- **Board of Directors**
  Engineering and Operations Committee

September 12, 2006 Board Meeting

8-3

Subject

Appropriate $2.4 million; and authorize design of replacement floating reservoir covers for the Skinner Finished Water Reservoir and Palos Verdes Reservoir (Approp. 15417)

Description

Background

The Robert A. Skinner Water Treatment Plant was placed into service in 1976 to supply treated water to Riverside and San Diego Counties. Since its original construction, the plant has been expanded three times and now consists of six treatment modules that are operated as two distinct plants (Plants 1 and 2). Construction of the plant's fourth expansion is underway, and when complete, the facility will have seven treatment modules with a combined capacity of 630 mgd. The plant delivers a blend of water from the Colorado River and State Water Project to Eastern Municipal Water District, Western Municipal Water District of Riverside County, and San Diego County Water Authority. The Skinner plant includes a 326-acre-foot finished water reservoir (FWR), which provides operational storage. The reservoir was constructed in 1991.

The Palos Verdes Reservoir, constructed in 1939, is the terminus for the Sepulveda Feeder. Located in the city of Rolling Hills Estates, the reservoir has a storage capacity of 1,080 acre-feet, and provides storage for the Central Pool portion of Metropolitan's distribution system.

The California Department of Health Services (CDHS) requires that all finished water reservoirs be covered. Metropolitan is in compliance and has installed floating reservoir covers at many of its potable water storage facilities. Floating reservoir covers consist of a thin membrane material that floats on top of the reservoir's water surface. They are considerably more cost-effective than fixed or rigid covers for Metropolitan's and other agencies' reservoirs. While floating reservoir covers are an effective means of maintaining water quality, they are susceptible to contamination of the potable water supply if a tear develops in the cover material. Metropolitan has an aggressive floating cover inspection and maintenance program to ensure compliance with CDHS requirements. The floating covers are regularly and carefully inspected for damage and signs of deterioration.

The useful life of a reservoir's floating cover is determined by the repairability of the cover material. As the cover material ages, it becomes more difficult to make effective repairs. Typically, the bonding capability of patches to the original material deteriorates. When the cover material can no longer be reliably repaired, it is considered at the end of its useful life. The typical useful life for a Hypalon floating cover, which is the material used at Skinner and Palos Verdes reservoirs, is between 15 and 20 years.

Skinner Finished Water Reservoir – Preliminary and Final Design ($1.15 million)

The Skinner FWR was constructed in 1991 with a 16-acre Hypalon floating cover. The existing cover has performed well but has reached the end of its useful life. In June 2006, small tears were discovered in the cover during routine inspection and maintenance. The tears were caused by delamination, or separation between the multiple layers of the Hypalon cover material. Since delamination was not observed during any prior inspections, it appears to have occurred recently and relatively quickly. As an interim measure, staff has reinforced suspect areas to prevent further damage. Due to the importance of the FWR to Skinner plant operations, staff recommends proceeding promptly with preliminary and final design of a replacement cover.

with the new guidelines, and approval of the design by CDHS is required. Final design will be completed by mid-2007.

Palos Verdes Reservoir – Final Design ($1.25 million)

The 28-acre Hypalon floating cover at Palos Verdes Reservoir was added to the existing open reservoir in 1988. The floating cover is approaching 20 years old and is at the end of its useful life. In the past, the floating cover has experienced numerous tears in the cover material. Repair of these tears has become increasingly difficult due to aging of the material. Recently, Metropolitan's divers have discovered deterioration of the underside of the cover over large areas. In addition, the reservoir's existing gunite-concrete surface has several areas of damage, which will require installation of a new membrane liner and subdrain system to collect and convey flows, and to reduce excess hydrostatic pressures. Staff will coordinate with CDHS for appropriate inspection and maintenance activities at Palos Verdes Reservoir during the interim period until a new floating cover is installed.

In January 2004, Metropolitan's Board authorized preliminary design to replace the floating cover at Palos Verdes Reservoir, install a new liner, and make other related improvements. Preliminary design for replacement of the floating cover and associated repairs has been completed and staff recommends proceeding with final design at this time.

Summary

This action appropriates $2.4 million and authorizes final design of replacement floating covers and related improvements at the Skinner Finished Water Reservoir and the Palos Verdes Reservoir. For these two projects, the anticipated cost of final design is approximately 9 percent of the estimated construction cost. Engineering Services' goal for design of projects with construction cost greater than $3 million is 9 to 12 percent. Final design for both covers is recommended to be performed by MWH Americas under an existing professional services agreement that was authorized by the Board in June 2003. For this agreement, Metropolitan established a Small Business Enterprise participation level of 20 percent. No amendment to the existing MWH agreement is required.

