

Metropolitan Water District of Southern California

# **2004/05 Long Range Finance Plan**

October 11, 2004

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# **Executive Summary**

## Executive Summary

The ability to ensure a reliable supply of high quality water for Metropolitan's 26 member public agencies depends largely on Metropolitan's ongoing ability to finance operations and maintenance, fund replacements and refurbishment of existing infrastructure and invest in system improvements. Metropolitan's LRFP serves dual purposes. First, it is a planning document upon which Metropolitan and its member agencies can base future capital and operating decisions. As such, it includes a forecast of future costs and the revenues necessary to support operations and capital investments that are derived from the 2004 Update to the Integrated Resources Plan (IRP). Second, the LRFP communicates: (1) the application of financial policies that enable Metropolitan to most effectively accomplish its mission; (2) the expected financial performance and conditions; and (3) the risks to the certainty and predictability of future water rates.

This is the fifth update of the LRFP. The first LRFP was completed in December 1986, was followed by updates in 1987, 1988, 1995, and 1999. Since the first LRFP was adopted, numerous financial policies and recommendations have been implemented including:

- Creating the Water Rate Stabilization Fund;
- Ability to impose a water standby and availability of service charge;
- Broadened authority to invest funds in Metropolitan's investment portfolio;
- Creating the Pay-As-You-Go Fund;
- Developing a PAYG policy and funding strategy;
- Developing a variable rate debt management program;
- Establishing the Water Transfer Fund;
- Implementing a working capital reserve policy; and
- Determining the minimum and maximum Water Rate Stabilization Fund reserve targets.

A critical element to a credible long-term planning process is the input from the member agencies and their customers. This is particularly important since Metropolitan's water rates play an import role in the investment decisions regarding local resources. This update of the LRFP has been drafted with input from the member agencies and the Budget, Finance and Investment Committee. Beginning in December 2002, four member agency meetings were held to solicit input into the development of the LRFP. In addition, three briefings have been provided to the Budget, Finance and Investment Committee and numerous presentations have been provided to member agency governing bodies.

The LRFPP includes a rate forecast, given Metropolitan's existing rate structure. The forecast estimates that the average water rate will increase at an annual average rate of between 3 and 5 percent over the next ten years. By 2013/14, the average rate is expected to be \$552 to \$597 per acre-foot, an average annual increase of \$13 to \$18 per acre-foot. Components of the rate structure may increase at different rates depending on the costs recovered. The full-service treated Tier 1 water rate is estimated to be between \$564 to \$610 per acre-foot by 2013/14.

These estimated rate increases result from increasing costs for local and imported water supplies, system improvements to water treatment, investments to maintain the conveyance and distribution system, additional distribution capacity, and increasing operating and maintenance cost. Furthermore, in accordance with the update of the IRP, the majority of future growth in retail demands is expected to be met by the development of local supply resources, offsetting any significant long-term increases in Metropolitan's expected sales. By 2013/14, annual costs are expected to increase from \$1.2 billion in 2004/05 to \$1.4 billion, or at an annual average rate increase of 1.6 percent. During this same period, capital investments are expected to range between \$2.8 billion and \$3.6 billion. To finance these capital investments, the LRFPP anticipates funding at least \$95 million per year of replacement and refurbishment capital outlays from water sales revenues, and by issuing at least an additional \$1.9 billion in revenue bond debt.

Sound planning documented in the IRP Update and the LRFPP is necessary for Metropolitan to successfully fund the many investments necessary to meet the challenges facing the region over the next ten years with predictable, certain, and manageable rate increases. Among the more significant challenges are:

- Investing in the elements of the IRP to ensure reliable water supplies for Metropolitan's service area.
- Developing cost-effective alternatives to Colorado River supplies that are no longer available as a result of California's reduction to 4.4 million acre-feet and the implementation of the programs under the terms of the Quantification Settlement Agreement (QSA).
- Ensuring viable use of Metropolitan's State Water Project supplies during wet, normal, and dry years in ways that mitigate environmental impacts.
- Implementing capital improvements at all five treatment plants to ensure compliance with increasingly stringent water quality regulations, while meeting the public's expectations regarding the aesthetics of their water supply.
- Funding an estimated \$2.8 to \$3.6 billion capital program that addresses refurbishment and replacement needs, expansion of treatment and distribution capacity, and improvements to treatment processes.

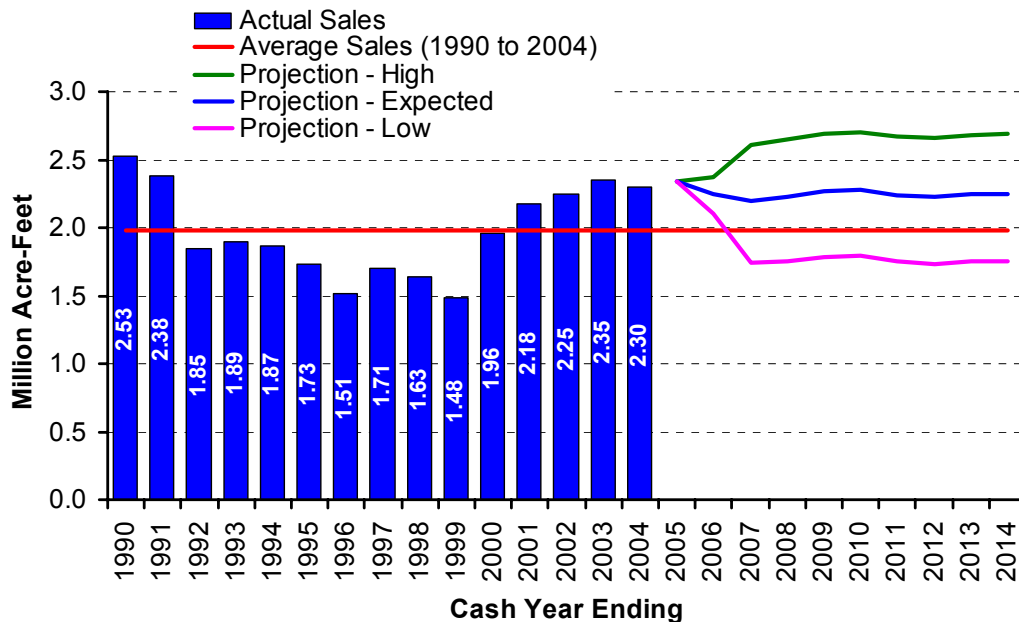


## 1. Water Sales Forecast

Water sales revenue provides between 75 percent and 80 percent of the revenues necessary to support Metropolitan’s capital and operating costs. For financial planning purposes, it is expected that demand for Metropolitan supplies will decline from about 2.34 million acre-feet in 2004/05 to about 2.25 million acre-feet in 2013/14. There are two primary reasons for this change. First, recent demands have been high due to dry weather in Southern California. Over the past five years, rainfall has been below average, leading to higher retail demands and reduced water levels in groundwater basins, surface reservoirs, and other local supplies. As a result, demand for imported water from Metropolitan has been higher than average. The financial forecast is based on a return to average local weather conditions and retail demands, recovery in local supplies, and a reduced demand for imported water. Second, in addition to a reduction in overall demand due to a return to average weather conditions, the Integrated Resources Plan (IRP) contemplates continued investment in local resources, primarily water recycling and ocean desalination. By 2014, these investments will result in an additional 408,000 acre-feet of local supply. These local supplies reduce the need for imported water and expected water sales by Metropolitan.

Figure 1 shows historic and forecast water sales. Since 1989/90, Metropolitan sales have averaged 1.95 million acre-feet. Since 1999/00, sales have increased from 1.95 million acre-feet to 2.30 million acre-feet in 2003/04. As noted above, expected sales are forecast to drop from those levels to about 2.25 million acre-feet by 2013/14. Under dry conditions, sales in any of the next ten years could be as high as 2.7 million acre-feet, and in a very wet year, less than 1.7 million acre-feet.

**Figure 1. Water Sales (millions of acre-feet)**



## **2. Integrated Resources Plan**

The IRP was also updated in 2004. The IRP is the blueprint for developing a reliable, high quality supply of water for urban Southern California. Funding the investments in local supplies (e.g., water recycling, groundwater conjunctive use, and conservation), water transfers and storage, and Metropolitan's supply sources on the Colorado River and State Water Project System are important elements of the LRFPP. The IRP includes investments in local resources that will increase annual yield from water recycling and ocean desalination by 408,000 acre-feet by 2013/14. Metropolitan will continue to provide funding to offset a portion of the costs for many of these local investments. It is expected that the Water Stewardship Rate will increase by about \$20 per acre-foot over the next ten years to fund Metropolitan's contribution. In addition, expenditures will be made to supplement Colorado River and State Water Project supplies. The cash flow associated with these resource elements is summarized in Table 1.

**Table 1. Cost of Imported Supplies (millions of dollars)**

<b>Fiscal Year Ending</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<b>Colorado River</b>										
Power	3.9	18.8	14.8	16.5	20.8	22.5	21.9	22.3	24.7	22.5
Storage	-	0.2	1.1	1.9	1.7	1.1	0.7	0.6	0.5	0.4
IID Conservation	7.9	8.2	8.4	8.7	9.0	9.2	9.5	9.8	10.1	10.4
Special Surplus Water	-	1.7	2.0	2.0	2.2	2.3	2.4	2.5	2.3	2.1
PVID (1)	0.1	13.5	9.2	6.3	6.3	6.1	6.2	5.9	5.5	5.6
State Purchase (2)	-	4.2	5.8	6.6	7.2	8.6	10.2	12.2	17.0	23.9
<b>Total</b>	<b>11.9</b>	<b>46.7</b>	<b>41.3</b>	<b>42.0</b>	<b>47.2</b>	<b>49.9</b>	<b>50.8</b>	<b>53.2</b>	<b>60.1</b>	<b>64.9</b>
<b>State Water Project</b>										
SWP	461.6	412.2	406.0	414.1	420.3	422.5	431.3	443.4	443.3	420.2
Option Transfers	-	0.2	0.9	1.3	0.9	0.6	0.2	-	-	-
Central Valley Transfers/Storage	10.2	11.2	10.6	8.9	7.3	6.8	7.8	8.8	9.1	9.3
SBVMWD	3.4	4.9	6.4	6.3	6.1	6.2	6.2	6.0	6.1	6.1
<b>Total</b>	<b>475.2</b>	<b>428.5</b>	<b>423.9</b>	<b>430.6</b>	<b>434.6</b>	<b>436.1</b>	<b>445.6</b>	<b>458.2</b>	<b>458.5</b>	<b>435.6</b>
<b>CR + SWP Unit Cost (\$/AF)</b>	<b>208.5</b>	<b>211.2</b>	<b>211.6</b>	<b>212.0</b>	<b>212.5</b>	<b>213.6</b>	<b>221.7</b>	<b>229.7</b>	<b>230.8</b>	<b>222.3</b>

(1) Upfront payments are not included since they are paid from Water Transfer Fund

(2) Purchase of IID water sold to the State as part of the QSA

Totals may not foot due to rounding.

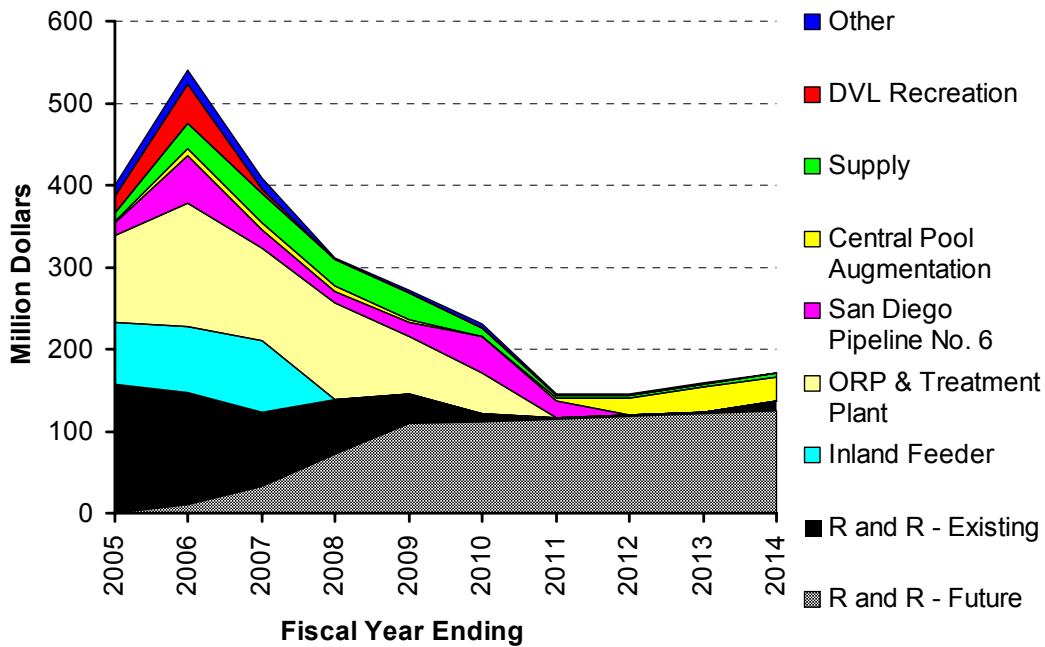
### 3. Capital Investment Plan (CIP)

Metropolitan will be investing in infrastructure necessary to treat, store, and deliver water. Many of these investments will be required to repair and replace aging facilities. Figure 2 includes the expected cash flow for these capital investments estimated during the 2004/05 budget cycle. The total CIP through 2013/14 is \$2.8 billion. To help mitigate expected future rate increases and to reflect revisions to the timing and sizing of capital projects the CIP is adjusted annually. The major elements of the ten-year capital program include (estimated cost over the ten-year period in parenthesis):

- a. Inland Feeder Project (\$243 million). This \$1 billion pipeline will bring water from the State Water Project to the Diamond Valley Lake and is expected to be on-line in 2007.
- b. Oxidation Retrofit and other treatment plant improvements (\$604 million).
- c. Central Pool Augmentation Project and San Diego Pipeline #6 (\$304 million).
- d. Capital costs for Colorado River storage programs and in-basin groundwater conjunctive use programs (\$172 million).
- e. Diamond Valley Lake Recreation Program (\$72 million).
- f. Other improvements such as information technology, reliability, etc. (\$61 million).
- g. Replacement and refurbishment (\$1.329 billion).

Pending the completion of a system overview study now underway, the total estimated cost of the ten-year CIP will likely change. Anticipated changes include the need for additional distribution and treatment capacity to meet growing demands in parts of the service area.

**Figure 2. Capital Investment Plan**



The CIP will be funded from a combination of bond proceeds and operating revenues. In order to mitigate increases in water rates, R&R projects have been scheduled such that \$95 million per year will be paid from current revenues. This level of R&R funding is consistent with funding levels in fiscal year 2004/05. In June 2002, the Board adopted a policy that R&R expenditures would be funded from revenues. This LRFP incorporates that principle; however, to manage future rate increases it may be necessary to fund some R&R expenditures from debt proceeds. Bond funded expenditures will include a combination of variable and fixed rate debt. Debt has been structured to mitigate near-term rate impacts and smooth out long-term debt service. Table 2 shows total Capital Expenditures and funding sources. Variable rate debt is used to mitigate interest cost over the long-term, while reducing interest rate exposure.

**Table 2. Capital Expenditures and Funding Sources (millions of dollars)**

<b>Fiscal Year Ending</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Total</b>
<b>Major Service Functions</b>											
Supply	36.8	63.0	31.6	11.8	11.8	11.2	2.1	5.1	5.1	18.2	196.8
Conveyance	106.0	92.4	103.7	17.7	22.0	4.9	-	-	-	-	346.7
Storage	29.1	67.3	29.3	34.8	25.5	3.0	-	-	-	-	189.0
Distribution	39.7	117.1	83.9	100.7	131.6	155.9	139.5	123.8	135.0	125.1	1,152.3
Treatment	158.8	167.8	145.5	145.1	80.0	54.1	1.4	15.6	18.0	27.0	813.2
General	30.2	33.2	13.9	1.5	1.5	1.5	1.5	1.5	1.1	1.1	87.1
Hydroelectric	0.2	0.1	-	-	-	-	-	-	-	-	0.3
<b>Total</b>	<b>400.8</b>	<b>540.9</b>	<b>407.9</b>	<b>311.6</b>	<b>272.6</b>	<b>230.6</b>	<b>144.5</b>	<b>145.9</b>	<b>159.2</b>	<b>171.4</b>	<b>2,785.3</b>
<b>Funding Sources</b>											
Debt	277.7	411.1	292.0	216.6	177.6	135.6	49.5	50.9	64.2	76.4	1,751.5
R&R Fund	123.1	129.8	115.9	95.0	95.0	95.0	95.0	95.0	95.0	95.0	1,033.8
<b>Total</b>	<b>400.8</b>	<b>540.9</b>	<b>407.9</b>	<b>311.6</b>	<b>272.6</b>	<b>230.6</b>	<b>144.5</b>	<b>145.9</b>	<b>159.2</b>	<b>171.4</b>	<b>2,785.3</b>

Totals may not foot due to rounding.

#### 4. Operating and Maintenance Costs

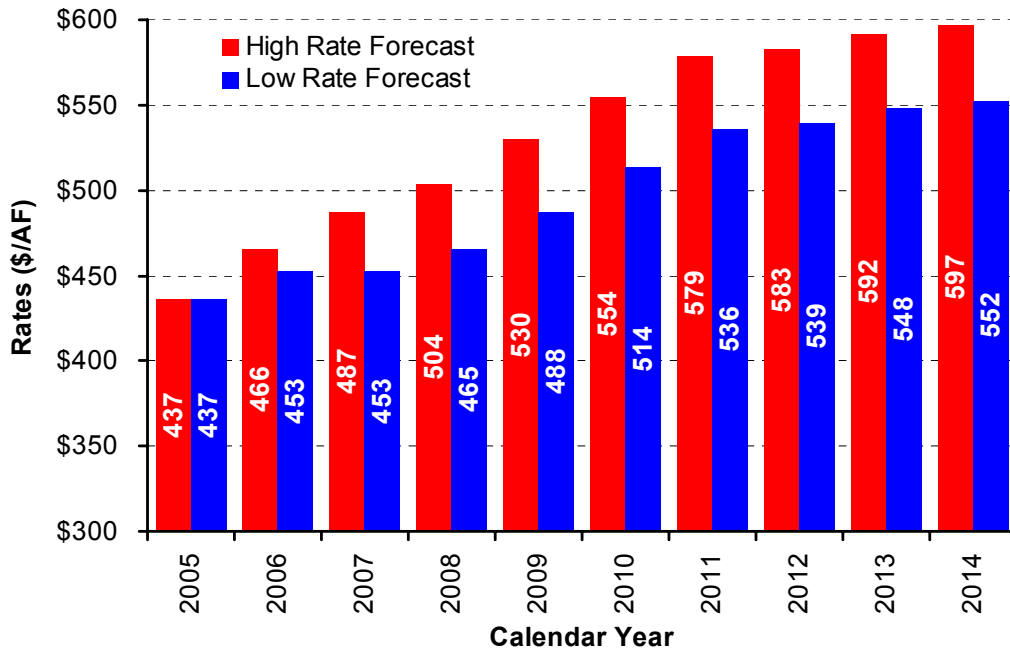
Based on the 2004/05 budget, operating and maintenance costs have increased at a 5.4 percent annualized rate since 1999/00. During this period the regional rate of inflation averaged about 2.8 percent. Part of Metropolitan’s long-term plan is to invest in technology, process improvement and employees to improve operating efficiency. To monitor the success of this effort the LRFP proposes that the board establish a budget guideline that total departmental operations and maintenance costs will be managed to the regional rate of inflation. The LRFP incorporates this objective, which is reflected in the forecast of ongoing operating and maintenance costs. Basic operating and maintenance expenses are expected to rise from \$282 million per year in 2004/05 to about \$350 million by 2013/14, or an annualized increase of 2.4 percent.

#### 5. Rate Forecast

Since water sales volumes are anticipated to decrease from their current above normal levels over the planning period, water rates and charges will need to increase to fund projected expenditures. Metropolitan’s objective is to ensure stable and predictable rates and charges and manage the average annual increases in rates and charges to between 3 percent and 5 percent. As shown in Figure 3, the average rate (all rates and charges revenue divided by sales) is expected to increase from \$437 per acre-foot in 2005 to between \$552 per acre-foot and \$597 per acre-foot by 2014. Actual rate increases will be dependent on a number of important variables including water sales volumes, the cost of power to pump water on the Colorado River Aqueduct and the State Water Project, water quality regulations, Metropolitan’s ability to secure outside funding from the state or federal government for certain capital expenditures, and the pace of local resource development, the total cost and schedule of the CIP and the rate of increase in operations and maintenance costs. As part of Metropolitan’s plan to mitigate water

rate increases, the LRF includes the use of \$105 million of available Water Transfer funds to offset the need for additional rate increases.

**Figure 3. Average Rate (dollars per acre-foot)**



## 6. Financial Policy Changes

To prepare for these challenges, four policy changes were adopted by the Board with the approval of the LRF on September 14, 2004:

### *Budget Guideline*

To mitigate upward pressure on water rates and continue to strive for operating efficiencies, it is recommended that Metropolitan set a goal to limit the increase in the annual O&M budget to no more than the five year rolling average change in the Consumer Price Index. The index would be based on the Los Angeles-Riverside-Orange County area, not seasonally adjusted, for all items as reported by the U.S. Bureau of Labor Statistics.

### *Variable Rate Debt*

To maintain Metropolitan's relatively low cost of capital and balance the risks of interest rate exposure that are inherent in a variable rate debt program, it is recommended that

Metropolitan's variable rate exposure policy be modified. The existing variable rate debt policy establishes a fixed 32 percent target for the outstanding water revenue bond debt to be held in a variable rate mode. To better manage the dynamic conditions of the capital markets and changes in Metropolitan's investment portfolio the Board amended the policy to manage variable rate exposure based on a net dollar impact to Metropolitan (net of interest income generated in the investment portfolio). Under this policy, the amount of variable rate debt will be managed to limit the amount of interest rate exposure so that net interest costs (debt service less interest earnings) do not increase or decrease by more than \$5 million in a given year as a result of interest rate changes. In addition, the total amount of variable rate debt will be limited to a maximum of 40 percent of the total outstanding debt.

