

June 18, 1999

**To:** Board of Directors (Engineering and Operations Committee—Action)  
(Budget and Finance Committee—Action)

**From:** General Manager \_\_\_\_\_

**Submitted by:** Chief Financial Officer \_\_\_\_\_

Chief Engineer \_\_\_\_\_

Assistant Chief Engineer \_\_\_\_\_

**Subject:** Appropriate Additional Funding for Completion of the Eastside Reservoir Project.

**Reference:** Appropriation No.15123 / Authorization No. 44 – Eastside Reservoir Project

### RECOMMENDATION(S)

It is recommended that your Board appropriate an additional \$115,000,000 to a total of \$2,087,100,000 to fund the Eastside Reservoir Project through completion of all remaining work.

### SUMMARY

During the construction phase of the Eastside Reservoir Project (ESRP) additional costs have resulted from quality control and inspection, design, land condemnation settlements, changes in construction scope, environmental mitigation, and changes driven by regulatory requirements. Original cost estimates underestimated the cost of quality control, inspection and field design costs performed to ensure safety of the completed dams and related structures which is of paramount importance to Metropolitan. An independent audit ordered by the Board of Directors and received in May 1999 confirmed that a revised appropriation would be required to complete remaining work.

Based on construction experience of the last three years and the benefit of defined scope for remaining work, it was possible to make reasonable projections for the cost at completion of the project. Using projections, on this information, it was estimated that the total cost of the project would increase to \$2,192,100,000. Subsequently a reassessment of project cost was conducted resulting in a total project cost of \$2,087,100,000. The cost of the recreation component will be funded under a separate appropriation.

Included in the revised estimate is a contingency of approximately \$81,400,000, providing over a 99% assurance of meeting the budget. The potential value of disputed claims has been excluded from the forecast costs. A detailed risk analysis of contingency requirements has been made and the results validate the contingency included in the estimated project cost of \$2,087,100,000.

## **JUSTIFICATION**

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An appropriation increase is required at this time to complete the project to meet an on-line date of December 1999 and to meet commitments of the Final Environmental Impact Report (FEIR). Most contracts have been either awarded by your Board or advertised for construction and rely on timely execution of work and close schedule integration of the various project features. Without an appropriation increase these features would be seriously delayed or left incomplete, precluding an on time delivery of the project.

## **ALTERNATIVE(S) TO PROPOSED ACTION**

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### **Do not appropriate funds for the ESRP**

Should funds not be appropriated to cover the projected increase in cost, a number of project features would be left incomplete which would impact the operation of the project and various commitments of the FEIR would not be met. This could result in impacts on reliability within at least portions of the service area and a lack of flexibility in the Metropolitan supply and distribution system in future years.

## **RATE ANALYSIS**

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There are a number of alternatives under consideration to mitigate the rate impacts of these increased costs. These alternatives include reductions in other costs, both operational and capital, deferral of projects and debt financing for all, or a portion of, the increased costs.

## **ACTIONS AND MILESTONES**

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### **Eastside Reservoir Project**

- Started construction of major facilities: March 1996
- Complete construction of major facilities: December 1999

## **CEQA COMPLIANCE / ENVIRONMENTAL DOCUMENTATION**

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All California Environmental Quality Act (CEQA) requirements have been satisfied for the proposed action. In October 1991, your Board certified the Final Environmental Impact Report for the ESRP. No further environmental documentation or reviews are necessary at this time for your Board to appropriate funds under this action. Any future environmental documentation and related construction activity will be brought to your Board for authorization.

## DETAILED REPORT

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The ESRP will be formed by two earth/rockfill dams, 4.5 miles apart, within the Domenigoni and Diamond Valleys; plus a third earth/rockfill dam at the low point in the north rim, providing storage capacity of 800,000 acre feet, and a surface area of 4,500 acres. Associated hydraulic structures consist of an inlet/outlet tower, pump plant, pressure control facility, connecting tunnels, delivery pipeline, roadway and canal relocations, and forebay. The East Dam will be approximately 185 feet high and 10,500 feet long; the West Dam will be approximately 285 feet high and 9,100 feet long; and the Saddle Dam will be approximately 130 feet high above the low point in the ridgeline and 2,300 feet long.

In April 1992, an escalated project cost estimate of \$1,837,000,000 was prepared based on project features contained in the Final Environmental Impact Report (see Attachment A). The project was tracked against this estimate through September 1994 at which time it was recognized that an increase in budget was warranted based on increased cost of land, design changes and associated construction costs. At that time, a revised project estimate of \$1,972,100,000 was developed to reflect these changes and has been used to track the financial performance of the project to this date.

The cost of changes in scope or other work requirements since the establishment of the project budget of \$1,972,100,000 have been absorbed by the project's contingency. Referring to Attachment A, it is noted that the costs of quality control and inspection, additional land, environmental mitigation and necessary design changes during construction have reduced the contingency over time to the point where it is projected the project can no longer be completed within the current budget and appropriation. The budget increase is projected largely for substantially increased quality control, inspection and field design costs performed to ensure safety of the completed dams and related structures which is of paramount importance to Metropolitan.

