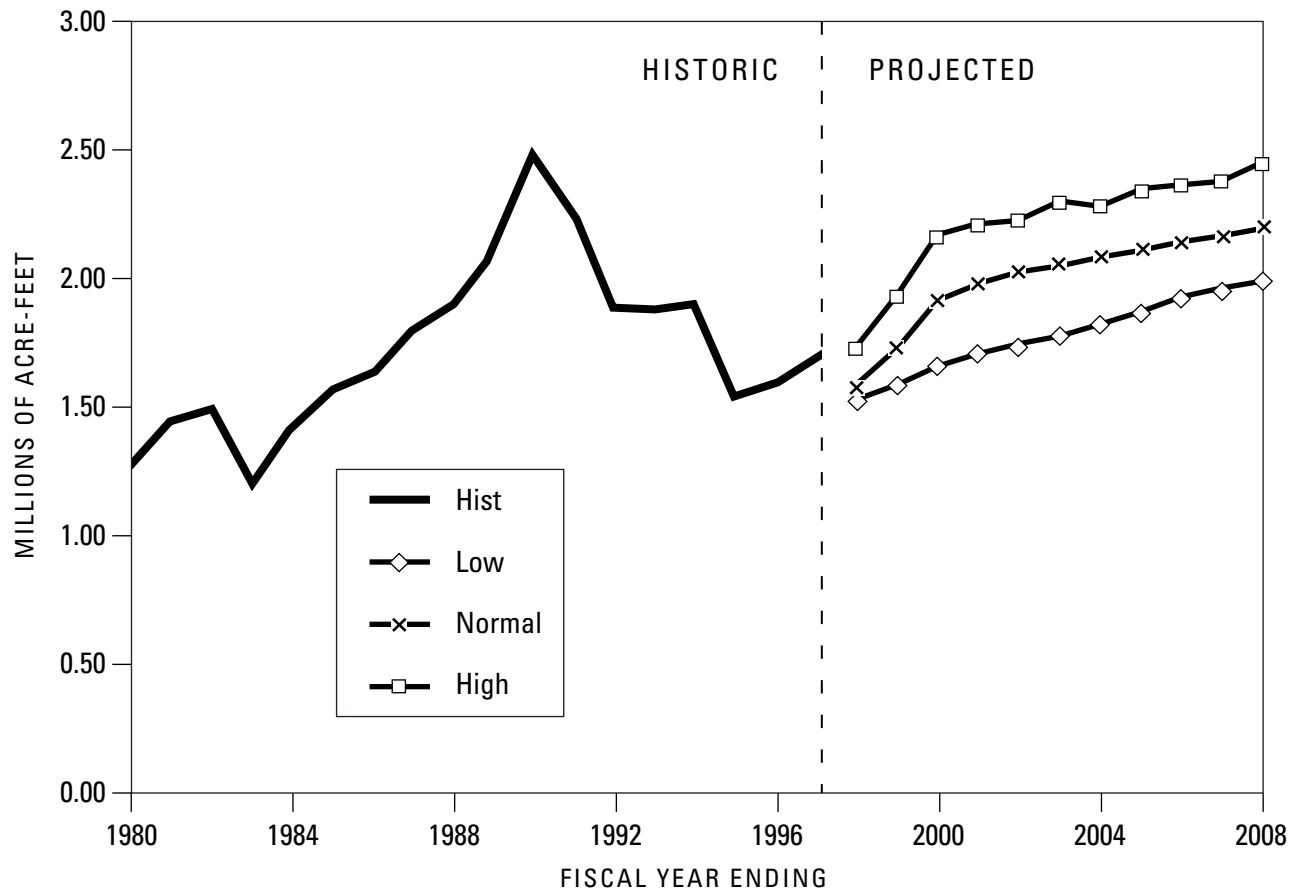
Total water sales revenue of over \$622 million was generated in Fiscal Year 1997-98 through the delivery of about 1.6 million acre-feet. In the past fifteen years, water sales have ranged from a low of 1.2 million acre-feet in 1983, an extremely wet year, to a high of 2.5 million acre-feet in 1990 at the height of the most recent drought. Weather causes the most significant annual variations in Metropolitan water sales.

During wet periods, local groundwater basins and surface reservoirs in Metropolitan's service area are naturally recharged, decreasing the need for some member agencies to purchase supplemental supplies from Metropolitan. However, during droughts these agencies rely on Metropolitan to provide additional supplies as the local basins and surface reservoirs are drawn down. For agencies with local resources that are cheaper to produce on a variable cost basis, Metropolitan is the "swing" supply.

Retail level demands also affect Metropolitan's sales. Wet cool weather not only increases the availability of local supplies, it also decreases retail demands. Hot and dry weather results in significant increases in retail demand. However, not all of the change in retail demand is always attributable to weather. Both economic growth and reces-

sions can also respectively lead to increases and decreases in demand. Since 1980, the annual change in retail demands from these factors has been as much as ± 10 -12 percent. Figure 1 illustrates the past variation in Metropolitan's sales caused by changes in local supply conditions and retail demands and the projected range in future sales.

FIGURE 1.
HISTORIC AND PROJECTED SALES



"Normal" or expected sales are projected using average weather and local supply conditions. Water rates are projected using the normal sales line. However, because of the variability in sales caused by weather, it is necessary to provide a range of projected sales for resource, facility and financial planning purposes.

The upper range in projected sales is defined by the low local supply production and high retail demands that occur when the weather is hot and dry. This upper bound is typically used to help define resource and capital facility planning objectives. The lower range for projected sales is defined by just the opposite conditions, high local supply production and low retail demands caused by wet and cool weather. In the following Chapter this lower bound is used to help define appropriate reserve levels under an alternative reserve policy.

To lend some insight into the frequency of different sales levels, the sales forecast is statistically generated and probabilities of exceedance are assigned to the high and low range. In Figure 1 “below normal” sales are set at the “95 percent exceedance level”, meaning that sales are expected to exceed this level 95 percent of the time. The high range is defined as the “5 percent exceedance level” and sales are expected to exceed this level only 5 percent of the time.

Once the effects of the recent wet weather have worn off, continued economic and population growth is, on average, expected to increase total normal sales by about 34,000 acre-feet per year through the year 2008. This projected rate of growth (about 1.7 percent per year) will increase normal sales to 2.2 million acre-feet by 2008.

Other than the total volume of sales, changes in both the mix by class of service and type (treated or untreated) can also impact the amount of water sales revenue. Metropolitan offers four general classes of service to its member agencies, Full Service, Seasonal Storage Service (both long-term and short-term) and agricultural service. To encourage member agencies to invest in local resources and help offset the need for additional investments by Metropolitan in drought supplies and regional infrastructure, Seasonal Storage Service (SSS) Water Rates are discounted from the Full Service Water Rate. Similarly, a discount rate is offered to agricultural producers in Metropolitan’s service area to encourage the sale of surplus water and help manage shortages during drought conditions. As the discounted seasonal and agricultural sales increase or decrease as a percent of total sales, water sales revenues respectively decrease and increase. Therefore, as the seasonal and agricultural purchasing patterns of the member agencies change given different local weather conditions and operating needs, Metropolitan’s mix of treated and untreated sales also changes. Table 1 summarizes total sales by the major classes of service and treated water types for a dry year (1990) and a wet year (1995).

TABLE 1.
DRY AND WET YEAR SALES MIX (TAF)

	1990 (Dry)		1995 (Wet)	
Full Service	1,565	62.8%	1,314	81.5%
Seasonal Service	727	29.2%	175	11.1%
Agricultural Service	199	8.0%	85	5.4%
TOTAL	2,490	100.0%	1,574	100.0%
Treated	1,462	58.7%	1,113	70.7%
Untreated	1,028	41.3%	460	29.3%
TOTAL	2,490	100.0%	1,574	100.0%

Sales Forecasting Methodology Each year a sales forecast is developed using two methods. Over the long-term (18 months and beyond), sales are estimated as the difference between a statistical forecast of retail demand and known and expected local supply production. Trend analysis of historic member agency purchasing patterns is

combined with member agency delivery requests, recent local weather conditions and information on local supply conditions to estimate demands in the short term (18 months or less).

FACTORS AFFECTING MWD WATER SALES

◆ RETAIL DEMANDS

Forecasting Methodology Future retail demands are estimated with econometric models that use determinant variables of water demand such as housing stock, household size, household income, employment, rainfall, temperature and price to account for changes in retail demand driven by population and economic growth. The retail demand models are paired with forecasts of population and economic growth prepared by the regional growth management agencies in Southern California, Southern California Association of Governments (SCAG) and San Diego Area Governments (SANDAG). The SCAG and SANDAG forecasts are checked against other forecasts prepared by the State Department of Finance (DOF) and the Center for the Continuing Study of the California Economy (CCSCE) to ensure that the forecasts are not unrealistic.

Economic Growth The projected retail demands used in the 1998 sales forecast are based on projections of regional population and economic growth provided to Metropolitan by SCAG and SANDAG in 1997. SCAG and SANDAG generated their most recent forecasts by working with the city and county agencies that develop local growth management plans and oversee land use ordinances. The SCAG/SANDAG 1997 forecasts project that population in Metropolitan's service area will increase from its current level of 16.2 million to about 19.0 million by 2010, or an average increase of about 165,000 people per year. Total households are expected to increase from 5.3 million currently to 6.3 million by 2010, up almost 19 percent. Jobs are also expected to increase from the current total of 6.7 million to 9.0 million by 2010, or over 34 percent.

Although it is expected that population and economic growth will continue to increase the retail demand for water, economic cycles can have a profound effect on retail water demands. Between 1980 and 1990, over 2.9 million people moved into Metropolitan's service area and over 1.2 million jobs were created. All of this economic activity was in part responsible for over a 31 percent increase in retail demand during this same period.

The severe recession and economic restructuring of 1991-1994 had just the opposite effect on retail demand. By 1995 annual population growth had slowed from a peak rate of about 315,000 people per year in 1989 to less than 104,000 in 1996 as the domestic migration into Southern California that was driven by the expanding economy reversed. It is estimated that in Metropolitan's service area over 400,000 jobs were lost between 1990 and 1994. Total retail demand dropped off from a high of about 4.0 million acre-feet in 1990 to about 3.4 million acre-feet in 1995. However, not all of this decrease was due to the economic downturn. Drought conservation measures employed at the height of the 1986-1991 drought had a lasting impact on retail consumption behavior and wet weather in 1992, 1993 and 1995 further suppressed retail demands. Future economic cycles will likely cause similar variations in retail demands.

FIGURE 2.
TOTAL RETAIL DEMANDS

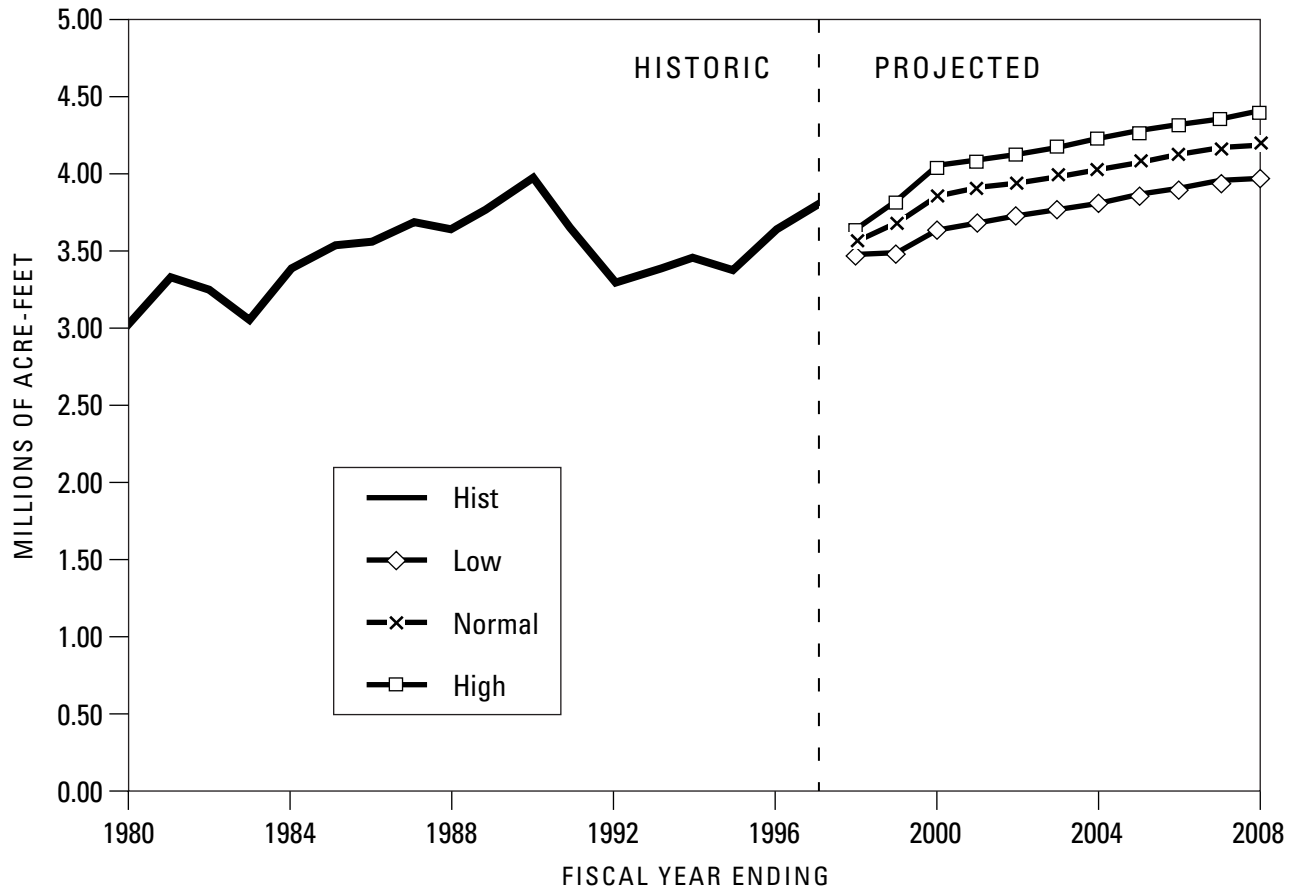


Figure 2 illustrates the historic variation, expected growth and projected range of retail demand. Once the effects of the recent wet weather wear off, it is expected that retail demands will return to a "normal" level of about 3.9 million acre-feet by 2000. From there, normal year retail demands are expected to increase by about 42,000 acre-feet per year, reaching 4.2 million acre-feet by 2008. The future variation in retail demands caused by weather is expected to be $\pm 200,000$ acre-feet.

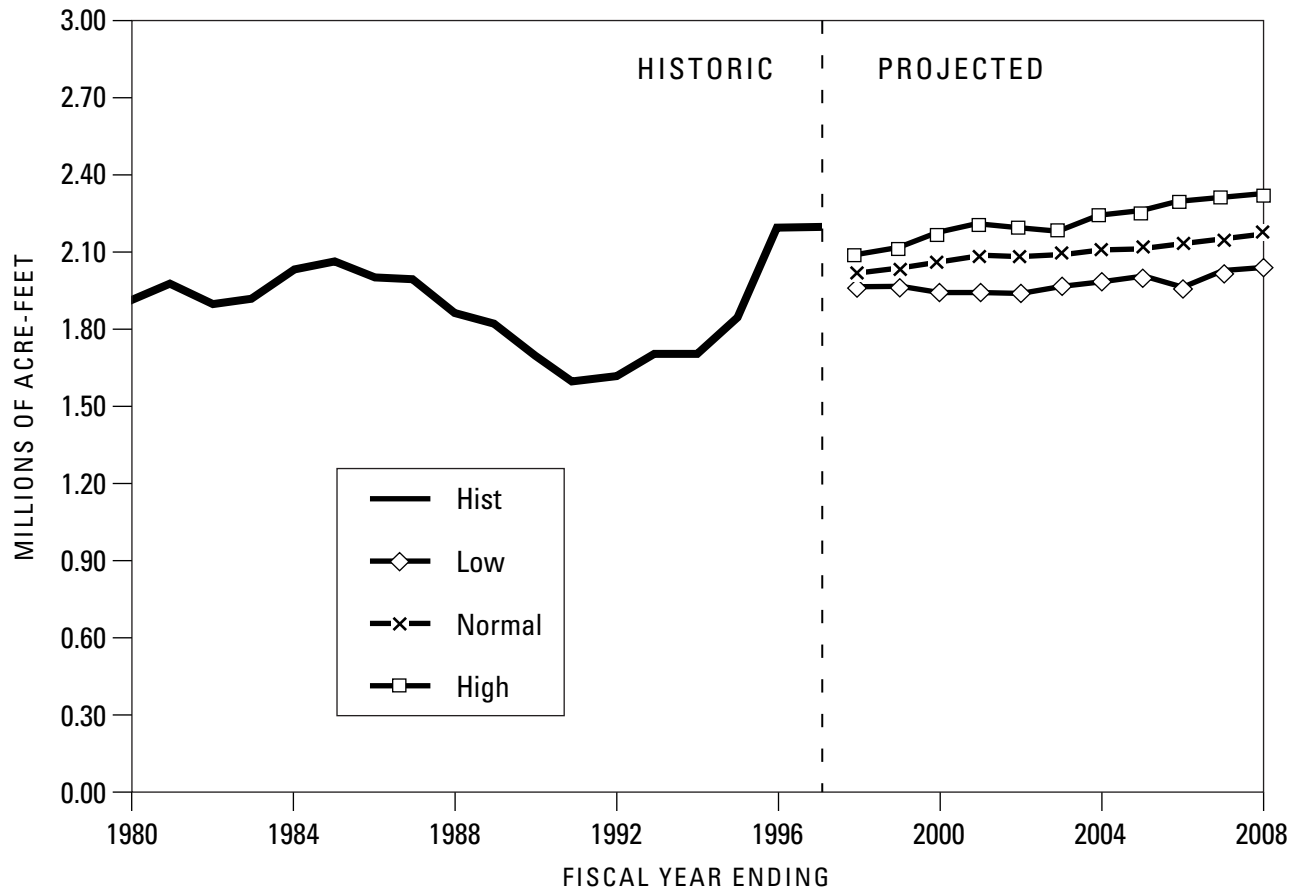
Conservation The effects of long-term conservation measures like plumbing retrofit programs, water efficient plumbing codes and price are embedded into the demand forecast. In other words, the retail demand forecast is first generated without any conservation effects and then adjusted for conservation using engineering estimates and end-use parameters for residential, commercial and industrial water use. It is estimated that conservation savings of about 370,000 acre-feet per year have been achieved since 1980. It is also estimated that both passive and active conservation measures will save an additional 512,000 acre-feet per year by 2020.

◆ LOCAL SUPPLIES

The large variation in local production conversely influences the demand for imported water. Total local supply production has ranged from a low of 1.6 million acre-feet in 1991 during the drought to a high of 2.2 million acre-feet in 1996. In 1990, just before mandatory drought conservation measures were implemented, local supplies only produced 1.7 million acre-feet and Metropolitan's sales reached an all time high of 2.5 million acre-feet. Not long after, the wet weather in 1995 caused sales to fall below 1.6 million acre-feet as local production rose to a high of 2.2 million acre-feet in 1996.

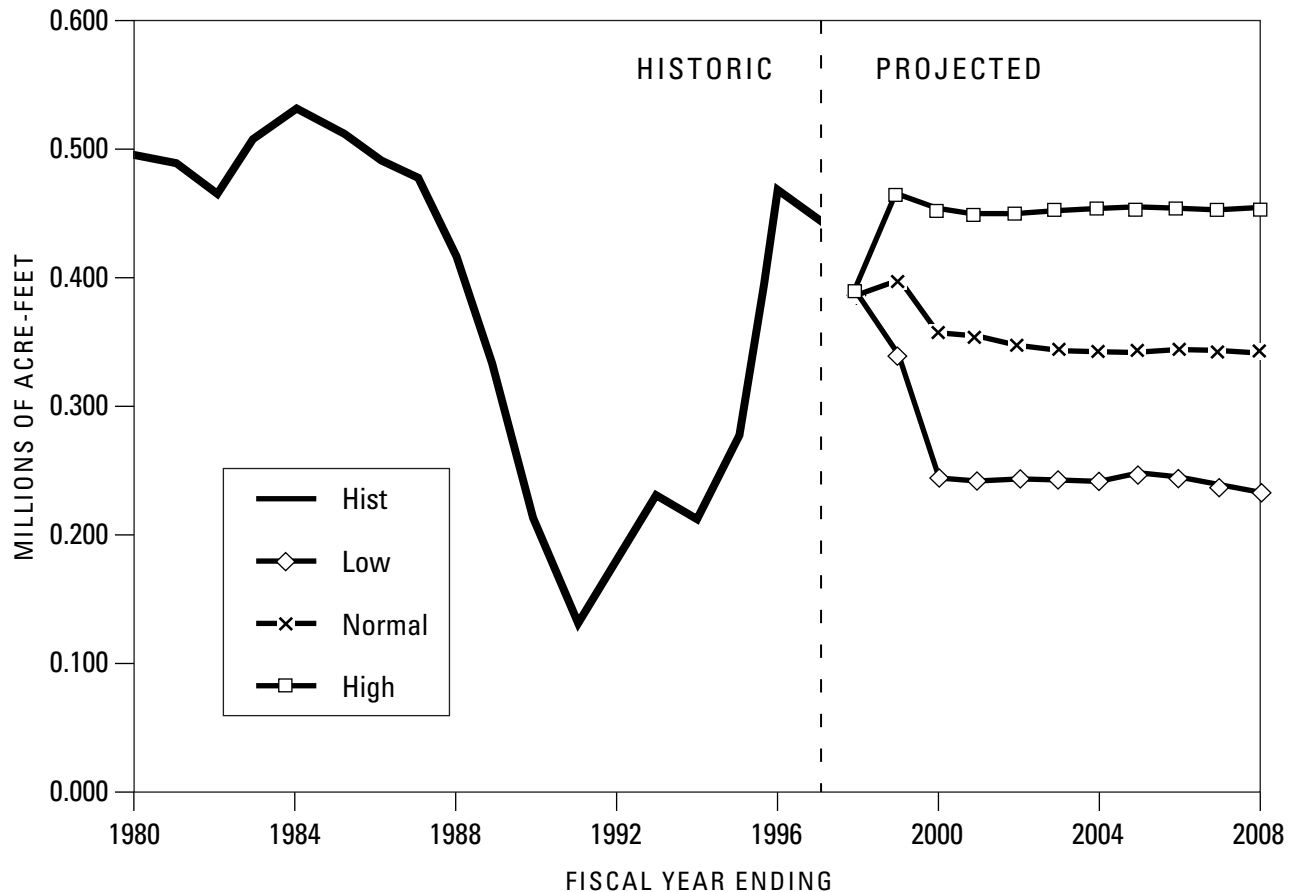
Figure 3 illustrates the historic variation in local supply production and the total level and range of expected future local production.

FIGURE 3.
TOTAL LOCAL PRODUCTION



The increasing cost of imported water and the lessons learned from the 1986-1991 drought have led many local agencies to invest in local supply development by (1) maximizing the safe yield of groundwater basins, (2) investing in the recovery of contaminated groundwater and (3) developing water recycling projects. These three factors are expected to increase total "normal" local production from about 2.0 million acre-feet to just under 2.2 million acre-feet by 2008.

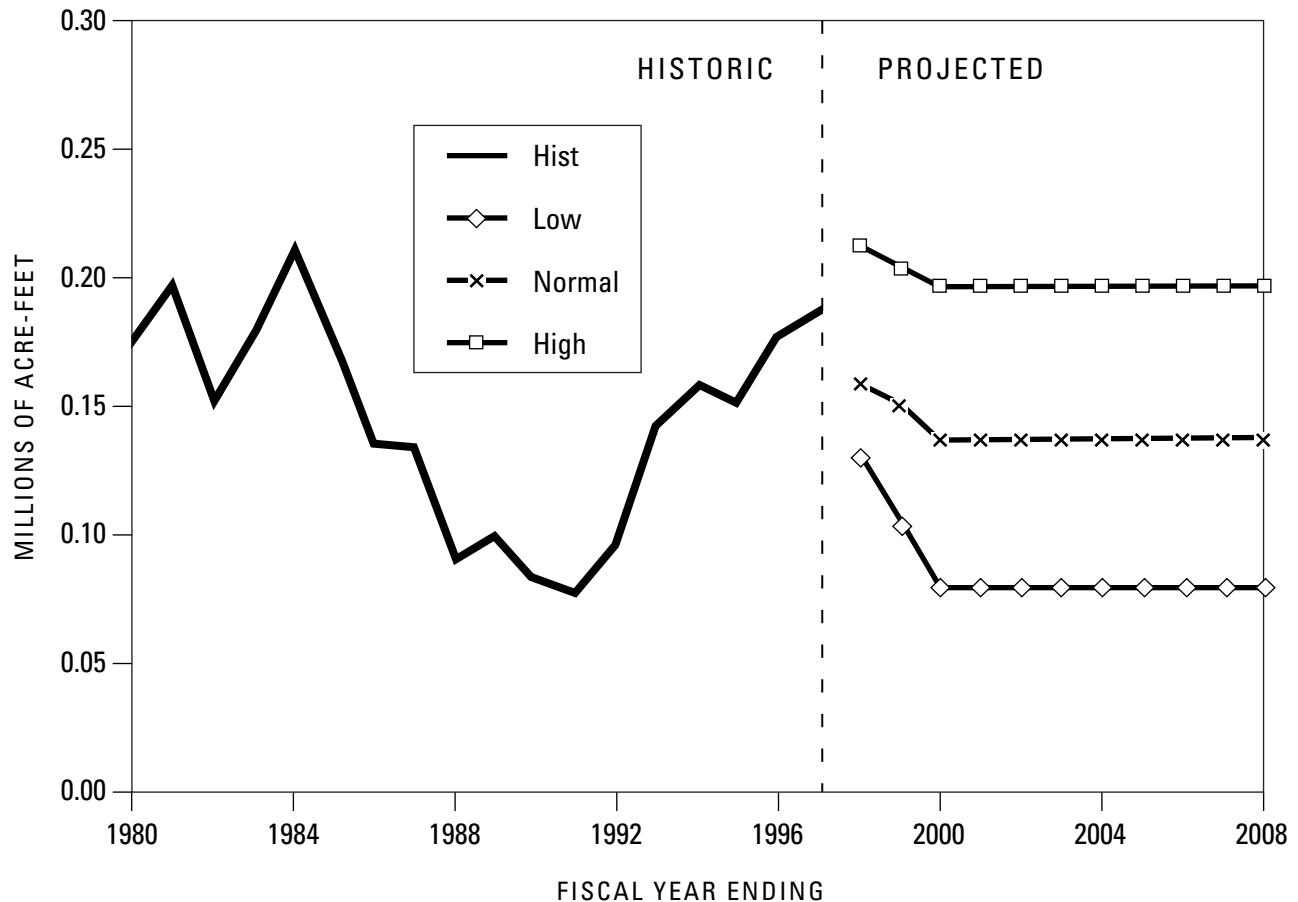
FIGURE 4.
LOS ANGELES AQUEDUCT DELIVERIES



Los Angeles Aqueduct Deliveries Through the Los Angeles Aqueduct (LAA) the City of Los Angeles imports its own supplemental source of water supply from the Owen's Valley on the Eastern side of the Sierra Nevada Mountains. Since 1980, the Los Angeles Aqueduct has delivered anywhere between a high of 0.53 million acre-feet in 1984 immediately following the extremely wet winters of 1983 and 1984, to a low of 0.13 million acre-feet in 1991 at the end of the most recent drought. Figure 4 illustrates the highly variable nature of the Los Angeles Aqueduct deliveries.

Currently, Metropolitan expects LAA deliveries to range between a low of about 0.24 million acre-feet per year to a high of about 0.45 million acre-feet per year with normal deliveries of about 0.36 million acre-feet per year. However, an extremely wet or dry period, such as the severe drought conditions experienced in 1991, could result in LAA deliveries that lie outside of this range.

FIGURE 5.
TOTAL SURFACE WATER PRODUCTION



Surface Water Production Surface water production is another highly variable local supply source that causes swings in Metropolitan's sales. Surface production has historically ranged from a high of 0.21 million acre-feet in 1984 following the wet weather of 1983 to a low of 0.08 million acre-feet in 1991 at the height of the drought. Surface water reservoirs in San Diego County cause the greatest variability in annual surface water production.

Groundwater Production Several large groundwater basins lie beneath parts of Metropolitan's service area. The large storage capacity of some of these basins has helped to stabilize production and since 1980 groundwater production has ranged between about 1.17 million acre-feet to about 1.40 million acre-feet. It is expected that future groundwater production levels will vary between 1.35 and 1.58 million acre-feet.

Recycled Water Water recycling has added over 0.18 million acre-feet of local supply to Metropolitan's service area since 1980, and it is anticipated that an additional 0.18 million acre-feet of production will be added by 2008. Generally, recycled water has been used for cooling applications in industry, landscape irrigation and groundwater replenishment. Metropolitan helps local agencies finance recycling projects by offering

an incentive of up to \$250 per acre-foot for projects that cost more than the Metropolitan Treated Full Service Water Rate. By encouraging local agencies to invest in recycled water projects, Metropolitan, in some cases, is able to defer the need for additional investments in supply, storage or transmission capacity for imported water.

◆ TRANSFERS AND WHEELING

Water transfers between willing buyers and sellers will play a major role in meeting future water demands in the state. Southern California is no exception. As noted in Chapter 2, Metropolitan has initiated a number of water transfer and storage arrangements with agricultural agencies in Central California in order to meet dry year demands in the future. In addition, other urban agencies in Metropolitan's service territory are exploring options to meet their future water needs, including purchases of water from entities other than Metropolitan. As these water transfers are realized, they may have an impact on Metropolitan's revenues and costs. In the best case, these additional sources of water will be truly incremental supplies, adding to the portfolio of supply alternatives available to the region to meet dry year demands. Under these circumstances, effectuating these additional sources will not affect Metropolitan's water sales revenues. In the worst case, these additional sources will erode water sales revenues, without adding to water supply reliability. Under these circumstances water transfers or other options may reduce costs to the purchasing agency, but at the expense of water sales revenues to Metropolitan. Thus, costs normally recovered through the sale of water would have to be covered by raising rates to remaining customers. This issue occurs in any industry where most costs are fixed and revenues are generated on a per unit charge (such as a water commodity rate.)

Since Metropolitan's transmission system links Southern California to the rest of the state, many of these potential water transfers will necessarily be transported ("wheeled") to the ultimate purchaser through use of the Metropolitan system. Wheeling rates and the calculation of fair compensation have been the subject of much controversy and discussion over the past several years. The issue of fair cost allocation and cost responsibility has not yet been resolved. In November 1996, Metropolitan adopted a ten point policy that supports water transfers and wheeling, to the extent that existing customers are not expected to pay more as a result of a wheeling transaction or to suffer in terms of water quality or supply reliability. In January 1997, Metropolitan adopted wheeling rates for wheeling by member agencies for transactions of one year or less. Metropolitan filed a validation action in that same month, ~~in a~~ similar to the validation action filed regarding Metropolitan's Readiness-to-serve Charge. In January 1998, the Superior Court declined to validate the wheeling rates. Instead, the Court found that wheeling rates and compensation must be assessed on a case-by-case basis and should reflect only the costs of the facilities directly involved in the transaction. Under this interpretation of the statutes, Metropolitan's approach to fair compensation, a fully allocated cost approach, was rejected. Instead, the court required a facilities based approach, in which only additional costs caused by the transaction were allowed. Metropolitan has appealed this decision.

The impact of wheeling on Metropolitan's revenue structure will depend on the outcome of the debate on fair compensation for wheeling. But, incremental wheeling of dry year supplies that are in excess of Metropolitan's supplies will have little impact on projected revenues. On the other hand, wheeling of supplies that are not incremental, but serve to offset water sales during wet and normal years may have a much greater impact on projected revenues. The question is one of equity. What is an appropriate price to charge for use of the conveyance and storage required for wheeling transactions? Since that question has not yet been satisfactorily answered, the sensitivity of the rate and revenue forecast to water transfers that offset water sales is presented in Table 2 below. The purpose of this analysis is to provide an indication of the impact on water rates under the worst case scenario – that is, wheeling occurs under incremental cost recovery during years when Metropolitan has sufficient supplies to meet its member agencies demands.

TABLE 2.
EXAMPLE OF IMPACT OF WHEELING ON WATER RATE

Full Service Untreated Water Rate (\$/AF)	\$ 349
Example Incremental Wheeling Rate (\$/AF)	\$ 50
Remaining Costs not recovered by Wheeling Rate (\$/AF)	\$ 299
Total Normal Demand for Water Imported through MWD System (TAF)	2,040
less Transfer Water Wheeled Through MWD System (TAF)	100
Remaining MWD Sales (TAF)	1,940
Costs not recovered by Wheeling Rate (\$1,000's)	\$ 29,900
Impact to MWD Full Service Untreated Water Rate (\$/AF)	\$ 15

To facilitate the efforts to keep the State's use of Colorado River water within the allocated amount of 4.4 million acre-feet and maintain a full Colorado River Aqueduct, Metropolitan and the San Diego County Water Authority (SDCWA) have developed the draft terms of a contract for the exchange of conserved water purchased by SDCWA from the Imperial Irrigation District. The exchange of the conserved water is currently expected to commence in year 2004. For each acre-foot of conserved water that is exchanged between SDCWA and Metropolitan, Metropolitan will deliver a like quantity of water to SDCWA.



C H A P T E R

4

FUND POLICIES

INTRODUCTION

The Metropolitan Water District holds investments and cash balances in various funds (accounts) designated for certain purposes as follows:

- ◆ Operating Funds
- ◆ Debt Service Funds
- ◆ Construction Funds
- ◆ Rate Stabilization Funds
- ◆ State Water Contract Fund
- ◆ Trust and Other Funds

Within these categories the District currently maintains 60 active funds which are designated according to purpose. Depending on legal limitations, the individual funds are either restricted (can only be used for a designated purpose), or unrestricted (can be used for any lawful purpose at the discretion of the Board). This chapter will review the current and past reserve policies and analyze proposed policies for holding reserves for the purpose of providing stable and predictable Water Rates.

DESCRIPTION OF FUNDS

◆ OPERATING FUNDS

Operating funds include the *Operations and Maintenance Fund*, a restricted fund in which the District is required to maintain two months of projected operations and maintenance expense to comply with covenants made to holders of outstanding District revenue bonds. Within the *General Fund*, used for general purposes of the District, and the *Revenue Remainder Fund*, the District holds its working capital for emergencies and claims and for revenue shortfalls. The *Water Transfer Fund* is used to fund water transfer and storage programs, to purchase options on future water transfers and will be used to fund the initial filling of the Eastside Reservoir Project.

◆ **DEBT SERVICE FUNDS**

Debt service funds include all of the District's interest and principal funds used to pay debt service on the District's outstanding revenue and general obligation bonds, and interest on outstanding commercial paper. Also included are the revenue bond reserve funds held in accordance with bond covenants to satisfy debt service requirements if there are insufficient monies in the interest and principal funds.

◆ **CONSTRUCTION FUNDS**

Construction funds are designated to pay the design and construction costs of the District's ongoing capital improvement program. They include the *1966 G.O. Bond Construction Fund*, the *Revenue Bond Construction Fund*, the *Pay-As-You-Go Fund (PAYG)*, and the *Commercial Paper Note Construction Fund*. The *PAYG Fund* is used to finance a portion of the capital program from current revenues, primarily from the sale of water, to reduce the need to issue debt. The *PAYG Fund* is discussed further in Chapter 5. The bond and commercial paper construction funds are used to finance capital works from proceeds from the sale of the associated debt instruments.