#### *Fixed Charge Coverage*

To clarify the Board's intent to maintain a strong balance sheet and the financial flexibility and strength Metropolitan now leverages for the benefit of all member agencies, the Board added an explicit goal of maintaining a minimum fixed charge coverage ratio of 1.2 times. This ratio is already included in Metropolitan's Administrative Code when evaluating use of available funds over the maximum reserve target.

#### *Replacement and Refurbishment Fund*

To clarify and restate the commitment to maintain Metropolitan's aging infrastructure, the PAYG fund will be renamed the Replacement and Refurbishment (R&R) Fund. The minimum fund balance requirement was eliminated and a maximum end-of-year fund balance of \$95 million was established. Fund balances under the maximum will be carried over to the next year. To further clarify the purpose of the R&R Fund, short-term capital expenditures (e.g. information technology expenditures) and other miscellaneous capital expenditures will now be made from the General Fund.

The LRF report is organized as follows:

Section 1 – Funding the Integrated Resources Plan (IRP) - a description of how the projected changes in revenue requirements and expected average rates relate to the major components of the IRP, including investments in local resources and imported supplies;

Section 2 – Financial Forecast - a discussion of the expected financial forecast including all uses and sources of funds, financial indicators such as reserve levels and fixed charge coverage ratio and a range of potential outcomes for projected water rates;

Section 3 – Risk Factors - a description of some of the major risk factors that could affect the expected rate forecast;

Section 4 – Debt Management - a detailed discussion of the proposed debt management strategy that will be used to finance capital improvements over the

next ten years, including the use of variable rate debt and asset liability management;

Appendix 1 – Bond Refunding Guidelines - a discussion of Metropolitan's bond refunding parameters, which are used to reduce the carrying cost of debt;

Appendix 2 – Master Swap Policy - the policy adopted by the Board to manage and execute interest rate swaps as a part of Metropolitan's asset/liability management process;

Appendix 3 – Risk Management - a discussion of risk management practices.



## **Section 1**

# **Funding the Integrated Resources Plan (IRP)**

## **Section 1.**

### **Funding the Integrated Resources Plan (IRP)**

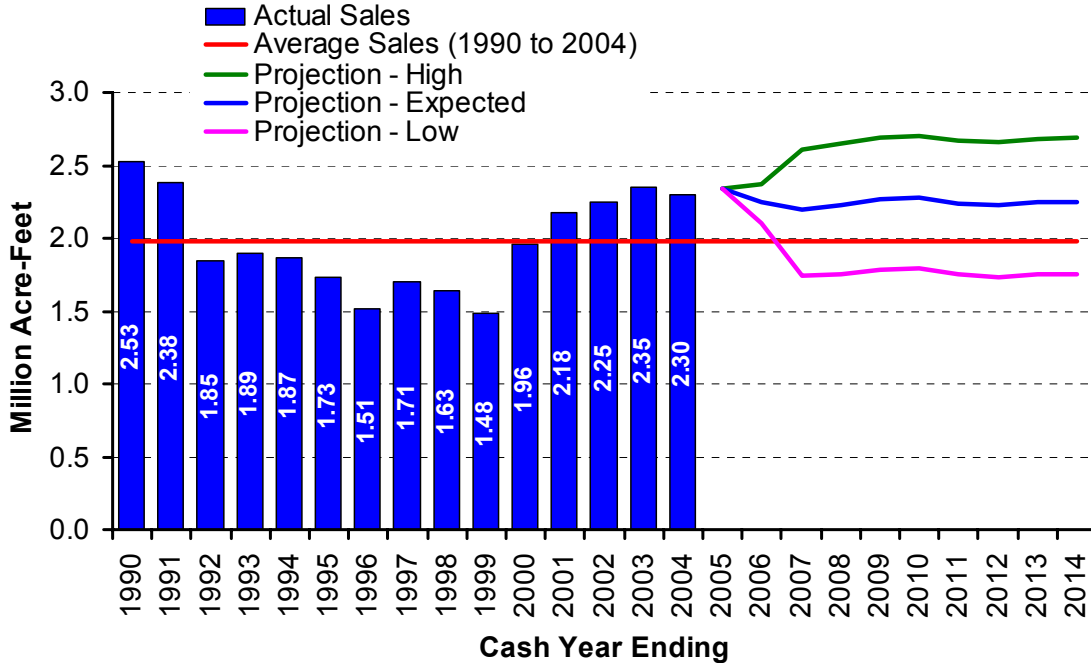
This section summarizes the funding requirements of the Integrated Resources Plan Update and the impacts on Metropolitan's water rates and charges. There are three broad elements of the IRP Update – (1) existing imported resources (the Colorado River and State Water Project), (2) Metropolitan's incentive payments for local projects and conservation, and (3) expenditures for water transfers and storage resources (including local groundwater projects). In addition to these expenditures, Metropolitan will continue to invest in water distribution and treatment infrastructure. This section describes the change in average costs associated with the water resource investments contemplated in the update.

#### **7. Water Sales Forecast**

For financial planning purposes, it is expected that demand for Metropolitan supplies will decline from about 2.34 million acre-feet in 2004/05 to about 2.25 million acre-feet in 2013/14. There are two primary reasons for this change. First, demands have been high due to dry weather in Southern California. Over the past five years, rainfall has been below average, leading to higher retail demands and reduced water levels in groundwater basins, surface reservoirs and other local supplies. As a result, demand for imported water from Metropolitan has been higher than average. The financial forecast is based on a return to average local weather conditions and retail demands, recovery in local supplies, and a reduced demand for imported water. Second, in addition to a reduction in overall demand due to a return to average weather conditions, the IRP contemplates continued investment in local resources, primarily water recycling and seawater desalination. By 2014, these investments will result in an additional 408,000 acre-feet of local supply. These local supplies reduce the need for imported water and expected water sales by Metropolitan.

Figure 4 shows historic and forecast water sales. Since 1989/1990, Metropolitan sales have averaged 1.95 million acre-feet. Since 1999/00, sales have increased from 1.95 million acre-feet to 2.30 million acre-feet in 2003/04. Under dry conditions, sales in any of the next ten years could be as high as 2.7 million acre-feet, and less than 1.7 million acre-feet in a very wet year.

**Figure 4. Water Sales (millions of acre-feet)**



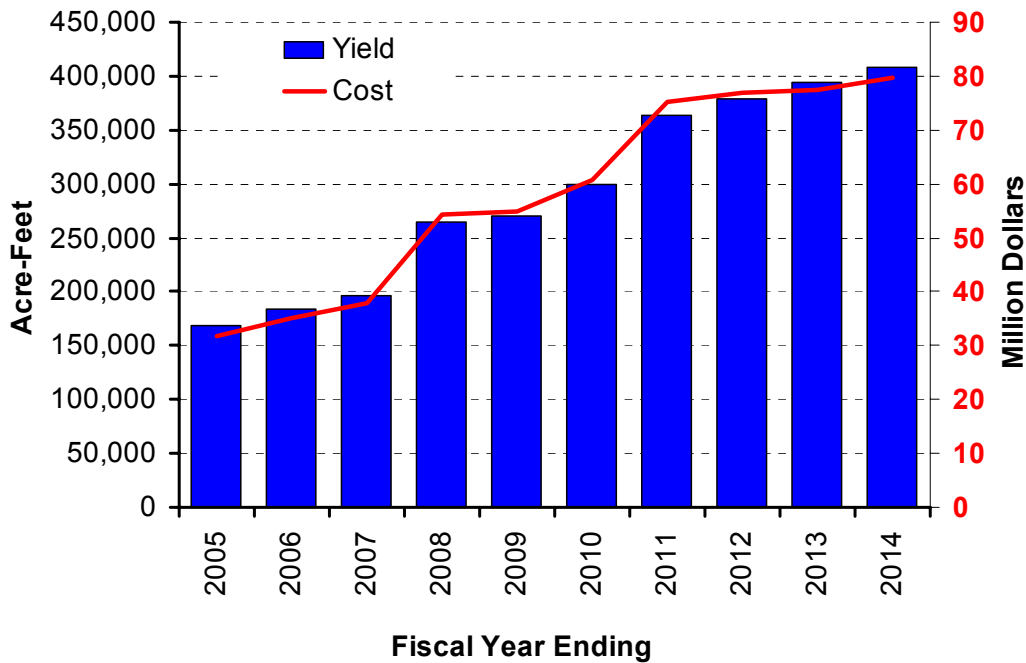
**8. Local Resources**

Local resources, including groundwater recovery, water recycling, seawater desalination, and conservation are a fundamental part of the IRP Update. Financial incentives by Metropolitan will support local projects that are expected to develop 408,000 acre-feet of new supplies by 2013/14. These investments result in additional water supply, and just as importantly, defer the need for Metropolitan to construct new treatment and distribution capacity.

Metropolitan’s cost for funding local resources including conservation, recycling and groundwater recovery currently amounts to \$47 million. These payments are funded through the Water Stewardship Rate, which is charged for every acre-foot of water delivered by Metropolitan. By 2013/14 Metropolitan’s funding for conservation, recycling, and desalination is expected to increase by \$37 million. The increase is attributable to the need to finance the additional yield from existing and committed projects under Metropolitan’s Local Resources Program (LRP), as well as the yield from new projects anticipated as part of implementing the IRP Update. While there are a number of projects that could be funded, the IRP Update does not identify the specific projects required for development. The IRP Update provides a target for local resource development. As a result, the yield from the LRP is expected to increase from 169,000 acre-feet in 2004/05 to 408,000 acre-feet in 2013/14. The IRP and rate forecast include 166,000 acre-feet of supply from new water recycling and seawater desalination projects by 2013/14. As part of the

rate forecast and the ten-year financial forecast, 126,000 acre-feet of this new supply is assumed to come from proposed desalination projects. Figure 5 shows the expected supply from projects funded under the LRP and the associated cash flow to support that yield. As a result of these investments, Metropolitan’s Water Stewardship Rate is expected to increase from \$25/acre-foot in 2005 to between \$43 and \$47/acre-foot in 2014.

**Figure 5. Local Resource Programs**



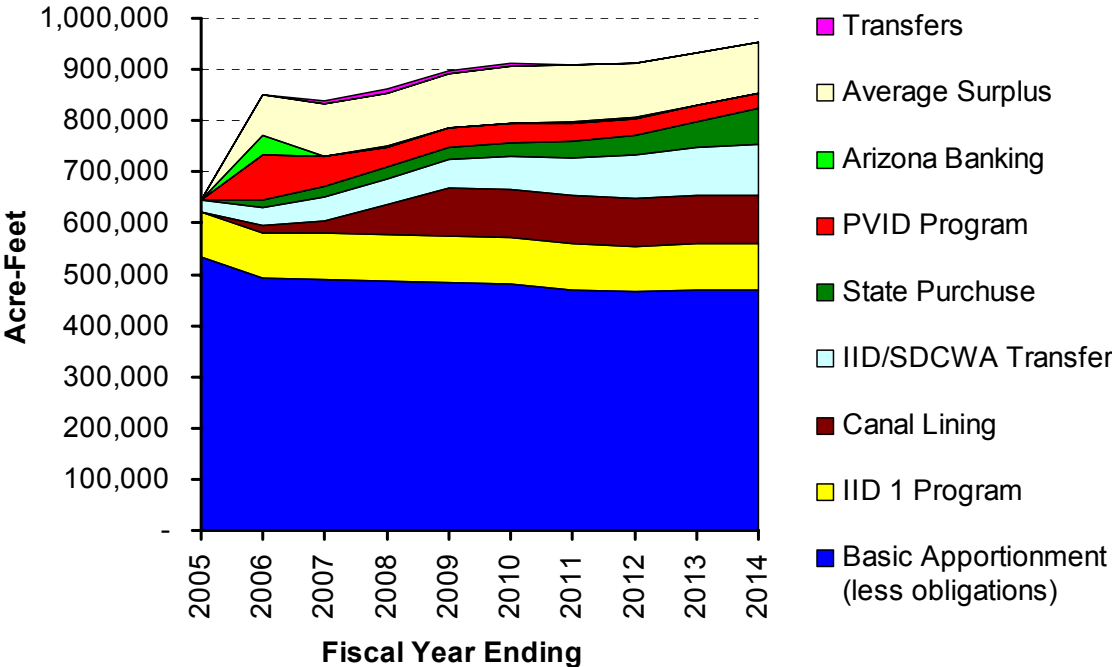
## 9. Imported Supplies

### 9.1. Colorado River

Historically, Metropolitan received about 1.25 million acre-feet each year from the Colorado River. But, due to the significant drought in the Colorado River watershed and negotiations regarding the allocation of Colorado River supplies among the California contractors and the other basin states, California’s allocation of Colorado River water was limited to 4.4 million acre-feet in 2003. This limitation fell squarely on Metropolitan as the fourth priority use on the river. During calendar year 2004, Metropolitan expects to divert about 0.68 million acre-feet of Colorado River water. In October 2003, Metropolitan and the other California contractors (with the exception of the Palo Verde Irrigation District) executed the Quantification Settlement Agreement (QSA). The QSA lays out a framework for transferring water from agricultural uses to urban needs. The QSA identifies specific projects that will result in an increase in diversions through Metropolitan’s

Colorado River Aqueduct from the 0.68 million acre-feet in 2004 to about 0.80 million acre-feet in 2014. In addition, the execution of the QSA provides the opportunity for Metropolitan to access “special surplus” supplies under the Interim Surplus Guidelines, if hydrological conditions on the river improve. Figure 6 shows the different projects that will be delivered through the Colorado River Aqueduct. Of note is the fact that the transfer between the Imperial Irrigation District and the San Diego County Water Authority will move water through the Colorado River Aqueduct and water will be delivered through Metropolitan’s system to the San Diego County Water Authority (SDCWA). SDCWA will be responsible for all costs associated with the transfer including the full cost of transporting the water through Metropolitan’s system capacity. While these supplies are not Metropolitan supplies, they are delivered by Metropolitan and will serve demands in Metropolitan’s service area. Therefore, the water sales shown in Figure 6 include these deliveries of Colorado River supplies to SDCWA, although Metropolitan’s revenues from these deliveries will be for the cost of transportation only.

**Figure 6. Colorado River Supplies**



The cost of power associated with the delivery of Colorado River supplies is expected to average about \$19 million dollars through 2013/14. Table 3 shows the cost of power and the anticipated expenditures by Metropolitan for additional Colorado River supplies over the next ten years. Metropolitan’s average water rate will increase \$14 per acre-foot from 2004/05 to 2013/14 as a result of the expenditures for Colorado River programs.

**Table 3. Cost of Imported Supplies (millions of dollars)**

<b>Fiscal Year Ending</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<b>Colorado River</b>										
Power	3.9	18.8	14.8	16.5	20.8	22.5	21.9	22.3	24.7	22.5
Storage	-	0.2	1.1	1.9	1.7	1.1	0.7	0.6	0.5	0.4
IID Conservation	7.9	8.2	8.4	8.7	9.0	9.2	9.5	9.8	10.1	10.4
Special Surplus Water	-	1.7	2.0	2.0	2.2	2.3	2.4	2.5	2.3	2.1
PVID (1)	0.1	13.5	9.2	6.3	6.3	6.1	6.2	5.9	5.5	5.6
State Purchase (2)	-	4.2	5.8	6.6	7.2	8.6	10.2	12.2	17.0	23.9
<b>Total</b>	<b>11.9</b>	<b>46.7</b>	<b>41.3</b>	<b>42.0</b>	<b>47.2</b>	<b>49.9</b>	<b>50.8</b>	<b>53.2</b>	<b>60.1</b>	<b>64.9</b>
<b>State Water Project</b>										
SWP	461.6	412.2	406.0	414.1	420.3	422.5	431.3	443.4	443.3	420.2
Option Transfers	-	0.2	0.9	1.3	0.9	0.6	0.2	-	-	-
Central Valley Transfers/Storage	10.2	11.2	10.6	8.9	7.3	6.8	7.8	8.8	9.1	9.3
SBVMWD	3.4	4.9	6.4	6.3	6.1	6.2	6.2	6.0	6.1	6.1
<b>Total</b>	<b>475.2</b>	<b>428.5</b>	<b>423.9</b>	<b>430.6</b>	<b>434.6</b>	<b>436.1</b>	<b>445.6</b>	<b>458.2</b>	<b>458.5</b>	<b>435.6</b>
<b>CR + SWP Unit Cost (\$/AF)</b>	<b>208.5</b>	<b>211.2</b>	<b>211.6</b>	<b>212.0</b>	<b>212.5</b>	<b>213.6</b>	<b>221.7</b>	<b>229.7</b>	<b>230.8</b>	<b>222.3</b>

(1) Upfront payments are not included since they are paid from the Water Transfer Fund.

(2) Purchase of IID water sold to the State as part of the QSA.

Totals may not foot due to rounding.

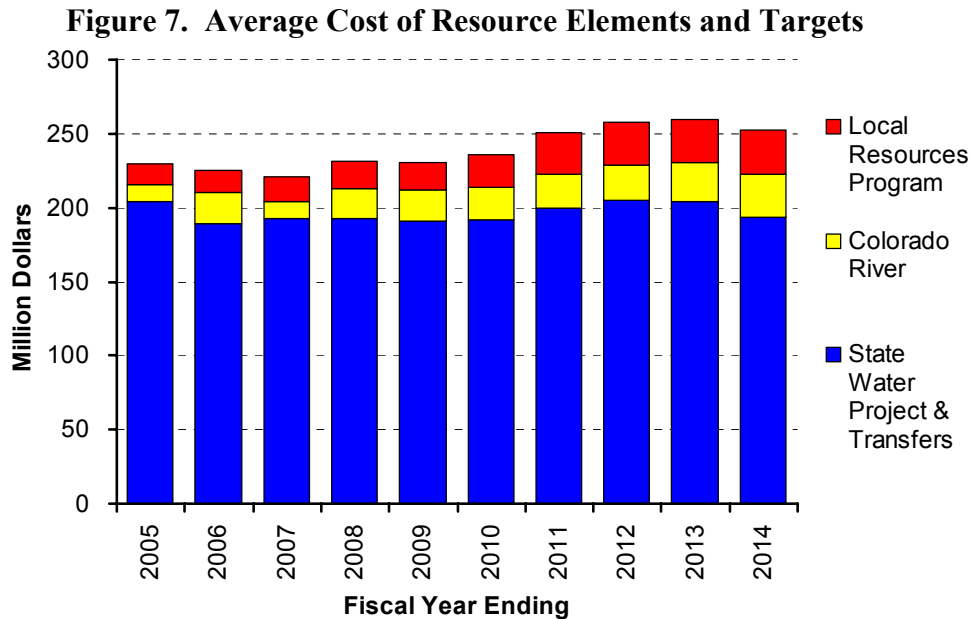
## 9.2. State Water Project Supplies, Storage and Transfers

Delivery of water through the State Water Project (SWP) system to Metropolitan is expected to average approximately 1.6 million acre-feet per year through 2013/14. Water delivered through the SWP includes deliveries of Metropolitan’s “Table A” amounts, carryover supplies, water transfers, and exchanges. Metropolitan has executed a number of contracts with Central Valley and Sacramento Valley water districts for storage and transfers. These programs include option-based transfers, whereby Metropolitan pays an upfront payment for the right to exercise an option to take water later in the year, if conditions warrant. In addition, Metropolitan has executed long-term storage and transfer programs, where Metropolitan funds infrastructure improvements in exchange for the right to store water in groundwater basins for future use during dry years. Table 3 shows the forecast of expenditures for such SWP programs, as well as the forecast of SWP costs through 2013/14. As shown in that table, water transfers and storage programs are expected to average about \$15 million per year over this period. SWP costs, including the cost of power to pump the water on the project, are expected to decrease from \$462 million in 2004/05 to \$420 million in 2013/14. This decrease is due to an expectation of higher deliveries through the Colorado River Aqueduct and therefore less pumping on the SWP and a decrease in off-aqueduct power costs as off-aqueduct facilities are paid off. The power sources will need to be replaced which is not accounted for by Department of Water Resources (DWR). As a result of changes in the water transfers and storage projects

needed to meet the IRP targets, Metropolitan’s average water rate are projected to increase by \$14 per acre-foot.

### 10. Summary of Rate Impacts

As shown in Figure 7, Metropolitan’s average rate is expected to include between \$221 per acre-foot and \$260 per acre-foot over the next ten years in order to fund the projects and programs envisioned in the IRP Update. This includes the cost of power on the State Water Project and Colorado River Aqueduct. These rate impacts are based on expected sales under “normal” or average hydrologic conditions. The impacts of changes in expected local supply development trends, demand, and water quality regulations are not included in these estimates. For example, if demand for Metropolitan supplies were to be 100,000 acre-feet higher per year (a change of less than 5 percent), the impact of the IRP would be about \$10 per acre-foot less partially offset by a potential need to invest in additional imported water supplies. Conversely, a change in the opposite direction (100,000 acre-feet lower demands) would result in a similar \$10 per acre-foot increase in these projections.



As seen in Figure 7, each of the elements – Local Resources, Colorado River, and State Water Project and Transfers – contribute to the expected rate increases necessary to meet Metropolitan’s and the member agencies’ reliability objectives. Investments in local supplies help to ensure reliable deliveries by reducing stress on the import delivery system, while investments in additional water transfers (particularly option-based transfers) provide necessary redundancy at relatively low cost. The basic strategies of diversification and flexibility remain the foundation of the IRP, and are reflected in the reasonable costs and rates forecast for the next ten

years. Metropolitan's rates are forecast to increase between 3 percent and 5 percent on an annualized basis from 2005 to 2014, while supporting the investments and operating and maintenance costs necessary to meet the region's needs for a reliable, high quality supply of water.