These projects have been evaluated and recommended by Metropolitan's Capital Investment Plan Evaluation Team and funds have been included within the fiscal year 2006/07 capital budget. See **Attachment 1** for the Financial Statement and **Attachment 2** for the Location Map.

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the Chief Executive Officer to Enter Contracts

California Environmental Quality Act (CEQA)

CEQA determination for Options #1 and #2:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. In particular, the proposed action consists of modifying existing public facilities with negligible or no expansion of use beyond that existing at the time of the lead agency's determination, and the rehabilitation and replacement of existing equipment where older components are replaced by new components with the same purpose and capacity. In addition, the proposed action will not have a significant effect on the physical environment. Accordingly, this proposed action qualifies as a Class 1 and Class 2 Categorical Exemption (Section 15301 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 1 and Class 2, Section 15301 of the State CEQA Guidelines).

CEQA determination for Option #3:

None required

Board Options

Option #1

Adopt the CEQA determination and

a. Appropriate $2.4 million in budgeted funds; and
b. Authorize final design of a replacement floating cover for Skinner FWR and Palos Verdes Reservoir.

Fiscal Impact: $2.4 million of budgeted funds under Approp. 15417

Business Analysis: This option would authorize design of the replacement floating covers and prepare for construction before the covers experience damage requiring their removal from service.

Option #2

Adopt the CEQA determination and

a. Appropriate $1.25 million in budgeted funds;
b. Authorize final design of a replacement floating cover for Palos Verdes Reservoir; and
c. Do not authorize final design of a replacement floating cover for Skinner Finished Water Reservoir at this time. Defer the replacement floating cover for Skinner FWR until such time that the cover material can no longer be reliably repaired.

Fiscal Impact: $1.25 million of budgeted funds under Approp. 15417

Business Analysis: This option would authorize design of the replacement floating cover at Palos Verdes Reservoir only. CDHS would likely require the Skinner FWR to be removed from service if damage to the floating cover material could no longer be reliably repaired. The Skinner FWR would be required to remain out of service during design of the replacement cover, and may disrupt operations at the Skinner plant.

Option #3

a. Do not authorize design of replacement covers for Skinner FWR or Palos Verdes Reservoir at this time; and
b. Reevaluate the cost-benefit comparison for rigid and floating covers.

Fiscal Impact: Increased capital costs

Business Analysis: This option would defer design and construction of both replacement floating covers pending completion of the study. The reservoirs may need to be removed from service if damage to the floating cover material could no longer be reliably repaired.