◆ **RATE STABILIZATION FUNDS**

Rate stabilization funds include the *Water Rate Stabilization Fund* and the *Water Treatment Surcharge Stabilization Fund*. These monies are used to smooth out and or mitigate future water rate increases and/or future increases in the treatment surcharge.

◆ **STATE WATER CONTRACT FUND**

The *State Water Contract Fund* is designated for payment of capital charges under the State Water Contract (SWC). Under Board policy the fund is required to hold a minimum balance on June 30 and December 31 of each year sufficient to pay the SWC capital charges due on July 1 and January 1, respectively. The *Special Tax Fund* holds annexation fees which are transferred to the State Contract Fund to pay a portion of the State contract capital charges.

◆ **TRUST & OTHER FUNDS**

Monies held in the District's various trust funds can be used solely for the specific purposes for which the funds were created. The trust funds include the *Employee Deferred Compensation Trust Fund*, the *San Joaquin Reservoir Trust Fund*, the *Iron Mountain Landfill Closure/ Postclosure Maintenance Trust Fund*, the *Bond Excess Earnings Fund*, and escrow accounts held to pay certain costs and to defease certain maturities of outstanding bonds. Under revised federal regulations the *Employee Deferred Compensation Trust Fund* will not be carried as an asset on Metropolitan's financial statements after June 30, 1998.

◆ CURRENT FUND BALANCES

As of June 30, 1998, the District held the following amounts in investments and cash balances:

TABLE 1.
CASH AND INVESTMENTS BY FUND JUNE 30, 1998

	Restricted	Unrestricted		
(Dollars in Millions)		Committed	Uncommitted	Total
Operating Funds:				
General and Revenue Remainder Funds ¹		\$ 175		\$ 175
O&M Fund	\$ 79			79
Water Transfer Fund	36			36
Water Standby Fund	–			–
Sub-Total Operating Funds	\$ 115	\$ 175	–	\$ 290
Debt Service Funds:				
Debt Service Interest and Principal	145			145
Revenue Bond Reserve	15			15
Sub-Total Debt Service Funds	\$ 160	–	–	\$ 160
Construction Funds:				
Revenue Bond and Commercial Paper	589			589
Pay-As-You-Go		51	90	141
Sub-Total Construction Funds	\$ 589	\$ 51	\$ 90	\$ 730
Other Funds:				
Rate Stabilization Funds		111		111
State Water Contract Fund	69			69
Trust and Other Funds	202			202
Sub-Total Other Funds	\$ 271	\$ 111	–	\$ 382
Total Funds:	\$ 1,135	\$ 337	\$ 90	\$ 1,562

(1) The General and Revenue Remainder Funds hold Metropolitan's "Working Capital" Reserve under the current reserve policies.

Restricted funds can only be used for the specific purpose for which they were created. The restriction can be by law, as with legally required bond funds, or by Board action, as with the Water Transfer Fund or the State Water Contract Fund.

Unrestricted funds can be used for any lawful purpose of Metropolitan but can be committed by Board policy for specific use as with the working capital funds held in the General Fund and the Revenue Remainder Fund or the Water Rate Stabilization Fund which is used to mitigate or smooth future rate increases.

REVIEW OF RESERVE POLICY

◆ BACKGROUND

A key financial objective of the District is to maintain flexibility in managing its financial resources. It is necessary to keep certain funds in reserve to comply with statutory,

covenanted, or contractual requirements. In a larger context, the financial obligations of the District must be met from current revenues or by issuance of debt, with reserves, maintained for financial security. An appropriate level for the magnitude of reserves has previously been established based on such factors as variability of operating revenues, the ratio of fixed costs to variable revenues, levels of risk considered acceptable and the overall financial security of the District.

Since the 1970's Metropolitan's Board has reviewed and changed Metropolitan's reserve policy six times. All of these changes considered: Metropolitan's overall financial condition, the reliance on variable commodity revenues, the total level of fixed obligations, variability in sales and other factors, and actual events as they occurred, to arrive at a method for deriving an appropriate level of reserves. The goal of each of these reviews by the Board was to develop a reserve policy that balanced financial security and water rate stability against the costs of the policy to the Member Agencies. History has shown the impacts to the water rate of not having a balanced policy. The extremely wet winter of 1983 so severely decreased fiscal year 1982-83 water sales revenues that nearly \$30 million of the working capital reserve was used to meet current expenses. As a result in January 1984, the Board imposed an emergency mid-year water rate increase of 37 percent to raise needed revenue and restore depleted reserves.

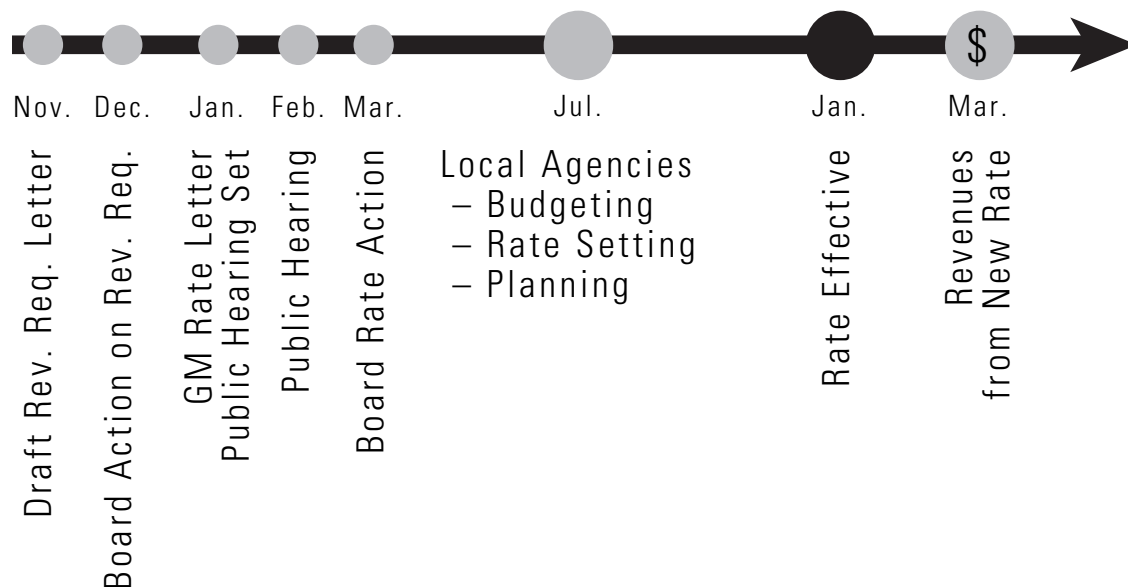
The relationship between continued reliance on variable commodity revenues and increasing levels of fixed costs along with the desire to provide financial security and rate stability without unduly burdening the Member Agencies has again prompted a review of Metropolitan's reserve policy. A review of the current reserve policy was conducted by staff and the Member Agency Finance Work Group (FWG) and an alternative method for determining appropriate reserve levels was developed. The alternative method establishes a process by which the Board makes an annual determination of a minimum and maximum reserve level that reflect current financial conditions and mitigate appropriate future risks.

Rate Stability The stability and predictability of Metropolitan's rates are very important to the region for a number of reasons. Largely due to the fact that Metropolitan has come to supply over 50 percent of the water used in the region, Metropolitan's water rates are often used as a benchmark against which investments in local resources are evaluated and the terms and conditions of transactions between agencies concerning local resources are determined. It has therefore become increasingly important for Metropolitan to consider the impact of rate changes not only in terms of the cost of imported water service, but also in terms of the impacts on local water resources planning and investments. Holding reserves sufficient to protect the water rate from changes caused by weather and other unexpected factors facilitates the resource planning and investment efforts made by local agencies by providing a stable and predictable water rate.

In order to provide local agencies with plenty of time to incorporate any changes in Metropolitan's rates into their own financial planning, budgeting and rate setting processes, Metropolitan determines its water rates well in advance of when the new

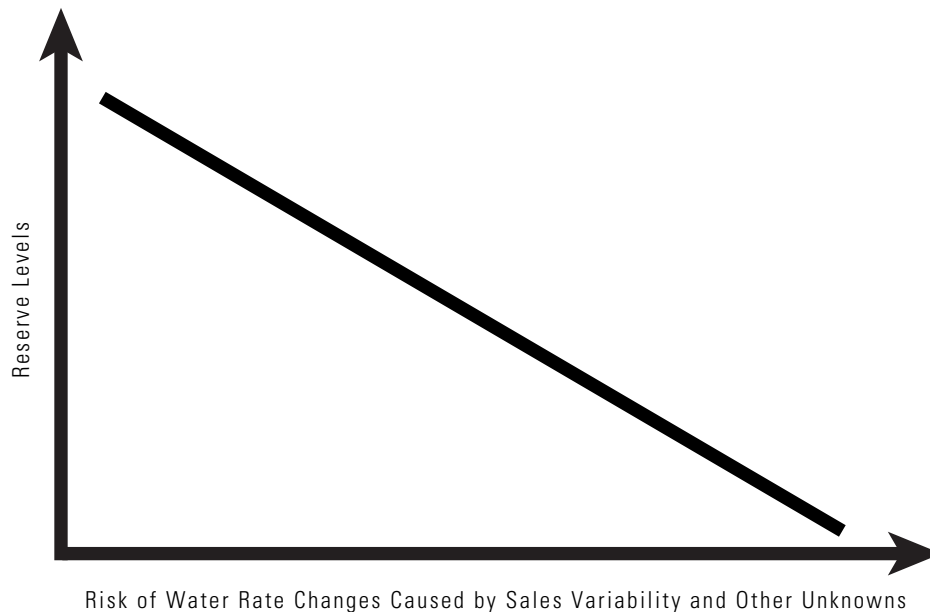
rates actually take effect. Figure 1 illustrates how Metropolitan's rate setting process begins in October when a draft determination of the revenue requirement is prepared for the Board's review. The Board takes action on the revenue requirement in December and receives a letter from the General Manager in January recommending the rates and charges for the year. After a public hearing in February, the Board either approves or modifies the General Manager's recommendation and adopts the rates and charges in March. After the Board's action in March, local agencies have about three months to prepare their budgets and rates (most local agencies operate under a July – June fiscal year), and an additional 6 months before the Metropolitan rates go into effect on January 1. However, because there is a two month billing cycle after an agency receives a delivery from Metropolitan, does not receive any increase in revenue from a rate change until March. Therefore, from the time Metropolitan's rate setting process begins in October until additional revenues are received from a rate change 18 months have elapsed. If properly designed, the reserve system can provide Metropolitan with enough flexibility to absorb any changes in revenues or costs that may occur during this period and not pass this uncertainty on to the local agencies.

FIGURE 1.
MWD RATE SETTING PROCESS



Underlying all of the above discussion about the importance of rate stability is a general relationship between reserve levels and the risk that the water rate will change due to weather conditions or some other unexpected factors. This relationship is illustrated in Figure 2, which shows that as reserve levels decrease the risk that the water rate will be influenced by weather or some other unexpected factors increases.

FIGURE 2.
TRADEOFF BETWEEN RESERVE LEVELS AND
RISK OF CHANGES TO WATER RATE



The remaining discussion of reserve policies in this Chapter centers around this concept. From a policy perspective, the challenge is in determining the degree to which Metropolitan's reserve system should protect the water rate from unexpected and unplanned changes.

Current Rate Stabilization Reserves Currently, Metropolitan reserves up to \$350 million for the purpose of mitigating the need for water rate increases caused by periods of low sales revenue and other unexpected factors. These reserves are Metropolitan's working capital and the Water Rate Stabilization Fund (WRSF).

As described above, Working Capital is held in the Revenue Remainder and General Funds. Based on previous experience which has shown that a one year sales shortfall of up to 25 percent has occurred, the "Working Capital Requirement" is currently at a level of \$150 million. In addition to the working capital, up to \$200 million may be held in the WRSF to mitigate future rate increases by drawing on those funds to balance the annual budget in lieu of increasing current revenues.

If low sales or other factors completely deplete the WRSF, working capital would be used to meet expenses and the Board would need to make a decision regarding replenishment of reserve levels. In effect, the current policy uses working capital as a minimum reserve level and the \$200 million cap in the WRSF acts as a maximum reserve level. If the WRSF is at the \$200 million maximum balance, unused revenue flows into the PAYG Fund to meet the Board's policy of funding 20 percent of the CIP on a pay-as-you-go basis.

The Revenue Design Study Report conducted by Black and Veatch in 1992 recommended the current level of working capital. Most recently, as part of the 1995 update to the Long-Range Finance Plan, your Board acted to limit the total reserves in the WRSF to \$200 million. The following sections present an alternative method for determining minimum and maximum reserve levels developed by Staff and reviewed by the MWD/Member Agency Finance Work Group. A discussion of the use of debt financing to meet operating costs in lieu of reserves when operating revenues are insufficient is also included. In addition, after extensive discussions with the Finance Work Group, the concept of “working cash” has been proposed which, together with the minimum/maximum concept, could replace the current working capital policy. The working cash proposal is discussed later in this chapter.

◆ ALTERNATIVE RESERVE POLICIES

Method Reviewed by Finance Workgroup The alternative methodology for determining an appropriate level of reserves that was reviewed by the Finance Work Group (FWG) also establishes a minimum reserve level and maximum reserve level. But, this alternative procedure relies on the Board to set the minimum reserve level and maximum reserve level to reflect changing financial conditions and assessments of future risks, rather than relying on static minimum and maximum reserve levels established at different points in time.

For the alternative methodology, minimum and maximum reserve levels are defined by parameters that indicate the risk of low water sales and/or other risk factors, given the most recent information.

Minimum Reserve Level at the end of each fiscal year the minimum reserve level would be determined as the difference between the expected water rate revenue requirement and the potential for low water sales revenue for the following 18 months. This amount would be adjusted for estimated reductions in variable power costs and offsetting reductions in interest income.

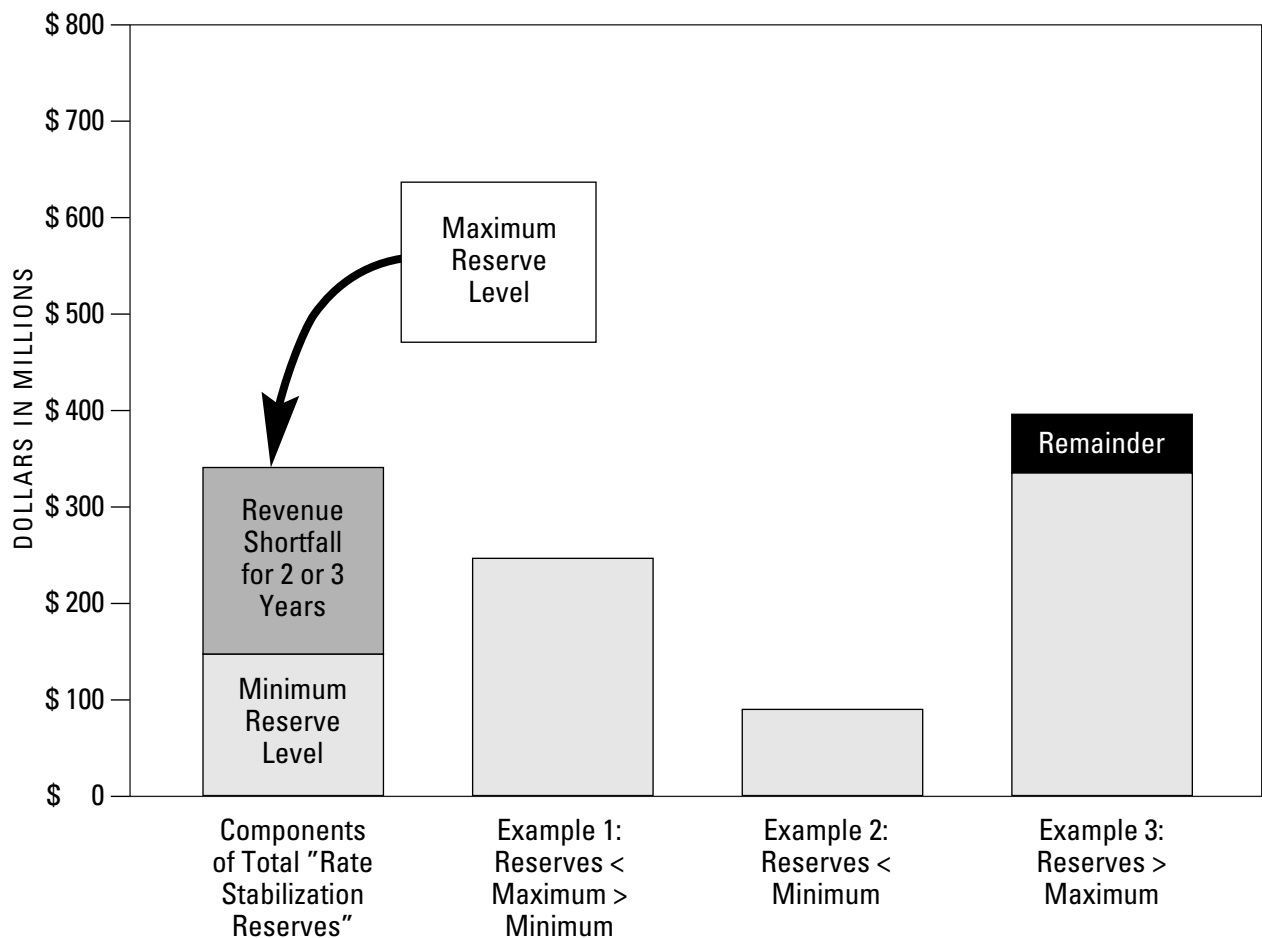
Maximum Reserve Level at the end of each fiscal year the difference between the expected water rate revenue requirement and low water sales revenues for the three or fewer years following the budget year would be estimated and added to the minimum reserve level. This amount would be adjusted for reductions in variable power costs and offsetting reductions in interest income, and as appropriately determined by the Board, other risk factors.

Figure 3 provides an example of how these parameters would help the Board determine an appropriate course of action given different situations that may occur in any given year.

It is assumed in Figure 3 that the Board determines that about \$307 million is an appropriate maximum reserve level as of June 30, 1999 to insure against water rate increases caused by reductions in revenues due to wet weather and that other risk factors should not be reserved for. The minimum reserve level is determined to be approximately \$130 million as of June 30, 1999. In Example 1, the reserves are greater than the minimum level and less than the maximum reserve level indicating that the

reserves are within an acceptable range and the reserve system is therefore effectively in balance. In Example 2, however, the reserves have fallen below the minimum level either due to an extended period of low sales or other factors and the Board, based on staff recommendations, must decide whether or not the minimum reserve level needs to be replenished or if some other action is appropriate. Finally, in Example 3, reserves are greater than the maximum level, thereby providing the Board with a decision point to determine how best to use the remainder that is over and above the maximum reserve level.

**FIGURE 3.
MINIMUM AND MAXIMUM RESERVE LEVEL
AND RESERVE FUND BALANCES**



◆ PARAMETERS FOR THE REVENUE SHORTFALL RESERVES

As discussed above, as an alternative to the current working capital policy, a minimum revenue shortfall reserve level would be established to cover reasonably expected revenue shortfalls over an 18-month period. These funds would be held in the Revenue Remainder Fund. A maximum revenue shortfall reserve level would be established based on a 2 or 3 year water sales shortfall and held in the Water Rate Stabilization Fund and the Revenue Remainder Fund. The Board will make the determination of whether the 2 or the 3 year level of the maximum reserve is more appropriate. The minimum and maximum levels would serve as triggers for Board consideration of options when reserve levels fall below the minimum or exceed the maximum.

If the revenue shortfall reserves fall below the minimum, the Board consideration should include, at a minimum, the following options:

- ◆ Reduce capital costs and/or operating costs (including PAYG).
- ◆ Hold reserves at the reduced level and rely on future revenues.
- ◆ Issue debt to cover fixed cost obligations.
- ◆ Raise water rates.

If the revenue shortfall reserves exceed the maximum the Board should consider the following options:

- ◆ Use the funds in lieu of additional debt or to retire outstanding debt to reduce future water revenue requirements thereby providing a long term benefit to the member agencies.
- ◆ Reduce water rates.
- ◆ Offset or reduce Readiness-to-Serve charges.
- ◆ Hold the funds in the WRSF for unexpected needs.
- ◆ Refund money to the member agencies.
- ◆ Use the remaining funds for any other lawful purpose of the District.

Defining the Maximum Reserve Level Because the reserve system exists to insure the water rate against unforeseen rate increases, the maximum reserve level should reflect the risk of unexpected water rate increases and the degree to which the Board wants to protect the water rate from these risks. Low sales revenue caused by wet weather is the principal factor that could cause unexpected increases in the water rate and is therefore used to help define the maximum reserve level. Due to investments in storage programs, water transfers, and after the Eastside Reservoir Project is completed and filled, it is more likely that (at least for the next ten years) Metropolitan will have sufficient supplies under drought conditions and the financial impact of drought shortages is therefore considered to be less of a risk.

Periods of Low Sales Revenue Caused by Wet Weather Because Metropolitan is the supplemental wholesale supplier for its member agencies, large decreases in Metropolitan's water sales occur when wet weather decreases retail demands and increases local supplies through the natural replenishment of local groundwater basins, surface reservoirs, and higher Los Angeles Aqueduct deliveries. Chapter 3 provides a detailed discussion of the factors that affect Metropolitan's water sales.

The alternative reserve policy defines the risk of periods of low sales revenue differently from current policy in three important ways. First, the magnitude of the potential annual decrease in demands has been reduced from 500,000 acre-feet to the difference between expected normal weather demands and low demands estimated at the 95 percent exceedance level. Over the next five years this difference is expected to be about 320,000 acre-feet per year or about 16 percent of total normal demands. Establishing a lower bound on expected sales at the 95 percent exceedance level acknowledges that even during an extremely wet year there is a base level of water sales revenue available to MWD of about \$500 to \$550 million. It is important to note that this base level water sales revenue only accounts for the effects of weather and assumes that any wheeling through Metropolitan's system generates revenue similar to what would be generated by the water rate and/or provides significant benefits in the form of offsetting reductions in Metropolitan's revenue requirement.

Adjustments made to account for lower variable power costs and lower interest income make up the second important difference from the current methodology. When sales decrease, Metropolitan's variable power costs for pumping on the State Water Project and the Colorado River Aqueduct also decrease. An estimate of these avoided variable power costs is therefore used to reduce the maximum reserve level. However, the maximum reserve level is also adjusted upward to account for decreases in interest income that will occur as reserves are used over time to meet expenditures.

Third, because historical rainfall data indicates that wet years are more likely to occur within at least one year of each other or even consecutively, the alternative methodology extends the duration of a low sales period from 1 year to a range of 2 to 3 years. Two to three years was determined to be a reasonable range for the duration of a wet period by examining 118 years of Los Angeles Civic Center rainfall data (1879 to 1996). The rainfall data was analyzed to determine the probability that 2 and 3 wet years would occur within a three year period. Los Angeles Civic Center rainfall data was used for a proxy measure of regional weather because it is strongly correlated with rainfall data from other parts of the service area and Eastern Sierra snowpack, an indicator of Los Angeles Aqueduct deliveries. The rainfall data indicated that the probability of two out of three years being wet is 23 percent. The probability that 3 years in a row will be wet is 2 percent. These probabilities are only intended to indicate the past frequency of two out of three years being wet and three out of three years being wet. The actual probability that a particular event will occur and have certain impacts on reserve levels is dependent upon many factors, including not only hydrologic conditions in the current year but also conditions in the previous year(s) and may differ substantially from the probabilities given above. Sensitivity analysis conducted to try to estimate the probability of reserves declining below the minimum reserve level is presented later in the Chapter.



Table 2 provides an example of how the Maximum Reserve Level for Fiscal Year 1998-99 would be calculated for a two or three year wet period under the Alternative Method reviewed by the FWG. For example, the Maximum Reserve Level for a two year wet period is the sum of the Minimum Reserve Level for Fiscal Year 1999-00 and the adjusted annual revenue shortfall for Fiscal Years 2000-01 and 2001-02.

TABLE 2.
ALTERNATIVE MAXIMUM RESERVE LEVEL(S) FISCAL YEAR 1998-99
(\$ IN MILLIONS)

Fiscal Year Ending	Water Rate Revenue Requirement Under Normal Weather	Water Rate Revenue at the 95% Exceedance Sales Level	Annual Revenue Shortfall	Estimated Reduction in Power Costs due to Lower Sales	Estimated Reduction in Interest Income	Adjusted Annual Revenue Shortfall	Minimum Reserve Level
	A	B	C=(A-B)	D	E	F=(C-D+E)	G=F* x 1.5
1999							127
2000	587	491	96	17	5	84	121
2001	604	515	89	19	11	81	153
2002	631	524	107	20	15	102	195
2003	670	537	133	21	18	130	

Fiscal Year Ending 1998-99 Maximum Reserve Balance for a 2 Year Wet Period: \$310

Fiscal Year Ending 1998-99 Maximum Reserve Balance for a 3 Year Wet Period: \$440

*F of the following year.

To determine the appropriate maximum level of reserves to insure the water rate against periods of low sales revenue caused by wet weather, the duration (in years) and probability of the period of low sales are the most important variables for the Board to consider. A longer duration (e.g. choosing to reserve for a three year wet period versus a two year wet period) is more likely to insure the water rate against any increases caused by wet weather but will result in a higher maximum reserve level. A shorter duration is more likely to lead to rate increases caused by an extended wet period but will result in a lower maximum reserve level. It is important to note that Metropolitan actually used \$380 million from the Rate Stabilization Fund in the 3-year period from 1990-91 to 1992-93. Sensitivity analysis that tests the Maximum Reserve Levels estimated in Table 2 are presented later in this section along with estimated probabilities that reserves will fall below the minimum level. Although the MWD/Member Agency Finance Work Group did not agree on a single definition for the duration of a period of low sales, it was generally agreed that the duration of a period of low sales should be defined as being either 2 or 3 years, with the Board to determine the appropriate duration.

Other Risk Factors In addition to reductions in revenues caused by weather, there are several other factors (e.g. slower growth in sales, higher capital costs, etc.), that may unexpectedly affect the water rate and should therefore be considered in the review of Metropolitan's reserves. The potential impact of other risk factors is more difficult to quantify than the risk of revenue shortfalls due to weather because of the uncertainty surrounding the magnitude and timing of cost and revenue impacts and the unknown

probability that one or more of the factors will occur. To provide an indication of the other risks facing Metropolitan the following examples are provided as general rules of thumb that are helpful in understanding potential other risks.

- ◆ If regional economic growth is slower than current estimates, reducing projected sales by 50,000 acre-feet per year, annual water rate revenues could be about \$18 million lower per year. The effect of economic growth on sales must be considered separately from the effects of weather.
- ◆ For every \$100 million that debt financed capital costs exceed current estimates, annual debt service costs could be about \$6 to \$7 million more per year. The uncertainty surrounding future capital costs is due to the potential for system replacement costs beyond those currently anticipated for both the MWD and SWP systems.
- ◆ Although the original IRP estimate has been included in the current financial forecast, Metropolitan's cost for the Bay-Delta solution is unknown at this time. Total cost estimates for the three proposed alternatives range from \$4 billion to \$12 billion depending upon the selected alternative.
- ◆ The cost of the California 4.4 Plan, designed to ensure that California lives within its entitlement of 4.4 million acre-feet of Colorado River Water, while also providing a full Colorado River Aqueduct, are also largely unknown at this time. Issues surrounding elements of the California Plan such as the proposed SDCWA/IID transfer, Off-Stream Storage costs and other Colorado River Programs are examples of Metropolitan's supply cost uncertainty.
- ◆ Salinity management issues could raise operating and capital costs.
- ◆ For every \$10 per acre-foot that electric industry restructuring increases or decreases Metropolitan's average unit power cost, annual costs could increase or decrease by \$18 to \$22 million.
- ◆ Increasing public concern over water quality issues may impact Metropolitan's cost for providing treated water service sooner than anticipated.

Although reserves can help mitigate rate increases caused by the above factors, it is not always possible, or in the best interests of the member agencies, to fund reserves in anticipation of major long-term changes in Metropolitan's cost or revenue structure. To account for the above risk factors in the Maximum Reserve Level the Board must decide if it is appropriate to hold reserves to mitigate water rate increases caused by these factors. **It should be recognized that many of the other risk factors listed may allow adequate lead time for the Board to consider water rate increases or other mitigating actions.** In addition, the majority of the above risk factors would constitute a long-term change in Metropolitan's cost or revenue structure and could not be indefinitely reserved against.

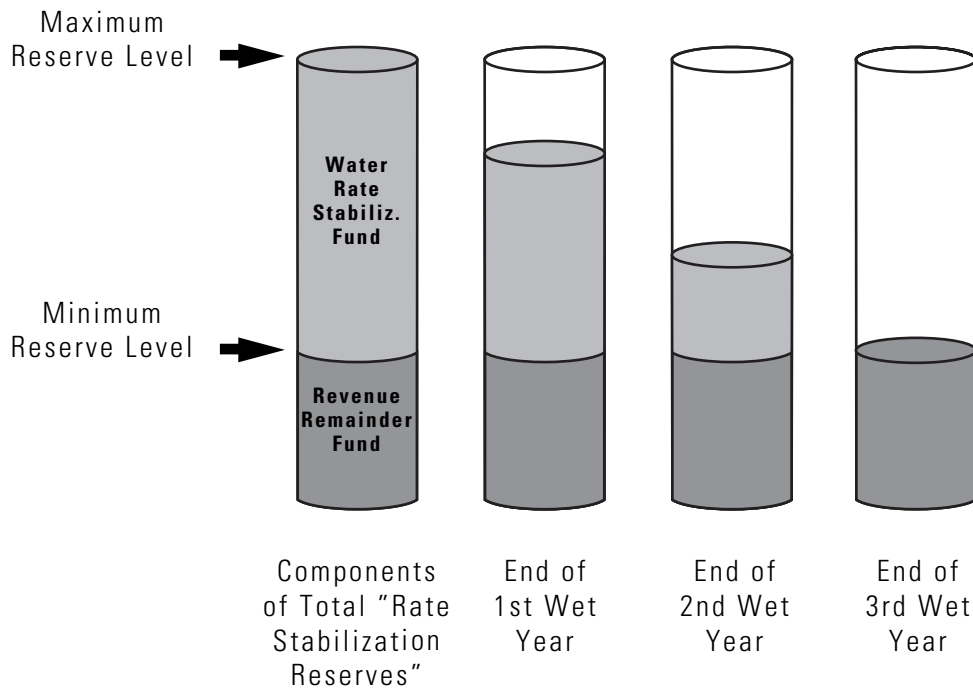
The Minimum Reserve Level If the Board determines that a water rate increase or cost decrease is required to replenish reserves, a minimum reserve level provides time for such actions to be considered, implemented and to take effect. Similar to the current reserve policy, the Minimum Reserve Level for the alternative methodology would be held in the Revenue Remainder Fund. At the end of each Fiscal Year, the Minimum Reserve Level would be calculated as the potential annual revenue shortfall for the following year and would be adjusted to account for estimated changes in variable power costs and interest income. This estimated annual amount would be increased by 50 percent, effectively allowing 18 months for Board action to replenish reserves to take effect. The first line of Table 2 above summarizes how the estimated Minimum Reserve Level for Fiscal Year 1998-99 would be calculated.

The Relationship Between the Maximum and Minimum Reserve Levels For a wet period defined by the Board to not require Board action (i.e. no rate increase or operating cost decrease), the Maximum Reserve Level includes sufficient reserves to fund any shortfall in operating revenues for the duration of the wet period plus the Minimum Reserve Level. In other words, a Maximum Reserve Level designed to insure the water rate against a wet period lasting three years will fund the Minimum Reserve Level for three years and meet the Minimum Reserve Level at the beginning of the fourth year. A Maximum Reserve Level designed to insure the water rate against a wet period lasting two years will fund the Minimum Reserve Level for two years and meet the Minimum Reserve Level at the beginning of the third year.

Figure 4 illustrates the use of reserves over a three year wet period. At the end of the first wet year, low water sales revenue results in a transfer from the WRSF to the Revenue Remainder Fund in order to meet the Minimum Reserve Level. At the end of the second wet year the transfer is repeated, further decreasing the balance of the WRSF. By the end of the third wet year all of the WRSF has been used to meet the Minimum Reserve Level three times. Although the Board may elect to take action prior to the end of the third wet year, no action is required until the end of the third year because sufficient reserves were held in the initial Maximum Reserve Level to fund the Minimum Reserve Level for the beginning of the fourth year. However, this risks depletion of the minimum reserve level prior to receipt of new revenues from a rate increase.



FIGURE 4.
USE OF RATE STABILIZATION RESERVES



Sensitivity Analysis Sensitivity analysis was conducted to test the Maximum Reserve Levels calculated in Table 2. First, the most recent water rate forecast, generated using expected normal demands, was held constant and ending year reserve balances were calculated for two and three year wet periods beginning in 2000. A lower initial reserve level of \$200 million was also tested to illustrate how rapidly reserves can be drawn down below the minimum level by an extended wet period. The results of the analysis indicate that the \$310 million Maximum Reserve Level is sufficient to fund the Minimum Reserve Level for a two year wet period, the \$440 million Maximum Reserve Level is sufficient to fund the Minimum Reserve Level for a three year wet period, and an initial reserve level of \$200 million could require a water rate increase or cost decreases as soon as next year if sales were low.

Figure 5 illustrates that if two wet years were to occur beginning in 2000, an initial reserve level of \$200 million could result in reserves falling below the Minimum Reserve Level as early as Fiscal Year 1999-00. However, a Maximum Reserve Level of \$310 million is sufficient to ensure that reserves do not fall below the Minimum Reserve Level for the duration of the two year wet period. The higher Maximum Reserve Level of \$440 million, estimated for a three year wet period, adequately ensures that the reserves do not fall below the Minimum Reserve Level for the duration of the two year wet period.