## **Section 2**

# **Financial Forecast**

## Section 2. Financial Forecast

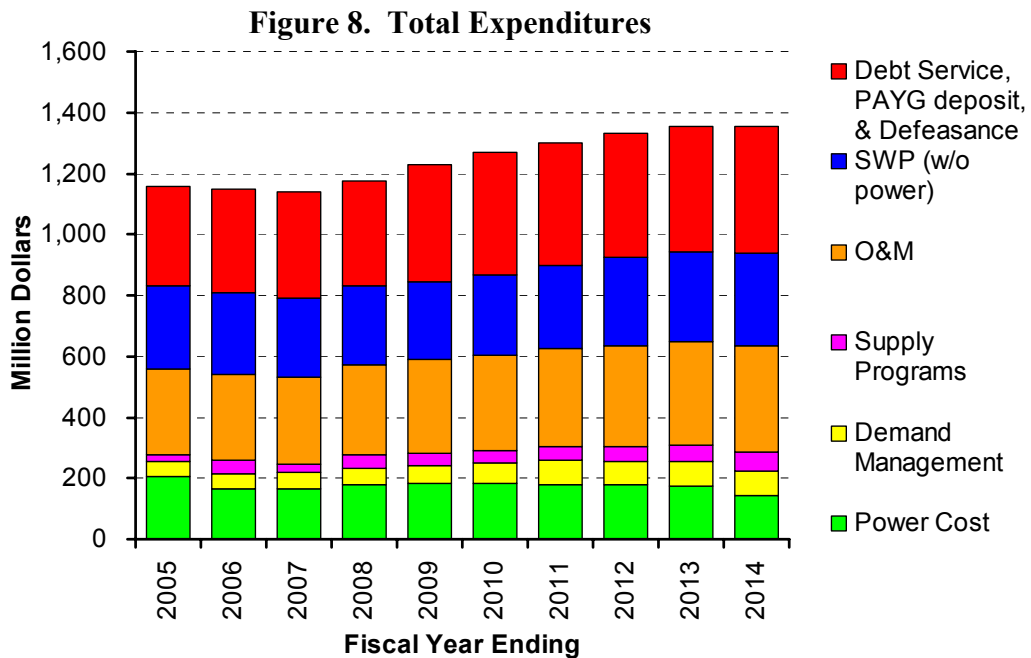
Section 2 provides a forecast of Metropolitan's future uses and sources of funds. Uses of funds include expenditures for operations and the Capital Investment Plan (CIP), debt service, and fund deposits. Sources include water sales, taxes, interest income, power sales revenues and fund withdrawals. The forecast reflects Metropolitan's best estimates at this time and should not be viewed as a precise prediction, but rather as an indication of expected trends. The forecast is based on current board policies and assumptions about future conditions.

### 11. Uses of Funds

Total uses of funds are projected to average \$1.6 billion from 2004/05 to 2013/14.

#### 11.1. Expenditures

Expenditures include the State Water Contract (SWC), supply programs to augment available Colorado River and State Water Project supplies, power costs, capital financing costs (debt service, bond defeasance and R&R Fund), demand management costs and operations and maintenance costs. Total obligations (expenditures and fund deposits) are expected to increase at an average annual rate of 1.8 percent from \$1.2 billion in 2004/05 to \$1.4 billion by 2013/14. Figure 8 illustrates the overall trend in these expenditure categories.



### **11.1.1. State Water Contract**

Metropolitan is one of 29 agencies that contract with the State of California for service from the State Water Project. Metropolitan is obligated to pay its share of 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, Metropolitan pays the power costs to convey the water (discussed below). The Plan assumes that SWC costs (not including power) will increase from their current level of \$252 million to \$302 million in 2013/14. Currently, SWC costs not including power account for 28 percent of Metropolitan's 2003/04 expenditures.

The Plan assumes Metropolitan's continued support for the CALFED Bay-Delta program. A recently issued record of decision (ROD) on the Bay-Delta Program pledges, among other things, to restore the Bay-Delta ecosystem, improve water quality, enhance water supply reliability, and ensure long-term protection for Delta levees. The ROD calls for immediate implementation of short-term actions (Stage 1 of the Program), with over \$8 billion to be invested over the first seven years of the program's 30-year time span. The Plan assumes that funding will be provided by State and Federal appropriations and contributions from local water users, including Metropolitan. Funding by the State will be provided from bond proceeds from Proposition 204, which passed in 1996; Proposition 13, which passed in March 2000; Proposition 50, which passed in November 2002; and annual general fund expenditures. Legislation has been introduced in Congress to authorize funding of additional Federal expenditures for the ROD; however, such legislation has not been enacted. At this time, exact allocation of costs to local users has not been defined. A portion of Metropolitan's obligations to CALFED have been included in the projected costs through 2013/14.

### **11.1.2. Colorado River Supply Programs**

The baseline forecast included in the LRFP includes the development of programs identified in the Quantification Settlement Agreement (QSA), which was executed by the California parties in October of 2003. Annual expenditures for Colorado River supply programs are projected to average \$28 million through 2013/14. The following programs are included.

*Metropolitan/Imperial Irrigation District Conservation Agreement*  
Under a 1988 water conservation agreement (the "1988 Conservation Agreement") between Metropolitan and the Imperial Irrigation District ("IID"), IID has constructed and is operating a number of conservation projects that are currently conserving about 100,000 acre-feet of water per year. The conserved water augments

the amount of water available to Metropolitan. Annual operating costs are expected to increase from \$7.9 million in 2004/05 to \$10.4 million in 2013/14.

*Palo Verde Land Management Agreement*

In July 2001, Metropolitan's Board approved Principles of Agreement for a Land Management, Crop Rotation and Water Supply Program (the "Land Management Agreement") with the Palo Verde Irrigation District ("PVID"). This program is expected to make available up to 111,000 acre-feet of water per year for transfer to Metropolitan from PVID. The term of the proposed program is 35 years. In October 2002 the Board authorized Metropolitan to enter into the Land Management Agreement and related community improvement programs. In 2001, Metropolitan also purchased 16,344 acres of land in the Palo Verde Valley area of eastern Riverside County from the San Diego Gas and Electric Company for \$42.5 million. Approximately 9,700 acres of the land are irrigated cropland within PVID. Metropolitan expects to manage a portion of this land consistent with the principles of the Land Management Agreement, resulting in water becoming available for transfer to Metropolitan.

During 2003/04 through 2005/06 there will be significant up-front expenditures for this program. These up-front payments will be made from existing balances in the Water Transfer Fund. Through 2013/14 the average annual cost of this program is \$6.5 million. The average annual supply yield from the PVID program is currently expected to be about 39,000 acre-feet per year. However, the amount of supply that will be needed from this program depends on the hydrology of the Colorado River Basin and the State Water Project System and could be as high as about 110,000 acre-feet per year.

*Hayfield Groundwater Storage Program*

The Hayfield Groundwater Storage Project is located near Chiriaco Summit in Riverside County, adjacent to Metropolitan's Julian Hinds Pumping Plant. Metropolitan plans to store up to 648,000 acre-feet of Colorado River water in the Hayfield aquifer. Water would be stored in wet or surplus years. Facilities are currently under design that would enable Metropolitan to return up to 126,000 acre-feet of previously stored Colorado River water to the aqueduct for delivery to Metropolitan's service area in dry years. Metropolitan currently has approximately 70,000 acre-feet of Colorado River water stored in the Hayfield aquifer. All phases of this project are scheduled to be completed in late 2006 or early 2007. The capital costs for this program are included in the CIP. The annual average operating expenditure for this program is estimated to be about \$0.3 million through 2013/14.

Special Surplus and Purchase of IID Water

The QSA agreements include the State's commitment to Salton Sea restoration. Deposits from QSA parties and fees on certain water transfers among the parties to the QSA will fund the Salton Sea Restoration Fund, established by SB 277. Under the QSA agreements Metropolitan will pay \$20 per acre-foot into the Salton Sea Restoration Fund for special surplus water that it elects to take from the Colorado River, and will purchase up to 1.6 million acre-feet of water conserved by IID at a purchase price of \$250 per acre-foot, with net proceeds to be deposited into the Salton Sea Restoration Fund. Metropolitan will receive credit for the special surplus water payments against future contributions for the Lower Colorado River Multi-Species Conservation Program. In consideration of these agreements, Metropolitan will not incur any liability for restoration of the Salton Sea. The annual average cost of special surplus and State/IID purchases is expected to be \$11.5 million during this period.

**11.1.3. Northern California Supply Programs**

The IRP sets forth a goal of acquiring 300,000 acre-feet of dry year supply yield through water transfer and storage programs by 2010. Several programs have already been established to achieve this goal. The average annual operating expenditures for transfer and exchange programs that are delivered via the State Water Project are expected to be about \$15.2 million from 2004/05 through 2013/14. Given different hydrologic conditions, actual expenditures may be higher or lower than average.

These programs include:

Arvin-Edison Water Management program

In December 1997, Metropolitan entered into an agreement with the Arvin-Edison Water Storage District ("Arvin-Edison"), an irrigation agency located southeast of Bakersfield, California. Under the program, Arvin-Edison stores water on behalf of Metropolitan. Up to 350,000 acre-feet of Metropolitan's water may be stored over the 25-year term of the agreement, and Arvin-Edison will return up to 75,000 acre-feet of water in any year to Metropolitan, upon request. To facilitate the program, new wells, spreading basins and a return conveyance facility connecting Arvin-Edison's existing facilities to the California Aqueduct have been constructed. The agreement also provides Metropolitan priority use of Arvin-Edison's facilities to convey water available on the eastside of the San Joaquin Valley to the California Aqueduct. The average annual expenditure for this program is estimated to be \$1.2 million per year through 2013/14.

Semitropic Groundwater Storage and Exchange program

In 1994 Metropolitan entered into an agreement with the Semitropic Water Storage District (Semitropic), located adjacent to the California Aqueduct north of Bakersfield, to store up to 350,000 acre-feet of water in the groundwater basin underlying Semitropic. The minimum annual yield available to Metropolitan from the program is 31,500 acre-feet of water and the maximum annual yield is 90,000 acre-feet of water. As of June 30, 2003, Metropolitan's storage account was approximately 361,000 acre-feet. This total includes amounts stored under a demonstration program with Semitropic, which provides for storage of up to 40,000 acre-feet of water. The average annual expenditure for this program is estimated to be \$3.9 million per year through 2013/14.

San Bernardino Valley Municipal Water District Transfer Agreement

In March 2001 the Board authorized the execution of an agreement with the San Bernardino Valley Municipal Water District ("SBVWD"), under which Metropolitan will purchase a minimum of 20,000 acre-feet of SBVWD's State Water Project water allocation. SBVWD will deliver the purchased supplies to Metropolitan's service area through the coordinated use of facilities and interconnections within the water conveyance systems of the two districts. Metropolitan will pay to SBVWD approximately \$150 per acre-foot (including the cost of power) for purchases delivered to Metropolitan under the minimum deliveries and other related provisions of the agreement. In fiscal year 2002/03, Metropolitan purchased 50,000 acre-feet from SBVWD.

Kern/Delta Water Storage Program

In March 2001, the Board authorized the execution of Principles of Agreement with the Kern Delta Water District. The program is a groundwater banking and exchange transfer program to allow Metropolitan to store up to 250,000 acre-feet of State Water Contract water in wet years, and permit Metropolitan, at Metropolitan's option, a return of up to 50,000 acre-feet of water annually during hydrologic and regulatory droughts. The average annual expenditure for this program is estimated to be \$3.6 million per year through 2013/14.

Other Transfer/Storage/Exchange Programs

The LRF includes other projects that help meet the goals set forth in the IRP. Metropolitan is currently evaluating the feasibility of water purchase, storage and exchange programs with other agencies in the San Joaquin and Sacramento Valley. These programs will involve the storage of both State Water Project entitlement supplies and water purchased from other sources to enhance Metropolitan's

dry-year supplies and the exchange of normal year supplies to enhance Metropolitan's water reliability. The average annual expenditure for additional programs is estimated to be \$1.0 million per year through 2013/14.

Operating revenues sufficient to fund expected water transfer and storage program costs will be generated from water sales. The 2003/04 budget, approved by the Board, included a recommendation to suspend further deposits of operating revenues to the Water Transfer Fund after June 30, 2004 and that any remaining balance in the Water Transfer fund be held over until used to fund the up-front cost of the PVID program and other transfer expenditures. This recommendation recognizes the change in Metropolitan's rate structure incorporating tiered pricing. In dry years when supply costs are likely to rise, Metropolitan will also be selling a greater amount of water at the higher Tier 2 Supply Rate. An analysis of the variability in supply costs relative to the availability of revenues from the Tier 1 and Tier 2 Supply Rates is discussed in Section 3.

#### **11.1.4. Power Costs**

Power costs include pumping costs on the Colorado River Aqueduct (CRA) and Metropolitan's share of the pumping costs on the State Water Project (SWP). The combined average cost of power on these two facilities has averaged \$58 per acre-foot since 1997, ranging from \$36 per acre-foot to a high of \$102 per acre-foot during the California energy crisis. Total power costs are expected to average \$176 million per year through 2013/14. An analysis of the risk of the variability in power costs is discussed in the following section on risk and uncertainty. Market energy costs are projected to increase from \$37 per Megawatt hour in 2004/05 to \$44 per Megawatt hour in 2013/14. This estimate is consistent with a forecast for future energy costs developed by the California Energy Commission.

Long-term cost-based contracts with the federal government provide 70 percent of the energy requirement on the CRA, assuming a full aqueduct. This forecast assumes total available Colorado River supplies, due to current dry hydrologic conditions on the Colorado River, will average about 0.9 million acre-feet per year through 2013/14, well below the CRA's capacity of about 1.3 million acre-feet per year. The forecast, therefore, assumes that the CRA energy requirement will primarily be met from Metropolitan's cost-based federal power contracts and from supplemental energy that will be purchased as needed in the market.

From 1996/97 through 1999/00, Metropolitan's cost for energy used on the SWP for pumping water to Southern California averaged about \$80 per acre-foot delivered. However, due to the failed restructuring of California's electricity sector, SWP power costs increased significantly. The average cost of SWP power in 2001/02 was \$123 per acre-foot.

Power costs are one of the greatest uncertainties facing Metropolitan. The changing structure and uncertain nature of California's energy sector requires a more active approach to power cost management than that practiced in the past. A recently adopted energy risk management policy has been implemented for purchases of supplemental energy for the CRA. While increases in sales provide a natural hedge for changes in the volume of energy needed, Metropolitan currently can only hedge its price risk through the use of forward price contracts for CRA supplemental energy or other financial instruments (e.g., caps, collars, etc.). Metropolitan currently depends on DWR for the management of SWP energy costs, and coordinates water and power purchases with DWR on a weekly basis to mitigate cost increases due to on-peak power purchases. In addition, Metropolitan has been working with DWR to identify additional capital projects that may reduce long-term energy costs.

#### **11.1.5. Demand Management Programs**

To diversify the region's water supply and reduce the demand for imported water, Metropolitan provides financial incentives to its member agencies to support conservation, water recycling, groundwater recovery, and desalination projects. Metropolitan funds local projects and programs through its Local Resources Program (LRP) and Conservation Credits Program (CCP). These demand management programs are alternatives to developing imported supply and regional infrastructure. The extent to which Metropolitan invests in local resources is determined by the IRP. A recent draft update to the IRP includes revisions to recycling and conservation targets and the addition of desalination as a local supply option that would be partially funded by Metropolitan.

A significant amount of existing local supply is already partially funded by Metropolitan. Currently, Metropolitan is participating in 53 water-recycling projects. Thirty-seven of these projects are in operation and the remaining 16 projects are under design or construction. Metropolitan also provides financial assistance to 22 projects that recover contaminated groundwater. The yield from the LRP is expected to increase from 169,000 acre-feet in 2004/05 to 408,000 acre-feet in 2013/14. LRP costs are projected to increase from \$32 million to \$69 million over the same period. This cost increase reflects the increasing yield of projects that are



currently operating, the anticipated yield of projects that are under contract but not yet operating and additional yield from new projects needed to meet the updated IRP 2010 goal for recycling and groundwater recovery.

The LRFP also assumes that Metropolitan will provide financial assistance to local agencies that develop desalination plants. A request for proposals for desalination supplies indicated that over 100,000 acre-feet of annual yield could be available. The Plan assumes that Metropolitan pays \$250 per acre-foot for desalination beginning in 2009/10 and that over 100,000 acre-feet per year of desalination is partially funded by Metropolitan by 2013/14. These incentive payments would be funded through the water stewardship rates. This assumption is consistent with IRP resource targets.

The CCP provides financial incentives to local agencies that implement conservation measures such as low flow toilet retrofits. Under this program, Metropolitan pays either one-half the cost of qualifying water conservation projects or \$154 per acre-foot of water saved. The LRFP assumes that Metropolitan will continue to fund the CCP at \$15 million per year through 2013/14.

## **11.2. Capital Investment Plan**

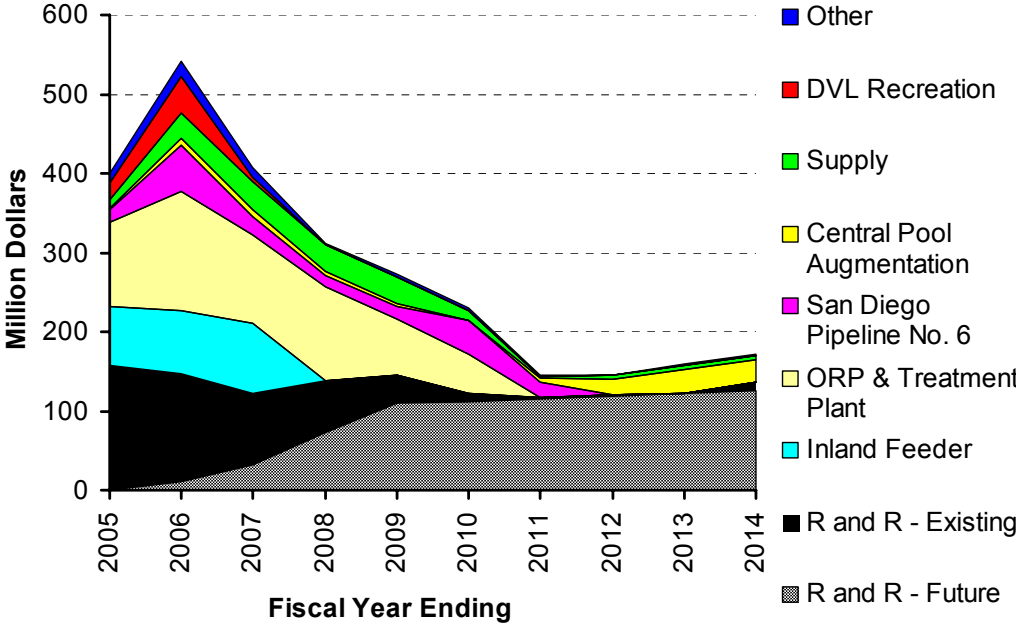
The expected rate forecast assumes that Metropolitan will fund additional construction costs totaling about \$2.8 billion through 2013/14. These costs will be incurred to both maintain the existing system through the replacement and refurbishment of aging infrastructure and to improve the system's ability to meet Metropolitan's mission through the addition of new treatment technologies, additional conveyance, distribution and treatment facilities. A detailed System Overview Study is conducted to determine the timing and sizing of projects that will add system capacity.

In 2000, an Infrastructure Reliability and Protection Plan (IRPP) identified critical infrastructure that needed to be refurbished or replaced. In 2002, an asset replacement study was completed to formulate a financial policy for funding refurbishments and replacements (R&R). The Asset Replacement Study estimated that the cost of replacing existing infrastructure is about \$12 billion in today's dollars, not including the cost of land. The estimated cost of R&R projects through 2013/14 is about \$1.3 billion. R&R funding of \$95 million per year will be used to fund the R&R expenditures.

Major system improvements (new capacity and improvements needed to meet regulatory requirements) identified in the CIP from 2003/04 through 2012/13 total about \$1.5 billion. These improvements include the remaining work on the Inland Feeder Project (\$243 million), the Oxidation Retrofit and other treatment plant Improvements (\$604 million), San Diego Pipeline Number 6 and Central Pool Augmentation Project (\$304 million), capital costs for Colorado River storage programs, in-basin groundwater conjunctive use

programs and water transfer and exchange programs (\$172 million), Diamond Valley Lake Recreation Program (\$72 million) and other improvements (\$61 million). Figure 9 summarizes Metropolitan's CIP as estimated during the 2003/04 budget cycle.