Staff Recommendation

Option #1

Roy L. Wolfe 8/21/2006
Manager, Corporate Resources *Date*

Jeffrey Kightlinger 8/23/2006
General Manager *Date*

Attachment 1 – Financial Statement

Attachment 2 – Location Map

BLA #4636

Financial Statement for Reservoir Cover Replacement Program

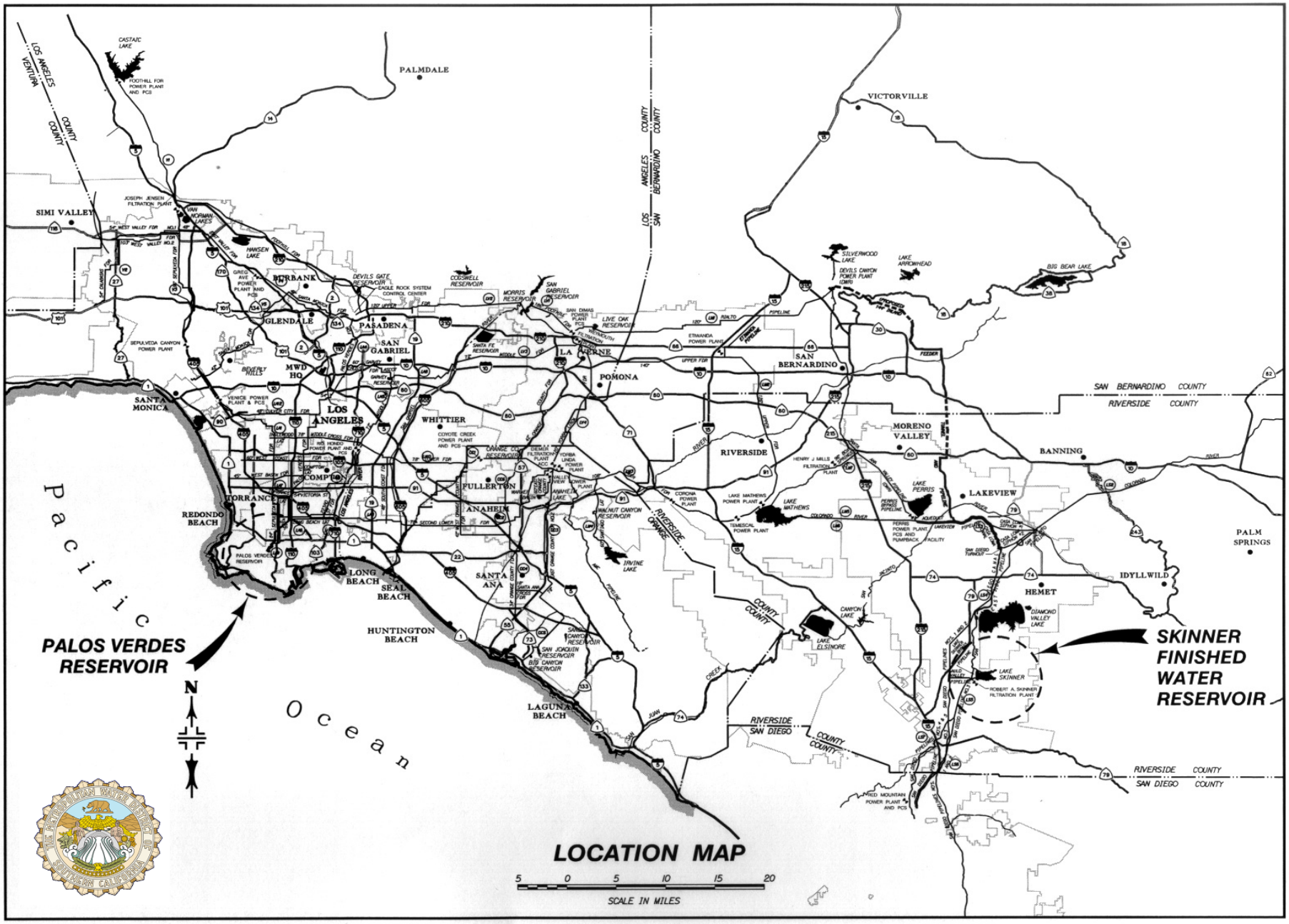
A breakdown of Board Action No. 3 for Appropriation No. 15417 for design of replacement floating covers at the Skinner Finished Water Reservoir and Palos Verdes Reservoir is as follows:

	Previous Total Appropriated Amount (Sept. 2004)	Current Board Action No. 3 (Sept. 2006)	New Total Appropriated Amount
Labor			
Studies and Investigations	$ 43,000	$ -	$ 43,000
Final Design	-	50,000	50,000
Owner Costs (Program management, bidding process, DHS permitting, environmental monitoring)	305,000	294,000	599,000
Materials and Supplies	-	1,000	1,000
Incidental Expenses	15,000	15,000	30,000
Professional/Technical Services			
MWH	435,000	1,480,000	1,915,000
Remaining Budget	142,000	560,000	702,000
Total	**$ 940,000**	**$ 2,400,000**	**$ 3,340,000**

Funding Request

Program Name:	Reservoir Cover Replacement Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15417	**Board Action No.:**	3
Requested Amount:	**$** 2,400,000	**Capital Program No.:**	15417-S
Total Appropriated Amount:	**$** 3,340,000	**Capital Program Page No.:**	E-55
Total Program Estimate:	**$** 21,500,000*	**Program Goal:**	Supply & Delivery Reliability

* The Total Program Estimate is greater than that shown in the FY 06/07 CIP to reflect the transfer of the Skinner FWR Cover Replacement from the Skinner Improvements Program.


PALOS VERDES RESERVOIR
SKINNER FINISHED WATER RESERVOIR
LOCATION MAP
SCALE IN MILES
Pacific Ocean
PALMDALE
VICTORVILLE
SIMI VALLEY
BURBANK
GLENDALE
PASADENA
SAN GABRIEL
LA VERNE
POMONA
SAN BERNARDINO
SANTA MONICA
LOS ANGELES
WHITTIER
RIVERSIDE
MORENO VALLEY
BANNING
LAKEVIEW
PALM SPRINGS
IDYLLWILD
HEMET
TORRANCE
REDONDO BEACH
LONG BEACH
SEAL BEACH
HUNTINGTON BEACH
FULLERTON
ANAHEIM
SANTA ANA
LAGUNA BEACH
LOS ANGELES COUNTY
VENTURA COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
RIVERSIDE SAN DIEGO COUNTY