FIGURE 5.
ANNUAL RESERVE BALANCES FOR A TWO YEAR WET PERIOD

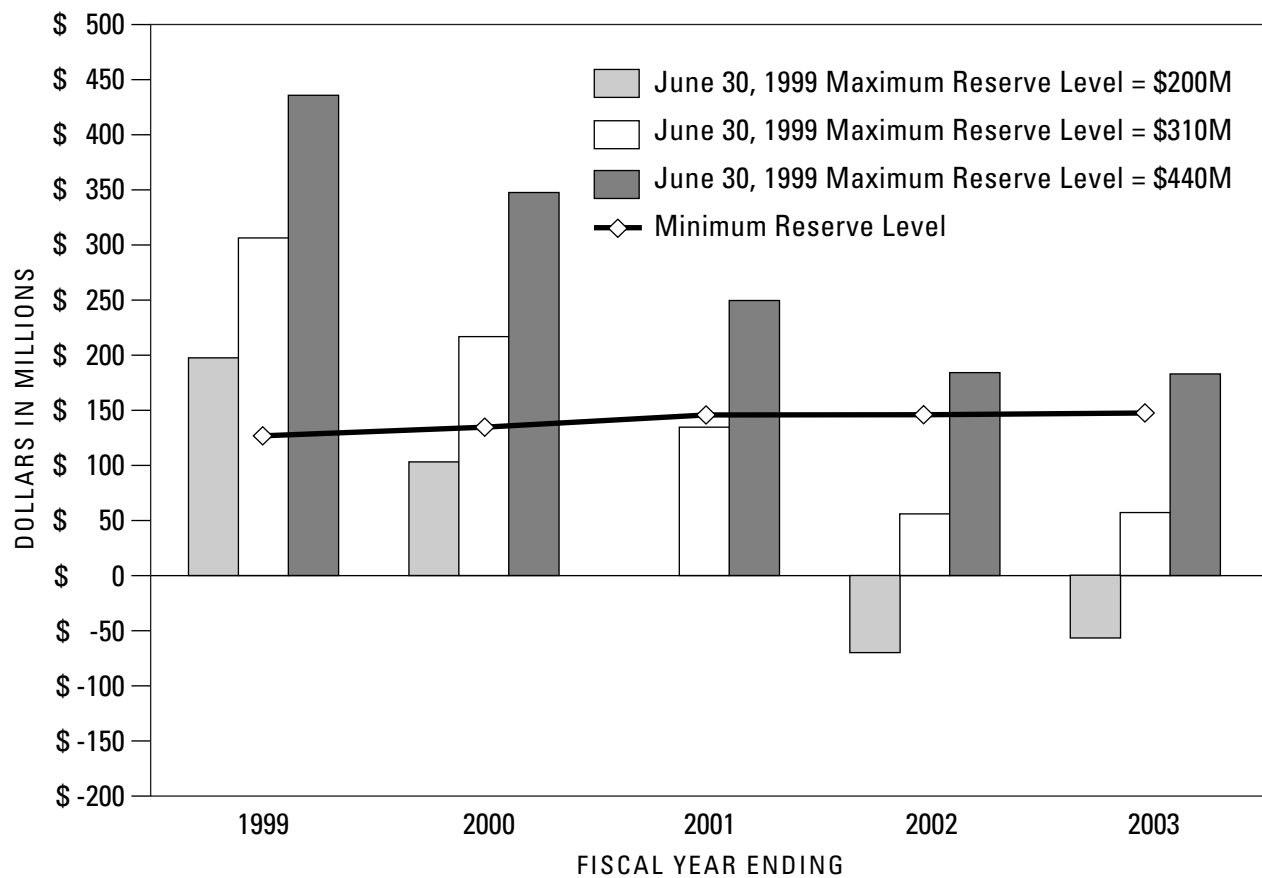
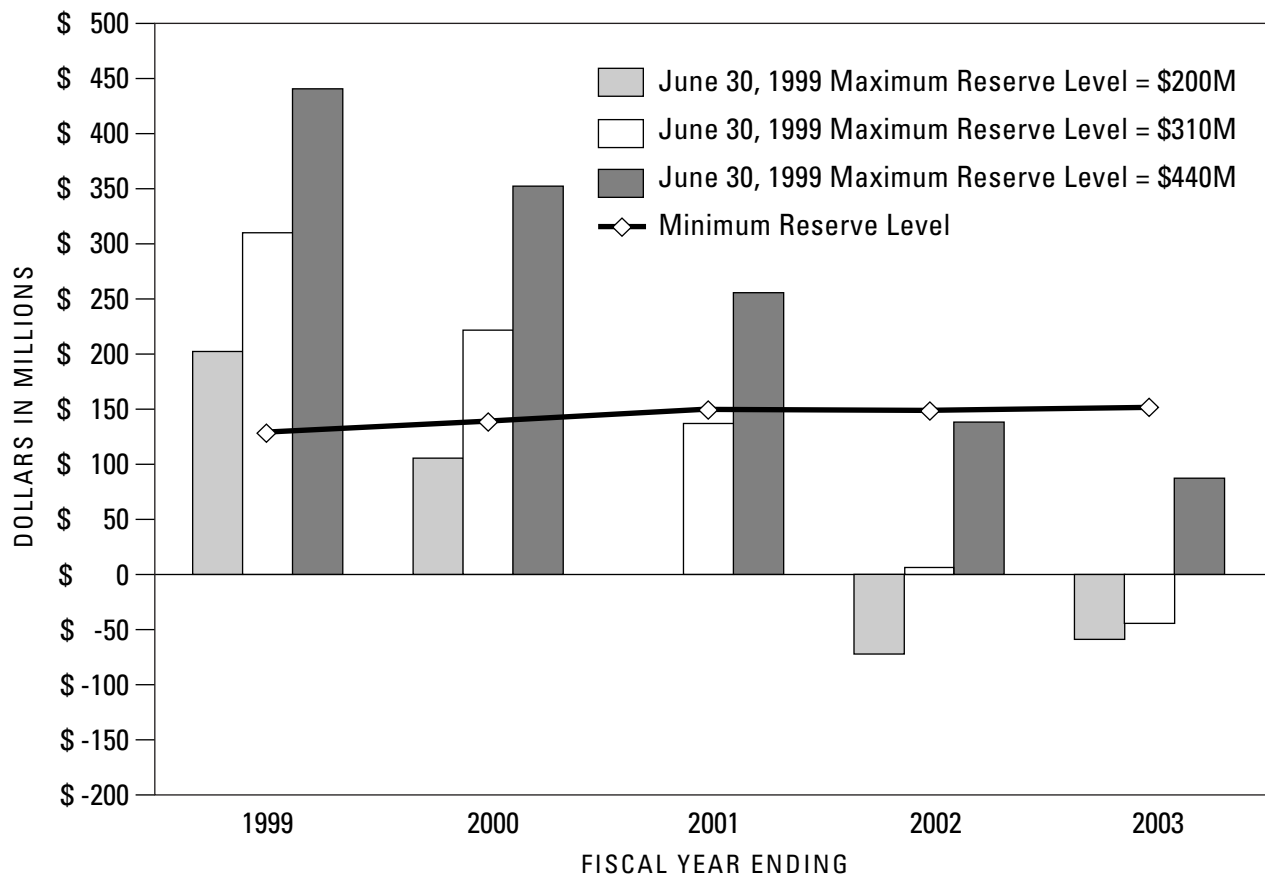


Figure 6 illustrates the effect of extending the duration of the wet period from two to three years. The result for all three initial reserve levels is identical to that shown in Figure 5 through Fiscal Year 2000-01. Although historic rainfall data indicates that the chance of a third consecutive wet year is relatively small (2 percent or less), if year 2002 were also wet, or if sales in previous years were lower than the levels used to define the maximum reserve levels from Table 2, reserves could fall below the minimum level if the reserve policy is based on a two year wet period. A Maximum Reserve Level of \$440 million ensures that the reserves do not decrease below the Minimum Level for the duration of a three year wet period.

FIGURE 6.
ANNUAL RESERVE BALANCES FOR A THREE YEAR WET PERIOD



The second step in the sensitivity analysis estimated rate increases required to fund the Minimum Reserve Level in years when the reserves fell below the minimum. Table 3 shows the change in the water rate by year 2003 that could result from a two or three year wet period and different Maximum Reserve Levels. For an extreme example, combining an initial reserve level of \$200 million with 3 consecutive wet years beginning in 2000, could increase the water rate by \$61 dollars per acre-foot. However, an initial

Maximum Reserve Level of \$440 million fully protects the water rate from a three year wet period and no water rate increase is necessary. Additionally, an initial Maximum Reserve Level of \$310 million adequately protects the water rate from increases caused by a two year wet period, but, if a three year wet period were to occur, a \$64 dollar per acre-foot increase in the water rate may be necessary to meet the Minimum Reserve Level.

TABLE 3.
INCREASE IN WATER RATE BY YEAR 2002
REQUIRED TO MAINTAIN MINIMUM RESERVE LEVEL

	Duration of Wet Period (Beginning 1999)	
June 30, 1998 Maximum Reserve Level (\$ Millions)	2 Years	3 Years
\$200M	\$31	\$61
<u>\$310M</u>	\$ 0	\$64
<u>\$440M</u>	\$ 0	\$ 0

Probability Analysis of Alternative Reserve Policy The alternative reserve methodology developed by staff and reviewed by the Finance Workgroup was further tested by generating projected reserve balances in each future year under 70 different hydrologic conditions (1922-1998). By counting the number of times that the reserve balances are estimated to fall below the minimum reserve level it is possible to calculate the probability that reserves will be below the minimum balance in any future year.

Table 4 summarizes the probability that reserves will fall below the minimum reserve level in the future. For example, if an initial maximum reserve level of \$310 million (2 year wet period) is chosen by the Board, there is a 14.3 percent chance that reserves will fall below the minimum level by the end of Fiscal Year 2000-01. If the higher initial reserve balance of \$440 million (3 year wet period) were selected by the Board, there is a 2.9 percent chance that reserves will decrease below minimum levels by the end of Fiscal Year 2001-02.

It is interesting to note that the higher probabilities shown in the later years result from the conditional effects of wet years occurring in previous years. In other words, as the forecast is extended there is a greater chance that reserve balances in the later years will be adversely impacted by events in previous years. This conditional dependence is an important factor to consider when evaluating appropriate reserve levels. For example, if the Board chooses to reserve for a 2 year wet period, the probability of reserves falling below the minimum reserve level increases from 14.3 percent in Fiscal Year Ending 2001 to 21.4 percent in Fiscal Year Ending 2002 because adding one year again captures 70 different weather conditions, some of which are wet.

TABLE 4.
ESTIMATED PROBABILITY OF RESERVES
FALLING BELOW MINIMUM LEVEL

	Minimum Reserve Level	2 Year Wet Period Reserve	3 Year Wet Period Reserve
	Dollars in Millions		
Fiscal Year Ending			
1999	\$127	0.0%	0.0%
2000	\$121	0.0%	0.0%
2001	\$153	2.9%	0.0%
2002	\$195	14.3%	1.4%
2003	\$191	20.0%	4.3%

(1) The probability of reserves falling below the minimum level is estimated from 70 different outcomes based on 1922-1991 hydrologic conditions. Each future years outcome is dependent on the simulated conditions in the prior year(s).

Simplified Formula for Determining Reserve Levels Although technically rigorous, the alternative formula (see Table 2) for determining reserve levels is not as easily calculated or explained as other methods which may serve to adequately define appropriate reserve levels. The ability for anyone interested in Metropolitan's reserves to simply calculate and understand the reasoning behind an appropriate reserve level is a significant advantage of a simpler formula. Some water agencies simply set their reserve levels based on a percentage of fixed costs recovered by variable commodity rates. The percentage of fixed costs is most often associated with the expected level of variability in sales and can be adjusted for other factors such as time lags associated with budgeting and rate setting cycles, reasonable expectations of periods of potential revenue shortfalls, and other adjustments.

The following example in Table 5 applies a simple formula to arrive at maximum reserve levels that are not unlike the maximum reserve levels derived from the more technical formula used in Table 2 above. Although the previous Chapter stated that the expected variability in Metropolitan's sales could be as much as ± 20 percent, the technical method reviewed by the Finance Workgroup assumed sales would vary annually by about 16 percent and included adjustments for changes in variable power costs and lost interest income. For the purposes of developing a simple formula for defining maximum reserve levels, a sales variability level of 17.5 percent was chosen to express the amount of fixed costs recovered by the water rate that should be included in the reserves. This percentage generates maximum reserve levels consistent with the technical method reviewed by the Finance Workgroup and supported by the analysis presented earlier in this Chapter.



TABLE 5.
SIMPLIFIED APPROACH FOR DETERMINING RESERVE LEVELS

Dollars in Millions	Fiscal Year Ending 1999	1999-00	2000-01	2001-02	2002-03
Total Normal Water Rate Revenue Requirement		\$595	\$631	\$670	\$663
less Variable Costs		(105)	(113)	(109)	(105)
Fixed Costs Recovered by Water Rate		\$490	\$517	\$562	\$558
Percent Reserved		17.5%	17.5%	17.5%	17.5%
Reserved Amount		\$ 86	\$ 91	\$ 98	\$98
Fiscal Year Ending 1998-99 Reserve Components					
Minimum Reserve Level (18 months)	\$129				
Maximum Reserve Level for 2 Wet Years	\$318				
Maximum Reserve Level for 3 Wet Years	\$415				

Using this simplified approach, the maximum reserve level can be simply defined at the end of each Fiscal Year as 17.5 percent of the fixed costs recovered by the water rates for the first 18 months immediately following the most recent fiscal year plus an additional 2 or 3 years.

Debt Financing Operating Revenue Shortfalls One alternative to holding cash reserves to mitigate unexpected revenue shortfalls would be to secure a line of credit (LOC) as a substitute for some amount of the rate stabilization reserves. Substituting a LOC for reserves would, however, impact Metropolitan's water rate, and debt capacity, and therefore its ability to finance capital, and possibly its long-term financial integrity.

In general, Metropolitan's Financial Advisor has identified the costs associated with substituting a LOC for each \$100 million in reserves as \$6.125 million per year. This estimate is made up of two components: (1) \$6 million for the lost interest income earned on \$100 million at 6 percent per year and (2) \$0.125 for annual LOC fees. At current sales levels this cost translates into almost a \$4 per acre-foot increase in the water rate. This cost does not include the interest cost (at commercial financing rates rather than tax-exempt rates) which would become payable on the principle amount of any drawdown.

Metropolitan's Financial Advisor has cautioned that the annual LOC fees are related to the District's liquidity and may increase as reserves decrease. Further, the Financial Advisor has cautioned that a policy of using a LOC to fund operating revenue shortfalls may impact Metropolitan's credit rating and further increase LOC annual fees.

This type of an arrangement would result in Metropolitan's rate payers paying interest and annual fees for the LOC versus earning interest (which helps reduce the water rate) on the reserves. To the extent that Metropolitan's reserves earn a return comparable to the interest on investments earned by the Member Agencies, the financial advantages of

substituting a LOC for a portion of Metropolitan's reserves are limited and are likely outweighed by the potential negative implications of such a policy over the long-term.

◆ **WORKING CASH**

The MWD/Member Agency Finance Work Group determined that Metropolitan's current definition of working capital was possibly inconsistent with established industry norms. The concept of working cash was developed as an alternative. The O&M Fund was identified as Metropolitan's true working cash. The O&M Fund, required under revenue bond covenants, holds funds to cover two months of O&M expenditures and is used to handle timing mismatches between receipt of revenues and payments of expenses. The working cash would work together with the minimum reserve level to ensure that Metropolitan can cover fixed costs during periods of short-term revenue shortfalls.

◆ **SELF-INSURED RETENTION**

Metropolitan currently maintains a self-insured retention reserve of \$25 million for emergency repairs and claims. The monies are held in the Revenue Remainder Fund and have been considered part of the working capital. The MWD/Member Agency Work Group, as part of the redefining of working capital, recommended that the self-insured retention should be held in a separate fund and clearly identified as a reserve for this purpose.

◆ **WATER TRANSFER FUND**

The Water Transfer Fund is maintained to purchase water for storage programs, to purchase options for future water purchases, and to fund the filling of the Eastside Reservoir Project. The fund is currently scheduled to sunset in the year 2004. The Work Group with the exception of the San Diego County Water Authority, is in agreement with the purpose and management of the fund but feels that it needs to be re-evaluated after the Eastside Reservoir Project becomes operational.

◆ **FLOW OF FUNDS**

Metropolitan's current flow of funds ends with the Pay-As-You-Go Fund into which remaining monies on hand at year-end are placed after all other reserve requirements are satisfied. The Water Rate Stabilization Fund (WRSF) has been capped at \$200 million with monies above this level flowing to the PAYG Fund. An alternative flow of funds has been suggested by the MWD/Member Agency Finance Work Group. The alternative would remove the cap from the WRSF and make this fund the last in the flow of funds, after the required balance in the PAYG Fund has been met.

In addition it was recommended that the year-end PAYG Fund requirement be revised. Current Board policy calls for the June 30 PAYG Fund balance to be equal to the amount budgeted for the following year's PAYG expenditures. It was noted that this level tends to be higher than needed to fund the PAYG program since revenues are raised during the year for PAYG purposes. The proposed revision is to set the June 30 PAYG Fund balance requirement at 1/2 of the amount budgeted for PAYG expenditures in the following year.

C H A P T E R

5

PAY-As-You-Go CONSTRUCTION

BACKGROUND

The District has funded construction costs from operating revenues at various levels throughout its history. In certain years, prior to the District obtaining revenue bond authority (in 1974), 100 percent of the construction program was funded from operating revenues. In other years, particularly early on in the District's history and during the early 1990's, close to 100% of District capital needs have been met with debt financing. The construction programs have been financed with a combination of short-term debt, long-term debt, and internally generated (pay-as-you-go or PAYG) funding. Staff has continually monitored and analyzed PAYG funding levels to determine a financing structure that maintains flexibility for the Board and provides the lowest borrowing costs to the District.

PAYG funding levels have a direct impact on water rates and on the ability of the District to finance the construction program with revenue bonds. The MWD Act limits the amount of revenue bonds the District may issue to the amount of equity that is reported on the financial statements of the District at the end of the most recently completed fiscal year. As of June 30, 1998, equity as presented on the District's financial statements was equal to \$3.87 billion. As of June 30, 1998 outstanding revenue bond debt was approximately \$2.44 billion, therefore, revenue bond debt is approximately 63 percent of equity (71 percent when Commercial Paper is included).

The 1986 Long Range Finance Plan developed a financial structure to lower the weighted average cost of debt, preserve equity, and reduce the magnitude of future debt offerings. The 1986 Plan determined that PAYG construction funding of ten percent of the capital improvement program would be prudent, and recommended establishing a Pay-As-You-Go Fund to provide for the financing of capital projects that could not be fully funded with tax exempt bond proceeds, as well as minor rehabilitation and capital betterment projects with short asset lives. Funding sources tended to match the life of the asset.

In December 1988 the PAYG Fund was established by the Board with monies available in the Water Revenue Remainder Fund. At that time and as reported in the Long Range finance strategy, a projected shortfall of \$800 million in bonding capacity was estimated for the construction program as outlined in the System Overview Study. It was then recommended that increased PAYG funding be used to mitigate the projected capital funding shortfall. The Board requested that staff consider several levels of PAYG

funding to help meet the projected shortfall in bonding capacity. PAYG funding levels of 10, 20, and 40 percent of the construction program were examined. The Board determined that a 10 percent PAYG policy was inadequate and a 40 percent PAYG policy increased water rates too abruptly at a time when sales were declining and sufficient bonding authority was still available. Therefore, a PAYG policy of 20 percent of the construction program was adopted to mitigate the projected financing shortfall and to provide flexibility for unforeseen financing needs. The Board established the current policy of funding over time approximately 80 percent of the capital program with debt and up to 20 percent of the capital improvement program with operating revenues, and set certain parameters to identify projects to be funded from operating revenues.

During the update of the 1995 Long Range Finance Plan the Board placed a cap on the Water Rate Stabilization Fund of \$200 million and decided that amounts in excess of the \$200 million balance at the end of the fiscal year would be transferred to the PAYG Fund to finance the CIP. The funds transferred to the PAYG Fund over the past few years have been used solely to finance the CIP while keeping PAYG funding levels to 20% of the total CIP.

ALTERNATIVE METHODS

In April 1998, at the request of the MWD/Member Agency Finance Work Group (Work Group), staff provided an analysis of the financial impacts of various methods for calculating PAYG funding levels at the District. Staff provided an explanation for each PAYG calculation method as well as the financial impacts of each method. The following is a brief explanation of each method presented to the Work Group:

Current Policy 20% of the Capital Improvement Program funded by PAYG.

1988 Policy 20% of the Capital Improvement Program funded by PAYG, but no prior year PAYG reserves available to fund PAYG program (all PAYG funding provided by current year revenues).

75% of Depreciation and Amortization PAYG program to be set at levels equal to 75 percent of annual depreciation and amortization expense of the District.

Depreciation PAYG program to be set at levels equal to annual depreciation expense of the District.

Capital Program (Project) PAYG program to be set at levels equal to projected CIP expenditures for certain types of capital programs (as determined by the Board) such as asset integrity, system reliability projects, and projects with shorter useful lives.

In conjunction with any of the above "baseline" PAYG methods, staff examined additional methods to supplement a PAYG program at the District and provide the Board with additional financial flexibility. The additional methods included use of prior year reserves (if available) and use of interest rate levels to supplement the PAYG program.

FACTORS FOR BOARD CONSIDERATION

There are many factors for the Board to consider when reviewing a methodology for determining an appropriate PAYG funding level at the District. The following include some of the main points the Board may consider in determining an appropriate level of PAYG funding for the District:

INCREASING PAYG

- ◆ increasing PAYG levels may increase water rates in the short term, but will likely help keep water rates lower than they otherwise would have been in the long term; and
- ◆ increasing PAYG levels will decrease debt issuance, increase revenue bonding capacity, and reduce the level of fixed costs as the District operates in a more competitive water industry. These factors will provide greater financial flexibility over the long term.

REDUCING PAYG:

- ◆ reducing PAYG levels will contribute to lower water rates in the short term, but will contribute to higher water rates in the future;
- ◆ reducing PAYG levels will increase debt issuance thereby reducing revenue bonding capacity and increasing the level of fixed costs;
- ◆ reducing PAYG levels will increase financing costs as debt service will have to be paid on debt that otherwise would have been avoided; and
- ◆ reducing PAYG limits the District's ability to stabilize water rates during periods of lower water sales, because of greater fixed payments for debt service. In periods of financial stress, PAYG can be deferred or suspended and the funds can be used to pay operating costs until water sales recover.

DEBT REDUCTION

In order for the District to remain competitive in the water industry in the future, a reduction of current levels of debt is required. The future impacts to the District of water marketing and water transfers in the future are unknown at this time. However, competition in the water industry coupled with unanticipated financial stresses such as earlier than anticipated facility replacements or additional capital investment to meet future regulatory requirements means that the District will need as much financial flexibility as possible.

The higher the debt burden of the District, the lower the financial flexibility the District would have in dealing with financial uncertainty. Financing the capital improvement program will require that the District increase its debt burden in the future. As recommended in this report, for the District to remain competitive, in the water industry, management of fixed costs will become increasingly important.

The Board has the option to supplement the PAYG program by designating the use of prior year reserves to fund the capital improvement program. If additional funds are generated in the prior fiscal year, the Board may elect to use those funds to support and/or increase the PAYG program in the current fiscal year. Debt reduction will always be a positive credit factor by the bond rating agencies. If the District can learn a lesson from deregulation of the electric industry, it's that less debt is better. The use of prior year reserves in lieu of additional debt when fixed charge coverage drops below 1.2x is a key recommendation of this plan.

SURVEY OF MUNICIPAL CREDITS

PAYG funding levels of water and wastewater utilities throughout the United States with like credit ratings have been used by the District in the past to compare and contrast the District's financial policies and financial indicators with the financial policies and financial indicators of the various utilities.

As recently as March 1998 members of the District's senior underwriting team have provided to the District results of various surveys of water and wastewater utilities regarding financial policies and financial indicators of the various utilities. The surveys have provided information to the District on debt funding and PAYG funding levels; operating reserve levels; levels of debt outstanding; the size and timing of the capital program; debt to equity ratios; and credit ratings for each entity.

Although the information provided by these surveys is not meant to be exhaustive, the information does lead to certain conclusions, such as:

- ◆ Most major water agencies with large capital improvement programs finance a significant portion of their capital programs with internally generated funds (PAYG financing).
- ◆ Most major water utilities with a revenue bond credit rating of at least AA (such as the District) finance their capital program with at least 20% PAYG funding.
- ◆ PAYG funding is an important contributor to the credit rating of the utility, and is used in conjunction with other factors such as debt service coverage, rate structure, reserve levels, and outstanding debt levels to determine a utility's credit rating.
- ◆ From a credit analysis perspective, high levels of debt are viewed with caution since the higher the debt, the greater the level of operating revenues that are needed to pay for past borrowing practices (example: the deregulated electric industry).

Levels of PAYG for water and/or wastewater utilities throughout the United States should be considered in determining the appropriate PAYG funding level given the existing financial constraints, and the future uncertainties facing the District. An example of such a survey is provided as follows:

PAYG PERCENTAGES AND BOND RATINGS MWD AND OTHER UTILITIES

Utility	PAYG Percentage	Bond Ratings
MWD	20 percent	AA/Aa
City of Chicago	50 percent	AA/Aa
East Bay MUD	24 percent	AA/Aa
Houston Water & Sewer	10 percent	A-/A
LA-DWP	55 percent	AA/Aa
Philadelphia Water & Sewer	15 percent	BBB/Baa
San Diego CWA	17.5 - 20 percent	AA-/Aa
Santa Clara Valley	20 percent	AA-/Aa

Source: MWD/MA Finance Work Group Survey - March 1997
Survey of Water and Wastewater Utilities - March 1996

PAY-AS-YOU-GO METHODOLOGY

In examining a methodology for determining PAYG funding levels at the District, staff and the Board have always considered the financial impacts to the District of such a policy over an extended period of time. The objective of the District in establishing a PAYG funding level has, in the past taken into account the impact on the following goals, financial indicators, and financial constraints of the District:

◆ WATER RATES

Projected changes in water rates are spread smoothly over a given period of time for each methodology examined.

◆ COVERAGE RATIOS

Revenue Bond Debt Service Coverage is normally the primary indicator of credit quality for any municipal entity. The higher the coverage the better the ability of the municipality to handle revenue or cost uncertainty in the future. The Board's goal is to maintain at least 2.0X coverage for revenue bond debt service payments after meeting obligations for operations and maintenance expenditures. Each methodology examined was constrained by the 2.0X coverage goal of the Board.

However, fixed charge coverage is also an important financial indicator to the bond credit agencies and the financial community as an indicator of the District's ability to pay for its fixed obligations. After payment of operations and maintenance obligations, the District is obligated to pay for its debt service obligations, State Water Contract capital payments, and other capital payments not paid for by tax revenues. Therefore, from a rating agency perspective the District's fixed charge coverage ratio is actually the coverage ratio of primary consideration. Although each methodology examined was not constrained by fixed charge coverage (since the Board does not have a formal policy or goal for fixed charge coverage), consideration was given to the level of fixed charge coverage for each method.

◆ **FINANCING LIMITATIONS**

In accordance with Section 239.2 of the MWD Act, no revenue bonds shall be issued by the District except for the purpose of refunding, unless the amount of equity of the District at the end of the prior fiscal year before the issuance of such debt equals at least 100 percent of the total amount of revenue bonds to be outstanding after the issuance of such revenue bonds.

◆ **RESERVE LEVELS**

For each method examined, reserves were used to mitigate water rate increases over the ten year period.

With this overall financing objective in mind, staff determined the impact on financial indicators and financial constraints of the District for each PAYG funding methodology presented to the Work Group.

Based on the results of the analysis and the information presented and discussed with the Work Group, the Work Group requested that staff provide to the Board for their consideration PAYG funding levels based on the current policy or PAYG funding levels based on annual depreciation expense. The following is an explanation for each method presented to the Board. In addition, an alternative methodology for calculating PAYG funding levels was presented to the Work Group by one of the member agencies.

CURRENT POLICY

The current PAYG policy of the Board is to fund up to 20 percent of capital improvement program expenditures on a pay-as-you-go basis. The policy as stated in the Administrative Code includes PAYG funding for the following:

- ◆ Capital facilities of projects totaling \$1 million or less;
- ◆ Capital assets with estimated payback periods or useful lives shorter than the calculated average life of alternative long term bond financing;
- ◆ Capital improvement program studies; and
- ◆ Any other lawful purposes as determined by the Board.

The Administrative Code, as indicated above, has provisions for PAYG funding of projects with short term lives as well as partial PAYG funding for projects with longer term lives such as the Eastside Reservoir Project.

Since 1995, the District limited annual PAYG expenditures paid from current year operating revenues to \$90 million per year due to the impact on water rates. Annual PAYG expenditures greater than \$90 million per year are funded through the use of PAYG Fund reserves and approved by the Board through the Annual Budget process. In 1996 approximately \$13 million was funded from PAYG Fund reserves, in 1997 approximately \$10 million was funded from PAYG Fund reserves, and in 1998 approximately \$24 million was funded from PAYG Fund reserves.

Through June 30, 1998 cumulative PAYG expenditures were 20 percent of the capital improvement program. For fiscal year 1997-98 the Board authorized up to \$140 million for PAYG expenditures. Actual PAYG expenditures for fiscal year 1997-98 were \$114 million to insure that the Board's 20% PAYG policy was not exceeded.

◆ FINANCIAL IMPACT OF CURRENT METHOD

The current PAYG policy will allow the District to meet goals and policies established by the Board and revenue bond covenants.

DEPRECIATION

In August 1996, the District's external auditor's KPMG Peat Marwick provided a report to the Board on the financial policies and rate setting practices of the District entitled "Diagnostic Review of Financial Policy Implementation and Rate Setting Practices." The report was prepared in conjunction with a report requested by the city of Burbank and prepared by the Barrington-Wellesley Group on the financial assessment of the District.

Among the financial policies and issues addressed by KPMG in their report was a review of the District's PAYG policy. KPMG stated that a typical guideline for utilities to fund a PAYG program is a program based on annual system depreciation.

This method for determining PAYG funding levels uses projected annual depreciation expense. Depreciation expense includes depreciation of all current District plant and equipment assets and depreciation expense projections for projects currently under construction that will be completed within the next ten year period. Using depreciation expenses to determine PAYG expenditures is based upon the concept of current users of the system paying for the use of the system through a "pay as you use" policy.

Estimates were made for annual depreciation expense of the District through 2007-08. Estimates indicate that annual depreciation will increase from \$45 million in fiscal year 1997-98 to \$94 million in fiscal year 2007-08 as more projects of the CIP become operational. The annual depreciation amount is used to determine the PAYG levels for each year. The annual PAYG percentage is then determined by dividing an amount equal to annual depreciation by total expenditures for the CIP.

◆ FINANCIAL IMPACT OF DEPRECIATION METHOD

Under this method, cumulative PAYG expenditures will vary between 17% and 22% of the total CIP over the next ten year period. As annual depreciation expenses increase over the ten year period, annual PAYG expenditures would fluctuate between 11% and 81% of annual CIP expenditures. Projections beyond the next ten year period indicate that depreciation expense will approach the level of total CIP expenditures, however, revenue bond debt service payments would be lower than anticipated as a lower percentage of the CIP would be debt funded.

◆ **ALTERNATIVE PAY-AS-YOU-GO CALCULATION METHODOLOGY**

During the review of the Long Range Finance Plan with the MWD/Member Agency Finance Work Group, an alternative methodology for calculating PAYG funding was presented to the Work Group by representatives from one of the member agencies.

The alternative PAYG methodology presented to the Work Group is a modified version of calculating PAYG funding levels at the District. The intent of the alternative method is to provide the District with a quantitative method for determining annual PAYG funding levels by removing as much subjectivity from the calculation as possible in the decision making process.

It was felt by certain members of the Work Group that no clear objective exists in using PAYG funding, and in determining the PAYG funding percentage at the District. In addition, it was felt that the focus of the PAYG calculation methodology should be directed more to the financial constraints of the District. Discussion and debate among the Board, staff, and the member agencies would be directed more towards the appropriate constraints and financial indicators when determining the optimal PAYG funding level at the District.

As discussed earlier in this chapter, the current method for determining PAYG funding considers the financial impacts to the District of various financial indicators and constraints. The current PAYG policy will allow the District to meet the goals and policies established by the Board and meet revenue bond covenants. However, the current PAYG policy essentially is a fixed cumulative percentage of capital improvement program expenditures. The policy was established a number of years ago and may not be the “optimal” PAYG funding policy for the District at this time.

The objective of the alternative PAYG methodology is to provide to the Board on an annual basis a mechanism to vary (optimize) PAYG funding levels at the District given the various financial constraints and financial indicators present each year.

The main difference between the current PAYG methodology and the alternative PAYG methodology is the treatment of the PAYG percentage in the modeling process when determining a capital financing mix. Under the current method the PAYG percentage is a cumulative fixed percentage, while the PAYG percentage under the alternative methodology is an annual variable percentage based on a projection of financial conditions present each year. The following are the financial constraints and financial indicators to be considered in determining PAYG funding levels each year under the alternative method, the PAYG percentage is an annual percent that may change from year to year:

- ◆ Revenue Bond Debt Service Coverage;
- ◆ Fixed Charge Coverage;
- ◆ Revenue Bond Debt to Equity;
- ◆ Total non-General Obligation Bond Debt to Equity;
- ◆ Changes in Water Rates;
- ◆ Use of reserves in the PAYG Fund and the Water Rate Stabilization Fund;
- ◆ Use of variable rate debt (current policy is 15% of total debt outstanding);
- ◆ Assumption for interest rates (cost of debt financing);

- ◆ Length of test period (the alternative method attempts to smooth projected revenue requirements over a specified time period, the use of different time periods impacts the calculated PAYG percentage during the modeling process);
- ◆ Definition of “smoothest” annual revenue requirements. The “smoothest” annual revenue requirements over a specified time period would equal the optimal financing structure when testing various PAYG funding levels within the modeling process.

Example of Modeling Calculation Under Alternative Methodology On an annual basis staff will recommend to the Board a PAYG percentage for the upcoming fiscal year that reflects staff’s best estimate of an “optimal” PAYG percentage based on projections of financial constraints and indicators.

First a determination will be made of acceptable levels and ranges for financial constraints and indicators. This is essentially the same procedure that is used for the current PAYG methodology. However, unlike the current PAYG methodology, the alternative methodology does not set PAYG at a fixed percentage of the capital improvement program. The alternative PAYG percentage is determined by testing various PAYG percentages in the model until an “optimal” PAYG percentage is determined, “optimal” meaning the PAYG percentage that offers the “smoothest” projected water revenue requirements over a specified period of time. The financial constraints and indicators used in the modeling process include revenue bond debt service coverage; fixed charge coverage; revenue bond debt to equity; total non-general obligation bond debt to equity; changes in water rates; use of reserves in the PAYG Fund and the Water Rate Stabilization Fund; use of variable rate debt; interest rates; and length of test period (the alternative method attempts to smooth projected revenue requirements over a specified time period, the use of different time periods impacts the calculated PAYG percentage during the modeling process).

The PAYG percentage recommended will be the percentage that determines the “smoothest” projected water revenue requirements over a specified period of time. The smoothest revenue requirement over the test period represents the “optimal” financing mix for the District at a given point in time. Changes in financial constraints or financial indicators over the test period will impact the revenue requirements thereby impacting the PAYG percentage determined to be the “optimal” percentage each year.

The PAYG percentage using the alternative PAYG calculation methodology would be approximately 21% for fiscal year 1998-99. It should be noted that under the current PAYG policy, PAYG expenditures paid from current year revenues are limited to \$90 million per year. Under the alternative PAYG calculation methodology, PAYG expenditures paid from current year revenues, are based on the calculated PAYG percentage and are not limited by a set amount.

IMPACT ON CURRENT VS. FUTURE RATE PAYERS

In reviewing the methodology for determining PAYG funding levels at the District, consideration must be given to the balance between the financial obligations of current ratepayers and financial obligations of future ratepayers. Increasing the PAYG program above the current 20% program would increase near term revenue requirements thereby shifting more of the financing costs of the CIP to current ratepayers. Conversely, decreasing the PAYG program below the current 20% program would reduce near term revenue requirements, but increase the overall financing costs of the capital improvement program thereby shifting more of the financing costs of the CIP to future ratepayers.

Certain advantages and disadvantages of PAYG funding are listed as follows:

ADVANTAGES OF PAYG FINANCING

- ◆ Overall cost savings because less interest costs are incurred.
- ◆ No fees or expenses are incurred that are associated with debt financing, including underwriter's discount; bond counsel fees; rating agency fees; and printing and mailing costs.
- ◆ Financial flexibility: PAYG funding levels may be adjusted upwards or downwards based on projected or actual water sales revenues at the direction of the Board. Increasing levels of debt funding will limit financial flexibility in the future.
- ◆ Protection of borrowing capacity.
- ◆ Perception of credit quality: rating agencies view municipalities with lower levels of debt more favorably.