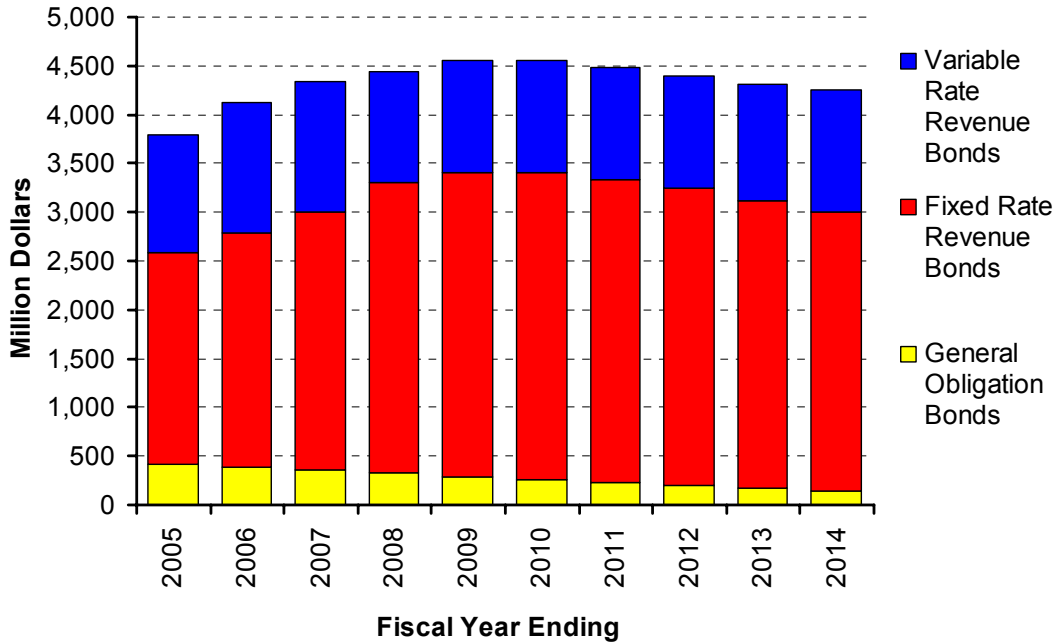
**Figure 9. Capital Investment Plan**



**11.3. Capital Financing Program**

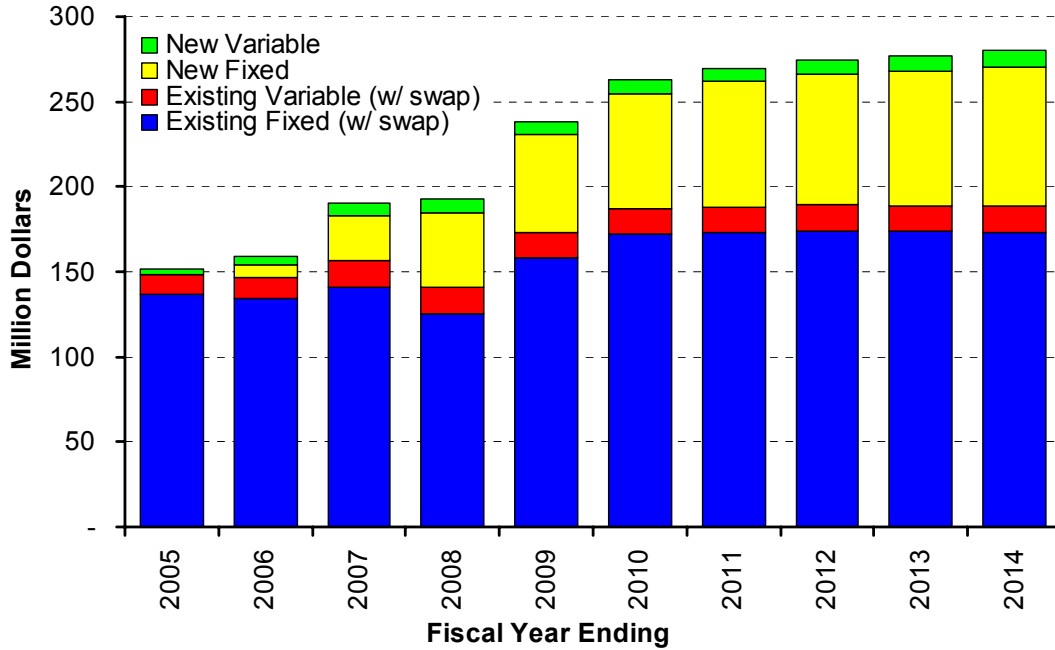
Metropolitan uses a combination of debt and current operating revenues (R&R Fund) to fund the CIP. As of June 30, 2004 Metropolitan's outstanding debt totaled \$3.6 billion. By 2013/14, outstanding debt will be about \$4.2 billion as illustrated in Figure 10. Fixed rate water revenue bonds will account for the majority of this total at \$2.9 billion and variable revenue bonds will account for \$1.2 billion. The LRFPP assumes that no additional general obligation (G.O.) bonds will be issued. Currently, outstanding G.O. bonds will continue to mature over this period decreasing G.O. bond debt to \$137 million of the total debt outstanding.

**Figure 10. Outstanding Debt**



Revenue Bond debt service costs are projected to increase from \$151 million in 2004/05 to \$280 million by 2013/14 as Metropolitan funds about \$1.8 billion of the CIP from bond proceeds. Because variable interest rates tend to be lower than fixed rates a mix of fixed rate debt and variable rate debt will be issued to help manage debt service costs. The forecast assumes that fixed rates trend at 5.0 percent and variable rates increase from 1.4 percent, to the five-year average of 2.1 percent through 2013/14. A discussion of how Metropolitan mitigates interest rate risk is included in the following section on risk factors. Figure 11 illustrates the expected trend in revenue bond debt service costs.

**Figure 11. Revenue Bond Debt Service Costs**



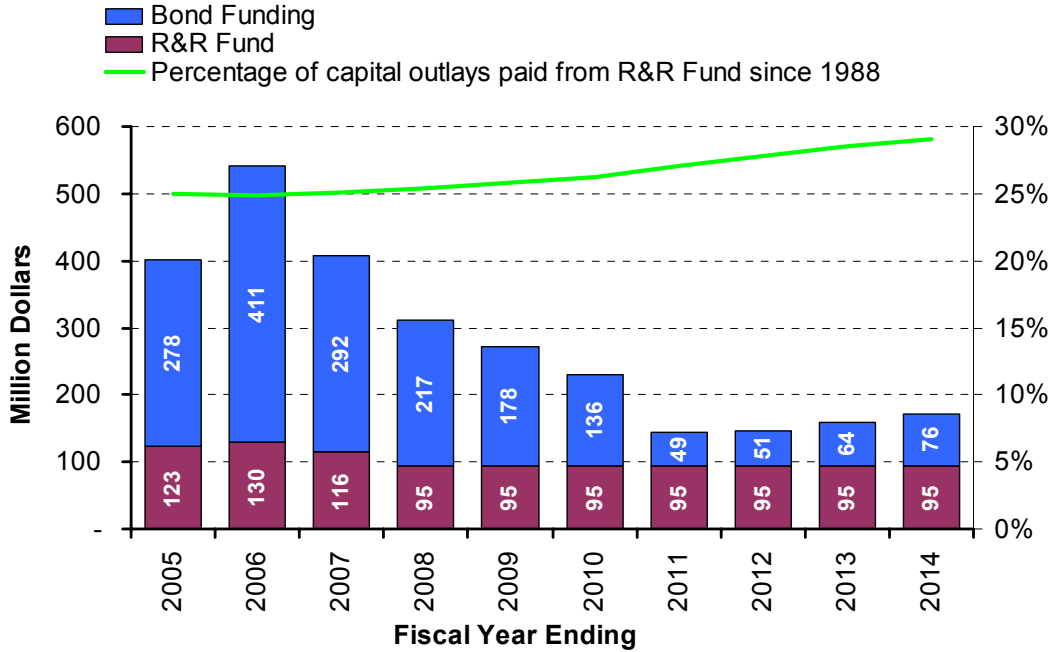
Consistent with the Board's June 2000 action to defease \$84.6 million in debt and use the savings to retire additional debt in subsequent years, the Plan assumes that Metropolitan will continue to defease debt ranging from \$22.2 million to \$26.1 million per year until 2005/06.

Recognizing the importance of maintaining the infrastructure that makes up Metropolitan's system, in June 2002, the Board revised the R&R Fund policy so that the R&R Fund amount included in the annual revenue requirement reflects the replacement and refurbishment of the infrastructure that makes up the system. In adopting the revised policy the Board approved a plan to increase the annual R&R Fund to fund ongoing repair and replacement costs. The LRFP includes funding of such projects at \$95 million per year.

Since 1988/89 about 25 percent of total capital expenditures have been financed by the R&R Fund. It is estimated that by 2013/14, about 28 percent of total capital expenditures since 1988/89 will have been funded from the R&R Fund. The amount of R&R funding is consistent with other large water utility operations. A 1997 survey determined that R&R funding amounts ranged anywhere from 10 percent to 55 percent of total capital outlays (MWD/MA Finance Work Group Survey – March 1997). Figure 12 illustrates the mix of debt and R&R funding for the CIP

and the expected trend in R&R funding as a percent of total capital outlays since 1988.

**Figure 12. Debt and R&R Funding of the CIP**



The amount of R&R funding will be reviewed annually to ensure adequate revenues on an annual basis to support R&R projects.

**11.4. Operations and Maintenance Costs**

Operations and Maintenance costs (O&M) include labor, professional services, non-professional services, materials and supplies and other O&M costs for each of the groups that make up Metropolitan's organizational structure. O&M costs in 2013/14 are projected to be \$350 million. This represents an expected total increase of about \$68 million or about 2.4 percent per year from 2004/05 budgeted O&M costs of \$282 million.

From 1999/00 through 2004/05, O&M costs will have increased by \$84 million to \$282 million in 2004/05. This is an annualized increase of about 7.3 percent. This rise in O&M costs is attributed to a number of factors including: increased treatment costs for chemicals, sludge and electricity (27 percent of the total increase); rising costs for salaries and benefits associated with existing collective bargaining unit agreements (51 percent of the total increase); higher costs for materials and supplies, non-professional outside services and other partially offset by a reduction in professional services costs (22 percent of the total increase). During this same period the

annualized rate of inflation was 2.8 percent. The LRFPP includes a recommendation that Metropolitan manage the annual increase in departmental O&M costs to no more than the five-year rolling average change in the Los Angeles/Orange/Riverside Counties Consumer Price Index. To manage operating and maintenance cost increases within this goal, Metropolitan will focus on workforce training, the use of technology to increase productivity, and continued improvements in current business processes.

Since 1999/00, a significant portion of the increase in O&M costs is due to changes in drinking water standards, increased volumes of treated water and a change in mix of State Water Project and Colorado River supplies. These factors resulted in increased need for chemicals used in the treatment processes and increased production of sludge. During this period chemical prices increased and sludge volumes rose due to higher blends of State Water Project supplies. The LRFPP includes funding capital and operating costs for ozone as the primary treatment technology at all five of Metropolitan's treatment plants.

### **11.5. Fund Activity**

Metropolitan is required to maintain certain restricted reserves per bond covenants and board policies. During the fiscal year, and at the end of each fiscal year transfers are made into or out of these funds depending on their required balance. These funds include the revenue bond interest and principal funds, the revenue bond reserve funds, the Operations and Maintenance fund, the State Water Contract fund, and the Revenue Remainder fund. As costs rise and additional debt is issued, these fund requirements will increase. Through 2013/14 the annual increase in required reserves averages \$5 million. To mitigate projected rate increases the LRFPP includes the use of over \$160 million withdrawn from the Water Transfer Fund and Rate Stabilization Fund by 2008/09. Table 4 includes a summary of uses of funds through 2013/14.

**Table 4. Uses and Sources of Funds (millions of dollars)**

Fiscal Year Ending	budget 2005	forecast 2006	forecast 2007	forecast 2008	forecast 2009	forecast 2010	forecast 2011	forecast 2012	forecast 2013	forecast 2014	Total	Annual % Change
<b>USES OF FUNDS</b>												
<b>Expenditures</b>												
State Water Contract	461.6	412.2	406.0	414.1	420.3	422.5	431.3	443.4	443.3	420.2	4,274.8	-1.0%
Supply Programs	67.1	83.4	45.1	42.7	41.6	42.5	45.7	48.6	53.4	60.6	530.8	-1.1%
Colorado River Power	18.8	19.3	19.6	20.5	20.9	22.5	21.9	22.3	24.7	22.5	213.0	2.0%
Debt Service	230.9	237.1	244.4	246.6	293.1	316.8	314.7	319.3	323.8	326.7	2,853.3	3.9%
Demand Management	46.8	50.1	52.8	55.2	55.8	64.6	78.4	78.1	80.4	84.0	646.2	6.7%
Departmental O&M	240.2	240.0	247.3	254.8	262.6	270.6	278.8	287.3	296.1	305.1	2,683.0	2.7%
Treatment O&M	29.5	29.8	29.4	29.7	30.8	29.3	29.7	30.5	29.5	30.4	298.6	0.3%
Other O&M	12.3	12.5	12.7	13.0	13.3	13.5	13.8	14.1	14.4	14.6	134.2	2.0%
<b>Sub-total Expenditures</b>	<b>1,107.1</b>	<b>1,084.4</b>	<b>1,057.4</b>	<b>1,076.7</b>	<b>1,138.4</b>	<b>1,182.3</b>	<b>1,214.4</b>	<b>1,243.6</b>	<b>1,265.5</b>	<b>1,264.1</b>	<b>11,633.9</b>	<b>1.5%</b>
<b>Capital Investment Plan</b>	<b>400.8</b>	<b>540.9</b>	<b>407.9</b>	<b>311.6</b>	<b>272.6</b>	<b>230.6</b>	<b>144.5</b>	<b>145.9</b>	<b>159.2</b>	<b>171.4</b>	<b>2,785.3</b>	<b>-9.0%</b>
<b>Fund Deposits</b>												
Deposit to Water Transfer Fund	-	-	-	-	-	-	-	-	-	-	-	-
Deposit to R&R Fund	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	950.0	0.0%
Increase Reserves	-	8.7	19.4	42.7	24.1	31.0	25.5	28.8	32.9	54.0	267.1	
<b>Sub-total Fund Deposits</b>	<b>95.0</b>	<b>103.7</b>	<b>114.4</b>	<b>137.7</b>	<b>119.1</b>	<b>126.0</b>	<b>120.5</b>	<b>123.8</b>	<b>127.9</b>	<b>149.0</b>	<b>1,217.1</b>	<b>5.1%</b>
<b>Member Agency Credit</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL USES OF FUNDS</b>	<b>1,602.9</b>	<b>1,729.0</b>	<b>1,579.6</b>	<b>1,526.1</b>	<b>1,530.1</b>	<b>1,539.0</b>	<b>1,479.3</b>	<b>1,513.3</b>	<b>1,552.7</b>	<b>1,584.5</b>	<b>15,636.3</b>	<b>-0.1%</b>

Totals may not foot due to rounding.

**Table 4. Uses and Sources of Funds (millions of dollars) (continued)**

Fiscal Year Ending	budget 2005	forecast 2006	forecast 2007	forecast 2008	forecast 2009	forecast 2010	forecast 2011	forecast 2012	forecast 2013	forecast 2014	Total	Annual % Change
<b>SOURCES OF FUNDS</b>												
<b>Receipts</b>												
Taxes & Annexation	97.4	97.0	96.7	96.6	97.5	96.2	86.6	86.0	87.2	84.3	925.4	-1.6%
Interest & Power	51.6	35.7	40.3	39.9	38.2	39.1	40.0	41.1	42.5	44.0	412.4	-1.7%
Fixed Charges	110.7	117.2	123.1	124.8	127.8	131.8	135.4	139.6	144.6	149.3	1,304.3	3.4%
Water Sales Revenue	872.5	875.1	883.0	925.2	984.2	1,041.2	1,072.9	1,100.5	1,119.3	1,135.5	10,009.3	3.0%
<b>Sub-total Receipts</b>	<b>1,132.2</b>	<b>1,125.0</b>	<b>1,143.1</b>	<b>1,186.4</b>	<b>1,247.6</b>	<b>1,308.4</b>	<b>1,334.9</b>	<b>1,367.3</b>	<b>1,393.5</b>	<b>1,413.1</b>	<b>12,651.5</b>	<b>2.5%</b>
<b>Fund Withdrawals</b>												
Transfer Fund	45.3	38.9	28.6	-	-	-	-	-	-	-	112.9	-100.0%
R&R Funds for Construction	123.1	129.8	115.9	95.0	95.0	95.0	95.0	95.0	95.0	95.0	1,033.8	-2.8%
Bond Funds for Construction	277.7	411.1	292.0	216.6	177.6	135.6	49.5	50.9	64.2	76.4	1,751.5	-13.4%
Decrease in Reserves	24.7	24.1	-	28.0	9.9	-	-	-	-	-	86.7	-100.0%
<b>Sub-total Fund Withdrawals</b>	<b>470.7</b>	<b>604.0</b>	<b>436.5</b>	<b>339.7</b>	<b>282.4</b>	<b>230.6</b>	<b>144.5</b>	<b>145.9</b>	<b>159.2</b>	<b>171.4</b>	<b>2,984.9</b>	<b>-10.6%</b>
<b>TOTAL SOURCES OF FUNDS</b>	<b>1,602.9</b>	<b>1,729.0</b>	<b>1,579.6</b>	<b>1,526.1</b>	<b>1,530.1</b>	<b>1,539.0</b>	<b>1,479.3</b>	<b>1,513.3</b>	<b>1,552.7</b>	<b>1,584.5</b>	<b>15,636.3</b>	<b>-0.1%</b>
<b>CASH YR SALES &amp; WHEELING (MAF)</b>	<b>2.34</b>	<b>2.25</b>	<b>2.20</b>	<b>2.23</b>	<b>2.27</b>	<b>2.27</b>	<b>2.24</b>	<b>2.23</b>	<b>2.25</b>	<b>2.25</b>		
<b>RATIOS</b>												
Fixed Charge Coverage	1.35	1.36	1.30	1.38	1.33	1.35	1.32	1.32	1.33	1.39		
Revenue Bond Coverage	2.50	2.48	2.12	2.21	2.00	2.00	2.00	2.00	2.00	2.01		
Var. Rate Debt as % of Rev. Bond Debt	36%	36%	34%	28%	27%	27%	27%	28%	29%	30%		

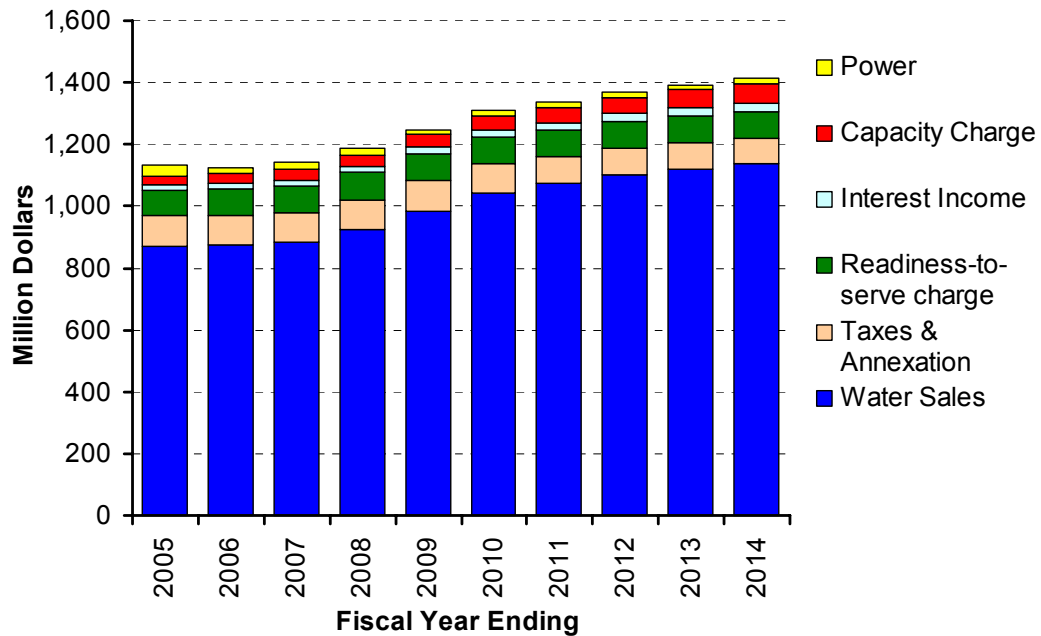
Totals may not foot due to rounding.



## 12. Sources of Funds

Metropolitan relies on revenue from rates and charges, property taxes, interest income, hydroelectric power, and other miscellaneous sources to fund its expenditures, CIP and other obligations such as required fund deposits. Through 2013/14, receipts from rates and charges collected from the member agencies accounts for 72 percent of the total sources of funds. It is expected that fund withdrawals will also be used to stabilize rates and to mitigate necessary increases. Total receipts are projected to increase by \$281 million from about \$1.13 billion in 2004/05 to \$1.41 billion in 2013/14. This increase is almost entirely attributed to an increase in water rates. Figure 13 illustrates the general trends in receipts.

**Figure 13. Receipts**



### 12.1. Other Revenues

#### 12.1.1. Property Taxes

Metropolitan collects ad valorem property taxes to pay its general obligation bond debt service and a portion of the debt service associated with the State Water Project. Metropolitan currently levies a property tax of 0.0061 percent of assessed valuation to recover debt service costs on outstanding general obligation bonds and to pay a portion of its financial commitment to the State Water

Project. Property tax revenues are expected to be \$95 million in 2004/05. By 2013/14 property tax revenues are expected to decrease to \$82 million per year as general obligation bonds are retired. The Plan does not include funding from additional G.O. bonds. Since Metropolitan has no additional G.O. bond authorization, an approval by the electorate in Metropolitan's service area would be required to increase G.O. bond authorization. The property tax rate is expected to decline as Metropolitan's outstanding G.O bonds mature and assessed valuations continue to increase.

#### **12.1.2. Interest Income**

Metropolitan earns interest on invested fund balances and uses this income to reduce the costs that must be recovered by rates and charges. For fiscal year 2004/05 interest income is expected to be \$18 million. Interest income is expected to average about \$22 million through 2013/14 with a total average fund balance of about \$931 million. These invested funds also act as a partial hedge against changes in interest rates on Metropolitan's variable rate debt obligations. Interest income will vary over the next ten-year period as interest rates and cash balances available for investments will fluctuate.

#### **12.1.3. Hydroelectric Power Sales**

Hydroelectric sales fluctuate with the amount of water delivered through the system and have historically ranged from \$9 million to \$21 million per year. The Plan assumes that hydropower revenues average about \$16 million per year through 2013/14. This assumption reflects total normal system flows of about 2.25 million acre-feet per year and expected market rates for hydropower.

#### **12.1.4. Grant Funding**

Metropolitan actively pursues opportunities to receive grant funding. Grant funds are used to offset costs that otherwise may be recovered through the rates and charges. Grant funds are received from federal agencies such as the Federal Emergency Management Agency for reimbursement of emergency system repairs, U.S. Bureau of Reclamation for support of conservation projects and U.S. Environmental Protection Agency for water quality and treatment research and desalination research.

In addition grant funds from State agencies are received. In 2003/04, Metropolitan received a State Revolving Loan of over \$20 million from the state of California to provide a portion of the funding requirements for the Oxidation Retrofit Program. The term of the loan is 20 years, and will bear a fixed rate of interest of 2.39 percent.