A summary of key scope changes of the project is summarized in the following paragraphs:

**Quality control and inspection.** Construction Management (CM) staff were originally estimated prior to major construction. Upon initiation of the contracts, contractors went to multiple-shift operations and developed plans for their overall approach to the work. Metropolitan did not anticipate the CM personnel needs to respond to these approaches, particularly in the area of control of the quality of the work and inspection of foundation grouting operations. Upon reevaluation, additional personnel were identified to keep pace with the additional shift work of the contractors, including necessary field inspection and quality control staff for soils and concrete laboratory field operations. The need for a more extensive grouting inspection force was recognized as the contractor work plans were developed. Several major contracts have also experienced delays, requiring longer periods of service with the attendant additional CM costs. Metropolitan has performed a review of the minimum personnel requirements based on work plans of the contractors and determined that the projected CM staffing is the minimum required to perform the necessary inspection, quality control, surveying, and resident engineering work for each shift and construction operation.

**Design.** Design costs have experienced growth consistent with expanded needs of the project. The design staff originally employed consisted of consultant personnel and Metropolitan staff, co-located at the Cal Plaza office. This resulted in an efficient method of performing the work, with ease of communication between the consultant and Metropolitan staff. Following completion of

the main design effort, a contingent of consultant personnel was required to perform post-design services during construction. These personnel have responded to the submittal of numerous vendor drawings for pumps, motors, valves, and other fabricated equipment, as well significant shop drawing submittals from the construction contractors. As result, it has been necessary to retain a larger than expected contingent of these personnel through much of the construction phase to respond to design needs. As necessary, these personnel were supplemented with Metropolitan staff for efficient performance of work.

**Hydraulic Structures.** Original estimates generally identified the costs of the major structures at values less than now projected, including the separately fabricated pumps and valves. Pumps, valves, and fittings have been procured separately due to the two to three year lead time needed for fabrication. These items were originally included in the cost of the hydraulic structures but later broken out for advance fabrication to avoid a delay in the commissioning of these structures and to ensure that the total project schedule was not delayed. Changes in construction drawings for the hydraulics structures were required before these fabricated items could be installed. Modifications to construction work resulted from vendor submittals, control wiring diagrams, contractor furnished equipment, and regulatory requirements driven by the Division of Safety of Dams. The consequence of these changes increases the projected cost of hydraulic structures.

**Ancillary Contracts.** Certain operational roads were not considered in the original design, such as access roads for the areas in front of the dams, the quarry access road to the signal spillway and modifications to the High Water Road to make it suitable for maintenance vehicles. Aesthetic treatment of the disturbed areas in front of the dams (tree planting, hydroseeding and irrigation) are included with the project as a requirement of the FEIR.

**Land.** Land costs have increased mainly due to land condemnation costs, principally the Domenigoni settlement.

**Mitigation.** Mitigation costs have increased in response to expanded field operations and more focused emphasis on compliance efforts. Increased staff has been required to monitor dust control measures due to enhanced AQMD presence and the threat of punitive enforcement actions. Enhanced groundwater mitigation measures have been prompted by legislative intervention substantially exceeding anticipated FEIR needs, including injection wells and installation of surface water connections. Monitoring and recovery of paleontological finds exceeded any prediction of the quantity of these artifacts. Native American monitoring has continued for a period of several years at varying levels of presence.

With the benefit of a detailed scope of work and the experience of over three years of construction, it was possible to make a thorough analysis of the expected project cost at completion and to assign a contingency amount which provided an assurance that the project would be completed within the projection. This contingency is currently established at \$81,400,000, providing over a 99% assurance of meeting the budget. Disputed claim items were eliminated from the cost forecast. A separate risk analysis substantiated the value of contingency and provided a high level confidence that the revised estimate of \$2,087,100,000 would not be exceeded.

As a result of the projected budget increase, in October 1998 your Board directed an audit of the project costs and required that monthly reports be presented to the Board highlighting project costs versus budget, and reporting and analyzing variances in all budget categories.

The audit has been performed and the results presented to the Board. Monthly reports to the Board have been implemented highlighting variances between budget and projected cost by project budget category.

DGM/hjg

**Attachment 9-1A**

**Attachment 9-1A**

## FINANCIAL STATEMENT

**Eastside Reservoir and Related Facilities**  
(Program No. 15123-S)**Project Summary:**

	<b>Total Project</b>	
	<b>October 1994 Budget</b>	<b>Proposed Budget</b>
Construction	\$ 1,208,186,766	\$ 1,175,702,130
Quality control and Inspection	101,181,249	228,015,960
Design	90,181,266	127,835,742
Program Management	6,000,000	26,633,188
Recreation <sup>1</sup>	33,000,000	0
Land	334,000,000	365,617,970
Planning	17,958,942	19,300,359
Legal	8,257,514	9,138,275
Mitigation	37,301,262	53,422,255
Contingency	136,033,001	81,434,121
<b>TOTAL</b>	<b>\$ 1,972,100,000</b>	<b>\$ 2,087,100,000</b>

<sup>1</sup> Costs exclude estimated recreation construction costs of \$58,000,000 as well as the cost of recreation design, construction management, off-site roadway improvements and operational start-up carried in other line items of the October 1998 project estimate (\$2.192 Billion) for a total cost of \$91,000,000. Planning costs associated with the recreation program will be transferred when a recreation appropriation is established.