DISADVANTAGES OF PAYG FINANCING

- ◆ The cost of a particular project may not always match the benefit of the project over the project life (differential between long term benefit of a project and who pays for a project).
- ◆ Short term impact on water rates, higher levels of PAYG funding from current year operating revenues put more pressure on water rates in the short term.

PAYG FUND BALANCE CONSIDERATIONS

As discussed in Chapter 4, an alternative flow of funds whereby the PAYG Fund is not the "last bucket" in the flow of funds was presented for the Board's consideration. Currently, if the fiscal year ending balance in the Water Rate Stabilization Fund (WRSF) is in excess of \$200 million, remaining funds are transferred to the PAYG Fund to be used for Capital Improvement Program expenditures. The alternative policy would make the WRSF the "last bucket" in the flow of funds of the District. The MWD/Member Agency Finance Work Group recommended a return to the pre-1995 policy of having the Water Rate Stabilization Fund be the last bucket so that any reserve balances above what is needed for all other funds would reside in that fund.

The Board has determined through Section 5202 (b) of the Administrative Code that the fiscal year ending balance in the PAYG Fund should be at least equal to the next fiscal year's projected PAYG expenditures. As part of the alternative flow of funds and as discussed with the Member Agency Finance Work Group, it was determined that for cash flow purposes the fiscal year ending balance in the PAYG Fund should be the greater of the amount required to arrive at the cumulative PAYG percentage (20%) or 50 percent of the annual projected PAYG expenditures for the next fiscal year. The PAYG Fund balance determined in this manner would still provide the District with adequate cash flow and not impact the PAYG program of the Board.



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C H A P T E R

6

CAPITAL FINANCING OPTIONS

DEBT MANAGEMENT

Metropolitan has a wide variety of capital financing options available to fund the CIP. This section of the Long Range Finance Plan will be devoted to analyzing the strategies associated with using those options to finance capital improvements in the most efficient and cost effective manner. These strategies involve such factors as the timing and sizing of bond issues, the relative mix between long-term and short-term debt, variable versus fixed-rate debt, competitive versus negotiated sales and other related factors. The primary objective in developing an effective debt management strategy is to put in place and maintain an optimum mix of capital financing instruments that will provide the required funds at the lowest cost without assuming undue risk.

◆ SIZING AND TIMING OF BOND ISSUES

The size of each revenue bond financing depends on a number of factors including: the CIP needs (i.e., construction requirements and scheduled construction draws), the percentage of pay-as-you go financing, and the amount of the CIP which will be financed with variable rate debt and other funding sources (grants, loans, etc.).

In entering the market for on-going CIP financing needs, Metropolitan tries to position itself to avoid the impacts of market swings. When low interest rates are available, Metropolitan plans to be in position to take advantage of those favorable market conditions with fixed rate long term debt issues. Likewise, when markets deteriorate, Metropolitan's financing strategy is to mitigate financing costs with the use of alternative financing vehicles. These include the use of variable rate revenue bond debt, commercial paper, forward interest rate commitments and interest rate hedges. Metropolitan uses an extensive variety of financing vehicles to ensure capital funding at the lowest cost to its customers.

The best way to raise capital funds when needed in less than desirable markets is to utilize short term techniques. The short term rates will impose lower costs on Metropolitan and permit MWD to avoid locking into high long-term rates. Once rates decline, Metropolitan can take out the short term debt with long term financing and convert its variable rate debt to low cost fixed rate debt. Thus, while it is most prudent for Metropolitan to rely on fixed rate debt for most of its long-term financing needs, the use of short-term debt can serve to maintain flexibility and to avoid locking in unattractive long term interest rates.

If long term rates are attractive at a time before Metropolitan is in immediate need of money, Metropolitan can still enter the market to borrow money. Metropolitan must be sensitive to a couple of concerns, however. One is a federal tax regulation against using the tax-exempt markets to obtain more money than necessary. A second concern is that any interest rate savings on the bonds not be offset by “negative arbitrage” on the money until it is spent. In normal circumstances, long-term rates (what the District pays for borrowings) will be higher than short-term rates (what the District receives on its government regulated investments). While the disadvantage of such negative arbitrage for a short period of time would generally not offset the benefit of an opportunity to issue bonds at low long-term rates, there are ways to minimize or eliminate this risk.

◆ INVESTMENT OF BOND PROCEEDS

The investment of bond proceeds is regulated by the federal laws that grant tax exemption to the bonds. These restrictions make it critically important that Metropolitan pay close attention to the investment of proceeds and develop a strategy to guide the investment and disbursement of all bond proceeds. Helpful to Metropolitan is that its proceeds can be invested in taxable money market instruments which provide higher yield than tax exempt debt of similar duration.

The most significant restriction in the Internal Revenue Code of 1986 is the requirement that any earnings from the investment of bond proceeds that exceed the cost of the borrowed funds, must be rebated to the federal government unless the funds are spent in prescribed time periods. Unspent proceeds can, at best, “carry” themselves i.e., they can earn roughly the interest payment Metropolitan must pay to bondholders with respect to the bonds issued.

According to current tax law, no rebate is required if bond proceeds are spent in accordance with the following schedule (the 2-year expenditure schedule), measured from the issue date: (i) at least 10% of the proceeds are spent within 6 months; (ii) at least 45% within 1 year ; (iii) at least 75% within 18 months ; and (iv) 100% within 2 years.

Metropolitan’s reinvestment strategy must also take into consideration arbitrage and rebate requirements and liquidity needs.

◆ LONG-TERM VS. SHORT-TERM DEBT

Short term financings for water agencies are of three basic types. These include cash flow borrowings (or “working capital” borrowings), financings for capital items with relatively short useful lives and interim financing for long term capital assets. Most agencies have statutory authority to issue notes or warrants, although these are generally limited as to term and the aggregate amount allowed to be outstanding at any one time.

Cash Flow Borrowing Cash flow borrowings are useful if revenues or expenses are uneven over the course of a fiscal year. An agency may, for example, receive property tax or standby or availability charge revenue twice a year, and revenues may be highly seasonal, while expenditures are more regular or suppliers may need to be paid in advance. Note proceeds can be used to pay current expenses with the notes repaid from revenues received later in the year.

To be federally tax-exempt the notes must satisfy the requirements of the Internal Revenue Service governing tax and revenue anticipation notes. These regulations limit the amount of working capital borrowings to the expected cash flow deficit (with certain adjustments). Because Metropolitan carries cash reserves, its ability to issue tax-exempt debt for working capital purposes is restricted, even during periods of deficit.

Financing for Short-lived Capital Assets Capital items with relatively short useful lives, such as equipment, are often best financed on a PAYG basis or with short term borrowings.

Interim Financings for Long-Term Capital Assets Short term borrowings can provide interim financings for the acquisition or construction of long-term capital assets anticipated to be financed on a permanent basis at a later date. The permanent source of funding could be a grant from another governmental agency (in which case the notes are usually referred to as “grant anticipation notes”) and/or an issuance of long-term debt (in which case the notes are usually referred to as “bond anticipation notes”). The issuance of long-term debt may be delayed because the final amount necessary to borrow cannot be determined (because construction costs are highly variable or the availability of grant money is unknown), because the anticipated resolution of legal or financial issues may improve an agency’s credit or allow it to borrow for a longer term or because interest rates are considered high and likely to decline in the future.

◆ FIXED RATE VS. VARIABLE RATE DEBT

The principal advantage of variable rate debt is the opportunity for a lower interest cost. Normally, short term interest rates are lower than long term interest rates for debt of comparable credit quality. Historically, the difference has been 200-300 basis points. If interest rates remain constant, Metropolitan will generally have significantly lower interest costs on variable rate debt than on fixed rate debt, even after remarketing and liquidity facility costs. Also, if interest rates decline, Metropolitan will benefit from lower interest costs without the necessity or cost of a refunding. If interest rates rise, variable rates could stay lower than the fixed rate originally avoided, and the longer the variable rate debt is outstanding at favorable spreads, the higher the break-even point becomes on fixed rate debt.

With fixed rate debt, the largest component of the underwriter’s discount is “take-down” which is the commission paid for the sale of the bonds to investors. Because variable rate debt trades as a short term obligation, the “takedown” on variable rate debt is significantly less than the takedown on fixed rate debt. Reduced underwriter’s discount with variable rate debt may offset issuance costs necessitated by the variable rate structure (e.g., liquidity facility provider expenses), potentially resulting in lower overall issuance costs for variable rate debt.

Fixed rate debt holders generally require some form of “call protection.” Typically, fixed rate bonds are only redeemable a given number of years after their issuance and if the issuer pays a prepayment premium. Because the interest rate on variable rate debt is periodically reset, call protection is not important to variable rate debt holders. Variable rate debt, therefore, may generally be prepaid without premium on any date on which the interest rate is changed (for tender bonds with an interest period of one

month or longer) or on any interest payment date (for tender bonds with an interest period of seven days or shorter).

◆ **RISKS ASSOCIATED WITH VARIABLE RATE DEBT**

Interest Rate Risk The principal disadvantage of variable rate debt is that interest rates may rise. Because future interest rates are unknown, the costs of capital improvements financed with variable rate debt is more difficult to estimate for revenue planning purposes. Significant interest rate increases could cause financial stress, so investors (and underwriters, rating agencies and credit enhancement providers) generally prefer the amount of outstanding variable rate debt in aggregate be no more than a given percentage of the overall outstanding debt (generally 20-25%), excluding capped or hedged obligations (see Appendix 1).

Liquidity Facility—Renewal Risk Variable rate debt normally requires a liquidity facility to protect the investors and issuers against puts of a large portion or all of the debt on a single day. The terms of liquidity facilities vary but in current markets it is impossible to obtain a liquidity facility covering the full term of the debt (the available initial term is usually five to ten years). If an issuer's credit declines or the liquidity facility capacity is not available, the issuer runs the risk of not being able to obtain an extension or renewal of the expiring liquidity facility. In that event, the issuer may have to retire the debt, or convert it to fixed rate debt (which may not be at attractive rates).

Liquidity Facility—Market Risk If the credit of the liquidity provider (or, if separate, the credit enhancement provider) declines, if capital markets are disrupted or if a cloud appears over the legality or tax exemption of the variable rate debt (either because of a problem with the issue or a problem with obligations of the same or similar type), holders of the debt may exercise their option to tender their bonds, resulting in higher interest costs on remarketing, retirement of the debt or the purchase of the debt by the liquidity facility provider. When the liquidity facility is called upon, the issuer is required to pay a taxable (higher) rate of interest, usually based on the provider's published prime rate plus 200 or more basis points.

Sales of variable rate debt issues are more complex than fixed rate debt issues. Also, because the interest rate is reset through the remarketing process, variable rate debt is difficult to sell by competitive sale.

Smaller debt issuers generally choose fixed rate debt over variable rate debt. Larger issuers often issue a portion of their debt as variable rate debt. Also, if construction costs are uncertain an agency can use variable rate debt initially and convert to fixed rate debt in the amount needed after construction is completed.

◆ **NEGOTIATED VS. COMPETITIVE SALE**

The two basic types of sale for tax-exempt debt are competitive sale and negotiated sale. Some agencies require that their bonds be sold at competitive sale and, as a practical matter, variable rate debt and most derivative products can only be sold currently by negotiated sale.

In the case of a competitive sale, an agency with its financial advisor and bond counsel structure the transaction. A notice of sale is published prior to the sale inviting bids

for the bonds specifying the terms of the offering and detailing the basis for the award of the bonds (generally the lowest “true interest cost”). The bonds are sold to the winning bidder (which may be a single underwriting firm or a group of firms). The underwriters purchase the bonds and resell them to investors but do not play an active role in structuring the transaction.

In the case of a negotiated sale, the issuer selects an underwriter or underwriters to underwrite the bonds (by purchasing the bonds for resale to investors) on terms to be negotiated between the issuer and the underwriter. The issuer structures the transaction with the underwriter, bond counsel and financial advisor. The issuer enters into a bond purchase contract with the underwriter providing for the purchase of the bonds by the underwriter on agreed terms and conditions. Before entering into the purchase contract, the underwriter has generally obtained commitments from investors for the purchase of most or all of the bonds. The underwriter plays an active role in structuring the transaction and is almost always represented by counsel who generally takes the lead role in preparing or overseeing production of the offering materials for the bonds.

Competitive sales and negotiated sales involve different processes, players and roles (in particular, the distinction between the financial advisor and the underwriter in the lead structuring role) and present different sets of advantages and disadvantages. The best choice for a given debt offering depends upon the facts and circumstances of the financing. The comparative advantages of competitive and negotiated sales are discussed below.

Advantages of Competitive Sale (vs. Negotiated Sale)

Competitive Pricing The principal advantage of a competitive sale is a competitive pricing of the bonds. The best bid (in terms of lowest debt service cost) wins the bonds. As is the case with public bidding requirements for government contracts generally, competition is thought to produce the best result. But because competitive sales are not as conducive to “reselling,” bidders must generally be able to handle the bonds in inventory. This can give a competitive advantage to large national brokerage firms over small regional firms.

Fewer Participants With a competitive sale, the underwriter does not structure the issue and there is no underwriter’s counsel. Although additional work must therefore be done by the issuer’s financial advisor, bond counsel and disclosure counsel (if any), the overall time required to be expended by financing professionals is generally less, resulting in lower transaction costs paid directly or indirectly by the issuer. In addition, it has been the industry experience that fewer bids (sometimes only one) are received at competitive sales when the principal amount exceeds \$175 to \$200 million.

Advantages of Negotiated Sale (vs. Competitive Sale)

Flexibility A negotiated sale allows considerable flexibility with respect to last minute adjustments to debt structure and, particularly, sale timing, allowing the issuer to respond to investor needs and market fluctuations. Flexibility is of particular value for large borrowings or because of volatile markets for financings involving

a number of independent variables (e.g., an advance refunding hinging upon the interplay of taxable and tax-exempt yield curves, a derivative product requiring the expertise and marketing effort of a specific underwriting desk).

Presale and Premarketing The underwriter selected to underwrite an issue of bonds through a negotiated sale will obtain commitments from investors to purchase the bonds before committing to interest rates on the bonds. This eliminates much of the risk of underwriting and can result in better pricing. Also, before the actual offering date the underwriter will work with potential investors to provide information and otherwise generate interest in the issue. This is of particular value if the transaction is complex or the credit is difficult to understand.

More Participants The presence of an active underwriter and underwriter's counsel can bring additional expertise and creativity to the table. The checks and balances and "creative tension" between a financial advisor and an underwriter can also be a benefit. This is an important reason to utilize the negotiated sale process for a large issue (generally above the \$200 million level) because large bond issues tend not to attract a large number of competitive bids.

CAPITAL FINANCING STRATEGY

Metropolitan's ten-year \$4.0 billion Capital Improvement Program (CIP), which began in the 1995-96 fiscal year, has been planned to ensure continued water supply reliability and the best drinking water quality modern technology can provide for current and future residents of Southern California. The following analysis will show that the cost of this program can be managed at the lowest cost to the customers by efficiently utilizing the financial resources available to the Metropolitan Water District.

Traditionally, Metropolitan has relied mainly on long-term bonded debt and pay-as-you-go (PAYG) financing to cover ongoing capital expenditures. These are discussed in Appendix 2. More recently, however, Metropolitan has acquired additional financing vehicles to provide complete funding for the CIP.

◆ COMMERCIAL PAPER PROGRAM

Commercial paper has become an important part of Metropolitan's capital financing strategy. As a result of Long Range Finance Plan recommendations, the Board, in April 1991, adopted a resolution providing for the issuance of up to \$200 million in short-term revenue certificates (commercial paper). In June 1991, Metropolitan issued \$60 million in commercial paper notes under this authorization. This \$60 million was issued without a back-up line of credit. Metropolitan was the first issuer in the nation to receive the highest short term credit ratings from both Moody's and Standard and Poor's rating agencies without a line of credit to back the debt. Credit lines have been secured for all issuances above the initial \$60 million. In September 1995, Metropolitan issued commercial paper notes in the amount of \$70 million, bringing the total to \$130 million. In April 1996 the Board increased the total commercial paper authorization to \$400 million. The remaining \$70 million of the original \$200 million authorization was issued in September 1996. In July 1997 an additional \$100 million of commercial paper was

issued, bringing the total outstanding to \$300 million. When the commercial program was expanded to \$300 million outstanding it was decided to use two remarketing agents. This was done to create competition amongst the remarketing agents in order to insure that Metropolitan's commercial paper was remarketed at the lowest rates available. Metropolitan's commercial paper rates have ranged from 200 to 300 basis points below its fixed rate debt levels.

To provide additional forms of alternative financing, consideration has been given to other financing alternatives, including the issuance of certificates of participation (COPS) and creation of a third-party financing entity controlled by Metropolitan. As discussed in the 1995 Long Range Finance Plan and approved by the Board in 1996, Metropolitan's capital financing strategy now includes the use of a Metropolitan controlled nonprofit benefit corporation to finance certain future capital projects.

◆ THE METROPOLITAN WATER DISTRICT ASSET FINANCING CORPORATION

Under the California Nonprofit Public Benefit Corporation Law, a nonprofit corporation may be formed for any public or charitable purposes by one or more persons executing and filing articles of incorporation with the Secretary of State. As mentioned above, in 1996 the Board authorized the formation of the Metropolitan Water District Asset Financing Corporation (MWDAFC). The MWDAFC was formed with the power to issue bonds or notes and to incur liabilities. The debt issuance powers of the MWDAFC can be used to provide financing for capital projects, such as the new Headquarters building. As of March 1999, the MWDAFC has not been used for any financing.

The MWDAFC lease revenue bonds, commercial paper or some other form of debt, will not be obligations of Metropolitan and will not have any effect on Metropolitan's revenue bond debt to equity limitation. This will preserve revenue bond capacity and provide significant additional flexibility for Metropolitan to finance the ongoing CIP. From a credit standpoint, MWDAFC debt provides another avenue for investors to purchase additional Metropolitan debt which can be helpful for buyers that have reached their limits on purchases of debt from Metropolitan itself.

◆ HEADQUARTERS BUILDING FINANCING OPTIONS

Metropolitan's new Headquarters building, completed in November 1998, was funded entirely from reserves available in the General Fund. Staff has reviewed several alternatives for debt financing the costs associated with the construction of the building. Alternatives reviewed include maintaining the current status of cash funding, using long-term or short-term debt, or a lease-leaseback transaction with a private entity. Cost implications of these funding alternatives are discussed below.

Cash Funding From Reserves This alternative retains the current funding status of the Headquarters building, that is, the use of \$135 million of General Fund moneys as the permanent funding source. There are several advantages of this option. First, there would be no impact on current debt-to-equity ratios, as essentially all General Fund draws will be completed during FY 1998-99. Second, while reserves are lower as a result of draws for construction costs, reserve balances remain well within the proposed two year minimum/maximum reserve levels recommended in this plan, and are

expected to remain within allowable Min-Max levels over the next five years. In addition, since there is no debt financing, there would be no annual debt service obligations. Assuming a 30 year financing between \$108 million and \$129 million, annual debt service would be approximately \$8 million to \$10 million.

Debt service costs for a commercial paper issuance would be approximately \$3.25 million-\$4.0 million per year.

Debt Financing This alternative assumes that Metropolitan issues debt to reimburse the General Fund and incurs a debt obligation for the Headquarters building. Under this alternative, Metropolitan could issue either long or short term debt. It is noted that the reimbursement resolution adopted by the Board allows Metropolitan to receive full reimbursement only if debt is issued by June 1, 1999 (or three years from when the first project expenditures were incurred). For each month after June 1, 1999, the amount of allowable reimbursements will decline.

If Metropolitan sold long-term debt, it would likely be issued through the Metropolitan Water District Asset Financing Corporation (MWDAFC). The advantage of MWDAFC issuing the debt is that it would not be counted against Metropolitan's debt/equity limit. The MWDAFC bond issue would be secured by lease payments from Metropolitan, pursuant to a lease agreement between Metropolitan and MWDAFC. Under the lease agreement, MWDAFC would own the building during the term of the lease, with title transferring back to Metropolitan at the end of the lease.

Assuming that funding will be for 80% of project cost (in keeping with a 20% PAYG/80% debt funding policy), Metropolitan would sell a \$108 million bond issue. Bond proceeds of \$103 million (less financing costs and reserves) would be used to reimburse the General Fund. This infusion of cash would put reserve levels in excess of the proposed two year minimum/maximum reserve level. In addition, Metropolitan would incur annual debt service costs of approximately \$10 million.

If short-term debt is issued, it would probably be in the form of commercial paper. Metropolitan currently has \$100 million of remaining commercial paper authorization. In addition, commercial paper is a very flexible financial vehicle. Proceeds may be structured with differing amounts and maturities (usually from 30-270 days) that are continually "rolled-over" at maturity. This affords Metropolitan the flexibility to choose the optimal maturity range at the most favorable short-term interest rates. Annual debt service costs would probably range between \$3.25-\$4.0 million. This represents only interest costs as the par amount of commercial paper is expected to remain unchanged. As there are only modest financing costs for commercial paper, the General Fund would be reimbursed almost the entire \$100 million from commercial paper proceeds.

There is one important drawback to using commercial paper for permanent funding of the Headquarters building. Ideally, commercial paper should be used during periods of high long-term interest rates, or as a bridge financing prior to a take-out with long-term debt. If commercial paper was now issued for the Headquarters building, Metropolitan would forego the opportunity of issuing the remaining commercial paper capacity at a more advantageous time. Of course, the Board could authorize an increase in the existing \$400 million authorization, or authorize the issuance of commer-

cial paper through the MWDAFC. As stated above, Metropolitan has only until June 1, 1999 to issue debt for the maximum allowable reimbursement.

Lease-leaseback This option entails entering into a complex lease arrangement whereby Metropolitan would lease the Headquarters building to a private corporation, who would then lease the building back to Metropolitan. The intent of the transaction is to allow the private corporation to realize tax deferral benefits for lease payments and interest. As a tax-exempt entity, Metropolitan could not use such tax benefits. The leases are also structured such that all lease payments are economically defeased at closing. In addition, Metropolitan would receive an up-front payment of between 5%-15% of the assessed value of the Headquarters building.

There are numerous risks to Metropolitan regarding a lease-leaseback transaction, including future tax liabilities (property taxes) which Metropolitan might incur as the result of entering into the lease-leaseback arrangement, restrictive covenants regarding Metropolitan's use of the building, and uncertainty regarding pending IRS regulations for these types of leases.

◆ PURCHASE OF METROPOLITAN BONDS IN THE SECONDARY MARKET

In September 1995 the Board approved the 1995 update to the Long Range Finance Plan (LRFP) which included a recommendation authorizing the General Manager to purchase Metropolitan bonds in the secondary market subject to the following conditions:

- ◆ maximum purchase price not to exceed 100 percent of par value;
- ◆ no restrictions on maturity dates of the bonds subject to purchase;
- ◆ aggregate amount of the authorization not to exceed \$75 million;
- ◆ purchased bonds must be canceled and retired, and may not be held for investment or resold;
- ◆ the authorization would be valid for twelve calendar months, following the month of adoption; and
- ◆ a report would be presented to the Board in the month following each use of the authority.

In May 1997, the Board re-authorized the purchase of Metropolitan bonds in the secondary market for a period to expire on June 30, 1998. (The Board again re-authorized this authority in May 1998 for a period to expire on June 30, 1999.)

The reason for this authority is to allow Metropolitan to take advantage of certain market conditions whereby outstanding Metropolitan debt could potentially sell at a discount to par for reasons generally unrelated to Metropolitan. This was true in the period immediately after the Orange County bankruptcy filing in 1993 when, due to market uncertainty, the debt of many California issuers, including certain Metropolitan debt, sold at a discount.

The original authorization (September 1995) to purchase Metropolitan bonds in the secondary market expired in August 1996 without use of this authority. The May 1997 re-authorization expired June 30, 1998, also was not used. Market conditions for

Metropolitan bonds in the secondary market that existed throughout these authorization periods did not offer Metropolitan the opportunity to take advantage of such authority.

Should favorable conditions occur, the buyback of Metropolitan's own bonds would have the advantage of reducing outstanding debt and increasing equity. For example, Metropolitan could purchase an outstanding bond in the principal amount of \$1,000 at 95% of par value, thereby reducing cash by \$950 and retiring \$1,000 of debt. The \$50 savings in debt costs would be shown on the financial statements as an increase in non-operating income which would increase Metropolitan's equity.

Finally, this authority increases Metropolitan's flexibility in management of its debt obligations. Available reserves would be used to make these purchases.

◆ PLANNED REVENUE BOND SALES

As of January 31, 1999 the construction funds available to Metropolitan's were approximately \$444 million. It is estimated that these bond proceeds and budgeted PAYG expenditures will provide financing for the CIP, mainly the Eastside Reservoir and Inland Feeder Projects, through mid-1999. Table 6-1 on the following page shows the capital financing plan over the next 10 years, including bond sales and PAYG funding in accordance with current Board policies.

TABLE 6-1
CAPITAL IMPROVEMENT PROGRAM
PROJECTED FINANCING (\$ IN THOUSANDS)

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Projected CIP Expenditures ¹	\$599,491	\$632,357	\$424,084	\$354,897	\$242,574	\$231,768	\$150,750	\$184,175	\$214,581	\$278,914
Funded Pay-As-You-Go ²	105,000	90,000	84,817	70,979	48,515	46,354	30,150	36,835	42,916	<u>55,783</u>
Net to be Debt Financed	494,491	542,357	339,267	283,918	194,059	185,414	120,600	147,340	171,665	223,131
Commercial Paper Proceeds	—	—	—	90,000	90,000	—	—	—	—	—
Construction Funds Available (Beginning of Year)	589,064	415,080	1,445	50,221	47,324	47,542	49,899	8,025	7,571	8,287
Interest Earnings ³	32,507	28,722	10,221	7,325	4,542	6,898	5,025	4,571	5,287	6,703
Net Rev. Bond Proceeds to Construction Fund	288,000	100,000	377,822	183,696	99,735	180,873	73,701	142,315	167,094	212,844
Construction Funds Available (End of Year) ⁴	\$415,080	\$ 1,445	\$ 50,221	\$ 47,324	\$ 47,542	\$ 49,899	\$ 8,025	\$ 7,571	\$ 8,287	\$ 4,703
Revenue Bond Sales to Generate Required Proceeds	\$300,000	\$105,185	\$397,413	\$193,223	\$101,757	\$190,252	\$ 77,519	\$149,699	\$175,759	\$223,880

(1) Projected CIP expenditures per 1999-00 Revenue Requirements.

(2) Assumes current policy for FY1998-99 and 1999-00. Assumes Long Range Finance Plan recommendations for FY 2000-01 through 2007-08

(3) Assumes 6% average return on the Investment portfolio.

(4) General practice is for Revenue Bonds to be issued when bond proceeds on hand are sufficient to fund only 2 - 3 months of projected capital expenditures. Year-end balances reflect that practice.

D R A F T



◆ **FINANCIAL RATIOS USED AS CAPITAL FINANCING GUIDELINES**

Metropolitan's capital financing strategy is guided by the Board's goals to maintain certain key financial ratios at prudent levels:

- ◆ The goal will be to reduce the revenue bond debt to equity ratio to 60 percent or less, to reserve debt capacity for unforeseen needs and to keep Metropolitan competitive in the water industry.
- ◆ The goal will be to maintain debt service coverage of at least 2 times, to the extent feasible.
- ◆ Up to 25 percent of outstanding debt will be maintained in a variable mode to lower overall cost of debt financing, without assuming undue risk.
- ◆ Metropolitan's fixed charge coverage ratio will be maintained at 1.2 times to the extent feasible. This will assure that Metropolitan meets all its recurring fixed cost obligations.

As discussed in Chapter 5, Metropolitan needs to take steps to maintain a competitive position in the changing water market. Surveys have shown that successful public and private water utilities maintain debt to equity ratios in the range of 50-60 percent. At the end of fiscal year 1997-98, Metropolitan's commercial paper and revenue bond debt to equity ratio was 71 percent. The goal to reduce Metropolitan's debt to equity ratio to 60 percent or less over the next several years can be achieved by increasing PAYG during years when revenues are available above the maximum reserve level.

Historically, median debt service coverage for United States municipal water utilities has been slightly above 2 times. During the process for the 1995 update of the Long Range Finance Plan, Metropolitan's Board established a guideline for staff to plan capital funding with the goal of keeping Metropolitan's coverage ratio above 2 times. This goal was set in order to assure Metropolitan's continued strong credit ratings and lowest overall cost of capital financing. A study by Moody's Investors Service shows that the median debt service coverage for U.S. municipal water utilities in 1997 was 2.30 times. Because of Metropolitan's fixed capital payments under the State Water Project and a revenue bond debt service reserve of only 1/2 maximum annual debt service, Metropolitan's debt service coverage target should be at least the national median level. A coverage of 2 times will remain as the minimum constraint.

Generally, the credit rating agencies are comfortable with municipal water utilities holding short-term debt levels under 25 percent of total debt outstanding. Carrying short-term debt levels higher than 25 percent could have negative rating implications. During the process of the 1995 update of the Long Range Finance Plan, Metropolitan's Board set a goal of 15 percent short-term debt as a target to assure strong credit ratings and reserve short-term debt capacity for unforeseen needs while also lowering the overall cost of debt financing. Having the flexibility to go up to 25 percent is reasonable.

The fixed charge coverage ratio is used by the rating agencies to measure Metropolitan's ability to cover debt service payments plus fixed capital obligations under the State Water Contract. The goal of maintaining a fixed charge coverage target ratio of at least 1.2 times (the level of coverage required for issuance of additional parity

revenue bonds) ensures that Metropolitan will meet all of its financial obligations and ability to maintain strong credit ratings.

The 10-year water rate projections (1998-99 through 2007-8) presented in Chapter 2 are consistent with the debt to equity goal of no more than 60 percent, the short-term debt goal of 15 percent of debt outstanding and the minimum revenue bond debt service coverage constraint discussed above.

However, the Chapter 2 rate projections will not produce the 1.2 times fixed charge coverage target or the 2.30 times revenue bond debt service coverage target discussed above. In order to achieve these coverage targets, the untreated full service rate would need to be approximately \$383 per acre-foot in the year 2008. This would be an increase of \$16 per acre-foot (4.4%) over the Chapter 2 rate projections. A variety of options, other than increasing rates, are available to improve coverage ratios. These include, lowering costs, issuing less debt than planned or selling more water than expected. Any or all of these events could improve ratios to the desired levels.

Appendix 1 and Appendix 3 describes and discusses the various capital financing tools available to Metropolitan. Appendix 1 also describes the financing objectives and parameters that have been developed to serve as guidelines in development of longer-range financing strategies throughout the duration of the CIP. These guidelines are based on industry standards and Metropolitan's past experience.

C H A P T E R

7

INVESTMENTS

STATEMENT OF INVESTMENT POLICY

As expressed in Metropolitan's Statement of Investment Policy dated June 10, 1997, three fundamental criteria shall be followed in the investment process. In order of importance they are:

1. **Safety of Principal** Is the foremost objective of the Metropolitan Water District. Each investment transaction shall be entered into seeking quality of the issuer, the underlying security or collateral, and diversification of the portfolio. Market risk shall be reduced by limiting the average maturity of the portfolio, the maximum maturity of any one security, and by performing continuous cash flow analysis to avoid the need to sell securities prior to maturity.
2. **Liquidity** In an effort to ensure the District's portfolio will be sufficiently liquid to meet current and anticipated operating requirements, a cash flow analysis will be performed on an ongoing basis. Investments shall be made whose maturity date is compatible with cash flow needs and safety of principal.
3. **Return on Investment** Investments shall be undertaken to produce a market rate of return after first considering safety of principal, liquidity and the prudent standard principle.

Investment decisions are based on a number of factors, always first considering the three fundamental criteria discussed above. Additional factors to be considered include:

Percentage Limitations Metropolitan's overall current position with respect to limits on allowable securities. Staff considers availability and limits first, before deciding which securities to purchase.

Sector Analysis Staff monitors the spread relationships between different security types and purchases those that have the most value.

Market Environment Funds are ultimately invested to maturities that closely match the anticipated expenditure dates. However, depending upon the interest rate environment, interest rates from 1 to 3 months can be much higher than interest rates from 4 to 9 months. For example, an investment may be made in a security that matures in 3 months and subsequently invested in a security with a 1 month maturity to match an expenditure need that is 4 months away.

CASH FLOW SCHEDULES

Based on information provided from the Controller, Engineering, Operations, Financial Services and other sources, staff maintains and updates ongoing cash flow schedules.

Cash flow schedules are maintained for the following funds:

- ◆ Operating Funds
- ◆ Rate Stabilization Funds
- ◆ Construction Funds
- ◆ State Contract Fund
- ◆ Debt Service Funds
- ◆ Trust Funds

CHANGES IN INVESTMENT POLICY

In 1996 and 1997 the Board authorized increases in the percentage of the portfolio that can be invested in Federal Agency securities, Bankers Acceptances, Repurchase Agreements and Certificates of Deposits. Also approved was an increase in the allowable percentage of portfolio that can be invested in securities with a three to five year maturity. The portfolio limits were changed as indicated below:

- ◆ Federal Agency Securities were increased from 33 percent to 50 percent of the portfolio. (1996)
- ◆ Bankers Acceptances were increased from 30 percent to 40 percent of the portfolio. (1996)
- ◆ Repurchase Agreements were increased from 30 percent to 50 percent of the portfolio. (1996)
- ◆ Certificates of Deposit were increased from 20 percent to 30 percent of the portfolio. (1996) The maximum maturity on Certificates of Deposit was also extended from 6 months to 1 year. (1997)
- ◆ Securities with a three to five year maturity were increased from 10 percent to 20 percent of the portfolio. (1997)

The changes in Metropolitan's Statement of Investment Policy has allowed staff greater flexibility in managing the investment portfolio. Staff has prudently utilized the changes in the investment policy resulting in improved credit quality, liquidity, diversification, and yield of the portfolio.

The changes in the Investment Policy were particularly beneficial in December, 1997 when Metropolitan received proceeds of approximately \$630 million from the issuance of Series A, 1997 Revenue Bonds. These changes allowed staff to properly structure the portfolio by allowing the purchase of a variety of securities whose maturities closely approximated projected construction expenditures.

◆ **CHANGES TO THE STATEMENT OF INVESTMENT POLICY**

Staff reviews Metropolitan's Investment Policy for potential changes and improvements. Any changes to the Investment Policy must be approved by the Board prior to implementation.

Per Section 5114 of the Administrative Code, not less than annually, the Treasurer is required to render a Statement of Investment Policy to the Board for approval. Staff is not recommending any changes to the Statement of Investment Policy that will be submitted to the Board on June 10, 1998. Included in Appendix 3 is a copy of the current Statement of Investment Policy.

At a recent Member Agency Finance Workgroup session, a suggestion was made that Metropolitan should consider adopting the investment parameters stated in the California State Government Code, Section 53601, in its entirety to replace the existing Statement of Investment Policy. Metropolitan's investments are already subject to the Government Code but the Statement of Investment Policy contains some additional restrictions. During fiscal year 1998-1999 staff will research the feasibility of referencing the Code in place of the existing Statement of Investment Policy. Included in Appendix 3 is a schedule comparing the State Authorized Investments to Metropolitan's Statement of Investment Policy.