State grant funds were used to support projects like the Hayfield Conjunctive Use Storage Program on the CRA. State grants from Proposition 50, passed by the voters in November 2002, may also be available to Metropolitan for such purposes as the implementation of treatment technologies to meet drinking water standards and the development of groundwater conjunctive use projects. Because receipt of these grant funds is uncertain the LRFPA assumes that no grants will be received, and that expenditures will be funded from water rates. But Metropolitan will continue to pursue grant funding opportunities to lower rates.

## **12.2. Revenue from Rates and Charges**

Metropolitan recently implemented a new rate structure. The new rates and charges became effective January 1, 2003. The new rate structure incorporates several important changes that improve Metropolitan's financial strength.

- The water rate was unbundled to facilitate a water transfer market. By pricing services for the use of system conveyance capacity separately from supply, a clear price signal is created. Because all users of Metropolitan's system are charged equally for using system capacity, Metropolitan's member agencies can now make an economic choice between supplies provided by Metropolitan or some other source.
- Tiered pricing of supply was implemented to encourage efficient resource management and recover proportionally more cost from agencies with growing demands for imported water.
- A capacity charge was included in the rate design to encourage member agencies to reduce the peak day and summer season demands they place on the system. Member agencies that place greater demand on system capacity pay a larger portion of such costs. Additionally, Metropolitan's cost for building additional peak capacity is reduced and/or deferred over the long term as local agencies are encouraged to invest in local resources and infrastructure that reduces peak demands on Metropolitan's system.
- A financial commitment to Metropolitan from the member agencies was secured through a Purchase Order. All but two of Metropolitan's 26 member agencies have submitted ten-year Purchase Orders for Metropolitan supplies. This represents a commitment by the member agencies to purchase at least 12.3 million acre-feet from Metropolitan through December 31, 2012. The ten-year Purchase Order provides that the member agency commits to purchase at least ten times 60 percent of its initial base firm demand. The initial base firm demand is the highest annual demand from fiscal year 1989/90 to fiscal year 2001/02 excluding replenishment and interim agricultural deliveries. If the agency does not purchase at least this amount over the ten-year period any remaining balance is charged the average Tier 1 Supply Rate over the term of the

Purchase Order. In exchange for this commitment, the member agency may purchase up to 90 percent of its highest annual demand at the lower Tier 1 Supply Rate. Additional demands are charged the higher Tier 2 Supply Rate. Member agencies that elect not to submit a Purchase Order may only purchase up to 60 percent of their highest annual demand at the lower rate. Purchases in excess of the 60 percent are charged the higher rate. The Purchase Order provides a financial commitment to Metropolitan without shifting substantial risk to individual member agencies. The two agencies that did not submit a Purchase Order do not routinely purchase enough water from Metropolitan to justify a Purchase Order.

### **12.2.1. Cost of Service Process**

To determine the various rates and charges, Metropolitan uses cost of service principles. The cost of service process groups costs into major service functions and then sorts costs by the purposes that they were incurred to serve. The general cost of service process involves the four basic steps outlined below.

#### **Step 1 - Development of Revenue Requirements**

In the revenue requirement step, the costs that Metropolitan must recover through rates and charges, after consideration of other revenues, are identified. In this step other revenues such as property taxes, interest income and hydropower revenues are allocated among the various service functions, reducing the amount of costs recovered by the rates and charges.

#### **Step 2 - Identification of Service Function Costs**

In the functional allocation step, costs are allocated to different categories based on operational functions. The functional categories used in the cost of service process include:

- Supply - maintaining and developing reliable water supplies (water transfers)
- Conveyance and Aqueduct - conveying water to Southern California through the SWP, CRA and other related facilities
- Storage - storing supplies within Metropolitan's system
- Treatment - treating imported water supplies at Metropolitan's treatment plants
- Distribution - distributing water throughout Metropolitan's service area
- Demand Management - reducing the demand for imported water through the development of local supplies, water recycling, conservation and desalination

- Administrative and General - operations and maintenance support functions (human resources, legal, etc.)
- Hydroelectric - operation of 16 hydroelectric facilities.

### Step 3 - Classification of Costs

In the cost classification step, functionalized costs are separated into categories according to their causes and behavioral characteristics. Costs incurred to meet average demands are identified separately from costs incurred to meet peak demands.

### Step 4 - Allocation of Costs to Rate Design Elements

The allocation of costs to the rate design elements depends on the purpose for which the cost was incurred and the manner in which the member agencies use the Metropolitan system. In general, costs incurred to meet average system demands are recovered by dollar per acre-foot rates and are paid by the member agencies based on the volume of water purchased by each agency. Costs incurred to meet peak demands are recovered through a capacity charge and allocated to the member agencies based on peak demand behavior. Costs incurred to provide standby and emergency service are recovered through a fixed charge allocated on the basis of average demands.

The rates and charges revenues are discussed below, both in terms of volumetric revenues (revenue recovered by dollar per acre-foot unit rates that varies with the volume of water sold) and fixed revenues (revenue generated by fixed charges that does not vary with the volume of water sold) as well as each of the rates and charges that make up the rate structure.

#### 12.2.2. Volumetric Revenues

Total volumetric revenues are expected to increase from \$872 million in 2004/05 to \$1.13 billion in 2013/14. Over this same period water sales are expected to decrease from 2.34 million to 2.25 million acre-feet. A further discussion of water sales is included later in this section. Volumetric revenues include the components of the rate structure that are charged to the member agencies on a dollar per acre-foot basis. These components are:

- **Tier 1 and Tier 2 Water Supply Rates** - The Tier 1 Supply Rate is currently \$73/af and the Tier 2 Supply Rate is currently \$154/af. The Tier 1 and Tier 2 Supply Rates recover Metropolitan's water supply costs. The Tier 2 Supply Rate reflects Metropolitan's cost of acquiring new supplies. A member agency with a Purchase Order will be charged the Tier 2 Supply Rate for water purchases in excess of 90 percent of its base demand for member agencies with a Purchase Order

and 60 percent of a member agency's base demand for member agencies without a Purchase Order. The Tier 1 Supply Rate is set to recover the remaining supply costs after accounting for revenues from the Tier 2 Supply Rate and a proportional amount of revenue from the Long-term Seasonal Storage Service Program and the Interim Agricultural Water Program. As Metropolitan continues to develop supplies, the Tier 1 Supply Rate is expected to increase from its current level of \$73 per acre-foot to between \$107/af and \$118/af by 2014. The average annual change in the Tier 1 Supply Rate over the ten-year LRFPP horizon is between 3.9 to 4.9 percent. As the cost of developing additional supply changes the Tier 2 Supply rate will be adjusted as well. The current forecast is that the Tier 2 rate will increase from \$154/af to between \$188/af and \$199/af, reflecting higher costs of additional supplies.

- **System Access Rate** - The system access rate recovers the capital and operations and maintenance costs for system conveyance and distribution capacity used to meet average system demands. As system capacity is expanded to meet growing demands and aging pipelines, canals and aqueducts are replaced and rehabilitated, the system access rate is expected to increase to between \$193/af to \$211/af by 2014. This is an average increase of 2.4 to 3.3 percent per year.
- **Water Stewardship Rate** - The water stewardship rate recovers the cost of Metropolitan's investments in demand management such as the LRP and Conservation Credits Program. The Plan assumes that the Water Stewardship Rate increases to recover the costs of Metropolitan's support for additional recycling, groundwater recovery and desalination as set forth in revised goals for these programs defined in the IRP update. The water stewardship rate is expected to increase to between \$43 to \$47/af by 2014.
- **System Power Rate** - The system power rate recovers the cost of energy used for pumping on the State Water Project and the Colorado River Aqueduct. The system power rate is currently \$60 per acre-foot. However, energy costs are projected to rise into the future and the system power rate is expected to increase to \$71 per acre-foot by 2014.
- **Treatment Surcharge** - Metropolitan provides treated water service through five treatment plants located throughout the service area. On average, about 60 percent of the water sold by Metropolitan is treated. The Treatment Surcharge recovers the cost of providing treated water service and is currently \$92 per acre-foot. Increases in variable treatment cost, operations and

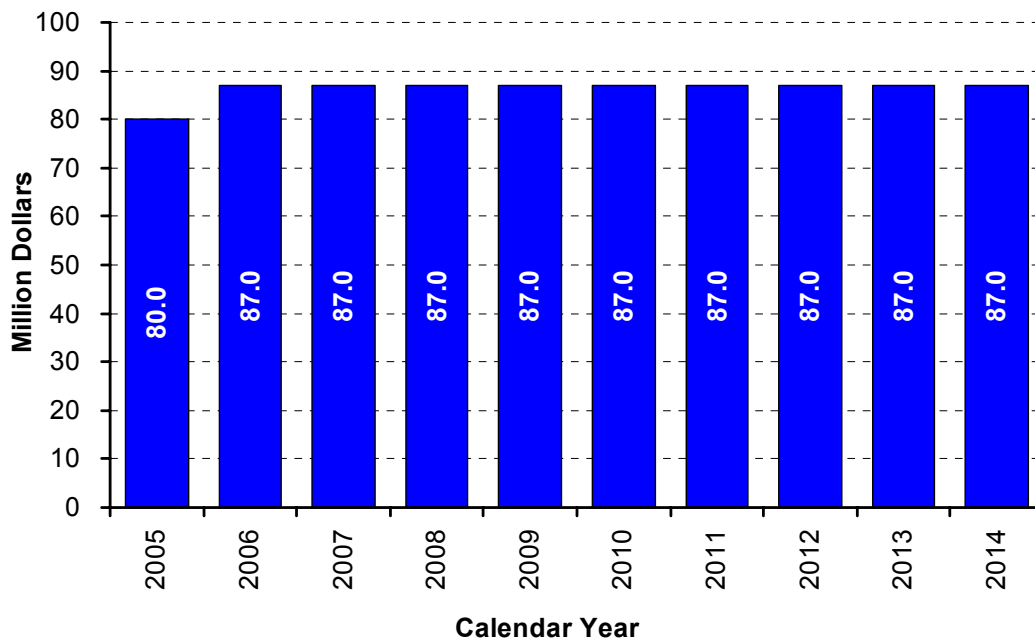
maintenance costs, rehabilitation and replacement of treatment plant facilities and treatment plant improvements such as the Oxidation Retrofit Program all contribute to the upward pressure to the treatment surcharge. The Treatment Surcharge is expected to increase to between \$150/af and \$163/af by 2013. This is an average annual increase of 3.0 to 3.8 percent.

### 12.2.3. Fixed Charge Revenues

Fixed charge revenues are paid to Metropolitan regardless of the amount of water the member agencies purchase in a particular year. Fixed charge revenues will increase from about \$111 million in 2004/05 to about \$149 million in 2013/14. Fixed charge revenues include the Readiness-to-Serve Charge and the Capacity Charge.

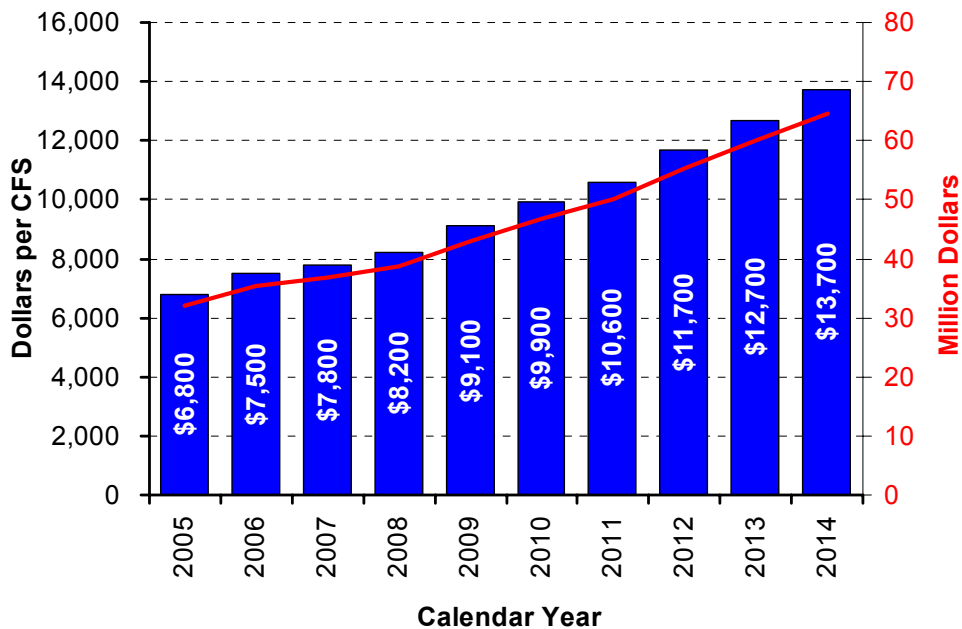
- Readiness-to-Serve Charge (RTS)** - The RTS recovers the cost of system emergency storage and conveyance and distribution standby costs not paid by property taxes. The RTS is allocated to member agencies on the basis of a ten-year rolling average of firm deliveries. This charge is expected to generate about \$80 million in fiscal year 2004/05. The RTS is expected to increase to \$87 million in 2006 and remain at \$87 million through 2014. Twenty-two of Metropolitan's twenty-six member agencies elected to have Metropolitan recover a portion of their RTS obligation directly from property owners through a per parcel Standby Charge. Metropolitan's Standby Charge recovers \$42 million each year. Figure 14 illustrates the expected total RTS. Changes in the CIP will result in changes in the required RTS in the future.

**Figure 14. Readiness-to-Serve Charge**



- Capacity Charge** - The Capacity Charge recovers the cost of distribution capacity used to meet peak day demands. Effective January 1, 2005, the Capacity Charge is \$6,800 per cfs. By 2014, the Capacity Charge is expected to be \$13,700 per cfs and generate about \$65 million annually. The Capacity Charge is levied on the maximum day firm demand for the summer months of May through September for the past three years. Figure 15 illustrates the expected Capacity Charge in dollars per cubic foot second on the left axis and in millions of dollars of revenue on the right axis. This charge is increasing over time, reflecting increases in capital financing costs for distribution infrastructure.

**Figure 15. Capacity Charge**



### 13. Rates and Charges Forecast

Many factors influence the future level of Metropolitan’s rates and charges. For this reason Metropolitan makes a practice of presenting the rates and charges forecast as a range of possible outcomes capturing a low rate scenario, expected rate scenario and a high rate scenario. The eventual level of the future rates and charges will be determined by outcomes of decision factors and risk factors.



### **13.1. Decision Factors**

Decision factors are more readily influenced by policy decisions and actions and determine the long-term trend in the rates and charges forecast. Decision factors include:

#### **13.1.1. Operations and Maintenance Costs**

Metropolitan's operations and maintenance costs are budgeted for 2004/05 at \$282 million. This level reflects an annualized rate of increase of 7.3 percent since 1999/00. The LRF assumes that 2004/05 and 2005/06 operations and maintenance costs will be held at current levels as efficiencies gained through the implementation of improved business processes are realized. After 2005/06 O&M costs are assumed to escalate at 2.7 percent per year.

#### **13.1.2. Capital Investment Plan (CIP)**

The 2004/05 forecast of the ten-year CIP totals \$2.8 billion through 2013/14. To moderate water rate increases the CIP is reviewed annually as part of the budget process. A staff team reviews each project that is less than 70 percent complete. The projects are scored and ranked by the team and revisions to schedules and project scope are made when possible. The CIP is presented to the Board for further clarification and direction during the budget cycle. From a long-term perspective investments in replacements and refurbishments are guided by on-going studies of facility conditions, investments in information technology infrastructure are guided by a comprehensive Information Strategic Plan and program master plans, and the System Overview Study provides direction for the timing and sizing of projects that increase the system capacity.

#### **13.1.3. Demand Management Funding**

The extent to which Metropolitan invests in regional supply reliability by funding the development of local supply resources is governed by the resource targets identified in the IRP. Metropolitan strives to balance several factors when determining the appropriate resource targets including: progress in meeting the resource targets; the cost of funding local resources; the cost of alternative resource investments; the cost of additional system capacity and the benefits of a diverse mix of imported and local resources.

Through the Local Resources Program (LRP) and Conservation Credits Program (CCP) Metropolitan provides financial incentives to local agencies to develop local resources, including recycled water supplies, groundwater recovery projects and conservation. The current annual cost for these demand management programs recovered through rates is about \$48 million and is expected to increase to \$84 million by 2013/14. The yield from the LRP is expected to increase from 169,000 acre-feet in 2004/05 to 408,000 acre-feet in

2013/14. This increase reflects the increasing yield of projects that are currently operating, the anticipated yield of projects that are under contract but not yet operating, and additional yield from new projects needed to meet the updated IRP goals for recycling, groundwater recovery and desalination. The expected rate forecast assumes that new projects produce an additional 187,000 acre-feet of supply within the next ten years. Of this amount 114,000 acre-feet is assumed to come from proposed desalination projects. If these projects do not come on-line as planned, the demand for imported water will be higher.

## **13.2. Risk Factors**

Risk factors may also impact future rates and charges. Risk factors are less predictable and more difficult to manage than decision factors and require risk mitigation strategies. Risk factors specifically considered include:

### **13.2.1. Power Costs**

Power costs account for about \$207 million of the 2004/05 budget (18 percent of total expenditures). Power costs vary significantly with the amount of imported water delivered by Metropolitan and the price of energy in the wholesale power market. The Plan recognizes that through the System Power Rate, Metropolitan has a natural hedge against increasing power costs driven by higher sales volumes. However, in the near term, price risk must be actively managed through contracts and financial instruments, including forward price agreements. For the long term Metropolitan needs to establish an energy strategy that addresses such critical milestones as the 2007 expiration of its power scheduling agreement with Southern California Edison for Colorado River Aqueduct Power and the 2017 expiration of the cost-based Federal power contract for Hoover Dam. In addition, Metropolitan must work with DWR and other State Water Contractors to ensure that DWR has a long-term energy strategy in place to deal with the challenges posed by the energy market.

### **13.2.2. Supply Costs**

Expenditures for water transfer and storage programs are expected to average about \$53 million per year through fiscal year 2013/14 (not including up-front payments for the Palo Verde land management and water supply program) and include several programs developed to meet the IRP goals. Depending on water supply conditions, these expenditures can vary significantly, ranging from \$15 million to \$111 million per year during dry periods when additional water transfers will be purchased. It is expected that, as demands vary in a given year, revenue from the Tier 1 and Tier 2 Supply Rates will help offset supply cost changes during these dry periods.

### **13.2.3. Water Sales**

Although Metropolitan and the member agencies established a ten-year financial commitment from the member agencies to Metropolitan in the form of a Purchase Order, the Purchase Order does not transfer the risk of the annual variation in sales due to weather to the member agencies. To ensure the stability and predictability of future water rates, the variation in sales due to weather will continue to be absorbed through Water Rate Stabilization Funds. However, the LRF anticipates that about \$200 million of these reserves will be drawn down in the next five years to mitigate rate increases. As the rate stabilization reserves are used for this purpose, it is important to recognize that it is more likely that water rates may be raised sooner due to a period of low sales due to weather.

### **13.2.4. Interest Rates**

Metropolitan manages its interest rate risk through active asset liability management. The primary purpose of asset liability matching is to mitigate the risk of changing interest rates in both the taxable and tax-exempt markets. With the proper mix of fixed and variable rate debt, Metropolitan can reduce the risk to water rate payers of rising and declining interest rates by managing variable rate exposure. This LRF recommends modifying Metropolitan's variable rate policy in order to take into account the primary factors (namely the balance available in the short-term investment portfolio and Metropolitan's risk tolerance to rising and declining interest rates) that mitigate the impact on revenue requirements of changes in interest rates.

## **13.3. Rates and Charges Forecast**

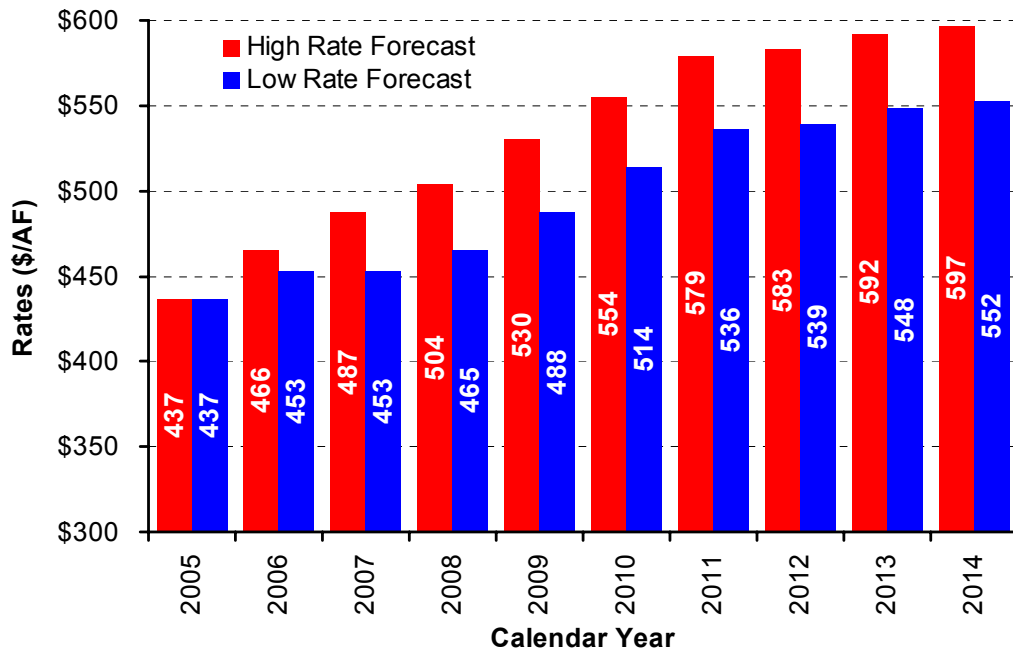
The rates and charges forecast includes a range of rates and charges derived from the expenditures and sales levels that result from the continued implementation of the IRP and CIP. The major underlying assumptions used to develop the range in the rate forecast are outlined in Table 5 below.