The total cost breakdowns for Authorization Nos. 43 and 44 to Appropriation No. 15123 are shown below:

	<b>AUTHORIZATION NO. 43</b>	<b>AUTHORIZATION NO. 44</b>
Labor:		
Preliminary Engineering, Final Engineering, and Preparation Of Specifications	\$ 26,878,000	\$ 26,878,000
Quality control and Inspection Support, Contract Administration, Inspection and Survey	60,596,200	77,047,367
Labor Subtotal	87,474,200	103,925,367
Materials and Supplies	49,902,698	22,993,617
Right of Way Acquisition	327,902,500	320,394,331
Incidental Expenses	21,917,200	36,316,296
Professional Services	338,064,500	346,104,542
Operating Equipment Use	1,708,900	1,338,942
Administrative Overhead	41,327,100	46,488,924
Construction	1,031,821,398	1,128,103,860
Contingencies	75,900,160	81,434,121
Reimbursable from Agencies	-3,918,656	0
<b>TOTAL</b>	<b>\$ 1,972,100,000</b>	<b>\$ 2,087,100,000</b>

(Program No. 5-5600-11)

## Estimated Funds Required:

<b>REVISION</b>	<b>BOARD LETTER DATE</b>	<b>AMOUNT</b>
Revision No. 1	November 1, 1989	\$ 13,300,000
Revision No. 2	May 2, 1990	45,000,000
Revision No. 3	November 27, 1990	20,000,000
Revision No. 4	February 19, 1991	15,600,000
Revision No. 5	March 26, 1991	12,000,000
Revision No. 6	September 24, 1991	189,100,000
Revision No. 7	January 22, 1993	12,300,000
Revision No. 8	September 17, 1993	112,000,000
Revision No. 9	October 21, 1993	1,670,000
Revision No. 10	June 28, 1994	987,000
Revision No. 11	July 18, 1994	952,000
Revision No. 12	July 25, 1994	19,621,000
Revision No. 13	November 29, 1994	94,100,000
Revision No. 14	December 23, 1994	56,758,000
Revision No. 15	December 23, 1994	22,331,000
Authorization No. 16	February 7, 1995	59,500,000
Authorization No. 17	February 7, 1995	23,319,000
Authorization No. 18	May 8, 1995	9,977,000
Authorization No. 19	November 14, 1995	540,000
Authorization No. 20	December 26, 1995	4,500,000
Authorization No. 21	December 26, 1995	440,945,000
Authorization No. 22	December 26, 1995	29,400,000
Authorization No. 23	December 26, 1995	15,250,000
Authorization No. 24	January 30, 1996	2,160,000
Authorization No. 25	February 27, 1996	390,000
Authorization No. 26	February 27, 1996	3,523,000
Authorization No. 27	March 26, 1996	3,000,000
Authorization No. 28	April 30, 1996	790,000
Authorization No. 29	April 30, 1996	7,600,000
Authorization No. 30	August 6, 1996	3,600,000
Authorization No. 31	August 6, 1996	3,000,000
Authorization No. 32	August 27, 1996	16,400,000
Authorization No. 33	August 27, 1996	315,000,000
Authorization No. 34	September 24, 1996	2,876,000
Authorization No. 35	November 5, 1996	863,000
Authorization No. 36	November 5, 1996	74,700,000
Authorization No. 37	December 17, 1996	48,800,000
Authorization No. 38	January 30, 1997	1,400,000
Authorization No. 39	August 19, 1997	27,900,000
Authorization No. 40	August 19, 1997	7,400,000
Authorization No. 41	December 16, 1997	20,500,000
Authorization No. 42	January 20, 1998	19,940,000
Authorization No. 43	January 20, 1998	213,108,000
Authorization No. 44	June 18, 1999	115,000,000
Remaining		0
<b>TOTAL</b>		<b>\$ 2,087,100,000</b>

(Program No. 5-5600-11)

**Source of Funds:** 80% Debt Finance/20% Pay-As-You-Go

**Class One:** Projects directly related to delivery of water.

**Projected Expenditures of Funds:**

Through	Fiscal Year 1997/98	\$1,404,768,264
	Fiscal Year 1998/99	354,388,447
	Fiscal Year 1999/00	187,456,871
	Fiscal Year 2000/01	106,262,950
	Fiscal Year 2001/02	34,223,468
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		\$ 2,087,100,000