◆ **DEFINITIONS OF SECURITIES ELIGIBLE FOR PURCHASE BY THE DISTRICT**

Treasuries Negotiable debt obligations of the United States Government, secured by its full faith and credit.

United States Treasury Bills Negotiable debt obligations of the United State Government, secured by its full faith and credit. Bills have maturities of between three months to one year.

United States Treasury Notes Negotiable debt obligations of the United States Government, secured by its full faith and credit. Notes have original maturities of between one and ten years.

United States Treasury Bonds Negotiable debt obligations of the United States Government, secured by its full faith and credit. Bonds have original maturities of from ten to thirty years

Government National Mortgage Association Debt issued by GNMA, which is an agency of the Department of Housing and Urban Development. These securities are backed by the full faith and credit of the U. S. government.

Federal Agency There are eight agencies that issue debt and are Chartered by Act of Congress. While they are not technically backed by the full faith and credit of the U. S. government, it is very unlikely that the government would allow any defaults by these agencies, since these agencies are sponsored by the U. S. government. These agencies are the Federal National Mortgage Association, the Federal Farm Credit Bank, the Federal Home Loan Bank System, the Federal Home Loan Mortgage Corporation, the Student Loan Mortgage Association, the Financing Corporation, the Resolution Trust Company and the Farm Credit Financial Assistance Corporation.

State Obligations Debt issued by the State Water Project.

California Local Agency Obligations Debt issued by municipalities within the State of California.

Banker's Acceptances A draft or bill of exchange accepted by a bank or trust company. The purchaser of a banker's acceptance is guaranteed by the bank or trust company that it will repay the holder of the BA on maturity date.

Negotiable Certificates of Deposit A certificate issued by a bank or thrift that indicates a specified sum of money has been deposited at the issuing depository institution.

Repurchase Agreements The sale of a security with a commitment by the seller to buy back the security back from the purchaser at a specified price at a designated future date. Basically, a repurchase agreement is a loan collateralized by a security (the District only accepts U.S. Treasury or Agency securities as collateral for repurchase agreements).

Reverse Repurchase Agreement The District sells a security with a commitment to buy back the security from the dealer/broker at a specified price at a designated future date. (The proceeds of the sale are used to purchase a security with a maturity similar to that of the reverse repurchase agreement.) Currently, reverse repurchase agreements are authorized only with Board approval of the transaction.

Time Deposits Interest bearing deposit at a savings institution that has a specific maturity date.

Shares of Beneficial Interest Investment in a money market fund.

Medium Term Notes Unsecured, senior debt securities issued by corporations, with fixed coupon rates.

Mortgage Backed and Asset Backed Obligations Represent investments that are collateralized by mortgages or receivables.

Local Agency Investment Investment in the State of California's Local Agency Investment Fund.

Commercial Paper Short term (under 270 days to maturity) promissory notes issued as an obligation of the issuing entity. These notes are unsecured but are often backed by unused lines or letters of credit.

COMPARISON OF CALIFORNIA GOVERNMENT CODE AND STATEMENT OF INVESTMENT POLICY AUTHORIZED INVESTMENTS

Cal. Govt. Code	Investment Category	Government Code			Metropolitan		
		Maximum Maturity	Authorized Percentage Limit	Quality S&P/ Moody's	Maximum Maturity	Authorized Percentage Limit	Quality S&P Moody's
53601(b)	U.S. Treasury	5 Years	100%		5 Years	100%	N/A
53601 (d)	California Local Agency Debt	5 Years	100%		5 Years	100%	N/A
53601 (e)	Federal Agencies	5 Years	100%		5 Years	100%	N/A
53601 (f)	Bankers Acceptances	270 Days	40%		270 Days	40%	TBW1 ⁽¹⁾
53601 (g)	Commercial Paper	180 Days	30% ⁽²⁾	A1/P1	180 Days	30% ⁽²⁾	A1/P1
53601 (h)	Negotiable Certificates of Deposit	5 Years	30%		1 Year	30%	TBW1
53601 (h)	Time Deposits	5 Years	30%		1 Year	30%	TBW1
53601 (i)	Repurchase Agreements	1 Year	100%		1 Year	50%	N/A
53601 (i)	Reverse Repurchase Agr	92 Days	20%		92 Days	10%	N/A
53601 (j)	Medium Term Notes	5 Years	30%	A	5 Years	20%	A/Aa ⁽³⁾
53601 (k)	Shares of Beneficial Interest	5 Years	20%	AAA/Aaa	N/A	10%	AAA
53601 (n)	Mortgage Obligations and Asset Backed Securities	5 Years	20%	AA	5 Years	10%	AAA
	Local Agency Investment Funds	N/A ⁽⁴⁾	\$20 Million ⁽⁴⁾⁽⁵⁾		N/A	N/A ⁽⁴⁾⁽⁵⁾	

(1) Thompsons Bankwatch short term credit rating for banks.

(2) 15% if the dollar weighted average maturity of commercial paper exceeds 31 days.

(3) Securities that have maturities of 2 years or less must be rated "A" or better. Securities that have maturities greater than two years must be rated "AA" or better.

(4) Investment in Local Agency investment funds are limited to \$20 million and there is no stated maturity for these investments.

(5) Construction bond proceeds may be invested in Local Agency investment funds without regard to any dollar or percentage limitation.



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C H A P T E R

8

RISK MANAGEMENT

INTRODUCTION

Risk management is a dynamic process which encompasses identification, analysis and measurement of risk; containment and mitigation of the consequences of risk; and operational and financial management of risk. Metropolitan's risk management policy is found under Division IX of the Administrative Code, Risk Management and Claims. Metropolitan's risk management objectives, as outlined in Administrative Code Section 9100, include:

- a. The establishment and maintenance of a suitable work and service environment in which Metropolitan's personnel and the public can enjoy safety and security in the course of their daily pursuits; and
- b. The security and preservation of Metropolitan's assets and service capabilities from loss, destruction, or depletion.

Administrative Code Section 9101 describes Metropolitan's policies in regard to the purchase of excess insurance and risk retention (self insurance) as follows:

- a. To the extent risks of loss involving a combination of Metropolitan property damage and third party claims exceed the reserves for emergency repairs and claims prescribed by Section 5202 of this Code, Metropolitan policy shall be to procure insurance for such losses to the extent it determines insurance is available at a reasonable cost;
- b. With respect to other risks of loss, Metropolitan's policy shall be to self-insure in whole or in part as the best interests of the District warrant; and
- c. To the extent practicable and financially feasible, Metropolitan shall transfer risks to third parties through appropriate contractual provisions.

The definition of risk in this chapter includes anything that materially disrupts cash flow, interruption of delivery of quality water, earnings on an annual basis; and is viewed from local, regional, or state perspective. This chapter will review and comment on methods used to evaluate risk exposures, risk financing, and risk retention alternatives and, if applicable, procurement of insurance. Other considerations impacting Metropolitan's self-insured retention (reference Chapter 4, Section titled Self-Insured Retention) will be discussed.

RISK EXPOSURES AND FINANCING MODELING

Risk exposures have been consistent until the last five years. The additional construction and contracting activities along with re-engineering business practices increased identification, mitigation and documentation of risk exposures. Further changes in regulatory benefits through legislation such as workers' compensation, American Disabilities Act, Family Leave and Occupational Health and Safety requirements contribute to new risks and business costs.

Four consulting projects have been completed during the past five years to assist Metropolitan in developing a risk management business plan. First, Ernst and Young reviewed the placement of risk management, organizational structure, functions and programs. Many of the recommendations have been implemented and report is presented annually to the Special Audit Committee. Second, Advanced Risk Management Techniques, Inc. conducted an independent claims audit of Metropolitan's workers' compensation and liability claims and an actuarial review of the claims reserves. The third report was provided by Voller, Savage, and Associates identifying what risk management's function has contributed to Metropolitan in risk assessment, claims management and design of risk financing alternatives. Fourth, Earthquake Engineers, International is completing a study to determine the probable maximum loss that may arise and to assist in quantifying the top three loss scenarios.

PROBABLE MAXIMUM LOSS

Recognizing that Metropolitan has substantial financial exposures as a result of its operational facilities (including the Colorado River Aqueduct, pipelines, water treatment plants, power plants and pumping stations), Metropolitan's insurance broker, along with EQE International, Inc. (an engineering firm specializing in risk, safety and design), have begun a probable maximum loss study. Twelve scenarios are being modeled to determine potential damage to Metropolitan systems including direct damage to aqueducts, pipelines and critical facilities, business interruption costs and potential liability costs.

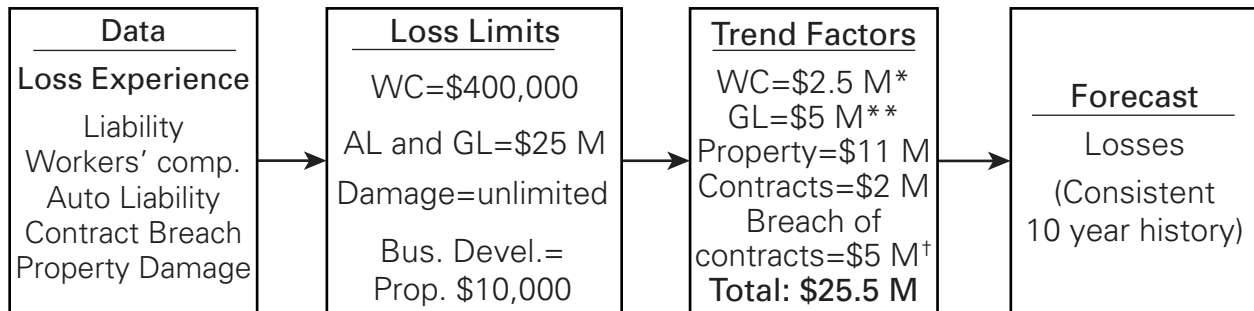
Once this study is finalized, the information will be used to assist in determining appropriate limits of coverage necessary for Metropolitan to avoid unacceptable economic risks. The self-insured retention level will be evaluated along with risk financing alternatives to determine how the risk will be controlled and funded. This information will be used in financial models and as a tool in reviewing retention levels, financial capacity and risk financing alternatives.

"Financial models assist in making decisions by simulating the results of multiple 'what if' scenarios. Models can be used to prove whether the current risk management program is superior to a proposed alternative program...The modeling process begins with knowledge of the organization's financial objectives...and key performance indicators." Kathryn A. Westover, CPCU, Risk Financing Newsletter, Volume 13, No. 3, October 1996.

Successful risk models recognize local, regional and national financial resources and the dynamic nature of risk. Several factors are required in designing a model for Metropolitan. One is the application of loss forecasting, actuarial analysis, and risk mapping to quantify potential and actual losses. A basic model is displayed in the Appendix 5 as Chart 1.

The following chart applies the process of loss forecasting using Metropolitan's loss costs within the \$25 million self-insured retention with an expectation that such events occur in one year.

APPLICATION OF LOSS FORECASTING



* Based upon actuarial review of forecasted losses

** Actuarial estimate in 1997 using the largest single liability loss incurred

† Loss experience from breach of contract

Further, forecasting probable maximum loss experience for a ten year period along with evaluation of assets at risk, assists in determining limits of liability and other losses Metropolitan may sustain in a year, both on a short term and long term basis. For example, if Metropolitan has fixed assets valued at \$6 billion and the maximum probable loss of a combined event is \$100 million in one year, but may be a \$300 million event covering a ten year period, what combination of risk financing levels would best meet the exposure. Selecting risk financing options requires a strategic review of risks, aggregate probability of loss, long-term administration and performance while taking advantage of all available financial resources. Metropolitan's strategy includes three key features:

1. Written long-range financial plan;
2. Internal financial capacity to support the long-range financial plan; and
3. External financial resources to meet the dynamic nature of corporate finance.

◆ LONG-RANGE FINANCIAL PLAN

A long-range financial plan documents risk financing guidelines, funds, funding criteria, analysis of similar organizations, the effect on earnings, budget and balance sheet, and psychological risk aversion.

◆ FINANCIAL CAPACITY

The use of internal financial capabilities commensurate with financial resources determines the available alternatives. These alternatives include: Self-insured retention funds, amortization payments of possible losses, post-loss funding of internal, retrospective rating plans, deductibles; and cash flow plans. Another consideration, is the use of external risk financing, relative to need, market conditions and provision of ancillary services such as credit lines, debt financing, hedging, interest rate swaps, conventional insurance, finite risk, post-loss funding, governmental funding or indemnification.

RISK RETENTION POLICY

In support of Metropolitan's financial objective to maintain flexibility in managing its financial resources (Reference Chapter 4, Working Capital Policy), Metropolitan established a self-insured retention of \$25 million for emergency repairs and claims. Such a retention insulates Metropolitan from the insurance market cycles. The cost of insurance is then based upon catastrophic exposure rather than frequency of loss.

Metropolitan is able to access broader coverage while reducing premium costs and maximizing cash flow to pay for immediate repairs, replacement or claim payments.

The self-insured retention also covers claims not covered by insurance such as Metropolitan property losses resulting from fire, flood, earthquake, etc.; errors and omissions; and contractual insurance obligations such as the Department of Water Resources requirement to designate \$2,000,000 of the self-insured retention covering the Rialto Feeder.

Risk Management is a dynamic process and periodic review of the integrated functions combined with new market services and the market cycle will determine the risk financing alternatives selected.

RISK FINANCING ALTERNATIVES

The methodology used in developing the risk financing strategy includes maintaining "catastrophic protection" and identifying probable maximum loss scenarios periodically. As the economy, operations and demographics change; loss scenarios need to be reevaluated using current claims experience, industry experience (global), and state experience (local statutes and legal decisions), with the advice of consultants. An example is the evaluation of property damage coverage for Metropolitan considering flood damage has occurred in 1992, 1993, 1995 and 1998 and in a ten-year period we have had two major earthquakes. Currently the insurance market offers a wider variety of coverages at various costs. Another factor is the availability of federal funds to cover disasters and Metropolitan's eligibility for those funds.

A methodology for loss scenarios that ranks the severity and potential frequency for a given company is the Prouty Approach. Risk management process incorporates ongoing loss experience and changes in exposures as part of this model. An example is provided in Appendix 5 as Chart 2.

After reviewing the Prouty Approach, other characteristics of Metropolitan are considered along with the insurance market trends to evaluate risk financing alternatives.

Risk financing alternatives are designed to achieve greater cost effectiveness, flexibility, efficiency and stability. The table below highlights those characteristics.

FACTORS FOR EVALUATING RISK FINANCING ALTERNATIVES

Characteristics of Loss Exposures	Characteristics of Organizations	Characteristics of Markets**
Loss frequency	Financial Condition.	Metropolitan has a strong financial condition and the ability to pay claims faster than the insurance industry.
Loss severity	Low frequency.	Excess markets interested in the insured sharing risk layers.
	Attitude of management.	
Loss and claim estimation patterns:	Administrative ability in risk management and forecasting cost.	
	Metropolitan has historical data and practices indicating low frequency and severity while investing in facility improvements and engineering to minimize disruption in service.	
Reporting	Immediate report through incident reporting center in Risk Management	Consistent claims experience, occurrence of few severe claims, ideal for risk transfer.
	State and Federal regulations may impact claims reporting and reimbursements.	
Development	Consistent financial history.	Dynamic environment with mergers and acquisitions.
Payout	Immediate to ensure minimum disruption in service	Long delays in payment of claims.
Closure	Years for closure of large claims and for severe workers' compensation claims	Insurer financial capacity is important. Will insurer be around to pay claims?
Reserving and earnings	Actuarial review 1997 and 1998, claims audit 1997	Insurer revenues are low, more options in investment and finite risk products to attract buyers.

* Head, Elliott and Blinn. *Essentials of Risk Financing*, ARM 56. Third Edition, Volume I, page 110, Exhibit 2-5. Pennsylvania: Insurance Institute America, 1996.

** This model is a template. Metropolitan information has been added to illustrate the evaluation of risks and consideration of market services and products.

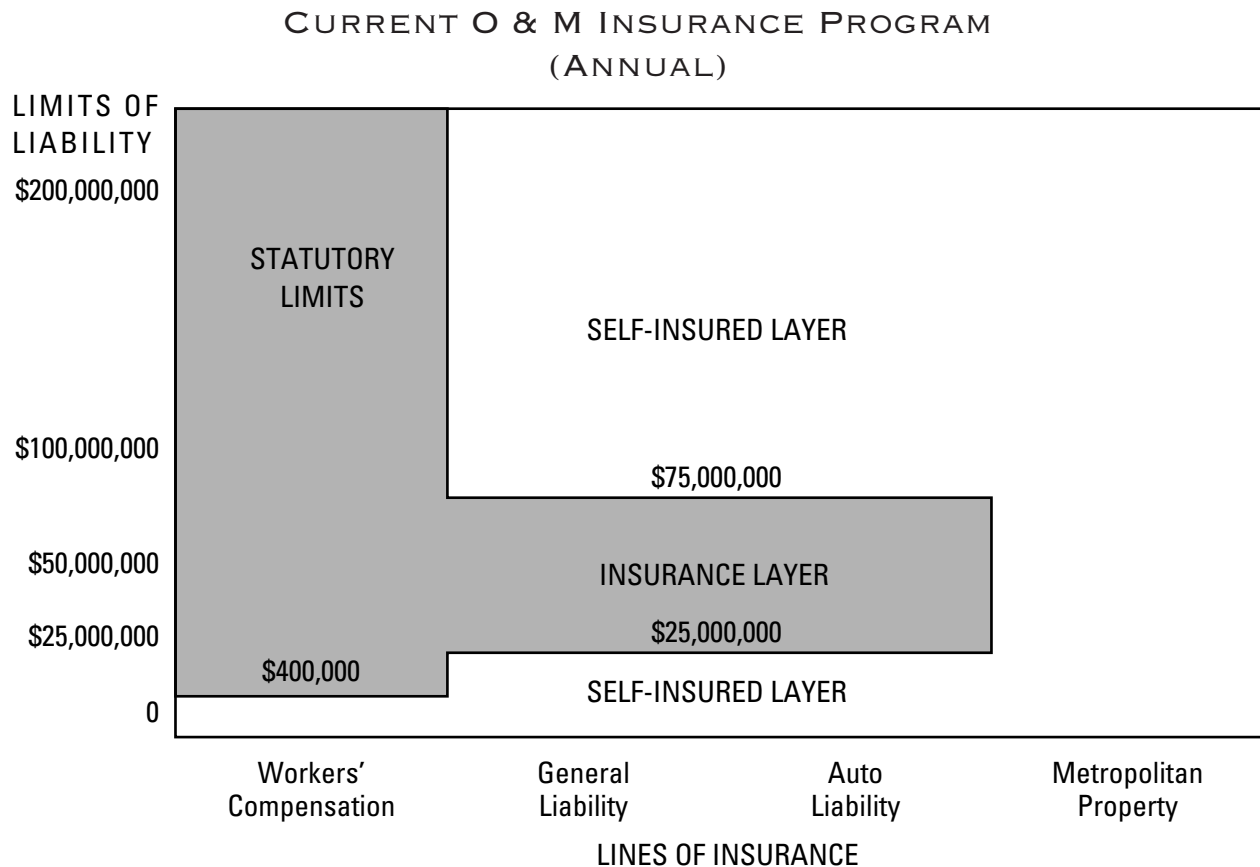


Metropolitan's risk financing alternatives are a combination of the following:

1. Total self-insurance (no insurance is purchased; loss is infrequent or unknown, the premium cost is high and insurance coverage is limited and/or restrictive, such as the Year 2000 insurance coverage);
2. Partial insurance (combination of self-insured retention and excess coverage such as workers' compensation and liability insurance, catastrophic property damage*);
3. Blended insurance program (combining all lines of insurance in one limit of liability for all exposures); and
4. Finite risk (where the limit of coverage, time period and the premium paid recognizes the time value of money).

* As an example, Federal Emergency Management Agency (FEMA) may require applicants to purchase insurance in order to eligible for FEMA disaster funds. In the past, Metropolitan has received an exemption based upon the unreasonable cost for such coverage. In this marketplace, re-evaluation of the risk financing alternatives along with FEMA requirements is warranted.

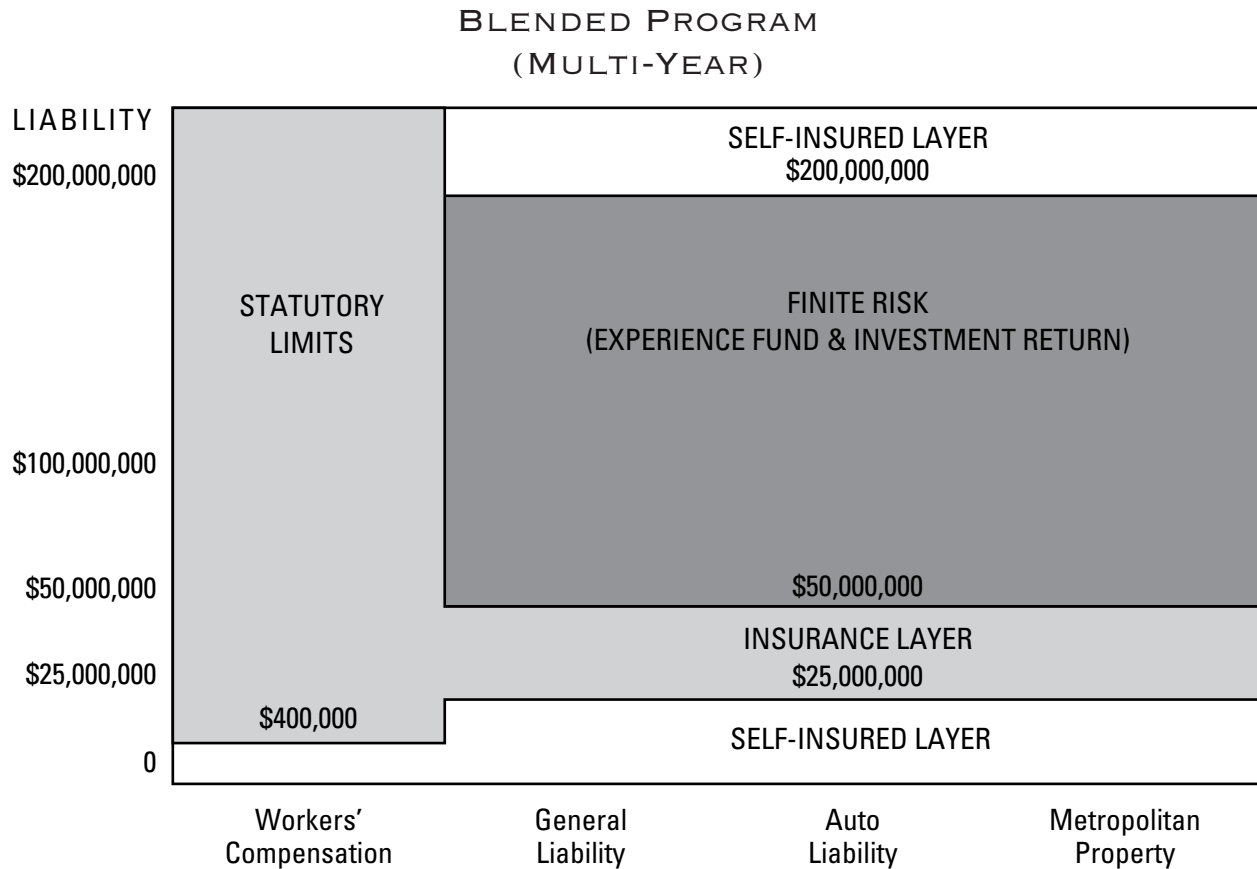
The following graph displays Metropolitan's current combination of self-insured retention and excess insurance coverage for the major lines of exposures.



Note: Any one occurrence of liability in excess of \$75 million is self-insured. All property damage to Metropolitan facilities is totally self-insured.

A combination of the blended insurance program and finite risk requires more time to finalize. While risk transfer occurs, most premiums are put into an experience fund which accrues interest and pays for losses. The insured has the right to the money in the fund at the time of a loss, but must continue funding the program even when the limits have been paid out in full. Metropolitan is exploring this option as an aggregate financial model to produce catastrophic coverage of an event which would produce a probable maximum loss greater than \$190 million. Initial estimates from a risk management study on probable maximum loss indicate Metropolitan property damage, liability, business interruption and extra expense loss may be greater than \$190 million. Potential losses arising from the exposures of hazardous chemicals, water quality testing and employee activities were not included in this initial estimate.

The following exhibit displays a blended insurance program with a finite risk component.



LINES OF INSURANCE

There are three reasons to include finite risk in a blended program:

1. Stabilize or change the balance sheet of an organization;
2. Satisfy the need for some form of required insurance coverage; and
3. Earmark money for a specific purpose, knowing that it cannot be readily used elsewhere.

Staff is continuing to expand the probable maximum loss, analysis to include all liability exposures evaluation of risk financing alternatives, and risk retention policy in consideration of the long-range financial plan.

DESCRIPTION OF CASUALTY AND PROPERTY INSURANCE PROGRAMS

All insurance programs begin with a risk assessment, construction industry or water industry survey of current practices, legal consultation and claims analysis. An insurance broker is selected to represent Metropolitan or the prime entity that will administer the insurance program. Insurance markets are contacted and requested to submit proposals with options in design of coverage, different deductibles or self-insured retention, and premium quotes.

The final insurance selection includes getting the broadest coverage, terms and conditions; and meeting Metropolitan's requirement to be a California Admitted Insurance Company (admitted to transact business in the State of California) for the applicable class of insurance with a current Best Insurance Guide rating of at least XVII.

Each insurance program is designed specifically to support the financial exposure and management requirements for each project using market cycles and consideration of probable loss exposure information.

Metropolitan administers three major casualty and property insurance programs designed to maximize coverage for catastrophic exposures to loss, streamline administration and minimize possible disruption in service. The three programs are as follows:

◆ OPERATIONS AND MAINTENANCE INSURANCE PROGRAM

Metropolitan self-insures for loss of and damage to Metropolitan property. Third-party liability coverage of \$75 million is maintained in excess of a \$25 million self-insurance retention, and the business development liability limit of \$10 million. The \$25 million self-insurance retention is maintained as working capital for emergency repairs and claims.

Workers' compensation insurance is maintained at statutory limits in excess of a \$400,000 self-insured retention. The chart below outlines all coverages transferred to insurance companies.

OPERATIONS AND MAINTENANCE INSURANCE COVERAGES

	Coverage Limits	Premiums ¹	
		Expiring Program 1997-1998	Program 1998-1999
Excess Liability	\$ 75,000,000 ²	\$ 350,000	\$ 328,000
Excess Workers' Compensation	Statutory ³	\$ 44,999	\$ 29,000
Aircraft Liability	\$ 25,000,000	\$ 13,000	\$ 16,550
Fidelity Bond (Crime)	\$ 10,000,000	\$ 11,398	\$ 11,739
Group Travel Accident	\$ 250,000	\$ 47,360 ⁴	\$ 37,830 ⁶
Specialty Coverage	\$ 5,000,000	\$ 10,764 ⁵	\$ 8,750 ⁶
Business Development Liability	\$ 10,000,000	\$ 99,000	\$ 56,093
Total Premium		\$ 576,521	\$ 487,962

1 All premium payments cover a one-year policy period unless otherwise specified

2 \$75,000,000 policy limit in excess of Metropolitan's \$25,000,000 self-insured retention

3 Statutory policy limits in excess of Metropolitan's \$400,000 self-insured retention

4 Premium payment covers a three-year period, premium paid through June 30, 2000

5 Premium payment covers a three-year period, ending June 30, 1998

6 Improved policy coverage and reduced 1997-98 premium payment for three years by \$9,000 for Group Travel, and \$2,010 for specialty coverage. Premium payment covers a three-year period, July 1, 1998 - June 30, 2001

The Operations and Maintenance program has been subject to annual review and insurance market cycles. Metropolitan's core business and historically good claims experience remained stable while the insurance markets have become very competitive. An actuarial study updated the claims reserves. As a result of risk management efforts to improve statistical claims reports and through recent market competition, the cost of the existing insurance program has decreased while coverage options have expanded and multi-year policy periods have been offered.

Terms and conditions of a general liability policy can change from insurance company to insurance company, but on the whole, there are no major differences. The competitiveness of the market place allows companies to be more flexible in providing the coverage requested by insured. Metropolitan was able to obtain a favorable quote from the Insurance Company of Pennsylvania using the UTEL (Utilities Excess Liability) policy form. This policy form is currently used by the ACWA (Association of California Water Agencies) JPA (Joint Powers Authority) and is designed to specifically address water district exposures.

Some of the enhancements being offered to Metropolitan at the 1998-1999 renewal include:

- ◆ Employment practices liability coverage (provides coverage for hiring, firing and sexual harassment related claims);
- ◆ Time element pollution (provides the insured with coverage for sudden and accidental pollution losses);
- ◆ Defense costs for inverse condemnation claims; and
- ◆ Removal of the subsidence exclusion.

Other market and policy focus offered Metropolitan an opportunity to re-evaluate the three-year policy for Group Accident and Specialty Coverages. Those changes produced broader coverages and a further reduction totalling \$11,500 for the three-year period.

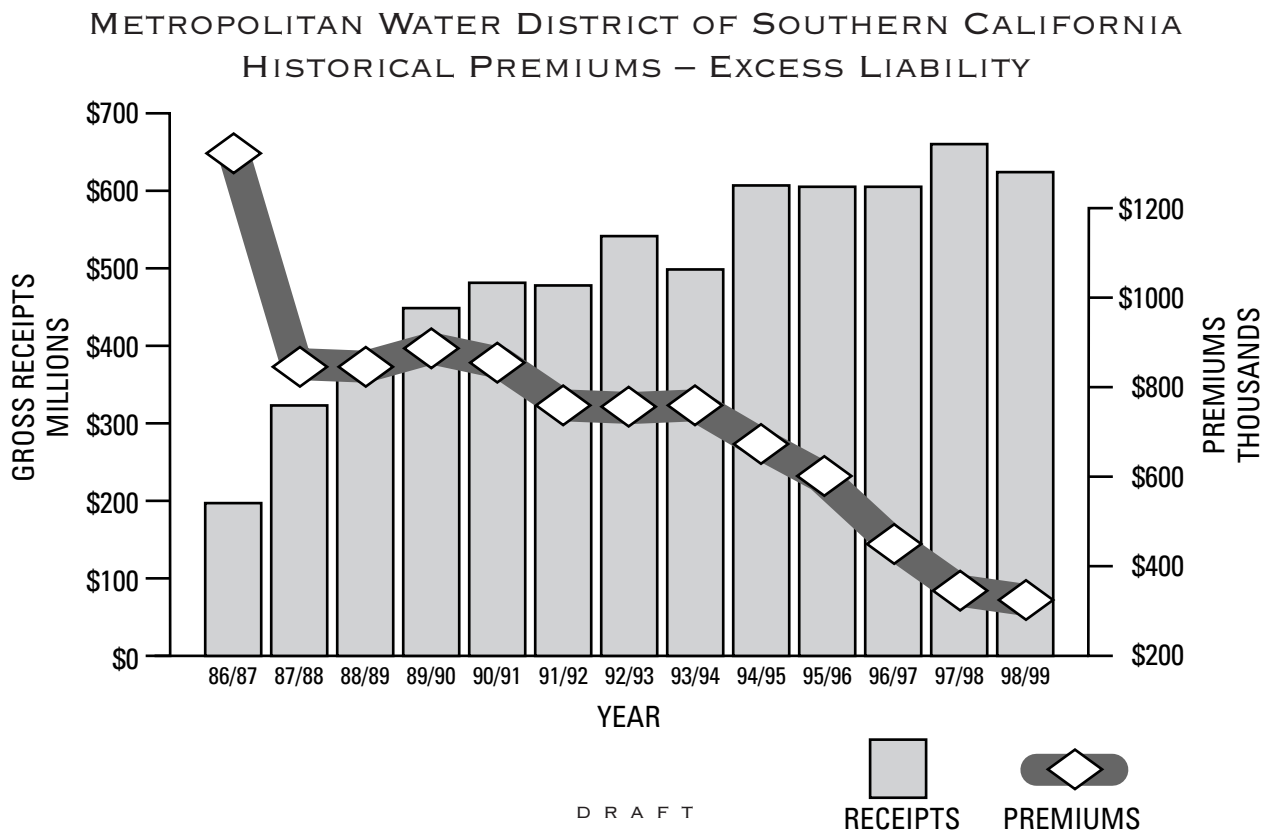
◆ INSURANCE MARKET CYCLE

"The U.S. casualty and property markets have been cyclical since 1945 when the industry's pricing cartels were declared illegal and the government passed the McCarran-Ferguson Act. The insurance industry was then placed under each state's control. Traditionally, economic forces produced complete cycles that lasted about six years, but during the 1970s and 1980s, the cycles became more erratic. Periods of reduced pricing and increased availability of coverage became longer, whilst hard market cycles of high pricing and reduced availability were shorter."

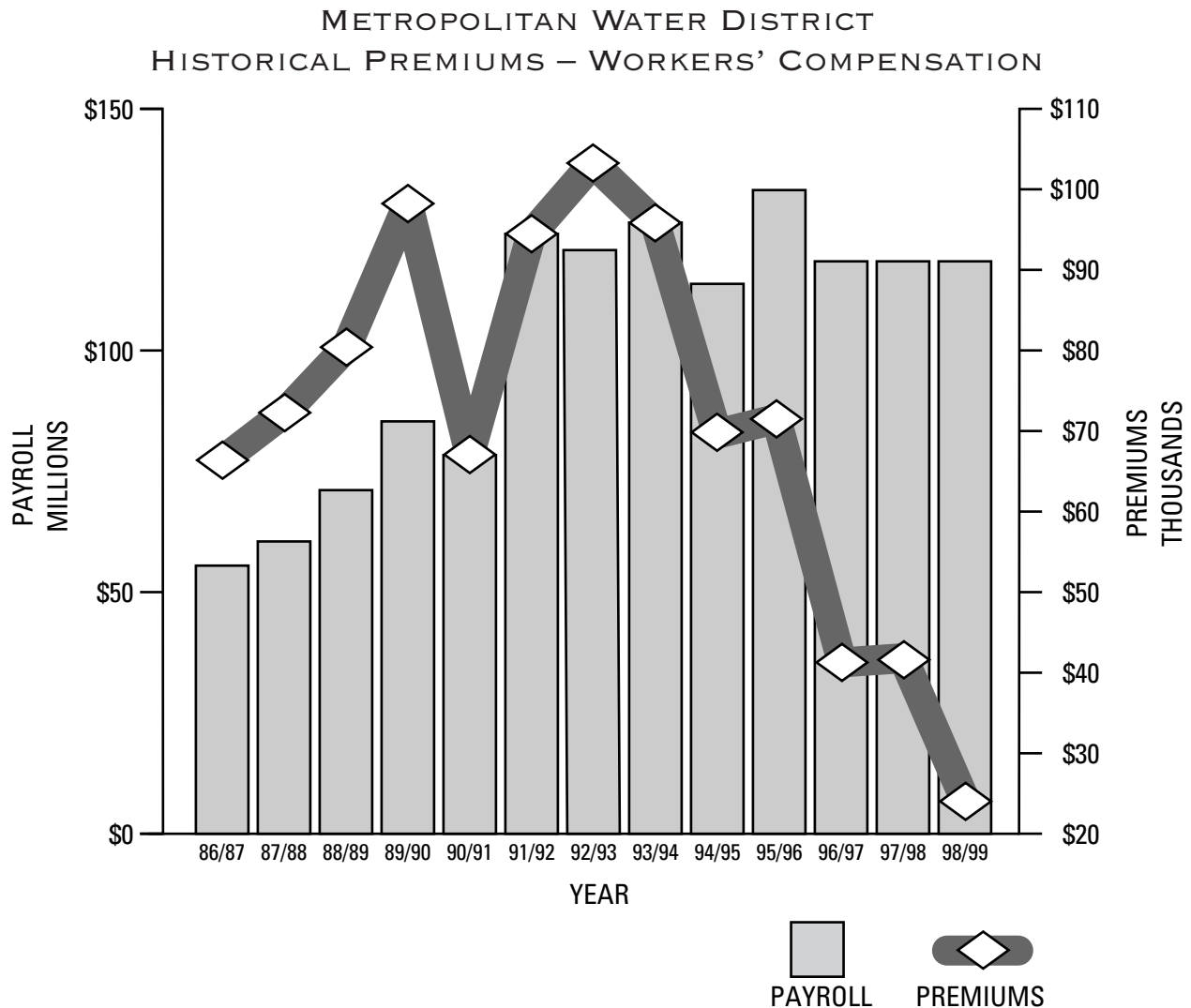
"Additionally, the cycles became more extreme. During hard markets, most notably in the mid-1980's, some coverage became almost completely unavailable...or prices in some lines of coverage increased an average of 100%. One consequence of these cycles are insurer insolvencies."