The average effective rate (all rates and charges revenue divided by total sales) is expected to increase at an annualized average rate of between three percent in the low rate scenario and four percent in the high rate scenario through 2014. The projected rate increases are the result of increasing expenditures and declining sales. Figure 16 illustrates the trend in the average rate for the low and high rate scenarios. Table 6 and Table 7 summarize the rates and charges for the low and high rates scenario.

**Table 5. Assumptions for Range in Rate Forecast**

Assumption	Low Rate Forecast	High Rate Forecast
SWP Power Costs	<b>Average SWP Variable Power Rate = \$23/Mwh in 2004/05 then increasing to \$24 by 2013/14</b>	<b>Average SWP Variable Power Rate = \$23/Mwh in 2004/05 then increasing to \$24 by 2013/14</b>
O&M Cost	<b>2004/05 and 2005/06 O&amp;M costs remain at current level and then escalate at 2.7% per year</b>	<b>2004/05 and 2005/06 O&amp;M costs remain at current level and then escalate at 2.7% per year</b>
Ten-Year CIP	<b>\$2.8 billion</b>	<b>\$2.8 billion</b>
Sales	<b>Total MWD expected sales of about 2.35 million acre-feet (100,000 acre-feet per year more than IRP forecast)</b>	<b>Total MWD expected sales of about 2.15 million acre-feet (100,000 acre-feet per year less than IRP forecast)</b>

**Figure 16. Average Rate Forecast (\$/acre-foot)**



**Table 6. Low Rate Forecast**

<b>Rates and Charges Effective January 1st</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Tier 1 Supply Rate (\$/AF)	\$73	\$73	\$73	\$73	\$74	\$82	\$90	\$94	\$96	\$107
Tier 2 Supply Rate (\$/AF)	\$154	\$154	\$154	\$154	\$155	\$163	\$171	\$175	\$177	\$188
System Access Rate (\$/AF)	\$152	\$152	\$152	\$156	\$166	\$176	\$182	\$184	\$189	\$193
Water Stewardship Rate (\$/AF)	\$25	\$25	\$27	\$28	\$29	\$33	\$42	\$40	\$41	\$43
System Power Rate (\$/AF)	\$81	\$81	\$81	\$89	\$94	\$93	\$92	\$89	\$88	\$71
Full Service Untreated Volumetric Cost (\$/AF)										
Tier 1	\$331	\$331	\$333	\$346	\$363	\$384	\$406	\$407	\$414	\$414
Tier 2	\$412	\$412	\$414	\$427	\$444	\$465	\$487	\$488	\$495	\$495
Replenishment Water Rate Untreated (\$/AF)	\$238	\$238	\$240	\$253	\$270	\$291	\$313	\$314	\$321	\$321
Interim Agricultural Water Program Untreated (\$/AF)	\$241	\$241	\$243	\$256	\$273	\$294	\$316	\$317	\$324	\$324
Treatment Surcharge (\$/AF)	\$112	\$123	\$126	\$131	\$138	\$144	\$144	\$144	\$145	\$150
Full Service Treated Volumetric Cost (\$/AF)										
Tier 1	\$443	\$454	\$459	\$477	\$501	\$528	\$550	\$551	\$559	\$564
Tier 2	\$524	\$535	\$540	\$558	\$582	\$609	\$631	\$632	\$640	\$645
Treated Replenishment Water Rate (\$/AF)	\$325	\$336	\$341	\$359	\$383	\$410	\$432	\$433	\$441	\$446
Treated Interim Agricultural Water Program (\$/AF)	\$329	\$340	\$345	\$363	\$387	\$414	\$436	\$437	\$445	\$450
Readiness-to-Serve Charge (\$M)	\$80	\$87	\$87	\$87	\$87	\$87	\$87	\$87	\$87	\$87
Capacity Charge (\$/cfs)	\$6,800	\$7,500	\$7,800	\$8,200	\$9,100	\$9,900	\$10,600	\$11,700	\$12,700	\$13,700

**Table 7. High Rate Forecast**

<b>Rates and Charges Effective January 1st</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Tier 1 Supply Rate (\$/AF)	\$73	\$75	\$77	\$82	\$86	\$90	\$99	\$105	\$106	\$118
Tier 2 Supply Rate (\$/AF)	\$154	\$156	\$158	\$163	\$167	\$171	\$180	\$186	\$187	\$199
System Access Rate (\$/AF)	\$152	\$156	\$167	\$172	\$181	\$191	\$199	\$201	\$206	\$211
Water Stewardship Rate (\$/AF)	\$25	\$27	\$29	\$30	\$31	\$37	\$45	\$44	\$45	\$47
System Power Rate (\$/AF)	\$81	\$81	\$83	\$91	\$97	\$96	\$95	\$91	\$90	\$71
Full Service Untreated Volumetric Cost (\$/AF)										
Tier 1	\$331	\$339	\$356	\$375	\$395	\$414	\$438	\$441	\$447	\$447
Tier 2	\$412	\$420	\$437	\$456	\$476	\$495	\$519	\$522	\$528	\$528
Replenishment Water Rate Untreated (\$/AF)	\$238	\$246	\$263	\$282	\$302	\$321	\$345	\$348	\$354	\$354
Interim Agricultural Water Program Untreated (\$/AF)	\$241	\$249	\$266	\$285	\$305	\$324	\$348	\$351	\$357	\$357
Treatment Surcharge (\$/AF)	\$112	\$127	\$137	\$141	\$149	\$155	\$155	\$155	\$157	\$163
Full Service Treated Volumetric Cost (\$/AF)										
Tier 1	\$443	\$466	\$493	\$516	\$544	\$569	\$593	\$596	\$604	\$610
Tier 2	\$524	\$547	\$574	\$597	\$625	\$650	\$674	\$677	\$685	\$691
Treated Replenishment Water Rate (\$/AF)	\$325	\$348	\$375	\$398	\$426	\$451	\$475	\$478	\$486	\$492
Treated Interim Agricultural Water Program (\$/AF)	\$329	\$352	\$379	\$402	\$430	\$455	\$479	\$482	\$490	\$496
Readiness-to-Serve Charge (\$M)	\$80	\$87	\$87	\$87	\$87	\$87	\$87	\$87	\$87	\$87
Capacity Charge (\$/cfs)	\$6,800	\$7,500	\$7,800	\$8,200	\$9,100	\$9,900	\$10,600	\$11,700	\$12,700	\$13,700

## **14. Financial Indicators**

Metropolitan monitors various indicators of its financial strength and flexibility. The following discussion summarizes forecasted trends in these indicators, resulting from the forecasted expenditures and receipts, including assumed changes in rates and charges.

### **14.1. Financial Ratios**

Financial ratios are key indicators commonly used by rating agencies and the investment community to measure a municipal utility's financial strength. Metropolitan's existing financial policies include goals of maintaining revenue bond debt service coverage of at least 2.00 times and fixed charge coverage of 1.2 times.

#### **14.1.1. Revenue Bond Debt Service Coverage**

Revenue bond debt service coverage is one of the primary indicators of credit quality, and is calculated by dividing net operating revenues by debt service. This measures the amount that net operating revenues exceed or "cover" debt service payments over a period of time. Higher coverage levels are preferred since they indicate a greater margin of protection for bondholders. For example, a municipality with 2.00 times debt service coverage has twice the net operating revenues required to meet debt service payments. The LRFPP forecasts that Metropolitan's debt service coverage ratio averages 2.1 times through 2014 ranging from a low of 2.0 times to a high of 2.5 times. The median coverage ratio for AA rated water systems by Standard & Poor's was 2.77 times in 2001. Metropolitan's minimum coverage policy is key to continued strong credit ratings and low cost bond funding.

#### **14.1.2. Fixed Charge Coverage**

In addition to revenue bond debt service coverage, Metropolitan also measures total coverage of all fixed obligations after payment of operating expenditures. This additional measure is used primarily because of Metropolitan's recurring capital costs for the State Water Contract. Rating agencies expect that a financially sound utility consistently demonstrate an ability to fund all recurring costs, whether they are operating expenditures, debt service payments or other contractual payments. The LRFPP forecasts that Metropolitan's fixed charge coverage ratio ranges from a low of 1.3 times to a high of 1.4 times over the ten-year period. These levels help maintain strong credit ratings and access to the capital markets at low cost.

### **14.2. Fund Levels**

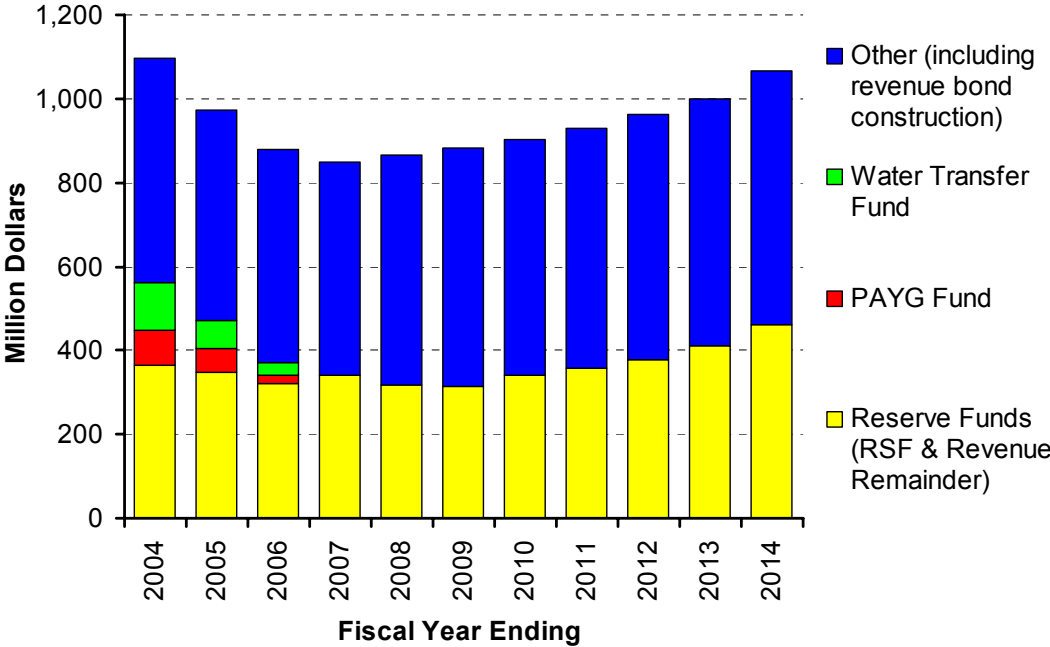
Metropolitan's fund policies are formulated to meet requirements as set forth in bond covenants and by the Board. Most importantly, the reserve fund policies provide Metropolitan with the ability to meet anticipated cash flow



requirements and mitigate unanticipated cost increases or revenue decreases, helping to ensure that rates and charges are predictable. Minimum and maximum reserve targets govern the water rate stabilization fund balance. The minimum and maximum reserve targets are determined by a formula developed in the 1999 Plan, after significant input from member agencies. The formula takes into account the variability in water sales, the amount of fixed costs recovered by volumetric rates and the duration of a period of low sales. As reserves decrease below the maximum reserve target Metropolitan's ability to mitigate for unforeseen cost increases or decreases in water sales caused by wet weather is reduced.

The LRFPA anticipates using \$50 million of rate stabilization reserves by 2007/08 to mitigate rate increases. Figure 17 illustrates the expected trend in fund balances, including the initial use of rate stabilization funds to mitigate rate increases, the use of remaining water transfer fund balances and necessary changes in required fund balances (e.g. debt service reserve funds) as fixed costs continue to increase. If water sales and revenues are lower than expected and/or costs are higher draws on reserves could be greater. Conversely, higher sales and lower costs will result in higher than expected reserve balances.

**Figure 17. Fund Balances**



## **Section 3**

# **Risk Factors**

## **Section 3. Risk Factors**

### **15. Rates and Charges: Stability and Predictability**

Under normal weather conditions Metropolitan currently provides over 50 percent of the water supply for almost 18 million people that live in Metropolitan's six county service area. One of Metropolitan's challenges is to maintain stable and predictable water rates and charges while making investments that ensure a reliable supply of water. Therefore, Metropolitan's financial policies are designed to reduce risks to the member agencies and their customers. This section discusses several risk factors that lead to uncertainty in the forecast of rates and charges. These risk factors include power cost variability, supply program cost variability and water sales variability. A fourth risk factor, changes in interest rates, is discussed in the following section on debt management.

#### **15.1. Power Costs**

The annual energy required to pump water to Southern California on the CRA and SWP is provided through cost-based contracts with the Federal government, State Water Project facilities and wholesale power market purchases.

##### **15.1.1. CRA Power Costs**

To move an acre-foot of water to Southern California from the Colorado River requires about 2.0 megawatt hours (MWh) of energy. To supply electricity for this operation, Metropolitan relies on a set of contracts and ownership rights for generation and transmission (long-term contracts), which have a stable and predictable cost structure. These long-term contracts supply approximately 70 percent of the maximum energy requirement for a full CRA. Through a cooperative scheduling agreement with Southern California Edison (SCE), this energy is scheduled to meet mostly on-peak loads to minimize Metropolitan's exposure to on-peak market prices.

The remaining 35 percent of the maximum energy requirement is purchased in the wholesale power market when needed. Metropolitan refers to this energy as "supplemental energy". As a purchaser in the wholesale power market, Metropolitan is exposed to volume, price and credit risk.

During 2001 power costs for supplemental energy rose substantially due to insufficient supply of power to meet demand in California and irregularities in a recently restructured energy market. Prior to 2001, the average annual cost of supplemental energy was about \$11 million. In fiscal year 2000/01 these costs were on the order of \$75 million, a \$64 million or 580 percent increase.

Recognizing the new risks of the power market, the Board approved a policy in October 2002 to guide staff's efforts to mitigate these risks. Through this policy, staff may enter into financial contracts such as forward price contracts, price caps, price collars or other financial instruments that hedge market price risk. About 90 percent of the 2003 supplemental energy need was secured through forward price contracts. The policy:

- Establishes a power resource portfolio strategic management objective to maintain operational flexibility and achieve stable and predictable supplemental energy pricing at the lowest reasonable cost.
- Establishes counter-party credit guidelines for procurement of supplemental energy including: (1) limiting the amount of energy that can be provided by any one marketer to no more than 30 percent of the total annual supplemental energy requirement, (2) requiring that all counterparties with which Metropolitan has a forward purchase contract for energy beyond 90 days to have a credit rating for their long-term debt of investment grade or better, or provide a letter of credit or financial guarantee.
- Delegates purchasing authority to the CEO to secure supplemental energy through purchase contracts with terms of not more than 24 months in duration and a total payment obligation not to exceed \$35 million.

While this policy establishes parameters to guide staff in acquiring power at stable and predictable prices, it does not address all of Metropolitan's power needs. Metropolitan's scheduling contract with SCE expires in 2007 and by 2017 the cost-based federal power contracts for energy from Hoover Dam also expire. Metropolitan is developing a long-term energy management and operations strategy that addresses these two important milestones.

### **15.1.2. State Water Project Power Costs**

The net power requirement to pump an acre-foot of water through the State Water Project to Southern California requires between 2.6 MWh and 3.2 MWh depending on whether it is moved on the West or East Branch of the SWP, respectively.

State Water Project (SWP) power costs have two primary components: the Transportation Variable component of the Operations, Maintenance Power and Replacement Charge and the Off-Aqueduct Charge. The Variable Power Charge is an average rate that melds the net activity of power generation on the SWP, power sales and power purchases. In general, when power generation on the Project exceeds the need for the SWP's own energy requirement (e.g. when water demands are low during wet periods) the Variable Rate is reduced and sometimes even becomes negative for short periods of time.

Conversely, when the demand for water from the SWP is large, the SWP energy requirement often outstrips SWP power resources and

DWR is forced to purchase energy in the open wholesale market. Overall, the SWP is a net purchaser of electricity. Hydrologic conditions, SWP operations and energy market conditions all influence the variable rate. The Off-Aqueduct Charge recovers DWR's costs for energy generated at the Reid Gardner power plant in Nevada.

Metropolitan's System Power Rate recovers the combined costs for energy on the CRA and SWP. Effective January 1, 2005, the System Power Rate is \$81 per acre-foot. Each year, Metropolitan faces both volume risk (the amount of energy it will need) and price risk (the cost of this energy). When Metropolitan is pumping additional amounts of water it is also selling this water and generating revenue through the System Power Rate. Therefore, water sales revenue provides a natural hedge against volume risk. However, price risk must be actively managed. While a policy is in place to address price risk (and other risks inherent in the energy marketplace such as counterparty credit risk) on the CRA, Metropolitan's control over price risk on the SWP is significantly less than on the CRA. DWR, at times, is a major purchaser of energy in the wholesale power market. Metropolitan actively works with the other State Water Contractors and DWR to ensure that DWR has an energy management strategy. Currently, Metropolitan is working with DWR to develop an appropriate market strategy that includes adequate resources (i.e., staffing and expertise) as well as specific energy management strategies to minimize the risk that unexpected energy costs will disrupt State Water Contractor operations.

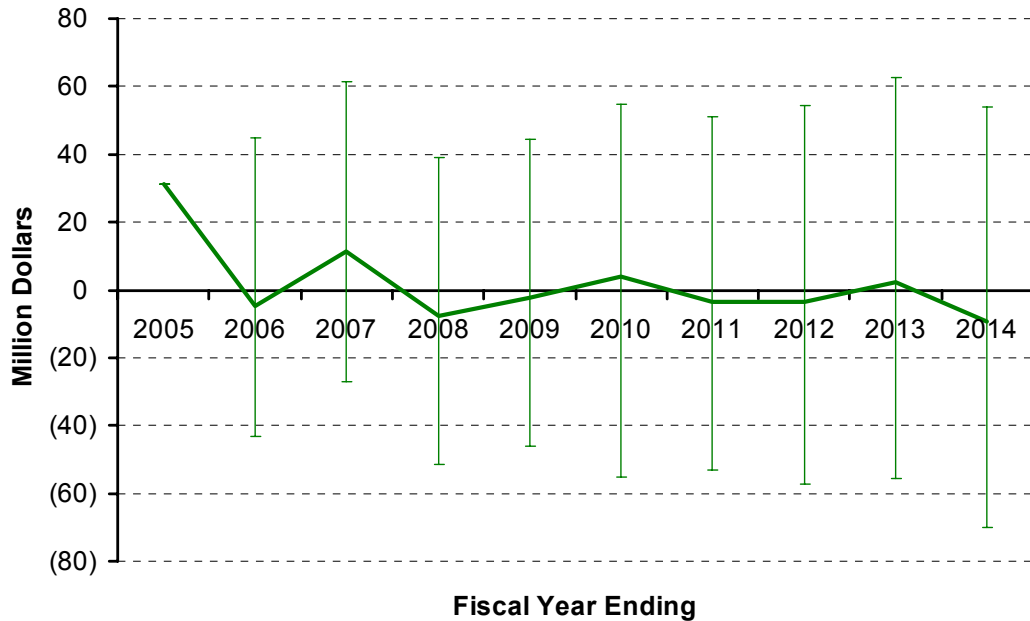
## **15.2. Supply Program Costs**

As Metropolitan continues to develop water transfers and storage programs to meet goals outlined in the updated IRP, it is possible that water supply costs will both increase and become more variable. Metropolitan is developing option based transfer contracts to help mitigate cost risk. Under these contracts, Metropolitan pays an up-front premium to secure the option of purchasing water at a future date, but only if needed.

An analysis of total supply program costs recovered by the Tier 1 and Tier 2 Supply Rates was conducted to estimate the potential future net impact of variable cash flows. The analysis indicates that although water supply program costs do increase significantly during dry years when additional supplies are needed, during these same years, system demands will most likely also increase leading to higher than average water sales and increased revenue. Figure 18 illustrates that net supply revenue (Tier 1 and Tier 2 Supply Rate revenue less supply costs) is anticipated to be (on average) zero through 2013/14 (i.e., the supply rates are set to recover costs assuming average sales and supply conditions). However, during dry years when sales increase and supply program costs increase, the revenues may exceed costs in some cases. During these periods, additional revenues will be placed in

the Water Rate Stabilization Fund to be used to offset those years when sales decline due to wet weather events and are insufficient to recover fixed costs.

**Figure 18. Supply Revenue Less Supply Revenue Requirement**



### 15.3. Water Sales

The sales forecast is a critical element because it affects so many facets of the LRF. Metropolitan coordinates with its member agencies to review retail level demands and the status of local supplies. This process leads to the development of Metropolitan's expected sales forecast. After weather and hydrology are factored into the sales forecast a range of demands on Metropolitan's system is available for facility planning, resources planning and financial planning purposes. As the sales forecast increases, future costs for financing additional capital facilities and developing additional water supplies also go up. However, higher expected average sales also help reduce the need for additional rate increases by spreading costs among a larger sales base. As the long-term trend for sales remains flat or decreases, additional upward pressure is added to the rates as fixed costs are recovered over a constant or decreasing sales base.

Planning for the uncertainty in water sales is an important element of the LRF. Since 1989/1990 Metropolitan's total sales have varied by as much as plus 36 percent to minus 18 percent from one year to the next. Since 1989/1990, sales have ranged from a high of about 2.5 million acre-feet in 1989/1990 at the height of the last major drought, to a low of about

1.5 million acre-feet in 1997/1998, and have averaged about 1.95 million acre-feet per year. High sales over the last four years are attributed to the dry conditions that Southern California has experienced. The LRFPP assumes that sales will gradually return to expected average levels of about 2.26 million acre-feet by 2006, consistent with the analysis in the updated IRP.

Variations in water sales translate into significant variability in water sales revenues. Metropolitan's plan for maintaining predictable and stable volumetric rates in the face of changing acre-feet sales due to weather and hydrology is to use the Water Rate Stabilization fund and Treatment Surcharge Stabilization fund to offset variations in water sales revenues so that a below average sales year will not result in an increase in rates. During years when sales are above average, revenues in excess of what is needed to cover Metropolitan's obligations are deposited into these funds. During years when sales are below average and revenues fall short of covering Metropolitan's obligations, revenues are withdrawn from these funds.

Current policy governing these funds, developed during the 1999 update of the Long Range Finance Plan, uses a formula to define a minimum and maximum reserve balance for the combined balance of the water rate stabilization and revenue remainder funds. The formula considers three factors: (1) the amount of annual non-treatment related fixed costs that are recovered by volumetric rates; (2) the annual variation in sales revenue; and (3) the duration of a period of low sales. The maximum reserve level is defined as 3.5 times 17.5 percent of annual non-treatment related fixed costs. The 3.5 times represents the duration in years of a period of low sales. The 17.5 percent represents the annual variation (decrease) in sales. Therefore, Metropolitan may retain reserves sufficient to pay 17.5 percent of its non-treatment related fixed costs for up to 3.5 years. If the combined balance of the water rate stabilization fund and revenue remainder fund exceed the maximum reserve level the Board may use the funds for any lawful purpose.

## **Section 4.**

# **Debt Management**



## **Section 4. Debt Management**

Metropolitan's primary financing objectives are as follows:

- Meet all funding requirements of the CIP
- Take advantage of financing opportunities in the capital markets to mitigate future increases in debt service costs
- Use future financings and available cash reserves to restructure Metropolitan's annual debt service costs in order to smooth out the near-term impacts of financing costs on water rate payers

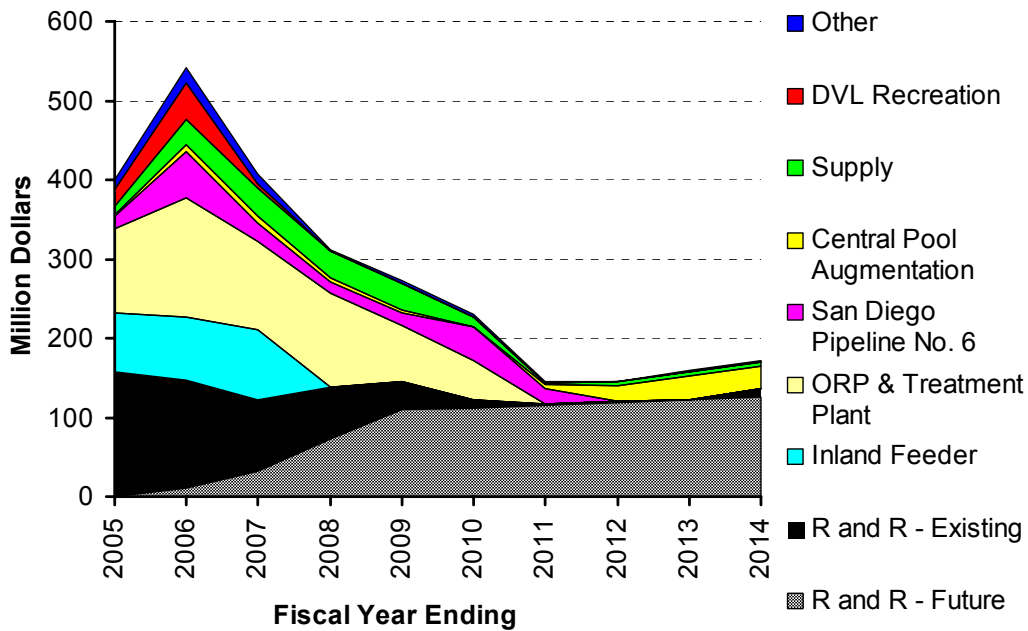
For the past three years, staff has worked closely with the Board through the Board's Budget, Finance, and Investment Committee, and the Subcommittee on Investments and Bond Financing, to develop financial procedures and policies that will enhance value to its member agencies and better manage Metropolitan's assets and liabilities.

Metropolitan's Master Swap Policy and Bond Refunding Guidelines enable Metropolitan to take advantage of opportunities in financial markets that in prior years were not available. From August 2001 to June 2004, interest rate swap transactions and additional bond refunding opportunities have enabled Metropolitan to lower its future debt service obligations on a net present value basis by approximately \$80 million. In addition, Metropolitan has realized approximately \$11 million of cash flow savings through June 2004 from a \$200 million fixed receiver interest rate swap transaction that was executed in March 2002.

### **16. Financing the Capital Investment Plan**

Metropolitan finances capital expenditures from a combination of debt financing and internally generated funding (R&R Fund). Projected expenditures for the capital investment plan over the next ten-year period are estimated to be \$2.8 billion. The Inland Feeder project will be the single largest project over this period. Water quality projects, which include oxidation retrofits at Metropolitan's water treatment plants, will also require large cash outlays over the period. Figure 19 shows the major components of the CIP over the next ten years as estimated during the 2004/05 budget cycle.

**Figure 19. Capital Investment Plan**



Annual outlays of construction expenditures for the CIP are estimated to range from \$145 million to \$541 million over the ten-year period. The annual requirements will be funded with a combination of bonded indebtedness and funds available from Metropolitan’s pay-as-you-go program. Metropolitan will manage the funding requirements of the CIP and take advantage of financing opportunities in the capital markets by utilizing the following board adopted policies:

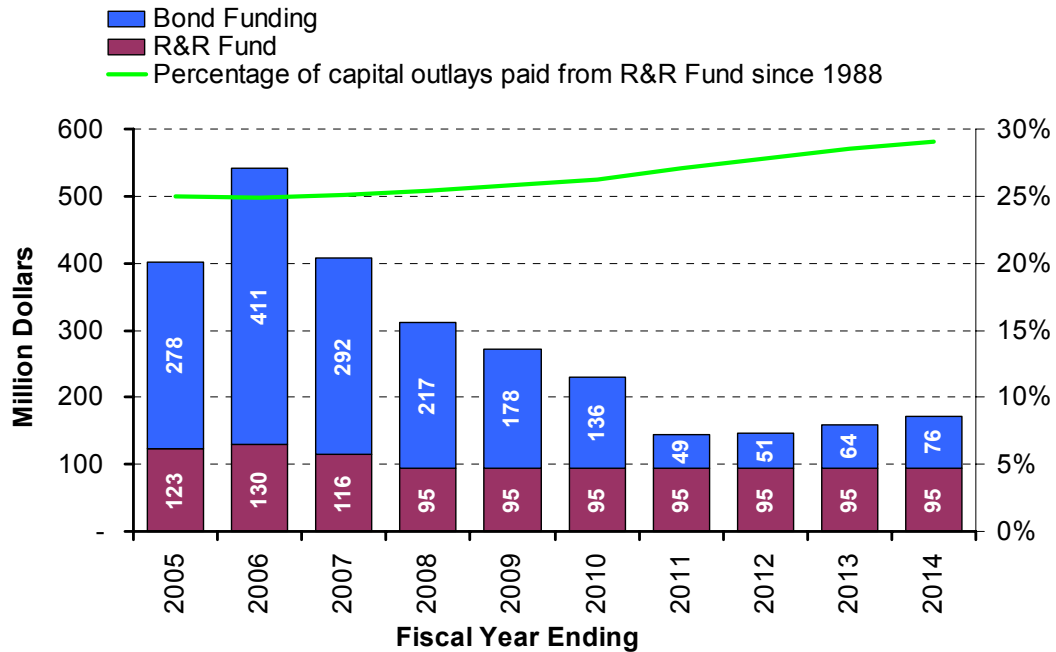
- Variable Rate Debt:** Consistent with the principles of asset / liability management, it was determined by the Board that Metropolitan would benefit by increasing variable rate debt exposure to 32 percent of total water revenue bonds outstanding. As such, Metropolitan was directed to increase variable rate debt exposure through new money debt issuance and through synthetic financial transactions. In March 2002, Metropolitan entered into a \$200 million fixed receiver interest rate swap to increase variable rate exposure to the 32 percent policy level. The appropriate level of variable rate debt exposure is continually reviewed and analyzed by staff. Metropolitan’s tolerance to changes in interest rate levels will be quantified relative to a net dollar impact to Metropolitan rather than the flat percentage methodology. By changing the policy to a net interest cost methodology, Metropolitan will be able to adjust its exposure to changes in interest rates as available cash balances change over time. Therefore, the primary factors in determining the amount of variable rate exposure will be the cash balances available in the investment portfolio and Metropolitan’s risk tolerance to changes in interest rates.

- Interest Rate Swap Program: Metropolitan may utilize interest rate swaps to reduce costs, reduce risk, restructure annual debt service payments, or manage the duration of debt in accordance with California law. As such, in September 2001 Metropolitan established a Master Swap Resolution and a Master Swap Policy that provides the necessary authority to execute such transactions and details the parameters for operating an interest rate swap program. The benefits to Metropolitan of an interest rate swap program, the policy objectives of the swap program, and the Master Swap Policy are detailed in this update to the LRF.
- Asset Replacement Study: A database of Metropolitan's fixed assets has been created that will be used to forecast the annual replacement and refurbishment needs of Metropolitan and is used to determine the annual pay-as-you-go funding requirements for the CIP. The information will increase Metropolitan's awareness of the timing of the future funding requirements needed to replace or refurbish its assets.
- Refunding Guidelines: Metropolitan has been able to take advantage of opportunities in the municipal bond market to lower the cost of outstanding debt obligations through bond refundings (including debt restructuring opportunities). The Board modified Metropolitan's bond refunding guidelines in April 2003. The new bond refunding guidelines will enable Metropolitan to enhance debt portfolio performance and take advantage of market opportunities that were not available under prior bond refunding guidelines. The new bond refunding guidelines are detailed in Appendix 1.

#### **16.1.1. Debt Management Strategies**

Debt funding requirements will be determined by the funding requirements of the CIP, and the availability of R&R funding levels either through current year operating revenues or from prior period reserves, through the asset replacement fund. Figure 20 summarizes the funding sources for the CIP.

**Figure 20. Capital Investment Plan Funding Sources**



The type of debt financing at any given point in time is influenced by a number of factors, including, but not limited to the following:

- The existing make-up of Metropolitan’s debt portfolio
- The general level of interest rates for municipal bond financing
- The relative level of interest rates associated with synthetic transactions
- The term of a financing transaction
- Variable rate debt exposure
- The dollar size of Metropolitan’s investment portfolio
- The availability and cost of liquidity facilities
- The shape of the various interest rate curves (steep or flat)
- The spread between tax-exempt and taxable interest rates
- Other considerations

### 16.1.2. Debt Service Coverage

Debt service coverage is an indicator of a municipal utility’s margin of cash flow to pay its debt service costs. The higher the coverage the more of a cushion exists to protect the bond holders from default.

Therefore, credit analysts have traditionally used debt service coverage as the primary indicator of credit quality – higher coverage equates to higher credit quality.

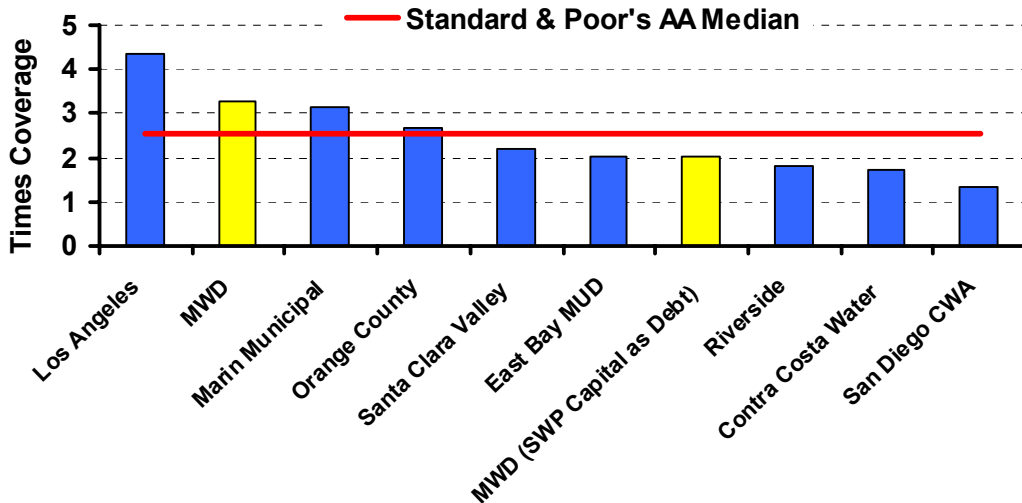
Debt service coverage is calculated as follows:

$$\text{Operating revenues} - \text{operating and maintenance costs} + \text{other revenue pledged to debt service}$$

It should be noted that if capital projects are funded by the R&R Fund, debt service costs will be reduced (due to reduced debt issuance) and thereby increasing the debt service coverage.

While most municipal water enterprises covenant to maintain a relatively low coverage, it is common for actual coverage to be substantially higher. For example, the median coverage for S&P AA rated municipal utilities is 2.55 times. Metropolitan has set a goal to maintain minimum debt service coverage of 2.00 times. In 2002/03, high water sales pushed Metropolitan’s coverage up to 3.26 times. However, over the three previous years the coverage averaged 2.56 times. Figure 21, shows the most recent debt service coverage of Metropolitan and some of its customers.

**Figure 21. Debt Service Coverage (based on 2001/02 & 2002/03 data)**



At first glance, it appears that Metropolitan’s debt service coverage ratio is above the Standard and Poor’s median. However, when Metropolitan’s SWC capital payments are including into the coverage calculation (treated as subordinate debt) the coverage is reduced to below the national average for AA municipal water utilities. A portion

of the capital payments to DWR represent Metropolitan's proportionate debt service obligation, therefore, the payment represents subordinate debt payments. In fiscal year 2002/03 fixed charge coverage was 1.96 times.

### **16.1.3. R&R Funding**

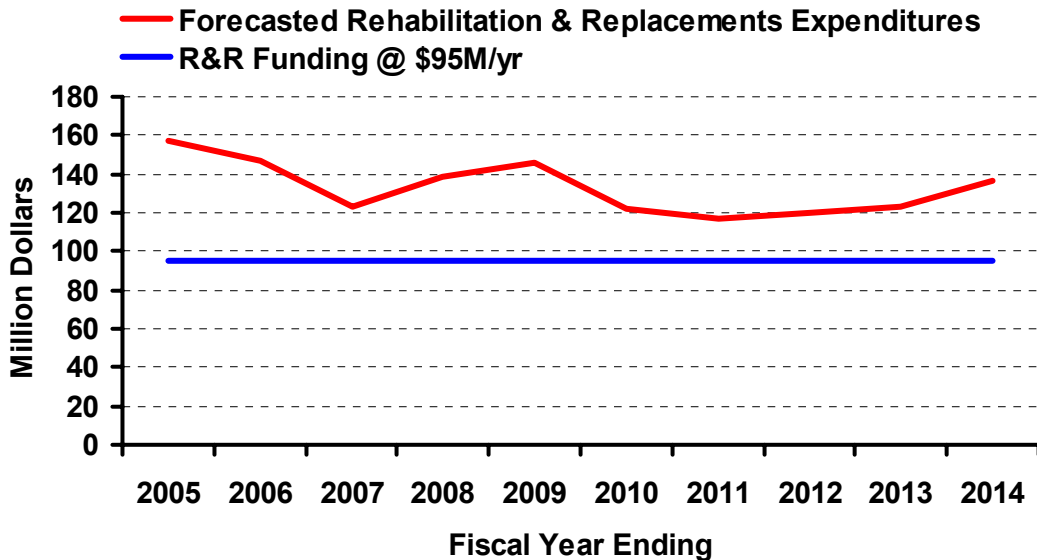
The R&R Fund (PAYG) policy was last amended on June 11, 2002 to include replacement and refurbishment (R&R) projects (or a portion thereof). At the time it was estimated that for the R&R Fund to cover all R&R expenditures through 2011/12, the R&R Fund deposit would have to be increased by \$5 million per year from its 2002/03 level of \$90 million. However, for the 2004/05 Budget the R&R Fund deposit was budgeted at \$95 million instead of \$100 million to mitigate upward rate pressure.

Figure 22 illustrates the trends in the expected level of replacement and refurbishment expenditures and \$95 million in R&R funding. To the extent that the actual R&R expenditures are greater than \$95 million and upward pressure on water rates is not a significant factor, the Board may decide to increase the annual R&R funding amount. However, given current expenditure and sales trends the LRF assumes that only \$95 million per year will be used to fund R&R through 2013/14. To continue with the original policy statement of increasing deposits to the R&R Fund by \$5 million per year would increase the average rate by an additional \$15 per acre-foot by 2013/14.

While a lower annual deposit to the R&R Fund could lead to near term rate increases that are lower than those shown in the forecast in the LRF there are costs to consider for this type of a strategy. For example, an annual deposit to the R&R Fund of \$55 million per year would decrease the annual revenue requirement in the near term by \$40 million. However, additional debt would have to be issued each year to continue to fund the capital program. As the debt service costs rise and offset the initial short-term reduction from a lower R&R level this advantage goes away. By 2013/14 the average rate would only be about \$6 per acre-foot lower than the current forecast and outstanding debt would be about \$400 million higher.

Figure 20, shown earlier, illustrates that the ratio of capital funded from the R&R Fund to total capital is expected to trend from 25 percent to 28 percent over the next ten years. If the CIP increases from \$2.8 million and the R&R funding is held at \$95 million then this ratio will most likely stay around 25 percent or even decrease.

Figure 22. R&R Expenditures vs. R&R Funding



#### 16.1.4. Debt Restructuring

Currently, Metropolitan's annual debt service requirements for outstanding debt range from \$147 million to \$188 million per year through 2010. Annual financing costs of the CIP represent approximately 20 percent of the total annual expenditure requirements of Metropolitan. In order to mitigate the impact of increasing debt service payments on water rate payers, Metropolitan can restructure its annual debt service requirements to reduce and smooth out annual debt service payments. The following issues impact Metropolitan's decision making regarding the restructuring of debt:

- Timing and sizing of new money debt issuance.
- Structure of annual debt service payments for new money debt issuance.
- Metropolitan's willingness to periodically modify the level of variable rate debt exposure.
- The level of interest rate swap exposure, in total, and by counterparty.
- Amount and timing of available cash reserves for cash defeasances.
- Extent of bond refunding opportunities for outstanding debt.

Once the various financial issues are addressed, Metropolitan can employ various debt restructuring strategies that consider the following:

- Debt restructuring can be realized through bond refundings and through interest rate swap transactions in historically low interest rate markets.
- Use of available cash reserves to defease outstanding debt.
- Reduction in near term debt service requirements, with extension of principal payments to better match the average life of the assets initially funded from debt proceeds.
- Annual debt service payments for new money debt issuance can be structured to level out annual debt service payments.

Due to prior bond refundings and cash defeasances of debt, Metropolitan's debt service requirements over this period (and beyond 2010) increase and decrease from year to year in an uneven pattern. Metropolitan has embarked on a debt restructuring strategy that will smooth out the annual increases in debt service requirements as the current capital investment plan is financed. In July 2003, Metropolitan refunded approximately \$37 million of water revenue refunding bonds. As part of the transaction and as part of the overall debt management strategy, the annual debt service requirements for the refunding bonds was structured to enable Metropolitan to begin a debt restructuring program to mitigate the impact on water rate payers (over the next five-year period) of increasing annual debt service requirements.

Annual debt service requirements after the refunding transaction were reduced by an average \$4 million per year through 2008. This represents approximately \$2 per acre-foot to water rate payers. In addition to restructuring debt service payments through debt refundings, in July 2000 Metropolitan's Board approved the use of approximately \$84 million of funds available over the June 30, 2000 maximum reserve requirement to be used over a five-year period to cash defease additional debt obligations. As such, Metropolitan is able to further mitigate the impact of debt service payments on water rate payers over the next two-year period by cash defeasing debt to smooth out the annual increases in debt service payments.

## **17. Asset Liability Management**

During fiscal year 2001/02, at the direction of the Subcommittee on Investments and Bond Financing, Metropolitan modified its approach to managing interest rate risk by focusing on asset liability management. In general, Metropolitan's interest rate risk is minimized when long-term assets are matched with long-term fixed rate debt, and short-term assets are matched with variable rate debt. The primary



purpose of asset liability matching is to mitigate the risk to Metropolitan of changing interest rates in both the taxable and tax-exempt markets. With the proper mix of fixed and variable rate debt, Metropolitan can reduce the risk to water rate payers of rising and declining interest rates by managing variable rate exposure.

In a declining interest rate market, Metropolitan's short-term investments will generate less interest income, while the cost of fixed rate debt will remain the same, thereby increasing the net cost in Metropolitan's balance sheet. In a declining interest rate environment, the cost of variable rate debt will be decreasing, thereby offsetting a portion of the reduced interest income generated from the short-term investment portfolio. The reduction in net interest income will be mitigated by the savings in debt service.

Conversely, in a rising interest rate environment, the cost of Metropolitan's variable rate debt will increase, but will be offset by additional interest income from short-term investments. Additional income generated from the short-term investment portfolio will typically lag the increased costs of the variable rate debt. Therefore, the additional cost of variable rate debt is not perfectly hedged by additional interest income from the short-term investment portfolio. Since additional costs of variable rate debt in a rising interest rate environment cannot be fully mitigated by additional interest earnings from the short-term investment portfolio, Metropolitan determines the amount of additional interest risk that is acceptable. The additional costs to Metropolitan as a result of a rising interest rate environment may be calculated as additional net interest costs (defined as additional interest costs on variable rate exposure less additional interest income from the short-term investment portfolio).

### **17.1. Variable Rate Debt Policy**

Metropolitan's existing variable rate debt policy was implemented in the spring of 2000 after extensive analysis by staff, Metropolitan's financial advisors, and Metropolitan's senior investment banking team. As a result of the analysis, the Board adopted a policy setting a variable rate target of 32 percent of total water revenue bond debt outstanding. The primary reason for the increase in variable rate exposure to the 32 percent level was to better match Metropolitan's financial investments with variable rate exposure, thereby mitigating the financial impact to Metropolitan of rising and declining interest rates.

However, financial markets have continued to change since the Board implemented the existing policy as interest rates have declined to historically low levels and other financial factors that influence variable rate debt strategies have changed. In addition, in September 2001 the Board adopted a Master Swap Policy that will enable Metropolitan to utilize synthetic financial products to better manage its asset/liability structure. As such, a different approach to determine the appropriate level of variable rate exposure for Metropolitan is warranted.