— Quote from Sedgwick of California,
San Francisco, Metropolitan's insurance
broker and consultant.

The charts below show the competitive market continuing to decrease Metropolitan's excess liability and workers' compensation insurance costs while the exposure base (water sales and payroll) have increased.



Another example is workers' compensation market conditions. Due to the soft market conditions, Metropolitan would not realize significant premium reductions by reducing coverage from the statutory limit. In the same vein, the ability of Metropolitan to control our own claims handling far exceeds the savings that could be accessed by purchasing first dollar coverage. As can be seen from the recent marketing efforts, excess workers' compensation costs continue to fall. The chart below illustrates the market cycle and regulatory environment and the impact on overall premium costs.



The current risk management program continues to implement Administrative Code guidelines and maximizes the use of the \$25 million self-insured retention. The combination of risk financing alternatives and risk assessment minimize the total cost of risk and disruption in cash flow from the cost of accidents and injuries. Every year a risk management annual report is presented to the Board highlighting changes to program and future charges.

◆ **HEADQUARTERS CONSTRUCTION INSURANCE PROGRAM**

In April 1995, the Board of Directors (Board) approved the purchase of property and construction of a new headquarters building in the Union Station section of downtown Los Angeles. Construction commenced in June 1996.

The headquarters insurance construction program is part of the Union Station Partnership. The prime contractor administers the insurance program. Metropolitan's risk management function ensures broader coverage, competitive pricing of the insurance program, coordination of claim reporting and settlement, and administration of a Metropolitan owned Professional Errors and Omission coverage in excess of the primary limits carried by the contractors. Effective February 1999 all exposures for the Headquarters facility will be incorporated into Metropolitan's Operations and Maintenance Insurance Program.

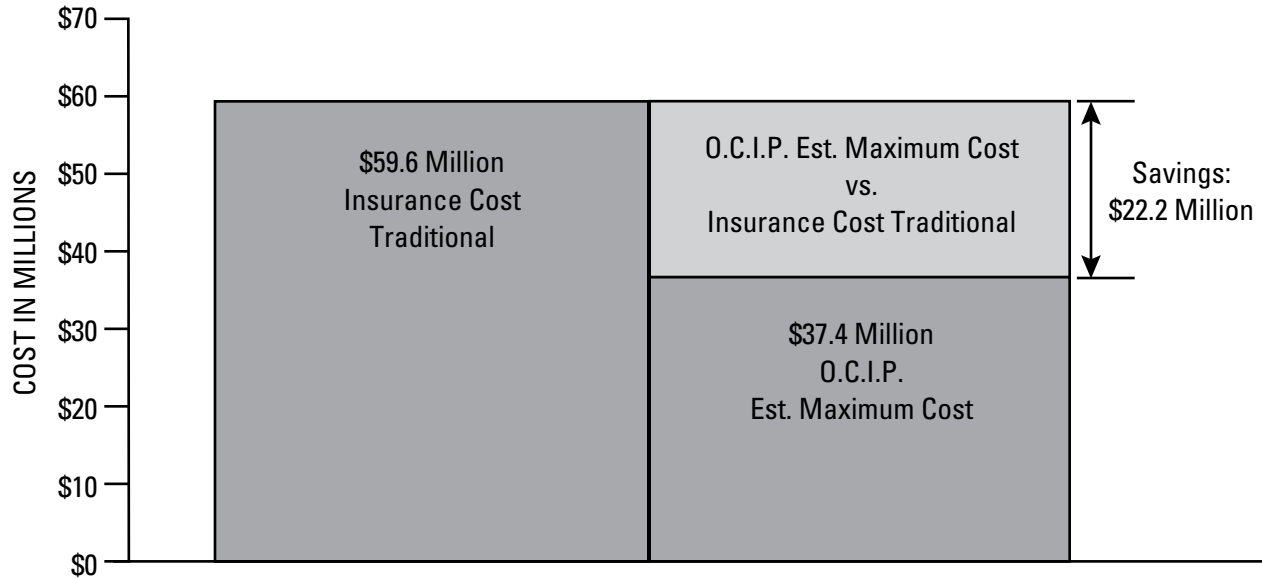
◆ **OWNER CONTROLLED INSURANCE PROGRAM (OCIP)**

An OCIP is a multi-year insurance agreement which provides a project based insurance program covering all contractors involved in the construction project. It is designed to create a strong safety program for all contractors, deliver higher liability insurance limits than the average contractor would be able to afford or obtain, and provide unified claims management for all contractors. The Metropolitan OCIP contains an additional feature covering a Project Labor Agreement with provisions for the use of a workers' compensation alternative dispute resolution (ADR) process. This program provides more safety, claims and insurance controls while returning the savings (based upon favorable claims experience) to Metropolitan instead of to the contractor.

In November 1993, the Board approved an OCIP designed to cover all work at the Eastside Reservoir Project site under one insurance plan. In August 1994, the Board approved an appropriation of \$19.6 million for this insurance plan, and in May 1998, they approved expending an additional \$16.7 million for insurance payments covering the remaining years of the project.

The insurance premium for the OCIP with Hartford Insurance totaled \$37.4 million, which was 37% (\$22.2 million) below the traditional insurance premium estimate of \$59.6 million. In addition, there is a potential reduction of \$10 to \$14 million in construction expenses based upon loss sensitivity and reduced contractor bids for the Eastside Reservoir Project. Below is an exhibit depicting the Hartford Insurance program vs. a Traditional Construction Insurance Program.

**COST COMPARISON
EASTSIDE RESERVOIR PROJECT
TRADITIONAL INSURANCE PROGRAM* VS. HARTFORD INSURANCE PROGRAM
PERIOD 1994 TO 2000
PROJECT COST (55% LOSS RATIO)**



* Traditional insurance program represents the estimated cost of insurance for contractors based upon 1994 rates and paid by the owner of the project as part of the cost of the bid.

In November 1996, the Board approved an OCIP to cover all work for the Inland Feeder Project and has approved the insurance allocation of \$19.7 million for the first three years of this insurance plan. In August 1998, the Board approved expending an additional \$16.1 million for insurance payments and administrative fees for the remaining four years of this project. The insurance premium with Hartford Insurance and OCIP administrative fees with Sedgwick totaled \$35.7 million which was \$5 million below traditional insurance premium estimates. In addition, there is a potential of \$5 to \$10 million in construction expenses based upon loss sensitivity.

The Eastside Reservoir and Inland Feeder Projects characteristics include a six year timeline to complete construction, a substantial financial obligation (a billion dollars per project), numerous contractors working on site in a rural setting, and high liability exposures. The nature of each construction project requires a strong project safety component to minimize potential contractor injuries and liability losses. Annual reports covering both OCIP's are presented to the Board. Both reports highlight premium utilization, claims experience and estimated outcomes of both programs.



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A P P E N D I X

1

CAPITAL FINANCING DEFINITIONS/PARAMETERS

Historically, the Metropolitan Water District has primarily financed its capital construction through the issuance of tax-exempt debt. The District is authorized to issue a variety of tax-exempt debt instruments: general obligation and revenue bonds, short-term revenue certificates (commercial paper), variable rate demand obligations, certificates of participation, and bond anticipation notes. General obligation bonds, revenue bonds and variable rate demand obligations are considered long-term debt. Commercial paper and bond anticipation notes are classified as short-term debt.

The Metropolitan Water District Act provides limitations on the amount of debt which may be incurred by the District. Section 123 of the Act limits the total indebtedness which may be incurred by the District to 15 percent of the assessed value of all taxable property within the District. Section 239.2 of the Act limits the amount of revenue bond debt the District can have outstanding, except for purposes of refunding, to an amount, in aggregate, no greater than the equity of the District as shown on its balance sheet at the end of the last fiscal year prior to the issuance of such bonds.

LONG-TERM DEBT

◆ **GENERAL OBLIGATION BONDS**

General obligation bonds are backed by the full faith and credit of the District based on a pledge to levy ad valorem property taxes as necessary to pay the interest and principal of the bonds. General obligation bond authorization requires approval by the electorate within the District's service area. The District has obtained authorization to issue general obligation bonds on three occasions.

The initial construction and part of the expansion of the Colorado River Aqueduct and related distribution facilities were financed by \$220 million of general obligation bonds authorized by the voters in 1931.

An additional \$77.4 million was authorized by the voters in 1956 to finance a major part of the remaining facilities required for expansion of the aqueduct system to its full capacity.

A third authorization was obtained in 1966. This election approved \$850 million of general obligation bonds for the construction of facilities needed to provide for filtration and distribution of water from the State Water Project. All authorized general obligation bonds have been issued.



◆ WATER REVENUE BONDS

Water revenue bonds are special limited obligation bonds backed by the District's pledge to generate net operating revenues necessary to pay the interest and principal of the bonds. The issuance of revenue bonds by the District was authorized by the voters in 1974. As noted earlier, there is a constraint on the amount of revenue bonds that the District can issue. The District cannot have revenue bond debt outstanding, except for purposes of refunding, in an aggregate amount that is greater than the equity of the District as shown on its balance sheet at the end of the last fiscal year prior to the issuance of such bonds. The equity limitation is imposed by State law, which can be amended by the Legislature.

The master resolution adopted by the Board in 1991 sets forth the terms of outstanding water revenue bonds. This resolution includes, among other things, authorization to issue variable rate, discount and capital appreciation bonds; to substitute surety bonds for required reserve funds; and to issue certain derivative products. This flexibility has resulted in bond issues that have successfully maximized market potential to minimize borrowing costs. The master resolution also gives the District the flexibility to execute leases, installment purchase agreements, and other financing contracts payable as O&M or on parity with the water revenue bonds. This enables these obligations to also bear the District's high credit ratings, as noted below. The revenue bonds are rated Aa2/AA by the major credit rating agencies.

◆ VARIABLE RATE DEMAND OBLIGATIONS

Variable rate demand obligations (VRDO's) are securities with maturities ranging from one to 30 years which bear interest at variable rates that are adjusted at agreed upon intervals. Typically these interest rate adjustments occur daily, weekly or monthly, with a seven-day adjustment the most common, although adjustments in the six-month to one-year range are becoming more commonplace. The initial interest cost is lower than could be achieved for a similar quality fixed rate obligation; however, interest rate risk is assumed with the option of converting the financing from variable interest rate pricing to a locked-in fixed interest rate to the maturity of the issue. The holder of a VRDO may be allowed to "put" the security; i.e., demand payment of principal and accrued interest on the bonds, upon giving certain specified notice. The District, in hedging its exposure to "puts" or tenders of all variable rate obligations outstanding, maintains lines of credit with highly-rated banks. Draws against the credit lines would be repaid under terms set forth in standby bond purchase agreements.

SHORT-TERM DEBT

◆ TAX-EXEMPT COMMERCIAL PAPER (TECP)

Commercial paper is a short-term (1-270 days) security with fixed interest rates secured by pledged revenues and, when necessary, a revolving credit agreement, with no put or call features. Due to their short maturities, commercial paper requires the "rolling over" of maturing securities at frequent intervals. The interest rate cost of TECP is managed by varying the maturity of each roll-over to take advantage of then favorable market conditions.

Commercial paper has resulted in lower borrowing costs to the District than can be achieved through long-term debt. TECP rates have been between 250 and 300 basis points below the rates on traditional municipal long-term notes of the highest quality. Another benefit is that commercial paper permits issuers to borrow amounts on an “as needed” basis with minimal documentation and underwriting expense. Additionally, this program is not subject to the District’s debt to equity revenue bond constraint, or to debt service coverage requirements.

The administrative costs of a TECP program are somewhat higher than for most other borrowing instruments due to administrative requirements associated with the frequent rollovers required to keep the notes outstanding. There is an interest rate risk associated with a TECP program. Because of the frequency of maturities, refinancing might be necessary at a time when interest rates have risen to unfavorable levels. There is also the risk that it might not be possible to roll over the paper or fund it with long-term debt due to a lack of sufficient investor demand. Under certain circumstances, however, the dealer may be required to inventory the notes provided the District has complied with terms and conditions contained in the supporting documentation.

Because of the various risks involved with maintaining an ongoing commercial paper program, the rating agencies have set a guideline that limits an issuer’s program to no more than 20 to 25 percent of its total outstanding debt. This applies to all outstanding variable rate debt in aggregate. To the extent that the District’s variable rate exposure is capped or internally hedged by District investments, a higher percentage could be targeted for predetermined periods of time.

◆ BOND ANTICIPATION NOTES

Notes issued in anticipation of future bond sales are referred to as bond anticipation notes (BANs). Bond anticipation notes are securities issued in anticipation of receiving proceeds from selling bonds when market conditions become more favorable. BANs generally are issued because it is financially prudent to wait for more favorable long-term interest rates. The MWD Act authorizes BANs to be issued with maximum maturities of five years. The District issued \$100 million of BANs in 1981 which were subsequently retired with proceeds from the sale of a revenue bond issue in 1983.

REVOLVING CONSTRUCTION FUND

The Revolving Construction Fund (RCF) was established in 1988 from \$100 million in monies borrowed from the Water Rate Stabilization Fund (WRSF). The concept of the fund was to provide capital construction funding, and when appropriate, Metropolitan would access the capital markets, reimburse the RCF to its original level and transfer the funds back to the WRSF, with interest. The principal benefits of the RCF were to reduce overall borrowing costs and enable Metropolitan to enter the credit markets with economically-sized short- or long-term security issues.

Between 1988 and 1991, \$39.4 in capital program expenditures were made from the RCF. In 1991, a portion of the proceeds from the issuance of \$60 million in TECP was used to reimburse the RCF. Subsequently the Water Rate Stabilization Fund was reimbursed with interest.

CERTIFICATE OF PARTICIPATION (COP) FINANCING

Since the enactment of Proposition 13, local agencies have turned increasingly to the use of certificate of participation (COP) financing to finance basic infrastructure as well as equipment. Because COP obligations are not considered debt constitutional purposes, they do not require voter approval and, in the case of the District, would not be subject to the District's debt to equity limitations. "Certificate of Participation" or "COP" is an umbrella term which includes a variety of financing structures. The two most important structures include lease COPs and installment purchase COPs.

Lease COPs were developed by cities, counties and school districts to avoid a constitutional debt limitation applicable to these entities (but not applicable to the District). A lease COP financing involves the local agency entering into a lease of a facility or equipment with a not-for-profit corporation (usually created by and controlled by the local agency). The not-for-profit corporation assigns the lease payments to a bank or trust company which then executes the COPs and delivers the COPs to investors. The bank or trust company then delivers the purchase price (bond proceeds) financed by the investors for the COPs to the local agency to construct the facilities. There is no direct contract between the local agency and the investors in a lease COP financing.

Lease COPs generally do not achieve as high a rating (or result in comparable low interest rate) as revenue bonds or installment purchase COPs because lease payments are subject to annual appropriation and the local agency is not required to make lease payments if the facility financed is never completed or is destroyed or is rendered uninhabitable. This provision is disfavored by the rating agencies and investors generally, resulting in a lower rating and a relatively higher interest rate.

Enterprise districts generally finance with installment purchase COPs. Installment purchase COPs would involve the District entering into an installment purchase contract with a not-for-profit corporation, which in turn assigns the right to receive the installment payments to a bank or trust company which executes and delivers the COPs to investors. The bank or trust company then delivers the purchase price (bond proceeds) financed by the investors for the COPs to the District to construct the facilities. Like lease COPs, there is no direct contract between the District and the investors in an installment purchase COP financing.

The District's obligation to make payments under the installment purchase contract is irrevocable. Like a revenue bond, the District is legally obligated to make payments under all circumstances. The installment purchase contract would typically pledge revenues of the District to repayment, would contain a rate covenant and would pledge to issue additional debt only if certain conditions were met, all similar to covenants contained in a revenue bond financing.

The strong security provisions in an installment purchase COP will generally result in a credit rating equal to a revenue bond rating and interest rates which are the same or only slightly higher than a revenue bond. Many large water agencies throughout California have used installment purchase COPs to finance their capital programs. Examples of agencies in Southern California who have executed installment purchase COP transactions include: Calleguas Municipal Water District, Castaic Lake Water

Agency, Central Basin Municipal Water District, Eastern Municipal Water District, Orange County Water District, San Diego County Water Authority, Three Valleys Municipal Water District and West Basin Municipal Water District.

VENDOR FINANCING

Vendor financing frequently provides tax-exempt financing for a lease/purchase of equipment and facilities. The typical uses of vendor lease/purchase financing include telecommunications equipment, mainframe computers and other equipment and vehicles. Title passes from the vendor to the District after the final lease payment is made. The payments under a vendor lease/purchase financing are subject to annual appropriations and are therefore treated as current expenses. As a result, the obligation is not considered debt and is not subject to the District's debt limitations. The financing cost for vendor financing is generally significantly higher than direct District financing.

PRIVATIZATION

Privatization refers to a financial transaction in which a private party purchases or finances a public facility, operates the facility and sells the output or service of the facility to the public body. The payments to the private operator are set equal to the cost of paying for and operating the facility, plus a negotiated return on the investors' equity, over a specified period of time. The rate of return is based on current market rates adjusted for the risk involved in the venture for the private owner. Since there are no provisions for sale to the public entity, these leases are not installment sale contracts, do not have a tax-exempt interest component and are not carried as a long-term liability on the public agency's balance sheet. Accelerated depreciation schedules were available before the 1984 Tax Reform Act; however, the benefit of tax advantages associated with ordinary depreciation continue to make these transactions attractive to private investors.

Metropolitan could realize several benefits from a privatization transaction. The sale of long-term assets such as the water treatment plants would generate large amounts of cash. Since the assets are carried on the balance sheet at book (depreciated) value, the sale of the asset at approximate market value can result in a significant increase in the District's equity. This produces a leveraged effect whereby cash is raised for capital purposes and the increase in equity expands the District's ability to issue revenue bonds.

A drawback associated with privatization financing is that under current tax laws it is not possible for private entities to obtain lower cost financing than the District. The tax benefits available for private ventures and interest deductions available still cannot compete with the value of the District's tax exemption and high credit ratings. Accordingly, if the District were to raise cash through selling assets, it is effectively guaranteeing that, at a minimum, it would be locking in a "negative arbitrage" spread, meaning that the interest cost would be greater than alternative financing methods. It is very unlikely that the District could either invest its cash within its investment restrictions of 5 years at a rate which would exceed the imbedded cost of capital of the privatizing entity

(which would likely be based upon a mix of long-term debt and equity). Similarly, if the District used the cash from the sale to displace its own borrowings, again it would effectively be “borrowing” from a higher-cost source – the privatizing entity.

Since private industry enters into public-private partnerships with the objective of generating double-digit returns on equity, deferrals of maintenance, understaffing, and other short-lived cost-cutting mechanisms, at the expense of higher long-term costs, must be monitored against predetermined standards and schedules. With promises of deferred rate increases, public entities may be lured into partnerships only to face higher revenue requirements later. Accordingly, privatization projects must be carefully analyzed and structured for them not to be a potentially more costly means of obtaining financing compared to other options available to the District.

Aside from the financial concerns, the operational and human resource issues must be given consideration before embarking on these types of transactions. In addition, the District’s water revenue bond resolution contains covenants restricting the sale of water system assets unless the proceeds are used for payment of outstanding revenue bonds or acquisition of other assets.

PAY-As-You-Go

Pay-as-you-go (PAYG) refers to the financing of construction costs from current operating revenues. At times, prior to obtaining revenue bond authority in 1974, Metropolitan had financed 100 percent of its construction program through PAYG. Currently this program is designed to preserve debt capacity for evolving or unexpected financial needs. In 1988, the Board established a goal to use PAYG for up to 20 percent of capital program expenditures and set certain parameters for the types of projects to be funded on a current basis. The 20 percent target has been substantially achieved on an overall basis since 1988. Projects that are typically funded through PAYG include capital facilities or projects costing \$1 million or less; capital assets with estimated payback periods or useful lives shorter than the calculated average of alternative long-term bond financing; capital improvement program studies; and other lawful purposes as determined by the Board. The use of PAYG effectively reduces the overall cost of capital financing and extends bonding capacity by building equity; however, it also creates pressure on the need to raise current revenues.

FINANCIAL OBJECTIVES AND PARAMETERS

In the 1995 Long Range Finance Plan, a number of objectives and parameters were provided to guide staff in developing and executing transactions to finance the District’s Capital Improvement Program. The objective and parameters are set forth below in expanded narrative form, and are intended to enhance the cost-effectiveness, safety, flexibility, and liquidity of the District’s capital financing strategy.



FINANCING OBJECTIVES

1. A major portion of the Capital Improvement Program will be debt-financed using fixed and variable rate obligations. The District will limit its interest cost exposure by limiting its variable rate debt to no more than 20 to 25 percent of its outstanding debt, excluding variable rate debt hedged by purchase of a cap, hedged by District investments, or swapped to a fixed rate.
2. To raise borrowed funds at lowest cost to the District's member agencies and ratepayers, the District will strive to maintain its high credit ratings as follows:

General Obligation Bonds	AAA/Aaa
Water Revenue Bonds	AA/Aa
Commercial Paper	A-1/P-1
Certificates of Participation	AA/Aa
3. Should the purchase of insurance lower the District's cost of funds beyond the cost of insurance, insurance may be purchased to raise the credit ratings on new debt to meet market demand for AAA/Aaa instruments.
4. In developing financial transactions, maximum flexibility will be sought to maintain total balance sheet management.
5. The use of noncallable bonds, except for maturities of 10 years or less, will be avoided. The use of zero coupon or capital appreciation bonds will also be minimized given the District's interest in maximizing sale proceeds in view of its water revenue bond debt-to-equity limitation.
6. The cost of debt will be managed within adopted Board policies and guidelines and the Long Range Finance Plan.
7. Restricted and unrestricted funds will be actively managed and invested with safety of capital and liquidity as priorities over yield.

FINANCING PARAMETERS

1. **Advance Refundings of Bonds**
 - a. To the extent permitted by U. S. Treasury regulations, outstanding bonds may be advance-refunded with new tax-exempt debt, using a crossover or defeasance method, when interest rates decline. Taxable bonds may be sold to capture refunding savings when U. S. Treasury regulations disallow the issuance of tax-exempt debt.
 - b. Advance refundings are subject to a net present value savings target of at least 5 percent based on the par amount of the new refunding bonds.
2. **Current Refundings**
 - a. When the closing of a refunding bond sale occurs within 90 days prior to the call date of the refunded bonds, or after the call date, tax-exempt bonds may be issued to refund debt on a current basis to capture savings from a decline



in interest rates. Taxable bonds may be sold to capture refunding savings when U. S. Treasury regulations disallow the issuance of tax-exempt debt.

- b. Current refundings are subject to a net present value savings target of at least 3 percent based on the par amount of the new refunding bonds.

3. **Synthetic Advanced Refunding Through the Issuance of Variable Rate Obligations Swapped to a Fixed Rate** (Refer also to Appendix 3)

- a. Advance refundings using derivatives are subject to a net present value savings target of at least 7 percent based on the par amount of the new variable rate refunding bonds. The higher savings target reflects the higher risks associated with derivatives.
- b. In calculating prospective savings against the target for implementing a variable to fixed rate swap, the cost of on-going remarketing fees, credit ratings and liquidity fees will be added to the synthetic fixed rate.
- c. All or a portion of the variable rate debt may be swapped to a fixed rate on a forward basis to lock in savings.
- d. That portion of the refunding bonds not swapped to a fixed rate (the variable rate obligations), in order to calculate prospective savings, will be burdened with the cost of remarketing, credit ratings and liquidity facility fees, and an interest rate representing the average rate for variable rate obligations paid over the last ten years.

4. **Forward Interest Rate Hedges**

- a. Once an interest rate target has been determined for a new money bond sale, hedging alternatives will be reviewed against an interest rate outlook; interest rate and basis risk during the hedge period; the risk that a financing fails to go forward; and sensitivity to up-front and/or on-going costs of the hedge.
- b. Hedging interest rate risk may be accomplished by purchase of an interest rate cap for variable rate obligations based on an index; purchase of a collar to establish a floor and ceiling for variable rate obligations; entering into a municipal forward to lock in a rate for a future sale of fixed rate bonds; or selling warrants on forward refunding bonds to realize up-front savings. A more detailed discussion of these and other asset-liability management transactions is presented in Appendix 3.
- c. For refundings using municipal forwards, a net present value savings target of at least 5 percent of the new refunding bonds will be used. The cost of the forward premium will be included in the net present value analysis.

5. **Asset and Liability Management Swaps** (Refer also to Appendix 3)

In implementing a swap transaction, the guidelines prepared by the Government Finance Officers Association and the credit rating agencies will be considered. Management of the risks generally associated with swap transactions follows:



a. **Counterparty Risks**

The risk of choosing a defaulting counterparty to a swap transaction may be reduced by limiting selection of a counterparty to a double-A or higher rated entity, and by requiring collateral consisting of U. S. Treasuries and agencies, marked to market monthly at 103 percent to 104 percent for selected counterparties whose ratings fall below AA- or Aa3.

The collateral will be deposited in the District's name with a third party trustee.

An opinion from trust counsel will be required to confirm the District's access to collateral under all circumstances including bankruptcy of the trust.

b. **Termination Risk**

In the event a swap is terminated, the agreement will require that the defaulting party make a termination payment and that the non-defaulting party will not be obligated to pay under any circumstances.

The District's cost of terminating a swap at various points in its life will be calculated under various interest rate conditions before entering into a swap transaction. This will better enable staff and the Board to understand the District's risk exposure in deciding whether or not to go forward with the transaction.

c. **Swap Duration**

For a fixed to variable rate swap a target of no more than 7 years' duration will be utilized to minimize interest rate risk, unless exposure is limited by purchase of a cap or collar and/or a hedge provided by District investments.

For a swap from a variable rate to a fixed rate the duration may extend to the final maturity date on the new refunding bonds.

d. **Liquidity Risk**

A liquidity guarantee from a MIG-1 or SP-1+, or comparable, provider will be purchased for a variable to a fixed rate swap.

e. **Credit Risk**

Bond insurance from a triple-A provider will be purchased for the District's variable rate obligations underlying a variable to fixed rate swap.

f. **Basis Risk**

The District, because of its credit strength, will enter into "cost of funds" swaps instead of indexed swaps, which will more closely link the transaction to the District's short term assets.

g. **Remarketing Risk**

Minimum capitalization and experience criteria will be developed for screening and selecting a remarketing agent.

h. **Form of Swap Agreement**

The District will utilize the International Swap Dealers' Association (ISDA) form of agreement for its swaps.

6. **Programmatic Flexibility for Risk Management Transactions**

- a. Staff will be empowered to react quickly to market conditions, whether positive or negative in managing swaps.
- b. Swaps may be entered into to manage or hedge the cost of District debt and will not be used for speculative purposes.
- c. Risk-associated transactions will be managed in part by diversifying both product and provider exposure.
- d. In negotiating swaps, staff will seek protection for the District against provider defaults, early terminations or other legal actions.
- e. Staff will maintain checklists and/or tickler files for actions required under swap and related transaction agreements.
- f. Remarketing risk for variable rate debt will be managed by avoiding concentrations of maturing variable rate obligations on the same day.
- g. Staff will maintain the ability and readiness to substitute remarketing agents to assure on-going placement and competitive pricing of its variable rate obligations.
- h. Lines of credit will be secured for variable rate obligations exceeding \$60 million.

7. **Use of Inverse Floaters in Debt Issuance**

- a. The District's approval, under state law, is required by an underwriter(s) desiring to split the District's fixed rate bonds into two variable rate components.
- b. The District will require at least a 10 basis point benefit over a standard fixed rate structure before approving inverse floaters in its sale of bonds in the primary market.
- c. In the secondary market the District may negotiate a share of any benefits accruing to an underwriter(s) from converting the bonds into inverse floaters.
- d. The District will require a letter from the underwriter(s) reaffirming the District's obligation to pay a single fixed rate despite the creation of inverse floaters.

8. **Investments**

- a. The District's investment portfolio will be managed in accordance with state law, Board policies, and the current Statement of Investment Policy.
- b. Bond proceeds will be managed in accordance with state law and applicable bond resolutions or indentures.



- c. The portfolio will be actively managed using relative value analytics to help select investments.
- d. The Treasurer will monitor CalPERS and the Local Agency Investment Fund which receive and manage District monies in pooled accounts.

9. Guaranteed Investment Contracts (GIC's)

- a. Eligible providers of GIC's for the District are limited to entities rated double-A or higher by at least two major credit rating agencies.
- b. Collateral requirements will be the same as required for swap transactions.
- c. The District must approve any assignment of a GIC to a third party.

10. Forward Investment Contracts

- a. The District may transfer the "right to invest" to a third party for the management of its debt service funds or its State Water Contract Fund.
- b. Eligibility for such contracts requires yield enhancement of at least 100 basis points over market rates otherwise available to the District for money market instruments.
- c. In exchange for deposits to a third party, the District must receive U.S. Treasury or Agency securities maturing no later than one day prior to each debt service or payment for state water contract obligations.
- d. Delivery vs. payment will be practiced to assure that the District is always in a liquid position to meet its obligations.
- e. Securities purchased will be held in trust in the District's name.

11. Escrow Restructuring

- a. Restructuring of escrows will comply with applicable U.S. Treasury regulations.
- b. Before restructuring an escrow, additional earnings of at least five times the cost of restructuring will be required.

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A P P E N D I X

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THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIASTATEMENT OF INVESTMENT POLICY
JUNE 9, 1998*

I. INVESTMENT AUTHORITY

In accordance with Section 53600 et seq. of the Government Code of the State of California, the authority to invest public funds is expressly delegated to the Board of Directors for subsequent re-delegation to the Treasurer. Investments by the Treasurer pursuant to the delegation hereby made by this Statement of Investment Policy are limited to those instruments specified by the Board in Chapter 5101 of the MWD Administrative Code, and further defined in this Statement of Investment Policy.

II. STATEMENT OF OBJECTIVES

In order of importance, three fundamental criteria shall be followed in the investment program:

1. **Safety of Principal** Investments shall be undertaken in a manner which first seeks to ensure the preservation of principal in the portfolio. Each investment transaction shall be entered into seeking quality of the issuer the underlying security or collateral, and diversification of the portfolio. Market risk shall be reduced by limiting the average maturity of the portfolio, the maximum maturity of any one security, and by performing continuous cash flow analysis to avoid the need to sell securities prior to maturity.
2. **Liquidity** In an effort to ensure that Metropolitan's portfolio will be sufficiently liquid to meet current and anticipated operating requirements, a cash flow analysis will be performed on an ongoing basis. Investments shall be made so that the maturity date is compatible with cash flow needs and safety of principal.
3. **Return on Investment** Investments shall be undertaken to produce an acceptable rate of return after first considering safety of principal, and liquidity and the prudent investor standard.

* Supersedes Statement of Investment Policy dated June 1997.



III. PRUDENT INVESTOR STANDARD

A standard of conduct where a person acts with care, skill, prudence and diligence under the circumstances then prevailing, including but not limited to, the general economic conditions and the anticipated needs of Metropolitan, that a prudent person acting in like capacity and familiarity with those matters would use in the conduct of funds of a like character and with like aims, to safeguard the principal and meet the liquidity needs of Metropolitan.

IV. PORTFOLIO

Any reference to the portfolio shall mean the total of Metropolitan's cash and securities under management by the Treasurer, excluding cash and securities held in escrow or trust on behalf of Metropolitan. The Treasurer may invest in any security authorized for investment under the State law, subject to the limitations described below:

1. Maturity Limitations

- a. The Treasurer is authorized to invest Metropolitan's fund balances up to a maximum term of five years. Special trust funds shall not be subject to the five year maximum maturity. The Treasurer is therefore authorized to invest special trust funds in excess of five years. These funds include, but are not limited to the following:
 - ◆ Employees' Deferred Compensation Fund
 - ◆ Water Revenue Bond Reserve Funds
 - ◆ Iron Mountain Landfill Closure/Postclosure Maintenance Fund
 - ◆ Lake Mathews Conservancy
- b. For certain instruments, the term of the investment is limited by market convention or as otherwise prescribed herein.
- c. Not more than 20 percent of the portfolio shall consist of securities with a term to maturity in excess of three years, after deducting those Funds noted in 1a.

2. Purchase and Sale of Securities

- a. Information concerning investment opportunities and market developments will be gained by maintaining contact with the financial community together with information provided by Metropolitan's Investment Advisor.
- b. The purchase of any investment other than those purchased directly from the issuer shall be, to the extent possible, from a firm designated as a Primary Dealer by the Federal Reserve Bank of New York. Investments in reverse repurchase agreements may be made only with Primary Dealers of the Federal Reserve Bank of New York.
- c. All dealers will be required to provide confirmations of all purchases or sales directly to the Controller for audit.

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- d. Annually the Treasurer shall transmit a copy of the current Statement of Investment Policy to all approved dealers. Each dealer is required to return a signed statement indicating receipt and understanding of Metropolitan's investment policies.
- e. When practicable, the Treasurer shall solicit more than one quotation on each trade. All investment trades will be awarded on a competitive bid basis.
- f. Each day's listing of market indices and quotations shall be transmitted by the Treasurer to the Controller for filing.
- g. Prohibited investments include inverse floaters, range notes, interest only strips derived from a pool of mortgages (Collateralized Mortgage Obligations), and any security that could result in zero interest accrual if held to maturity. (Zero interest accrual means the security has the potential to realize zero earnings depending upon the structure of the security. Zero coupon bonds and similar investments that start at a level below the face value are legal because their value does increase).
- h. Metropolitan will actively encourage participation of minority-owned and women-owned firms in its investment activities. These firms will be provided opportunities to sell fixed income securities and provide investment advisory services to Metropolitan.

3. **Exchange of Securities**

An exchange of securities is a shift of assets from one instrument to another and may be done for a variety of reasons, such as to increase yield, lengthen or shorten maturities, to take realize a profit, or to increase investment quality. In no instance shall an exchange be used for speculative purposes. Any such exchange shall be simultaneous (same day execution of sale and purchase), and shall require the approval of the Chief Financial Officer.