In the spring of 2000, staff and Metropolitan's financial advisors reviewed the results of various analyses using statistical simulation models performed by Metropolitan's senior investment banking team to assist Metropolitan in determining the appropriate level of variable rate exposure. The statistical simulation methods utilized by Metropolitan's senior investment banking team generated sequences of random events (utilizing historical data) related to taxable investment earnings rates and tax-exempt borrowing rates. The focus of the analyses was on the relationship between short-term taxable and short-term tax-exempt interest rate levels. The result of the statistical modeling was used as the basis for Metropolitan to establish the current variable rate debt policy of 32 percent of total water revenue bond debt outstanding. As of June 2004 Metropolitan has \$947 million of variable rate water revenue bonds outstanding. In March 2002, Metropolitan priced a \$200 million fixed receiver interest rate swap that increased variable rate exposure from 25 percent to the 32 percent board policy level. As of June 30, 2004, an additional \$785 million of variable rate debt is outstanding, but by virtue of interest rate swap agreements are treated as a fixed rate obligations to Metropolitan.

## **17.2. Appropriate Level of Variable Rate Debt Exposure**

The appropriate level of variable rate exposure for Metropolitan is influenced by a number of factors, including the amount of funds available in the short-term investment portfolio, Metropolitan's tolerance to increases in net interest costs, credit rating considerations, liquidity provider capacity, swap counterparty capacity, and Metropolitan's overall asset and liability management guidelines and policies. The simulation analyses performed in the spring of 2000 considered these factors and used the following assumptions and considerations in determining the appropriate level of variable rate exposure for Metropolitan:

- No one level of variable rate exposure will completely eliminate interest rate risk;
- The optimal amount of variable rate exposure is the level that minimizes the variance in net interest margin (net interest margin is defined as the difference between taxable net interest earnings and tax-exempt interest payments);
- A static relationship between the taxable yield curve and the tax-exempt yield curve;
- Short-term tax-exempt interest costs were modeled utilizing the Bond Market Association ("BMA") index;
- The short-term investment portfolio totaled at least \$475 million; and
- No changes in the Federal income tax structure.

The results of the simulation analyses concluded on average that Metropolitan could increase its variable rate exposure to 32 percent of total water revenue

bond debt outstanding. Based on a short-term investment portfolio of \$475 million, this conclusion represented “hedged” variable rate debt exposure of \$825 million and “unhedged” variable rate debt exposure of \$275 million. The interest rate hedge assumes that the \$475 million available in the short-term investment portfolio is invested at taxable rates that “cover” the interest payments on \$825 million of tax-exempt variable rate debt. That is, in a rising interest rate environment, the additional interest income generated from the \$475 million short-term portfolio approximates the additional interest expense associated with \$825 million of variable rate debt.

The analyses also concluded that interest rate risk was reduced by shortening the duration of assets and increasing the amount of the assets available to hedge variable rate exposure. Therefore, the greater the balance in the short-term investment portfolio, the greater the amount of variable rate exposure that could be tolerated by Metropolitan. Conversely, the lower the balance in the short-term investment portfolio, the lower the amount of variable rate exposure that could be tolerated by Metropolitan. This is an important conclusion of the analyses, because the balance in Metropolitan’s short-term investment portfolio will vary from year to year. In addition, Metropolitan can derive more benefit by moving down the much steeper tax-exempt yield curve by increasing variable rate exposure, than it loses by shortening investments (and increasing the balance in the short-term portfolio). The cost benefit analysis concluded that Metropolitan can increase its variable rate debt exposure (the hedged portion) by increasing the amount of funds available for investment in the short-term investment portfolio while simultaneously reducing interest rate risk. The results of the sensitivity analyses illustrated that the value of the results are highly dependent on the assumptions used to reach a result or conclusion.

Metropolitan must still determine an acceptable level of “unhedged” variable rate exposure over and above the hedged position in order to reach a policy level. The “unhedged position” is subjective in nature, but can be determined by focusing on the net dollar impact to Metropolitan in a changing interest rate environment. Therefore, rather than establish a variable rate exposure policy that focuses primarily on a percentage of total water revenue bonds outstanding, Metropolitan’s tolerance to changes in interest rate levels must be quantified relative to revenue and cost projections used during the annual budget and rate setting process. By changing the policy focus from a percentage calculation to a methodology that recognizes the net interest cost impact to Metropolitan, Metropolitan can more effectively manage the impact of changes in interest rates to the water rate payers.

### **17.3. Metropolitan’s Tolerance to Changes in Interest Rates**

To mitigate interest rate risk, the primary factor in determining the appropriate level of variable rate exposure is the amount of funds available in the short-term investment portfolio. When short-term investments are re-invested in a rising interest rate market, a portion of the interest rate risk associated

with variable rate debt instruments is mitigated. As such, the financial impact to Metropolitan of fluctuations in interest rates may be mitigated by managing the amount of variable rate exposure to the short-term portion of the investment portfolio. **The primary goal of asset liability management is to mitigate the impact of increased interest costs in a rising interest rate environment, and mitigate the impact of decreased interest income in a declining interest rate environment.** To determine the proper asset/liability balance, Metropolitan must first determine its risk tolerance to rising and declining interest rates. In order to determine Metropolitan's tolerance to rising and declining interest rates, the financial impact to Metropolitan was evaluated by determining net interest costs and reduced interest income under a number of interest rate sensitivity scenarios. The following assumptions were used in the sensitivity analysis:

- Short-term investment portfolio of \$500 million
- Short-term investment portfolio weighted average days to maturity of 120 days
- Variable rate exposure of \$955.2 million
- A taxable to tax-exempt ratio of 1.6 times, which represents the taxable to tax-exempt spread between short-term investment rates and the cost of Metropolitan's variable rate debt

#### **17.4. Metropolitan's Tolerance to Rising Interest Rates**

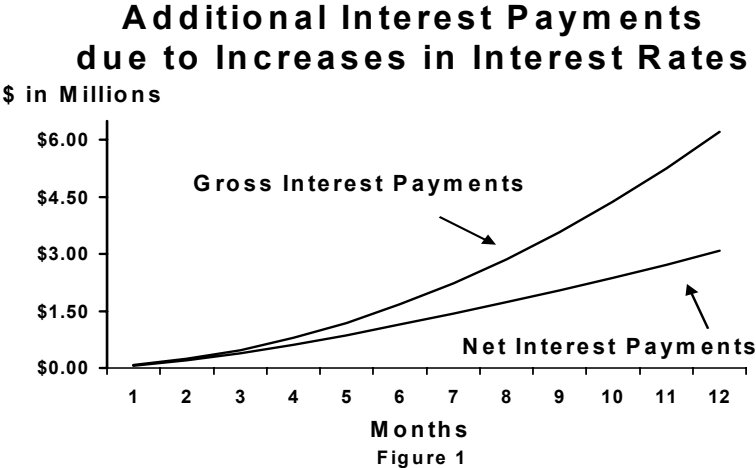
Net interest costs are defined as additional interest costs, less additional interest income from the short-term investment portfolio. The analysis focused solely on the additional interest income and additional interest costs over the period, not the absolute dollar amounts for interest income or interest expense. In this way the impact to Metropolitan of rising interest rates can be isolated. *The assumption is that the interest income and interest costs used in establishing water rates during the water rate setting and annual budget process do not take into account the impact of changes in interest rates over the rate setting or budget period.* Therefore, interest income and interest costs using interest rates at the time the budget and water rates and charges are adopted are already factored into Metropolitan's flow of funds. The financial impact (positive or negative) to Metropolitan in a rising interest rate market is based solely on the additional net interest cost not factored into the rate setting or annual budget process (Metropolitan's "reserves at risk").

Given a \$500 million short-term investment portfolio with an average maturity of 120 days, interest income was projected over a one-year period in a rising interest rate market. A proxy for taxable interest rates was used and assumed to increase by 10 basis points per month over the one-year period. As the portfolio rolled off, the funds were reinvested (maintaining the 120-day average maturity) in a rising interest rate environment, thereby increasing Metropolitan's investment income over the period. Additional interest income

was then compared to the additional costs to Metropolitan (when interest rates rise) on \$955.2 million of variable rate exposure.

With variable rate exposure of \$955.2 million, a monthly increase of 10 basis points per month will increase the cost of Metropolitan’s variable rate instruments by \$6.2 million over the one-year period. The interest rates for the variable rate exposure are anticipated to re-set in a daily or weekly interest rate mode. Although additional interest costs of \$6.2 million would be borne by Metropolitan over the period, the additional interest income would mitigate the net interest increase to \$3.1 million over the period. Figure 19 illustrates the additional net interest cost to Metropolitan in a rising interest rate market.

**Figure 23. Additional Interest Payments**



In a rising interest rate market, there will be additional net interest costs associated with variable rate exposure that were not anticipated during the water rate setting or annual budget process. Metropolitan’s water rate payers would have to bear the financial burden of any additional net interest costs because such costs would be paid from the Water Rate Stabilization Fund reducing the availability of these funds to offset future water rate increases. The overall financial impact of additional net interest costs has to be taken into context with Metropolitan’s overall budget. Since water sales revenues have averaged approximately \$670 million per year from 1993 to 2002, a \$3.1 million increase in net interest costs has a relatively minor impact on Metropolitan’s overall financial condition.

The financial impact to Metropolitan of increasing variable rate exposure above the current level of \$955.2 million was estimated to determine if additional variable rate exposure was warranted. The following table

summarizes the potential net interest costs to Metropolitan in a rising interest rate environment for various levels of variable rate exposure:

**Table 8. Net Interest Costs**

<b>Variable Rate Exposure</b>	<b>Additional Net Interest Cost</b>
\$ 955.2 million	\$3.1 million
\$1,055.2 million	\$3.7 million
\$1,155.2 million	\$4.4 million
\$1,255.2 million	\$5.0 million

The analyses used the same set of parameters and assumptions as were previously described including a short-term investment portfolio of \$500 million with a 120-day average maturity. The results of the analyses illustrate that if Metropolitan increases its variable rate exposure above the current level of \$955.2 million, additional net interest costs of up to \$5.0 million may be realized in a rising interest rate environment. Using the additional net interest cost sensitivity, the decision to adjust the level of variable rate exposure above or below the current level will be determined by the amount of “reserves at risk”.

### **17.5. Metropolitan’s Tolerance to Declining Interest Rates**

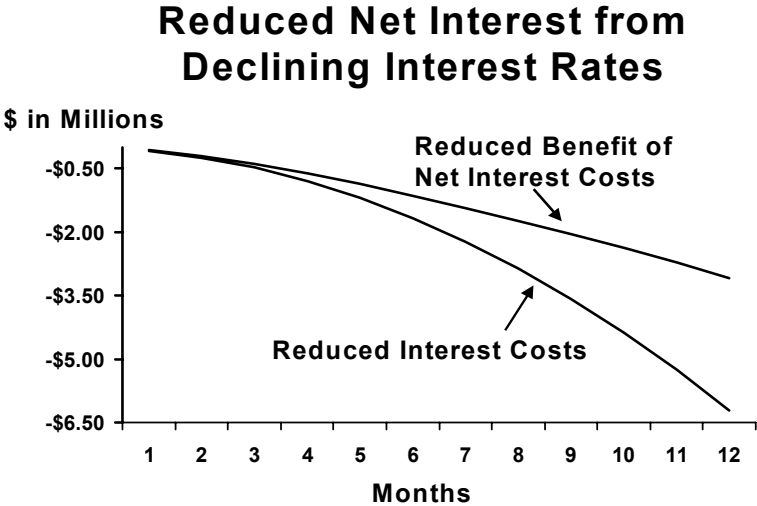
In trying to quantify the potential financial impact to Metropolitan of a declining interest rate market, staff examined the reduction in net interest income to Metropolitan under a number of assumptions. Another way to consider the reduction in net interest income is to focus on the reduced benefit of lower interest costs due to less interest income in a declining interest rate environment. Metropolitan will realize the benefits of lower costs associated with variable rate exposure in a declining interest rate environment, but that benefit will be reduced by the amount of reduced interest income over the same period. Reduced net interest income to Metropolitan is defined as lower interest income in a declining interest rate environment net of the reduced interest costs associated with variable rate exposure. As interest rates decline, the cost of Metropolitan’s variable rate exposure will also decrease mitigating the impact on the short-term investment portfolio of a decline in taxable interest rates. The analysis focuses solely on the interest income and additional reduced interest costs over the period, not the absolute dollar amounts of interest income or interest expense.

Given a \$500 million short-term investment portfolio with an average maturity of 120 days, interest income was projected over a one-year period in a declining interest rate market. A proxy for taxable interest rates was used and assumed to decrease by 10 basis points per month over the one-year

period. As the portfolio rolled off, the funds were reinvested (maintaining the 120-day average maturity) in a declining interest rate environment, thereby decreasing Metropolitan’s investment income over the period. Reduced interest income was then compared to the reduced costs to Metropolitan associated with \$955.2 million of variable rate exposure.

With variable rate exposure of \$955.2 million, a monthly decrease of 10 basis points per month will decrease the cost of Metropolitan’s variable rate exposure by \$6.2 million over the one-year period. Although Metropolitan would realize reduced interest income of \$3.1 million over the period, the reduced interest costs would mitigate the net decrease in interest income to \$3.1 million over the period. The following chart illustrates the reduced net interest realized by Metropolitan from declining interest rates.

**Figure 24. Reduced Net Interest Realized**



Since reduced net interest income will be realized in a declining interest rate environment, staff examined the financial impact to Metropolitan of increasing variable rate exposure above the current level of \$955.2 million. The following table summarizes the potential reduced benefit of net interest costs realized by Metropolitan in a declining interest rate environment for various levels of variable rate exposure:

**Table 9. Reduced Benefit of Net Interest Costs**

<b>Variable Rate Exposure</b>	<b>Reduced Benefit of Net Interest Costs</b>
\$ 955.2 million	\$3.1 million
\$1,055.2 million	\$3.7 million
\$1,155.2 million	\$4.4 million
\$1,255.2 million	\$5.0 million

The analyses used the same set of parameters and assumptions as were previously described including a short-term investment portfolio of \$500 million with a 120-day average maturity. The results of the analyses illustrate that if Metropolitan increases its variable rate exposure above the current level of \$955.2 million, the reduced benefit of lower interest costs may be up to \$5.0 million in a declining interest rate environment. That is, in a rising interest rate environment, Metropolitan could realize additional costs of between \$3.1 million and \$5.0 million per year. Conversely, in a declining interest rate environment, Metropolitan could realize reduced costs of between \$3.1 million and \$5.0 million.

#### **17.6. Rating Agency Consideration**

In determining the appropriate level of variable interest rate exposure, the credit rating agencies consider such factors as the type of debt issued, Metropolitan's financial flexibility, sources of liquidity, Metropolitan's asset liability management philosophy, and the prudent use of other financial tools such as interest rate swaps. Therefore, any decision to change Metropolitan's variable interest rate exposure will be thoroughly discussed and reviewed with the rating agencies. Metropolitan has been in discussions with Fitch, Moody's, and Standard and Poor's regarding changes or modifications to the existing variable rate policy. Any changes to the policy will be reviewed with the rating agencies to ensure Metropolitan's strong credit ratings.

#### **17.7. Liquidity Provider Capacity and Risks**

Variable rate debt obligations have tender features that necessitate the use of liquidity support for the purchase price of tendered but unremarketed variable rate bonds. Metropolitan uses standby bond purchase agreements provided by highly rated financial institutions as the source of liquidity for the tendered bonds. Since there exists the need to constantly provide for a source of liquidity, Metropolitan incurs liquidity risk. The cost to Metropolitan for liquidity facilities currently ranges from 12 basis points to 25 basis points per year of principal and interest coverage for all outstanding variable rate debt obligations. In addition, Metropolitan is exposed to liquidity risk upon the



expiration of each liquidity facility. Current market levels for liquidity facilities for Metropolitan is approximately 12 to 40 basis points per year depending on the term of the liquidity agreement. If the market for liquidity facilities changes in the future, Metropolitan's variable rate policy may be affected. Metropolitan continually monitors liquidity provider capacity and costs in consideration of increasing variable rate debt exposure.

### **17.8. How Metropolitan Will Utilize Asset Liability Strategy**

Metropolitan's existing variable rate policy is a financially sound method to determine the appropriate level of variable rate exposure. Mainly due to limited funding available in the short-term investment portfolio, concerns over additional unbudgeted interest costs in a rising interest rate environment, and concerns over reduced interest income in a declining interest rate environment, Metropolitan's variable rate policy needs to be modified. Metropolitan's ability to manage both its short-term assets and variable rate liabilities is the primary consideration in trying to develop a prudent variable rate policy that takes into account the overall financial impact to Metropolitan of rising or declining taxable and tax-exempt interest rates.

Metropolitan will manage and communicate its short-term assets and variable rate liabilities by first establishing a baseline from which to determine the financial impact of changing interest rates. The baseline will be used as a measure (starting point) which will enable Metropolitan to quantify at any given point in time the dollar impact of rising or declining interest rates. In order to mitigate the dollar impact of net interest exposure in a rising interest rate environment, a reserve funding mechanism may be established. Through appropriate monitoring, reporting, and strategy recommendations to the Board, Metropolitan will be able to prudently manage and quantify its net interest rate exposure.

#### Establishing a Baseline Methodology

In order to determine how Metropolitan will manage its variable rate exposure (short-term assets and variable rate liabilities), a starting point or a baseline must first be established to use as the basis for monitoring, reporting, and quantifying the financial impact to Metropolitan of the movement of interest rates.

Metropolitan may use one or both of the following baseline methods as a means of measuring the financial impact of changes in interest rates to Metropolitan:

Start of Period Method - interest rates applicable to the cost of variable rate exposure and the short-term investment portfolio at the start of a given period (such as July 1<sup>st</sup> for a fiscal year) are used as the baseline.

Annual Budget Process Method - interest rate assumptions for the cost of variable rate exposure and for the yield on the short-term investment portfolio are used as a baseline.

During the annual budget process, estimates for interest income and the cost of variable rate exposure are generated. The revenue and cost estimates are based upon a number of factors including projections for taxable and tax-exempt interest rates. By using taxable and tax-exempt interest rates assumed during the adoption of the annual budget, Metropolitan will be able to determine throughout the fiscal year the financial impact of changes in interest rates. Anticipated interest income and interest costs for variable rate exposure as developed in the annual budget process can be compared against actual dollar amounts for interest income and interest costs associated with the changes in interest rates over the budget period. Therefore, the dollar impact to Metropolitan of changes in interest rates is isolated.

By using the start of a period or the annual budget as a baseline for measuring interest rate movement, Metropolitan can monitor, report, and develop strategies for management of its asset / liability program.

#### Monitoring and Reporting

As interest rates change throughout the fiscal year, staff will monitor the net interest cost and net interest income to Metropolitan. Periodic reports throughout the fiscal year will be provided to the Board detailing Metropolitan's net interest cost or net interest income depending upon interest rate levels relative to starting point or budget assumptions. Reporting will include the relative financial impact of increased net interest costs or reduced interest income. In order to determine the overall financial impact to Metropolitan, the increase in net interest costs and reduction in net interest income must be compared to financial indicators of Metropolitan. Comparing the impact of changes in interest rates to operating revenues and net operating revenues should provide the necessary comparison parameter. Net operating revenues are determined in Metropolitan's flow of funds by reducing operating revenues by operating expenses over a certain reporting period. Net operating revenues in conjunction with revenues from the sale of hydroelectric power and interest on investments are used to secure debt payments to Metropolitan's bondholders. The flow of funds for Metropolitan are represented as follows:

<b>Operating revenues</b>
<b>Less operating expenses</b>
<hr/>
<b>Equals net operating revenues</b>
<b>Plus revenues from the sale of hydroelectric power</b>
<b>Plus interest on investments</b>
<hr/>
<b>Equals adjusted net operating revenues</b>

By linking the financial impact of changes in interest rates to Metropolitan's net operating revenues, Metropolitan may determine the financial significance of changes in interest rates on the overall financial condition of the organization. In this way the relative impact to bondholders and Metropolitan's member agencies can be ascertained.

For example, if net interest costs have increased by \$2 million and Metropolitan's net operating revenues are \$100 million, then the relative financial impact to Metropolitan is two percent. The relative financial impact calculation can be used by Metropolitan to determine if the asset/liability mix needs to be adjusted or modified in order to reduce the percentage impact on net operating revenues. The increased net interest cost or reduction in interest income can also be used to report the impact on revenue bond debt service and fixed charge coverages. Since revenue bond debt service coverage and fixed charge coverage are primary indicators of Metropolitan's credit quality, the overall financial impact of changes in interest rates to Metropolitan and Metropolitan's bond holders can be quantified. Regardless of what indicators are used to determine the financial impact of changes in interest rates to Metropolitan, the Board must be comfortable with the risk of additional costs or reduced interest income over a certain period of time. Calculations of the impact of changes in interest rates can be communicated and explained to the Board, but the ability of Metropolitan to manage variable rate exposure is of primary importance.

Based on the results of the relative financial impact calculation, a strategy to effectively manage additional net interest costs or a reduction in interest income can be formulated and provided to the Board for consideration. The strategy to modify the asset / liability mix will include utilizing interest swaps (through Metropolitan's Master Swap Policy) to mitigate increasing net interest costs and reductions in net interest income due to changing interest rate markets.

#### Conclusion

Metropolitan's variable rate exposure policy will not be based on a fixed percentage of total water revenue bond outstanding.

Metropolitan's variable rate exposure policy should be based on the overall net dollar impact to Metropolitan of changes in interest rates.

The primary factors in determining the amount of variable rate exposure will be the balance available in the short-term investment portfolio and Metropolitan's risk tolerance to rising and declining interest rates.

The annual budget or a starting period methodology shall be used as a baseline against which to measure the impact to Metropolitan's financial condition of changes in interest rate levels.

#### Recommendation

Metropolitan's variable rate exposure policy shall be based on the overall net dollar impact to Metropolitan of changes in interest rates. Metropolitan shall measure and monitor interest rate exposure due to changes in interest rates and manage the amount of interest rate exposure to ensure that changes in interest rates do not increase net interest costs by more than \$5 million per fiscal year.