4. **Portfolio Adjustments**

- a. Should an investment percentage of portfolio limitation be exceeded due to an incident such as a fluctuation in portfolio size, the affected securities may be held to maturity to avoid losses.
- b. When no loss is indicated, the Treasurer shall consider reconstructing the portfolio basing his decision in part on the expected length of time the portfolio will be imbalanced.
- c. Should a security held in the portfolio be downgraded below the minimum criteria included in this Statement of Investment Policy, the Treasurer shall sell such security in such a manner to minimize losses on the sale of such security. If the security is downgraded to a level that is less than investment grade and the term to maturity is greater than one year, the Treasurer shall sell such affected security within sixty days of the rating change.



5. **Safekeeping**

- a. All securities transactions, including collateral for repurchase agreements entered into by Metropolitan shall be conducted on a delivery versus payment (DVP) basis.
- b. Securities will be held by an independent custodian designated by the Treasurer and held in safekeeping pursuant to a safekeeping agreement.
- c. All financial institutions which provide safekeeping services for Metropolitan shall be required to provide reports or safekeeping receipts directly to the Controller to verify securities taken into their possession.

V. AUTHORIZED INVESTMENTS

1. **U.S. Government and Agencies**

- a. Investments in U.S. Treasury obligations shall not be subject to any limitations.
- b. Investments in direct obligations of Federal Agencies guaranteed by the U.S. Government shall not be subject to any limitations. (Please refer to Appendix)
- c. Investments in Federal Agency obligations shall not exceed 50% of all investments in effect immediately after any such investments is made.

2. **Bankers' Acceptances**

Restrictions are as follows:

- a. Investments in prime bankers' acceptances shall not exceed 40 percent of the portfolio in effect immediately after any such investment is made.
- b. No more than 25 percent of this category of investments may be invested in any one commercial bank's acceptances.
- c. Eligibility shall be limited to those financial institutions which maintain ratings equivalent to Thompson BankWatch Service of "TBW-1" or "C" or better.
- d. The maximum maturity shall be limited to 270 days.

3. **Negotiable Certificates of Deposit**

Restrictions are as follows:

- a. Investments in negotiable certificates of deposit shall not exceed 30 percent of the total portfolio in effect immediately after any such investment is made.
- b. The total investment in an eligible financial institution shall not exceed 25 percent of the total portfolio available for investment in this investment category.
- c. To be eligible, a certificate of deposit must be issued by a nationally or state-chartered bank, a state or federal savings and loan association or savings bank, or by a state-licensed branch of a foreign bank.



- d. Eligibility shall be limited to those financial institutions which maintain ratings equivalent to Thompson BankWatch Service of "TBW-1" or "C" or better.
- e. The investment shall not exceed the shareholders' equity of any depository bank. For the purpose of this constraint, shareholders' equity shall be deemed to include capital notes and debentures.
- f. The investment shall not exceed the total of the net worth of any depository savings and loan association, except that investments up to a total of five hundred thousand dollars may be made to a savings and loan association without regard to the net worth of that depository, if such investments are insured or secured as required by law.
- g. The maximum maturity shall be limited to one year.

4. **Commercial Paper**

Restrictions are as follows:

- a. Only commercial paper of prime quality of the highest ranking or of the highest letter and numerical rating as provided by Moody's Investors Service, Inc., or Standard and Poor's Corporation may be purchased.
- b. Eligible paper is further limited to issuing corporations that are organized within the United States and having total assets in excess of \$500,000,000.
- c. Eligible issuer's debt must carry Moody's or Standard and Poor's rating of at least an "A".
- d. Investments in commercial paper shall not exceed 30 percent of the portfolio in effect immediately after any such investment is made, providing that the dollar-weighted average maturity of the entire amount does not exceed 31 days. "Dollar-weighted average maturity" means the sum of the amount of each investment multiplied by the number of days to maturity, divided by the total amount of outstanding commercial paper.
- e. Investments in commercial paper totaling 15 percent or less of the portfolio in effect immediately after any such investment is made shall not be subject to the dollar-weighted average maturity limitation.
- f. Each investment shall not exceed 180 days maturity. The total investment in the commercial paper of an issuer shall not exceed 25 percent of the total portfolio available for investment in this investment category.
- g. No more than 10 percent of the outstanding commercial paper of an issuing corporation may be purchased.

5. Repurchase Agreements

A repurchase agreement is a purchase of authorized securities (other than commercial paper) with terms including a written agreement by the seller to repurchase the securities on a later specified date for a specified amount. Restrictions are as follows:

- a. The percentage limit for investment in repurchase agreements shall be 50 percent of the total portfolio.
- b. Purchases of repurchase agreements will be limited to a maximum maturity of one year.
- c. Repurchase agreements shall be made only with primary dealers in government securities or financial institutions with a Moody's Investors Service, Inc., or equivalent, rating of A or better.
- d. Such investments shall provide for purchased securities with a market value at least 102 percent of the amount of the invested funds. Value shall be adjusted not less than quarterly.
- e. Purchased securities are limited to Treasury bills, bonds and notes, or other investments that are direct obligations of or fully guaranteed as to principal and interest by the United States or any agency thereof; negotiable certificates of deposit; and bankers' acceptances eligible for acceptance under Federal Reserve rules. Zero coupon and stripped coupon instruments are not acceptable.
- f. Such investments shall provide for transfer of ownership and possession of the purchased securities either to Metropolitan directly or to a custodian depository institution which shall take record title and shall establish and maintain a sub-account in its financial records for the securities in Metropolitan's name, and such custodian shall not be the dealer from which the securities were purchased.
- g. Each repurchase agreement shall provide a contractual right to liquidation of the purchased securities upon the bankruptcy, insolvency or other default of the counterparty.
- h. Purchased securities shall have maturities within sixty months of the date of investment.

6. Reverse Repurchase Agreements

A reverse repurchase agreement is a sale by the Treasurer of securities in the portfolio with terms including a written agreement to repurchase the securities on or before a specified date for a specified amount.

- a. Subject to the approval of the Board of Directors, the Treasurer may enter into a reverse repurchase agreement provided that the proceeds are invested solely to supplement the income normally received from the securities



involved in the agreement. These agreements may only be performed with primary dealers of the Federal Reserve Bank of New York.

- b. Limit investments in reverse repurchase agreements to the lesser of 10 percent of the portfolio, or 25 percent of the United States Treasury and Agency securities held in Metropolitan's portfolio at cost.
- c. Match or closely approximate the maturity of the investment purchased with the proceeds of a reverse repurchase agreement with the maturity of the reverse repurchase agreement(s).
- d. Purchases of securities with proceeds from reverse repurchase agreements may not be subject to a reverse repurchase agreement.
- e. Reverse repurchase agreements will be limited to a maximum maturity of 92 days.
- f. Securities used to make reverse repurchase agreements must be made for and held for a minimum of 30 days prior to the transaction.

7. Time Deposits

For purposes of this policy, collateralized time deposits shall be considered investments.

The following criteria will be used in evaluating financial institutions and form of collateral to determine eligibility for deposits:

- a. The financial institution must have been in existence for at least five years.
- b. Eligibility for deposits shall be limited to those financial institutions which maintain rating equivalent to Thompson BankWatch Service of "TBW-1" or "C" or better. Credit requirements may be waived for a \$100,000 time deposit that is federally insured.
- c. The deposit shall not exceed the shareholders' equity of any depository bank. For the purposes of this constraint, shareholders' equity shall be deemed to include capital notes and debentures.
- d. The deposit shall not exceed the total of the net worth of any depository savings and loan association, except that deposits not exceeding a total of five hundred thousand dollars (\$500,000) may be made to a savings and loan association without regard to the net worth of that depository, if such deposits are insured or secured as required by law.
- e. The total deposits shall not exceed the Shareholders' equity of any depository bank.
- f. In order to secure such deposits, the financial institution shall maintain in the collateral pool, securities having a market value of at least 10 percent in excess of the total amount deposited.



- g. Promissory notes secured by real estate mortgages or deeds of trust may not be accepted as collateral.
- h. When other factors are equal, appropriate consideration will be given to a financial institution that either individually or as a member of a syndicate bids on or makes a substantial investment in Metropolitan's bonds; contributes service to Metropolitan or a member public agency; offers significant assistance to Metropolitan, so as to provide for distribution of total deposits among eligible financial institutions.
- i. Purchased time deposits will be limited to a maximum maturity of one year.

8. **Medium Term Notes**

Restrictions are as follows:

- a. Investment in medium-term notes are limited to corporations organized and operating within the United States or by depository institutions licensed by the United States or any state and operating within the United States.
- b. Notes eligible for investment under this subdivision shall be rated in a rating category of at least "A" or its equivalent or better by a nationally recognized rating service. Maturities greater than two years must be rated "AA" or better.
- c. Purchases of medium-term notes may not exceed 20 percent of the portfolio.
- d. Purchases of medium-term notes will be limited to a maximum maturity of five years.

9. **Mortgage Obligations and Asset Backed Securities**

Any mortgage pass-through security, collateralized mortgage obligation, mortgage-backed or other pay-through bond, equipment lease-backed certificate, consumer receivable pass-through certificate, or consumer receivable-backed bond.

Restrictions are as follows:

- a. A maximum of five years maturity.
- b. Securities eligible for investment shall be issued by an issuer having an "A" or higher rating for the issuer's debt as provided by a nationally recognized rating service and rated in a rating category of "AAA" by a nationally recognized rating service.
- c. Purchase of securities authorized by this subdivision may not exceed 10 percent of the portfolio.

10. **Local Agency Investment Fund Deposits**

Deposits for the purpose of investment in the Local Agency Investment Fund of the State Treasury may be made up to the maximum amount permitted by State Treasury policy.

11. Metropolitan Water District Federal Credit Union Deposits

Deposits for the purpose of investment of funds held pursuant to Metropolitan's deferred compensation plans in the Metropolitan Water District Federal Credit Union shall be limited to the maximum amount insured by the National Credit Union Share Insurance Fund.

12. Securities Related to the State Water Project

Investments in State of California securities shall be limited to one registered bond or note, in the minimum denomination available, of any series of bonds or notes issued for purposes related to the State Water Project.

13. Shares of Beneficial Interest

The Treasurer may invest in shares of beneficial interest issued by eligible diversified management companies that (1) invest in authorized securities such as United States Treasury notes, bonds, bills; registered state warrants or treasury notes and bonds for the State of California, obligations of local agencies; commercial paper; negotiable certificates of deposit; repurchase agreements or reverse repurchase agreements and medium term notes or (2) are money market funds registered with the Securities and Exchange Commission under the Investment Company Act of 1940. These companies must meet the following criteria:

- ◆ Attain the highest ranking of the highest letter and numerical rating provided by not less than two nationally recognized statistical rating agencies.
- ◆ Retained an investment adviser registered or exempt from registration with the Securities and Exchange Commission with not less than five years' experience investing in authorized securities and obligations listed above.
- ◆ Assets under management shall be in excess of \$500 million.

The purchase price of the shares of beneficial interest purchased shall not include any commission, that the companies may charge and shall not exceed 20 percent of the agency's surplus funds may be invested in shares of beneficial interest of any one mutual fund described above.

VI. REPORTING REQUIREMENTS

In accordance with Administrative Code Section 5114, the Treasurer shall submit a monthly report to the Executive Secretary of the Board of Directors via the General Manager indicating the types of investment by fund and date of maturity, and shall provide the current market value of all securities, rates of interest, and expected yield to maturity. The Treasurer shall also submit a monthly summary report to the Board of Directors via the General Manager showing investment activity, including yield and earnings, and the status of cash by depository.

VII. MONITORING SAFETY AND LIQUIDITY OF DISTRICT FUNDS

The Treasurer shall monitor or cause to be monitored the extent to which financial institutions with which Metropolitan maintains deposits or investments are consistent with Metropolitan's policies regarding business activities within countries that may jeopardize the safety and liquidity of District funds or violate other Metropolitan policies. Such matters shall be reported to the Budget and Finance Committee as part of the Treasurer's monthly report.

VIII. ADMINISTRATION

The Treasurer may, at any time, further restrict the securities approved for investment as deemed appropriate.

IX. APPENDIX

Securities of Government-Sponsored Enterprises, Agencies and International Institutions

Issuer	Explicit U.S. Gov't. Guarantee	
Agency for Int'l. Dev.	(AID)	Yes
Farmer's Home Admin.	(FmHA)	Yes
Finc'l. Assist. Corp.	(FAC)	Yes
Gen'l. Svcs. Admin.	(GSA)	Yes
Gov't. Nat'l. Mtge. Assn.	(GNMA)	Yes
Private Export Funding	(PEFCO)	Yes
Small Busi. Admin.	(SBA)	Yes
Veteran's Admin.	(VA)	Yes
Washington Met. Area Transit		Yes
Fed'l. Farm Cr. Bank	(FFCB)	No
Fed'l. Home Loan Bank	(FHLB)	No
Fed'l. Home Loan Mtge. Corp.	(FHLMC)	No
Fed'l. Nat'l. Mtge. Assn.	(FNMA)	No
Financing Corp.	(FICO)	No
Resolution Funding Corp.	(Refcorp)	No
Student Loan Mktg. Assn.	(SLMA)	No
Tennessee Valley Authority	(TVA)	No
U.S. Postal Svc.		No
World Bank	(WB)(IBRD)	No



A P P E N D I X

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ASSET/LIABILITY MANAGEMENT

BACKGROUND

Municipalities began to embrace active management of liabilities as well as assets in the early 1980's when interest rates on triple-A general obligation bonds and double-A revenue bonds rose above 13 percent and 14 percent respectively.

The public sector, having learned from corporate treasurers, reacted to these high fixed rates by seeking authority to issue variable rate debt. Metropolitan received such authority in 1984. The issuance of variable rate obligations initially saved issuers up to 200 basis points over traditional long-term fixed rate debt. As long as short-term rates stayed below the cost of fixed rate bonds, the use of variable rate demand obligations or commercial paper was considered prudent from a 20/20 viewpoint. Such prudence; however, would quickly evaporate if interest rates continued to rise. To manage this risk, issuers began to seek hedges to manage their variable rate exposure.

A number of new risk management products — futures, options, swaps, floors, caps and collars — made it possible for municipalities to manage their liabilities more effectively in volatile markets. Municipalities began to understand that debt could be transformed to take advantage of changing market conditions: rates on floating debt could be fixed via futures or swaps; floating rate debt could be capped; fixed rates could be transformed into floating rates; and issuers could hedge the cost of a new issuance by fixing or capping the rate by using risk management products. Municipalities could now transform already issued debt into a more desirable form for an all-in lower cost than possible by refunding and reissuing debt.

The most important and prominent of the derivative risk management products are interest rate swaps. In liability management, swaps can have three purposes:

- a. Reducing the cost of current issuance
- b. Locking in the cost or spread on a future issuance
- c. Altering cash flows on an existing liability

Through the use of standardized industry contracts developed by the International Association of Swap Dealers (ISDA), issuers can obtain the desired form of debt synthetically through markets which allow issuers to take advantage of differential pricing between the new-issue bond market and the swap market.

Issuers can lock in the cost of a future issuance through a forward swap, typically in an environment when rates are low. Issuers can also lock in future interest rates



between the call date and the maturity date on high coupon issues that are likely to be called. Debt can also be transformed from callable to non-callable or from callable to putable.

The technique of swapping cash flows can be applied to assets as well as liabilities. The use of an interest rate swap can transform a conventional fixed rate investment into a synthetic floating rate security that produces a stream of floating interest payments, or vice versa.

Asset swaps can be created to fill the needs of investors. As this market grows in size, it will have an increasing impact on the primary and secondary markets for debt issues and will be a determining factor for swap spreads.

METROPOLITAN'S USE OF SYNTHETIC PRODUCTS

Metropolitan in 1994 utilized a forward swap to lock in a low fixed interest rate for a current refunding. Absent the swap market, given the restrictions on the number of advance refundings permitted by federal regulations, this refunding could not have been done on a current refunding basis until the first call date. Had Metropolitan waited until the first call date to lock in its cost of refunding bonds, it would have faced higher fixed rate interest costs.

Metropolitan has also issued long-term fixed rate debt that was bifurcated into variable rate components. The use of a product, known as inverse floaters, lowered the cost of borrowing to Metropolitan by meeting investor appetites at a time when rates were expected to rise.

This Appendix sets forth the various liability and asset management products available to Metropolitan.

AUTHORITY

Section 5920 et seq. of the California Government Code, enacted in 1987, authorizes state and local governments to enter into swap transactions. The Legislature crafted this "California Statute" to enable public entities to manage financial risk in connection with the borrowing of funds and the management of investments. This legislation eliminates a swap counterparty's exposure to the risk that a local government may not possess the power to enter into a swap transaction, making the transaction void and unenforceable. Swap agreements today further require a municipality to represent or warrant that it has the authority to enter into the agreement. This places the burden on the party most capable of determining the authority of the governmental entity to engage in the swap transaction, the governmental entity itself.

In the California Statute, the governmental entity is directed to give "due consideration" when selecting a counterparty to the credit worthiness of such party. Metropolitan's practice is to insist on a highly-rated counterparty. Should the rating fall below a specified level, Metropolitan requires either credit enhancement or the posting of collateral to cover the counterparty's obligation should the contract be terminated.

PRICE RISK INTERMEDIATION (RISK TRANSFER)

In April 1995, central banks in 26 countries participated in a global survey to ascertain the size and structure of the financial derivatives markets, and to quantify risk exposure of dealers and their ability to cope with price risks in meeting end-user demands. This point is an important one to Metropolitan. For example, termination of a swap in which Metropolitan is a party could be triggered by any one of a number of events. To replace a swap at favorable terms may not be possible due to interest rate moves that occurred in the market since the execution of the swap. Moreover, should sudden swings in market rates occur, this could have the effect of straining providers which could react by unwinding all agreements, thereby exacerbating user demands for higher cost replacement contracts.

The study, conducted by the Bank for International Settlements (BIS), examined how well dealers hedged their risks, and from this data was able to ascertain the scale of potential price and credit shocks that could be transmitted through the derivatives markets without causing financial stress to end-users.

The manner in which a price shock is distributed across market participants was also assessed. The survey found that the potential wealth transfer passing through dealers from customers on one side of the market to customers on the other side of the market would only be one-quarter (the product of one-half of one-half) of the gross price shock estimates. The weighted average price sensitivity range was found to be two to three percent of the notional amount of derivatives for each one-percent-point change in interest rates. The calculated dollar price shock for customers on one side of the market was \$130 to 200 billion for each one-percentage-point change in interest rates. Dealer exposure to price shock was less than customer exposure because of dealers' practice of offsetting trades as middle man between one customer and another.

In another assessment of the derivatives markets reported on by the Journal of Applied Corporate Finance in Fall 1994, it was argued that the possibility of a widespread default throughout the financial system stemming from the use of derivatives has been exaggerated. Traditional measures of measuring exposure vastly overstate amounts of capital at risk. The observers argue that the actual "net" credit exposure on swaps amounts to no more than one percent of notional principal.

Finally, it should be noted that U. S. securities firms and non-U. S. banks have created subsidiary derivative product companies (DPCs) that are structured to function as intermediaries with triple-A ratings. Their high ratings reflect state-of-art practices in managing market risk and credit risk. DPCs hedge market risk by means of mirroring transactions with their parent company. To manage credit risk, DPCs use quantitative models to measure credit exposures precisely and allocate capital to cover risks measured each day. In addition, DPCs have a contingency mechanism in place that would limit risk that would arise should their risk management structure fail.

Despite their high ratings, the structured DPCs still account for a small percentage of the market. The major market share continues to be held by banks and parents of the DPCs which have lower credit ratings.



In reviewing potential counterparties, Metropolitan should consider these DPCs which fall into three types: DPCs with highly-rated parent companies; asset-backed DPCs; and structured DPCs. The workout process for exposure to unmanaged risk should be understood in advance. Some DPCs use a contingent manager for a continuation structure; others terminate early leaving the customer in a position to find a replacement. Various events trigger a workout. For a contingent manager structure, a workout would be triggered by failure of a parent company to post collateral; a serious downgrading of the parent's rating on its short-term debt; or a default or bankruptcy by the parent.

For an early termination structure, a parent's failure to meet capital on collateral obligations; a serious downgrading of the DPC's credit rating; or a default or bankruptcy by the parent would result in the DPC's self destruction.

An early termination structure implies a time horizon for market risk of only a few weeks, and exposure to market risk ends the DPC with liquidation of its portfolio. A contingent management structure implies a longer horizon to give the contingent manager time to reconstruct a hedge for the derivatives book in the absence of mirrored transactions.

In using Asset/Liability Management Products, Metropolitan can manage its exposure to counterparty risk by spreading its transactions over various providers. Metropolitan can further mitigate its exposure by shortening the duration of a swap, i.e. a fixed to floating interest rate swap for seven years instead of 15 years, etc.

Metropolitan, in increasing its variable rate exposure as a percent of total capitalization can utilize a portion of its invested assets as an internal hedge against rising interest rates. Any higher interest rate costs would be offset by higher interest earnings.

The use of Asset/Liability management techniques requires financial sophistication. The products must be clearly understood, exposures must be quantified, and risks should be assumed, transferred, or mitigated as a result of analyses. Appropriate use of these products can lower the cost of debt management, increase returns on invested assets, and provide a means of mitigating risk from mismatched assets and liabilities. The products are used in private industry to not only manage interest rate exposure, but to also hedge currency, resource, and commodity pricing risks. Portfolio managers have learned to hedge investment portfolio risk against sudden rises in interest rates or declines in equities. Metropolitan has gained some experience in these markets and from time to time may identify opportunities to more effectively manage its balance sheet by utilizing one or more of these products where appropriate.

POLICY DEVELOPMENT/GUIDELINES

In developing a policy for the use of derivative products, following is an overview of issues and recommended guidelines:

Form of Contract Although the California Statute does not mention the International Swap Dealers Association (ISDA) agreement specifically, the ISDA is the most "liquid" contract with the widest use among the dealer and issuer community. Liquidity is important because it provides the greatest amount of flexibility in managing risks. It is reasonable to expect that most transactions entered into by Metropolitan will involve



the ISDA form. However, Metropolitan should retain flexibility to consider other forms of agreement where there is benefit.

Counterparty Credit Rating Generally issuers require counterparty credit rating thresholds. First is to set rating minimums for swaps of various terms. For example, for swaps of less than five years a rating of A by one of the rating agencies; for swaps of between five and ten years a rating of at least AA; and for swaps of greater than ten years a rating of AAA. These standards typically allow for an entity whose obligation is guaranteed by a parent or other entity which meets the ratings requirement.

If a dealer does not have sufficient ratings for a particular transaction, collateral is often used as a method of enhancing credit worthiness. The marking-to-market of the swap and collateralization provides Metropolitan with the security necessary to replace the swap should the counterparty default on its obligation. The considerations for the posting of collateral surround the amount and timing of the initial posting, frequency of valuation (swap and collateral) and percentage of collateral posted.

Counterparty Exposure Limits A slightly different issue relating to counterparty credit is the particular exposure to a single counterparty. It is important to note that exposure limits should take into account the current, average and maximum exposures of the particular transaction instead of simply the notional amount of the swap. In addition, limits for a particular counterparty should be based on consideration of all Metropolitan swaps taking net exposure into account.

Swap Duration/Term Generally the term of the swap should match that of the underlying debt or investment it is intended to hedge. In situations where the swap does not match the final term, Metropolitan may wish to require that in approving the transaction, the potential interest rate exposure at the time the swap terminates is identified (e.g. a hedge swap).

Appropriate Savings Level Certainly one of the more difficult issues to address is the amount of savings required versus cash market alternatives. This difficulty is caused by three factors: First, there is such a wide range of derivative applications and structures that the appropriate amount of savings, and offsetting risks, may be hard to standardize. Second, applications created in the future may eliminate some of the risks which theoretically should lower the required savings threshold. Third, in some instances there may not exist a cash market alternative in which to compare the swap-based application. Alternatively, a more appropriate policy would be to require a thorough analysis of the benefits and risk considerations of any derivative transaction. In completing this analysis, staff should be able to adequately weigh any trade-offs, as well as to identify the debt service savings, investment yield enhancement/hedge etc. provided by the derivative versus that available in the cash market.

Competitive Bidding With the dramatic increase in the number of derivative counterparties and the resulting pressure on narrowing spreads, there is an increasing argument for policies requiring competitive bidding. This is particularly true for short term, index-based transactions. However, there remains a great deal of proprietary and bene-



ficial product development which Metropolitan should continue to promote and reward, where appropriate. Certainly Metropolitan's goal is to achieve the lowest cost transaction possible within acceptable risk parameters, while fostering new and innovative ideas. The easiest way to balance these two goals may be to require competitive bidding for all plain vanilla swaps but to allow for the ability to engage a counterparty or underwriter who brings a particularly innovative and money saving idea. A second policy methodology could be to require a competitive selection process but envision a negotiated transaction with the firm selected through that process.

LIABILITY MANAGEMENT PRODUCTS

Municipal derivative products are based on five components of a traditional municipal bond. They include: (1) principal payments; (2) interest payments; (3) stated maturities; (4) redemption provisions; and (5) credit of the issuer or guarantor. New products are created by isolating, removing, or optimizing these components in a new combination to extract the greatest value for the new security. For an issuer, the sale of a derivative product can produce more proceeds (lower yield) than a traditional instrument because the derivative product has been optimized.

The term 'derivative' is also used to refer to products whose value is based on the price of an underlying asset. Products such as forwards, futures and options fit this description. Derivatives make it possible to transfer or hedge against interest rate, currency or commodity price risk.

The issuers' goals and objectives in choosing to use a derivative product include:

- a. lower cost than traditional instruments;
- b. greater flexibility
- c. a solution to a problem.

New markets and new buyers with specific portfolio requirements can be addressed by employing a derivative. Greater flexibility in debt management is the ability of an issuer to respond to changes in interest rates, changes in federal tax law, and changes in capital requirements. Derivatives can be used to improve refunding flexibility, to limit exposure to variable rates, and to manage market timing.

Following is an overview of derivative products employed by municipalities and for which an active market exists. Criteria to be considered by Metropolitan in using these products is set forth in Appendix I under Financing Objectives and Parameters.

◆ INTEREST RATE SWAPS

Available to Metropolitan in managing its assets and liabilities is a primary derivative tool referred to as an interest rate swap. As an obligation or contract to exchange cash flows for a defined period of time, a swap may be used to convert a fixed rate payment to a variable rate payment, or vice versa. In managing its debt, Metropolitan may agree to pay a variable rate on a notional amount of principal to a third party financial services

entity which, in turn, agrees to pay Metropolitan's fixed interest rate on its outstanding bonds. This could be done for a period not exceeding the final maturity of the bonds.

Generally, since risk would be assumed by Metropolitan by agreeing to pay a variable rate which floats according to a specified index or Metropolitan's cost of short-term funds, Metropolitan's exposure would be controlled by limiting the duration of the swap. Also, the anticipated direction of interest rates would be taken into account. That is, if inflation is foreseen, variable rates would be avoided in that it would be reasonable to expect tightening of the federal funds rate by the Federal Reserve. Conversely, as the federal government moves toward balancing the budget and decreasing its demands for money in the market, coupled with other deflationary forces, Metropolitan may have an interest in increasing its exposure to variable rates. Use of an interest rate swap would enable Metropolitan to pay a variable rate without refunding its low cost fixed rate bonds. Savings at the outset could be as high as 250-300 basis points. If this advantage continues, Metropolitan's break-even cost of funds increases. A higher break-even point would rationalize paying a variable rate that is higher than the fixed rate(s) on the bonds for a precalculated period of time.

The use of a fixed to variable rate swap also makes sense in matching assets to liabilities. Metropolitan carries long-term fixed rate debt while it maintains liquid assets. In a steep yield curve environment in which long-term tax exempt rates are substantially higher than short-term rates, assets may earn less than the cost of servicing the debt, despite the fact that investments are made at taxable yields. As short-term rates decline, the earnings on investments could fall below the cost of servicing the bonds. The opposite scenario, in which short-term rates rise to produce positive carry, can produce a windfall in earnings. Swaps can be used to create a synthetic match. A mismatched condition presents a risk that may or may not produce a reward.

Under certain conditions, it may be desirable for Metropolitan to reduce its exposure arising from its outstanding variable rate debt through a swap agreement that transforms its obligation to making fixed rate payments in exchange for a third party assuming the obligation to make the variable rate payments. Metropolitan would evaluate this type of transaction based on the net payments: fixed rate debt service on the bonds is one payment; the variable rate swap is a receipt; and the fixed rate swap payment is a second payment, leaving a net fixed rate payment.

Interest rate swap contracts are subject to termination prior to their stated maturity at a calculable agreement value. Metropolitan's practice is to prepare a sensitivity analysis showing the cost of replacing a swap under various interest rate conditions.

Swap documentation has been standardized by the industry. Metropolitan would generally utilize a master agreement between itself and a counterparty, a schedule to the master agreement, and a confirmation which details the specifics of the transaction.

Since Metropolitan is dependent upon another party to meet its obligations, it must evaluate counterparty exposure, basis relationships, maturity or term, legal, federal arbitrage and rebate regulations, and aggregation risk. Management of these risks is addressed in this Appendix.



◆ SWAP INDICES

Municipal issuers' floating rate payments mirror tax-exempt money market levels. The J. J. Kenny Short-Term High Grade Index or a percentage of the taxable index LIBOR (London Inter Bank Offered Rate) are used. The Bond Market Association Municipal Swap Index (BMA), which is based upon weekly interest rate resets of tax-exempt variable rate issues, is also employed as a proxy for high grade 7-day tax-exempt variable rate demand obligation yields. Historically, since the early '80's, short-term variable rates and long-term rates have declined.

◆ FLOATING-TO-FIXED INTEREST RATE SWAPS

The most prevalent synthetic fixed rate technique is the use of an interest rate swap to convert variable rate debt to a fixed rate. This synthetic instrument mirrors the same cash flow arising from sales of fixed rate bonds with the advantage of producing a lower interest cost and greater flexibility than traditional bonds. The swap to a fixed rate provides an issuer such as Metropolitan with a hedging vehicle that offsets exposure to variable rates while preserving investors' variable rate income. In this type of swap, the counterparty assumes the risk of paying higher variable rates. Metropolitan would continue to pay remarketing, liquidity, and annual rating fees on the outstanding variable rate demand obligations. When the variable interest rate rises above Metropolitan's negotiated fixed interest rate under the swap plus the aforementioned fees, the hedge swap begins to produce savings.

Generally, because swaps are priced off of an efficient taxable market, the fixed rate under a swap plus program fees for the newly issued variable rate demand obligations will be lower than an interest rate directly obtained by pricing traditional fixed rate bonds in the tax-exempt market. The choice, however, is not simply driven by the interest cost differential. Metropolitan would need to weigh in the risk of non-payment of the variable rate by the counterparty. Other complications in the decision process could arise from changes in federal personal income tax laws. Counterparties may not be willing to assume the risk of paying higher variable rate resulting from changes in tax policy.

The Final Arbitrage Regulations provide for tax treatment of variable rate issues connected with a qualified hedge swap. If conditions in the regulations are satisfied, the variable rate bonds may be treated as fixed rate bonds.

The conversion of variable rate bonds to a fixed interest rate may be employed at any point along the yield curve, from six months to 30 years or more. The spread between the swap market and the conventional bond market varies for each maturity. The disparity in yields arising from different market forces affecting the taxable and tax-exempt market are best shown by charting relative levels of LIBOR-based swaps, AAA-insured or AA municipal bonds as a proxy for Metropolitan's debt, and BMA-indexed swaps over a time to maturity continuum. Metropolitan monitors this market relationship and is prepared to take advantage of the opportunity for all or a portion of any pro-

posed bond sale. The expanded structure of the bond issue (adding variable rate bonds and a hedge swap) increases demand by introducing the money market and the swap market as potential buyers.

Long-dated swaps (greater than 10 years to maturity) appeal to investors desiring a fixed payment corresponding to long-term fixed assets. This smaller market, as opposed to the 10 year or less swap market, reaches highly-rated subsidiaries of property and casualty insurance companies and commercial banks. Shorter-dated swaps address liquidity needs of investors desiring to trade, assign or reverse a swap prior to maturity. The terms and conditions of long-dated swaps are subject to considerable negotiation to protect each party from unforeseen changes in credit ratings (financial strength). Metropolitan's staff has gained experience in executing a long-dated swap transaction in 1994 (which became effective in 1996 upon a current call of 1986 bonds), whereby Metropolitan pays a synthetic fixed rate of 4.99 percent plus program fees of 0.34 percent.

◆ AUCTION-BASED INVERSE FLOATERS

In 1992 and 1993, Metropolitan authorized its then lead banker to price and market certain maturities of a traditional bond sale as Auction-Based Inverse Floaters. Metropolitan retained its risk-free obligation to pay a fixed interest rate on the bonds. That fixed rate was then divided to make payments to two different types of investors. One investor receives a floating variable rate derived from a Dutch auction process. The difference between the auction rate and the fixed rate (the residual or inverse) is paid to the second investor. When short-term rates rise, based on the auction which reflects the market price, the return on the inverse or residual floaters declines. Conversely, as short-term rates decline, the return on the inverse or residual floaters rises. Obviously, since Metropolitan's obligation by contract would never exceed its negotiated fixed rate of interest, the inverse or residual return is limited. To keep the inverse or residual rate from declining below zero, the auction rate may not exceed the fixed rate receivable from Metropolitan.

Investor appetite in the inverse or residual component of this product arose from belief that short-term rates would decline. That opened the prospect of receiving a higher variable rate (albeit a derived inverse or residual rate) than otherwise available within the primary market for variable rate demand obligations that are rolled, in this case, every seven days. Investors contracting for the auction-based variable rate assumed the opposite, that short-term rates would rise and that their supply of high quality paper from Metropolitan would be available until the bonds were linked or fully paid. Linkage of the split bonds (par of each maturity was halved for each type of investor) remained an option to any investor electing to purchase the two halves of the split bond. Linkage reduces investor risk of adverse changes in short-term interest rates since the investor would now collect the fixed rate of interest payable by Metropolitan on the linked bond.



◆ INDEXED (SWAP-BASED) INVERSE FLOATERS

A variation of the auction process is the indexing of inverse floaters through a fixed to floating rate swap for a duration equal to the life of the bond or less (usually 10 years). Unlike the Dutch auction process, the bond is not bifurcated. The investor's return on the bond is increased when the swap (which is "strapped" into the bond) results in a net receipt (paid to the investor by the counterparty) through Metropolitan and is decreased when net swap payments must be made (Metropolitan pays a reduced amount of interest to the investor but pays the counterparty the difference between the fixed bond rate and the amount paid to the investor). Metropolitan pays a fixed rate in either case; its liability does not change even upon default of the swap provider.

Metropolitan pays a lower fixed rate than it would have paid had it not permitted the underwriter(s) to strap a swap to its bonds. The cash flow alternative to investors based on the swap is the difference between the bond rate at a given point along the yield curve (10 years for example) and the average 7-day BMA rate. Metropolitan's fixed bond rate (30-year rate for example) is adjusted by that difference. If the floating rate equals the 10-year bond rate, no adjustment is made. However, if the 10-year rate exceeds the 7-day BMA rate, the difference is paid by the counterparty to the investor through Metropolitan. Conversely, if the 7-day BMA rate exceeds the 10-year bond rate, that difference is paid to the counterparty with a reduced amount paid to the investor.

After the swap term is completed, the investors receive fixed rate payments and give up any leverage (either positive or negative) created by the swap. It is not uncommon for investors, such as bond funds, to enter into a swap on portions of their portfolio to take advantage of positively sloped yield curves. This can be done without the issuer's approval. Some investors place greater value on the swap cash flow than on the underlying bond, and look to receiving multiples of an interest rate movement. More than one swap may be added to an underlying bond to increase leverage for investors.

◆ SYNTHETIC VARIABLE RATE FINANCING

Under the Board's 1997 authorization, Metropolitan sold two series of variable rate demand obligations amortizable through the year 2028. Despite the long-term maturity of the debt, the investors were given the right to "put" the obligations to Metropolitan weekly when the interest rate is reset. The yield on the bonds reflects low money market rates corresponding to the put or mandatory tender period. The debt service payments fluctuate over the life of the bonds.

Synthetic variable-rate instruments similarly generate variable debt service cash flow with the objectives of reducing interest costs over fixed rate long-term debt and achieving greater flexibility over issuances of short-term or medium-term notes. Risks associated with variable-rate exposure over the long-term can also be reduced or limited by synthetic or derivative instruments. The use of a fixed to floating interest rate swap has the advantage of avoiding on-going program support fees which include remarketing,

liquidity, and credit fees for variable rate obligations. Such swaps are in greater use when bank fees are high or when on-going access to letters of credit is uncertain.

◆ FIXED TO FLOATING INTEREST RATE SWAPS

Synthetic variable rate debt is produced by issuing fixed rate debt and entering into an interest rate swap agreement to make floating rate payments to the swap provider in exchange for fixed rate payments. The fixed rate payment is paid to the bondholders. As long as the variable rate payment made by the issuer to the swap provider is below or equal to the fixed rate receipt, Metropolitan's effective debt service is below or at least no greater than it would have been absent the swap agreement. Should short-term rates rise above the fixed rate, Metropolitan's effective cost would be increased above the contracted rate payable to the bondholders. Obviously, Metropolitan would exercise constraint in establishing the duration of the swap and would look at its overall exposure to market risk in establishing the notional amount of the swap.

With the swap duration-life at less than the life of the fixed rate bonds, Metropolitan returns to its fixed interest cost (a ceiling, in effect) when the swap matures. The cycle can be repeated by entering into another swap.

Although traditional variable rate instruments allow the issuer to retire any part of the debt on a put date simply by not remarketing the issue, the synthetic structure along with the underlying long-term fixed rate debt structure would allow for redemptions through optional call provisions which may or may not coincide with the maturity of the swap. Metropolitan would consider swap durations coinciding with optional call dates to retain flexibility to refund the bonds.

Because of Metropolitan's high credit standing, its access to credit and liquidity support is very good, hence it would not have to utilize a swap to synthetically create variable rate debt. Rationale for favoring this approach, however, is the avoidance of program fees from a cost standpoint. Another reason would be to take advantage of lower rates particularly when U. S. Treasury regulations preclude an advance refunding of the fixed rate bonds for interest cost savings.

Selection of an index such as BMA or LIBOR to derive the synthetic variable rate is an option for Metropolitan to consider.

◆ FORWARD BOND SALES

A number of synthetic products are now available to lock in today's cost of funds for a sale of bonds in the future. A premium is charged the issuer to compensate investors for their committed funds. Time and the shape of the bond yield curve are determinants in pricing the premium.

With limited advance refundings permitted under federal regulations, a current refunding can be priced today with delivery of the bonds at a future date, in time to redeem the bonds at the first call date.

Variations of the contractual forward refunding options available to Metropolitan are set forth as follows in tabular form:

COMPARISON OF CONTRACTUAL REFUNDING OPTIONS

	Forward Delivery Bonds	Long Dated Interest Rate Swap	Long Dated Interest Rate Swap with Reversal on Call Date	Forward Index Agreement
Benefits	Preserves call option on current refunding bonds.	Municipal swap rates are generally attractive relative to municipal bond rates.	Preserves call option on current refunding bonds.	Preserves call option on current refunding bonds.
	Eliminates liquidity facility provider risk and basis risk.		Eliminates liquidity facility provider risk and basis risk.	Eliminates liquidity facility provider risk and basis risk.
	Eliminates exposure to interest rate swap levels.			Eliminates exposure to interest rate swap levels.
Risks	Unable to realize additional savings if interest rates remain low.	Exposure to counterparty risk, liquidity facility provider risk and basis risk for entire term of transaction.	Counterparty risk until call date.	Counterparty risk until call date.
			Exposed to changes in relationship between municipal swap rate and municipal bond rate.	Change in MWD's cost of funds may vary from change in the Bond Buyer 40 Municipal Bond Index.
Current Requirements	MWD executes a forward bond purchase agreement which will lock in a forward bond scale for the current refunding at the call date.	MWD executes a long dated interest rate swap agreement which will become effective on the call date of the existing fixed rate bonds and will terminate at the maturity of the existing fixed rate bonds.	Same as long dated interest rate swap.	MWD executes a forward index rate agreement based on the Bond Buyer 40 Municipal Bond Index which will terminate on the call date of the existing fixed rate bonds.
		MWD obtains interest rate swap insurance/ collateralization of swap agreement if necessary.	Same as long dated interest rate swap.	Same as long dated interest rate swap.
Current Requirements (Optional)	Same as long dated interest rate swap.	Obtain forward bond insurance commitment	Same as long dated interest rate swap.	Same as long dated interest rate swap.
	Not required.	Obtain forward liquidity facility commitment.	Not required.	Not required.
	Not required.	Obtain forward remarketing agent commitment.	Not required.	Not required.



**COMPARISON OF CONTRACTUAL REFUNDING OPTIONS
(CONTINUED)**

	Forward Delivery Bonds	Long Dated Interest Rate Swap	Long Dated Interest Rate Swap with Reversal on Call Date	Forward Index Agreement
Call Date Requirements	Forward bond purchase contract becomes effective.	Long dated interest rate swap becomes effective.	Long dated interest rate swap is reversed and a termination payment is made.	Forward index rate agreement terminates and termination payment is made.
	Fixed rate refunding bonds are issued at forward bond scale.	Issue variable rate bonds to current refund existing fixed rate debt.	Issue fixed rate bonds to current refund existing fixed rate debt.	Issue fixed rate bonds to current refund existing fixed rate debt.
	Not required.	Liquidity facility becomes active.	Not required.	Not required.
	Not required.	Remarketing agreement becomes effective.	Not required.	Not required.
Options	Not applicable.	Savings can be realized with an up-front cash payment to MWD.	Same as long dated interest rate swap.	Same as long dated interest rate swap.
	Not applicable.	Not applicable.	Ability to bond for required termination payment related to swap reversal on the call date of the bonds.	Ability to bond for required termination payment related to forward index rate agreement on the call date on the bonds.
	Not applicable.	Basis risk (difference between swap index rate and actual variable rate of bonds) can be assumed by MWD or mitigated by the type of variable rate debt issued and negotiations with swap provider.	Not applicable.	Not applicable.
	Not applicable.	Ability to structure swap with shorter termination date than that of existing fixed rate debt (e.g. 10 years). Preserves flexibility for restructuring on call date of bonds	Not applicable.	Not applicable.



**COMPARISON OF CONTRACTUAL REFUNDING OPTIONS
(CONTINUED)**

	Forward Delivery Bonds	Long Dated Interest Rate Swap	Long Dated Interest Rate Swap with Reversal on Call Date	Forward Index Agreement
Summary of Economic Result	Interest rate risk on current refunding is eliminated by locking in a forward bond scale. Savings will not change with movements in interest rates because scale is locked in today.	Synthetic fixed rate paid by MWD is determined by: 1. Forward swap rate; 2. Liquidity facility cost; 3. Remarketing fee; and 4. Variable rate trading differential, if any.	Interest rate movements between current and future costs of issuing fixed rate bonds are hedged by swap agreement. As rates go up, the current refunding is affected adversely, but this is offset by the gain on the swap reversal. If rates go down, the swap reversal is affected adversely, but is offset by the gain on the current fixed rate refunding.	Interest rate movements between current and future costs of issuing fixed rate bonds are hedged by the forward index rate agreement. As rates go up, the current refunding is affected adversely, but this is offset by the gain on the termination of the forward index rate agreement increases, but this is offset by the gain on the current fixed rate refunding.

Another variation which has evolved from forward bond sales is a warrant which gives the buyer a right to purchase bonds at a predetermined interest rate as follows:

- ◆ Metropolitan sells a warrant today.
- ◆ The warrant, exercisable on or before the first call date, would give the buyer the option, but not the obligation, to buy a predetermined amount of bonds with pre-determined terms negotiated today.
- ◆ The warrant can be structured either “at the money” or “in the money.” Metropolitan may choose to receive cash today equal to the value of the projected savings, or realize its savings in the future over the term of the new bond issue.
- ◆ Up front payments are discounted at the broker-dealer’s cost of money, a taxable rate, hence receipt of savings over time generally is the preferred alternative. An exception is becoming evident in the electric industry. If a utility’s transmission assets are to be transferred to the Independent Service Operator, the utility takes up front savings in its refunding transactions. The savings are then used to buy down or rapidly amortize generation costs to become competitive in producing electricity.



◆ CAPS, FLOORS, AND COLLARS

In the swap market, Metropolitan has access to one-way agreements based on interest rate swap contracts whereby short-term interest rate risk may be transferred.

An interest rate cap may be purchased to lay off any interest cost above the cap on variable rate debt to another party. The duration and the level of the cap are determinants in pricing the cap. The longer the duration and the closer the cap rate is to current rates, the more expensive the agreement. Out of the money caps covering short periods of time are the least expensive. When a cap is purchased, the rating agencies treat the variable rate debt as though it were fixed.

An interest rate floor is an agreement by one party to make payments to another party when interest rates fall below a certain level or floor. Metropolitan could, for example, sell a floor on its outstanding variable rate debt. Should rates fall below the floor, Metropolitan would not receive the benefit of such a reduction. Instead, Metropolitan would pay the floor rate.

A collar combines a cap and floor, thereby creating a band within which variable rate risk would be fully absorbed by Metropolitan. Sale of a floor would raise funds to offset, to some extent, the cost of a cap.

ASSET MANAGEMENT PRODUCTS

As a general rule of thumb, balance sheet risk is minimized when long term assets are matched with fixed rate debt (and equity), and short term assets are matched with short term debt (and equity). The results of this type of hedging is that changes in interest rates have no meaningful impact, positive or negative. Increases in costs of funds are offset by increases in investment income, or pay back over the life of financed projects. This situation is ideal because the organization is not speculating on the direction of interest rates; it is free to focus on managing core activities.

Albeit desirable, striving to attain a match between assets and liabilities is difficult in practice. Volatile capital markets since the 1980's, and perhaps going forward into the future, can make a mismatch painful. Negative arbitrage, interest rate risk and budgetary uncertainty can result from a mismatch of the average lives of assets and liabilities. Short term investments in declining rate markets will earn less than the interest cost on longer term fixed rate bonds. This negative arbitrage is, in effect, a hidden expense built into most debt structures and balance sheets. As short term rates decline, reduced investment earnings may not be offset by a reduction in the cost of funds, thereby increasing negative arbitrage. This is exacerbated by a limitation on the number of advance refundings imposed by federal regulations. In addition, the complexity and time requirements of tax-exempt refundings can impede an issuer's efforts to benefit from short term rate improvements in a volatile market. Consequently, the issuer of fixed rate debt with short term investments is implicitly counting on increasing short term interest rates on its investments.

Finally, investing assets short term entails budgetary uncertainty. Whereas most issuers must budget investment income a year or more in advance, the rate at which

short term assets will be reinvested during the budgeted period is unknown. The issuer risks earning less investment income than budgeted when interest rates are lower than expected.

The goal of Asset/Liability Risk Management is to mitigate these costs and risks. In general, this can be achieved in two ways:

- a. Increase the effective average life of assets (investments).
- b. Shorten the effective average life of liabilities (debt).

◆ INVESTMENT EFFICIENCY MEASURES

Investment efficiency products attempt to mitigate a mismatch by improving the effectiveness of the issuer's investment strategy. Products such as Investment Agreements, Float Contracts, and Put Agreements increase the average life of investments and reduce periods during which funds are invested inefficiently.

Investment Agreements Also known as Guaranteed Investment Contracts (GICs), are entered into with commercial banks, insurance companies and broker-dealers (as Provider) wherein the issuer deposits its funds with the Provider and receives a fixed or floating return. These contracts can provide higher returns than short term investments as well as withdrawal flexibility. However, the yield on the GIC will depend on not only the market but the level of flexibility the issuer requires for the timing and amounts of withdrawals. Since the issuer deposits funds with the Provider, credit risk is clearly a concern with these contracts. Various degrees of collateralization may be obtained at a small reduction in yield. In general, an issuer may choose to take its interest earnings either over time or in an up-front lump sum payment. GIC's can be appropriate for stabilization funds, the debt service reserve fund, construction or capitalized interest funds and, in some cases, escrow accounts.

Float Contracts Float contracts, also known as forward supply contracts, are economically similar to Investment Agreements, but differ mechanically. They are frequently used to increase the effective maturity of debt service funds and the efficiency of refunding escrows. With respect to a debt service fund, the Provider of the contract pays the issuer an amount periodically or up front that corresponds to a higher, fixed rate of return on the issuer's funds. The Provider offers this guaranteed return in exchange for the right to invest the issuer's future debt service fund deposits. Because deposits to the debt service fund have an average life of only three months for interest payments, and only six months for principal payments, it is difficult to achieve favorable returns (unless the yield curve is inverted). In a declining interest rate environment a higher fixed rate of return can be locked in for prospective cash deposits over a predetermined contract period. This removes uncertainty in rates when reinvesting new deposits.

This relationship occurs in the context of an arrangement called "Delivery vs. Payment." In a float contract, the issuer transfers each scheduled debt service fund deposit to the Provider. In exchange, the Provider delivers qualified investment securi-

ties (generally U. S. Treasuries and Agencies) to the issuer or its trustee that mature on or before the date debt service payments are scheduled. However, the exchange of the issuer's funds and the dealer's securities only occurs when the Provider has furnished the proper securities and the issuer has deposited the correct cash amount.

The contract ensures a fixed rate of return on the fund that is higher than current short term rates. Float contracts provide a higher level of security than GIC's because the issuer is always secured either by its own cash or qualified investment securities maturing on or before the date such funds are needed. Another candidate for such a contract would be the State Water Contract Fund which receives deposits for monthly and semiannual payments to the State, the investment of which must be in short term investments with a corresponding low rate of return but for periods when the yield curve is inverted.

Put Agreements Whereas float contracts can be effective on debt service fund investments, put agreements may be useful on reserve fund investments. Essentially, the agreement allows the issuer to invest the reserves in long term U. S. Treasury or Agency securities thereby achieving a higher yield. The agreement permits securities for investments that comply with investment limitations imposed by the bond resolution, the bond insurer or rating agencies.

Specifically, the Provider agrees to repurchase the securities at the original purchase price in the event of a draw on the reserve fund. The draw must be required by the bond resolution (i.e., due to a refunding or lack of funds to make a debt service payment). When funds become available, the issuer must repurchase the securities for the fund at the original purchase price. The issuer pays an annual fee between 0.30 to 0.50% for the put option.

Put agreements are particularly useful in the context of restructuring a reserve fund to recoup negative arbitrage incurred in a related construction fund. Under current tax regulations, it may be possible to recover any negative arbitrage by increasing the yield on the debt service reserve fund of the same issue since the return on all funds may be blended to compare yield to the allowable yield. A put agreement will allow the securities to be deemed at par, thereby eliminating any mark-to-market concerns.

For its revenue bond issues under its subordinate lien, Metropolitan substituted surety policies for cash-funded bond reserves. This lowered the bond sizing and corresponding interest expense. Under very low interest rate conditions, however, financial analysis may argue for borrowing cash to fund the reserve requirement. When rates rise, such proceeds in the reserve fund can be spent on construction and replaced by a surety.

In the electric utility sector a number of issuers have recently sold bonds without any reserve funds or surety policy. Whether this practice is followed in the non-electric public utility sector is still not clear. The water industry has not followed this practice.

In each of these investment efficiency alternatives, the issuer sacrifices much of its investment autonomy. Further, liquidity of these contracts is limited and the issuer may find early termination costly. Credit risk must also be carefully managed in these contracts.



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A P P E N D I X

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CASH VS. ACCRUAL FINANCIAL REPORTING

The District publishes financial information using both the cash basis and accrual basis of accounting. Cash basis information provides a clear picture as to the source of cash receipts and how cash is spent, that is, revenues are recognized when cash is received and expenses are recognized when paid. Accrual basis information provides a broader look at the financial condition of the District. Revenues are recorded when earned and expenses are recorded at the time liabilities are incurred regardless of the timing of related cash flows. Each method provides important and timely information that is used for decision making and policy setting at the District.

Cash basis information is used to determine water revenue requirements, set water rates, establish the annual budget, set the tax levy, manage the investment portfolio, and to report cash variances to the Board. The cash basis policies at the District have been established by the Board of Directors, and are detailed in various sections of the Administrative Code and MWD Act.

Accrual basis information is used to account for all assets and claims of the District against those assets, to report financial information to the public and investment community, and to comply with Generally Accepted Accounting Principles (GAAP).

The primary difference between cash basis information and accrual basis information is in the timing of when revenues and expenses are recognized on the financial statements. In addition, differences in cash basis and accrual information exist because of depreciation expense of capital assets; the amortization of participation rights in various capital facilities including State Water Project facilities, the recording of expenses related to the payment of debt obligations; and the restriction requirements of certain of the cash funds of the District.

The following examples are provided to help explain the differences between the reporting of cash basis information and the reporting of accrual basis information.

Approximately 75 percent of District revenues are generated from water sales. Under current Board policy, a member agency has two months to pay for water deliveries. Therefore, water sales receipts in a given fiscal year are for water deliveries made during the months of May through April. Water revenues (accrual basis) in a given fiscal year are for water deliveries made during the months of July through June. Other categories of revenues such as taxes, readiness to serve charges, power recoveries, and interest income have similar differences in the timing between collection of cash and the recognition of when revenue is earned.

Various expense items for operations and maintenance payments to the Department of Water Resources under the State Water Contract and for operation of the Colorado River Aqueduct are accrued in one time period and recorded as a cash payment in another time period thereby leading to a difference between accrued expenses and cash expenditures for each of the expense categories.

Depreciation of plant and equipment is amortized over various periods depending upon the type of asset being depreciated. For example treatment plants are depreciated over a useful life of 50 years and storage and distribution facilities are depreciated over a useful life of 80 years. Depreciation expense of District assets is recorded on the Statement of Income thereby reducing operating revenues. Depreciation expense has no impact on the reporting of cash basis information.

The District is obligated to make capital payments to the Department of Water Resources under the State Water Contract periodically throughout the fiscal year. Such payments are recorded as a cash expenditure in the month paid. However, under the accrual basis of financial reporting, the District capitalizes its share of system construction costs on the State Water Project as participation rights, as such costs are billed by the State. Unamortized participation rights represent a prepayment for future water deliveries through the State's water delivery system. Each year a portion of the participation rights are amortized to amortization expense based upon the estimated cost of the State project, and the estimated useful life and capacity of the assets of the system.

In accordance with the terms and conditions of revenue bond covenants of the District, the District is obligated to make certain debt service payments (payments of principal and interest on its outstanding debt obligations) during the year. For cash basis accounting, such payments are recorded as debt service expenditures when paid. Under the accrual basis of financial reporting, bond interest expense is recorded when incurred not when paid. In addition, a certain portion of bond interest payments are capitalized and included as part of the cost basis of assets on the balance sheet. Likewise, principal payments for debt obligations are recorded as a reduction of a long term liability on the balance sheet.

Finally, the District is required to allocate cash receipts and disbursements to various funds in accordance with Administrative Code requirements and revenue bond covenants. The use of cash in certain of the funds are legally restricted as to a specific purpose. The source for available cash to satisfy Administrative Code and revenue bond covenants for the restricted funds is operating receipts or cash reserves from unrestricted fund balances.

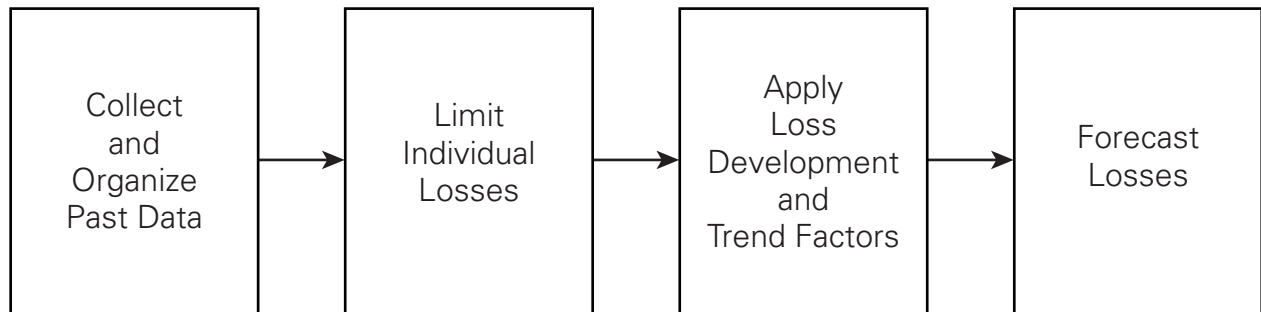


A P P E N D I X

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The chart below outlines the basic loss forecasting model.

BASIC MODEL FOR LOSS FORECASTING*



* Head, Elliott and Blinn. *Essentials of Risk Financing, ARM 56*. Third Edition, Volume II, page 73, Exhibit 9-1. Pennsylvania: Insurance Institute America, 1996.

This model displays actual experience of loss for a given company (in this case, Metropolitan). Every company would have a different outcome in categorizing risk. The following definitions are utilized in the Prouty Approach:

FREQUENCY DEFINITIONS

1. **Almost Nil** Extremely unlikely to happen; virtually no possibility.
2. **Slight** It could happen but has not happened.
3. **Moderate** It happens occasionally.
4. **Definite** It happens regularly.



SEVERITY DEFINITIONS

1. **Slight** The organization can readily retain each loss.
2. **Significant** The organization cannot retain each loss, some part of which must be transferred.
3. **Severe** The organization must transfer virtually all of the loss, or endanger its survival.

PROUTY APPROACH*

Frequency	Severity		
	Slight	Significant	Severe
Almost Nil		Multiple employee injuries and deaths, boil water notices, several facilities and pipelines break	Dam Breaks Hazardous Materials release, Product contamination, Chlorine leaks
Slight		Business Development exposures to liability, pipeline breaks, Aircraft Collision, Design Errors and Omission	
Moderate	Metropolitan facilities, pipeline damage from Earthquake, Fire, Flood Hazardous materials dumping	Breach of contract, employee harassment and employment liability, MWD reservoir property damage from earthquake	
Definite	Traffic Collisions Injured Employees CIP Claims, Lost pagers, cellular phones, laptops, personal computers		

* Head and Horn II. *Essentials of Risk Management*, ARM 54. Third Edition, Volume I, page 129-130, Exhibit 3-2. Pennsylvania: Insurance Institute of America, 1996.



A P P E N D I X

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GLOSSARY OF TERMS

Ad Valorem Property Taxes A levy upon the assessed valuation of property within Metropolitan’s service area. As used in this LRFP, it represents a limited revenue source for retiring voter-approved general obligation bond indebtedness and a portion of State Water Project capital payments.

Advance Refunding Bonds Bonds issued to refinance an outstanding bond issue before the date the outstanding bonds are due or callable. Proceeds of the advance refunding bonds are deposited in escrow with a fiduciary, invested in authorized securities or U. S. Treasury Bills or Bonds, and used to redeem the underlying bonds at their maturity or call dates and to pay interest on the refunded bonds, or to pay interest on the advance refunding bonds.

Arbitrage Investment earnings representing the difference between interest paid on bonds and the interest earned on securities in which bond proceeds are invested. The most common occurrence involves the investment of the proceeds from the sale of tax-exempt securities in a taxable investment that yields a higher rate, resulting in interest revenue in excess of interest costs.

Assessed Valuation The value of property against which an ad valorem tax is levied, usually a percentage of true or market value.

Availability of Service Charge A charge for availability of Metropolitan water service imposed on member agencies.

Banker’s Acceptances A draft or bill of exchange accepted by a bank or trust company for noninterest-bearing notes sold at a discount and redeemed by the accepting bank at maturity for face value. The accepting institution guarantees payment of the bill or draft.

Bond Anticipation Notes A note issued in anticipation of an issuance of bonds, usually payable from the proceeds of the anticipated sale of the bonds or of renewal notes.

Bond Covenants Terms and conditions including reserve fund levels, cash flow priorities, and payment schedules agreed upon at the time of bond issuance, to ensure that the issuing agency will be able to meet its payment obligations on the bonds as they come due.

Call Option An option for an issuer to pay the principal amount of the bonds prior to the stated maturity date, in accordance with the provisions for “call” stated in the legal documents or official statement related to the sale of the bonds.



Capital Appreciation (zero coupons) Bonds Bonds on which interest is compounded and not scheduled to be paid until maturity, prior redemption, or conversion thereof.

Capital Improvement Program Metropolitan's capital improvement program is designed to refurbish existing facilities needed to ensure a reliable distribution system, expanded treatment facilities to meet current and future water quality regulations, and expanded storage and conveyance facilities to meet current and future storage requirements.

Capital Lease An agreement that conveys the right to use property, plant or equipment, usually for a stated period of time, that meets one or more of the criteria set by the Financial Accounting Standards Board.

Certificates of Participation (COP) Certificates entitling the owner to a participation interest in the income stream (both principal and interest) of an underlying obligation.

Commercial Paper An unsecured promissory note issued for a specific amount and maturing on a specific day. The maximum maturity for commercial paper is 270 days, but most are sold with maturities of up to 30 days.

Competitive Sale A sale of municipal securities by an issuer in which underwriters or syndicates of underwriters submit sealed bids to purchase the securities.

Conservation Credits Program A program that offers financial incentives to member agencies of MWD and subagencies to implement conservation programs. Metropolitan pays either \$154 per acre-foot of water saved over the life of the program, or one-half the cost of the proposed program, whichever is less.

Credit Ratings Designations used by credit rating services to indicate relative credit quality of an entity.

Debt Service The cost of repaying outstanding debt. Debt service payments may be interest only or a combination of principal and interest.

Debt Service Coverage A safety margin ratio of security for payment of debt service that reflects the number of times by which annual revenues either on a gross or net basis covers annual debt service.

Debt Service Funds Particular funds established by bond covenants that are used to make regular payments of interest and principal to bondholders.

Total Debt To Equity Ratio This ratio relates the amount of investment resources provided by the District (measured as equity on the balance sheet) to that provided by creditors who purchased the District's bonds (outstanding long-term debt).

Discretionary Unencumbered Funds That portion of fund balances not yet expended or encumbered that can be disbursed by Board approval as deemed necessary in the circumstances.

Feasibility Study A report on a new project, without operating history, which often includes both engineering and financial data.

General Fund This fund was established in 1929 to account for operating revenues and other miscellaneous monies not specifically allocable to other funds and which may be used for general purposes of the District. The fund is part of the designated working capital funds as part of the minimum working capital balance required by Section 5202(a) of the Administrative Code.

General Obligation Bonds A bond secured by the pledge of the issuer's full faith and credit, usually taxing power. The taxing power may be an unlimited ad valorem tax or a limited tax on real estate and personal property.

Incremental Interruption and Conservation Plan (IICP) The IICP was implemented in December 1990 and established a monthly target quantity of water available from Metropolitan for each member agency. The IICP was designed to work in stages, depending upon the severity of water shortage in any given year. In the IICP, each member agency is given a monthly target quantity of water based on the amount of water purchased in the base fiscal year of 1989-90. From April 1992 to October 1994 Metropolitan was in Stage I of the IICP, which calls for voluntary conservation with the goal of a 10 percent reduction in the use of Metropolitan's supplies.

Installment Purchase COP Certificate of participation evidencing the owner's right to participate in the income from an underlying installment purchase obligation.

Integrated Resources Plan Metropolitan's open and participatory planning process which takes a broad view of all water resource options available to the region, and searches for the right combination of investments to achieve water supply objectives in a cost conscious and environmentally responsible manner.

Joint Powers Authority Entity formed by agreement between two or more public agencies to jointly exercise powers common to the contracting powers.

Lease COP Certificate of participation evidencing the owner's right to participate in the income from an underlying lease obligation.

Lease/Purchase Agreement Contractual agreements that are termed leases, but that in substance are purchase contracts. See Capital Leases.

Local Resources Program Consists of the Local Projects Program which provides financial incentives for the development and operation of water reclamation programs in Metropolitan's service area, and the Groundwater Recovery Program which is designed to encourage member agencies to engage in the treatment of degraded groundwater so that it can be beneficially used.

Long Range Finance Plan A financial management plan that takes into account Metropolitan's Capital Improvement Program, water sales projections, operation and maintenance costs, State Water Project costs, reserve policies, financial options, debt financing mix, and short-term and long-term asset/liability management, to develop a comprehensive financial strategy for the next 10 to 20 years.

Long-Term Debt Any unmatured debt that has a maturity date greater than one year from the date of issuance.

Mandatory Sinking Fund With respect to bonds, the amount required to be deposited in a bond service fund for payment of Term Bonds at maturity.

Negotiable Certificates of Deposit A large denomination (generally \$1 million) certificate that can be sold but cannot be redeemed before maturity.

Negotiated Sale In a negotiated underwriting, a team of underwriters is chosen by MWD to sell and market the issue. A negotiated sale provides financial flexibility for the demand, marketing, and timing of the sale.

New Demand Charge A charge designed to collect revenue for debt service related to meeting new demands on Metropolitan's system.

Official Statement The document prepared by or for the District that discloses legal and financial information about the issue. It provides general information on the bond issue and the issuer, the purpose of the issue, the means of servicing the indebtedness, and other information helpful in evaluating creditworthiness.

Pay-As-You-Go Construction The practice of funding construction expenditures from current revenues in lieu of using debt proceeds. In 1988, the District established a special fund with the objective of funding 20 percent of capital program expenditures on a pay-as-you-go basis from the District's operating revenues.

Paying Agent Party responsible for principal and interest payments of a debt issue. For Metropolitan's transactions, usually the Treasurer of Metropolitan or a designated bank.

Principal Payments The face amount of a bond, which Metropolitan promises to pay at maturity.

Private Placement An issue that is offered to a single or a few investors as opposed to being publicly offered.

Privatization The process of changing some or all of Metropolitan's services or functions from the public sector to private control or ownership.

Put Option An option to the holder of a bond to "put," or tender, the bond to Metropolitan and demand purchase of the bond at a stated time before maturity, or upon the occurrence of particular circumstances.

Rate Stabilization Funds Unencumbered monies deposited into a fund that is utilized by the District for the purpose of identifying amounts available to mitigate future water rate and treatment surcharges increases.

Readiness-To-Serve Charge A charge designed to provide firm revenue for capital improvement program debt service to meet the reliability and quality needs of existing users. It is scheduled to be implemented in 1995-96.

Refinancing To renew or reorganize the financing of current debt securities or other obligations.

Refunding Redemption of securities by funds raised through the sale of a new issue in which the proceeds are used to retire all or a portion of an outstanding issue. Usually, the refunding bonds are issued at terms more favorable to Metropolitan than the refunded bonds.

Reserves Funds set aside to comply with bond covenants, working capital policy or other board policies as part of prudent financial strategy.

Restricted Funds Monies or other resources, the use of which is restricted by legal or contractual requirements. The District's restricted funds have minimum cash and investment balance requirements and all are nondiscretionary in terms of the use of fund assets.

Revenue Remainder Fund A special fund established to maintain working capital and unexpended operating revenue available for any lawful purpose of the District.

Revenue Bonds A bond on which the debt service is payable solely from the revenue generated from the operations of Metropolitan, excluding tax revenues.

Revolving Construction Fund A fund to pay for capital expenditures which are to be reimbursed with proceeds from security sales or cash reserves to the extent such expenditures are authorized uses of debt proceeds under the Metropolitan Water District Act. There is no minimum balance requirement for this fund.

Revenue Design Study A process in which District personnel and consultants analyzed the District's revenue sources, water rate structure, and related policies of Metropolitan. It involved the investigation of five principal areas including: alternative revenue sources and alternative rate structures; water demand and supply projection procedures; financing alternatives; equity considerations; and budgeting practices.

Senior-Lien Bonds Bonds secured by a lien on revenues or other assets which is prior to the lien of other obligations. See Prior-Lien Bonds

Serial Bonds All or portion of an issue with stated maturities (as opposed to mandatory sinking fund redemption amounts) in consecutive years.

Short-Term Debt Debt with a maturity of one year or less after the date of issuance. Short-term debt usually includes variable-rate debt, bond anticipation notes, tax anticipation notes and revenue anticipation notes.

Short-Term Revenue Certificates Obligations issued by Metropolitan pursuant to Part 5, Chapter 7 of the MWD Act, with maximum maturities of one year from the issue date.

State Water Contract Funds Represents two funds, the State Contract Fund and the Special Tax Fund. In the State Contract Fund, water revenues are transferred to this fund to meet costs billed to the District as capital charges under the State Water Project that are not covered by ad valorem property tax revenues. The Special Tax Fund

was established in 1951 to account for deposits for cash payments and special tax collections, mostly annexation charges, that are transferred to the State Contract Fund to pay a portion of the District's State Water Contract capital charges.

State Water Contract Charges Metropolitan's agreement with the Department of Water Resources for a specified water supply in return for paying a portion of the costs associated with the construction and operation of the State Water Project, a major water conveyance system designed to transport water from Northern to Southern regions of the State.

Strategic Plan A document that translates Metropolitan's mission of achieving a reliable supply of high-quality water into measurable actions and commitments.

Takedown The portion paid an individual underwriter for purchasing bonds from the account related to a bond sale. The commission a member of syndicate receives for selling bonds.

Term Bonds Bonds payable at or before their specified maturity date from Mandatory Sinking Fund payments.

Treatment Surcharge Additional charge to users of treated water to pay the costs of treating water that is distributed to member agencies as needed. Represents the rate differential between treated and untreated water. The treatment of water is handled through Metropolitan's five filtration plants.

Treasurer's Investment Policy A policy that describes the investment authority, practices and limitations of the Treasurer of the District. The basic investment policy has as its objectives, in order of importance: safety of principal, liquidity, and return on investment.

Underwrite To purchase a bond or note issue from the District and resell it to investors.

Unrestricted Funds Funds with no external restriction as to use or purpose. The Board of Directors has discretion in establishing the minimum cash and investment balance requirements and uses of such assets.

Variable Rate Demand Obligations Securities which bear interest at a variable or floating rate established at specified intervals (e.g., daily, weekly, or monthly) and which contains a put option permitting the bondholder to tender the bond for purchase on the date a new interest rate is established.

Water Rate Stabilization Fund A special fund established to collect and hold surplus operating revenues used to reduce future water revenue rate increases, or for any other lawful purpose authorized by the Board of Directors.

Water Standby Charge A charge for availability of water service imposed by Metropolitan on individual parcels within its service area.

Water Transfer Fund A proposed special fund to hold funds to be used to purchase water transfers or options in future years. In years when water supplies from the State Water Project are insufficient, purchase options would be exercised and paid for from this fund.

Water Treatment Surcharge Stabilization Fund A special fund established as a reserve to mitigate required increases in the surcharge for water treatment. Treatment surcharge revenues collected in excess of actual treatment costs are deposited in this fund.

Working Capital Metropolitan's cash and investment balances combined in the revenue remainder and general funds, net of trust account balances, which meet the minimum levels required at such dates as established by Board policy. The current minimum requirements consist of \$25 million for emergency repairs, casualty losses and claims, and \$150 million for general purposes in the event that revenues are insufficient to pay expenses.

