

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

September 14, 2004 Board Meeting

8-5

Subject

Appropriate \$820,000; and authorize design of a replacement floating cover at the Orange County Reservoir (Approp. 15417)

Description

All reservoirs containing potable water are required to be covered to prevent contamination. The floating cover at Orange County Reservoir has reached the end of its useful life as evidenced by the increased frequency of repairs and the increased difficulty of the repairs. The typical life expectancy of a floating cover is approximately 20 years. The cover at Orange County Reservoir is approaching that age.

Orange County Reservoir provides regulatory storage necessary for operation of the Orange County Feeder. A floating cover was installed in 1985 to preserve distribution system water quality. At that time, Metropolitan entered into an agreement with the Municipal Water District of Orange County (MWDOC) to provide storage capacity in exchange for reimbursement of costs associated with installation of the floating cover. The parties to the original agreement have agreed to fund a replacement cover and other associated improvements under a similar cost-sharing agreement. Staff is currently negotiating the details of the reimbursable agreement between the parties. Based upon the current storage allocations, Metropolitan's share of overall costs for the replacement cover and associated improvements will not exceed 30 percent, or \$1.5 million. Staff is pursuing options to reduce Metropolitan's share.

An assessment of the existing cover identified several areas of significant deterioration, and recommended a number of improvements to meet current industry design standards. The reservoir's existing gunite lining is extremely rough and is a major cause of some of the more significant tears to the existing cover. Installing a membrane liner will minimize tears, eliminate seepage, and increase embankment stability. The installation of a membrane liner will be performed concurrent with the replacement cover installation. The liner requires installation of an underdrain system to collect potential seepage and groundwater flows beneath the liner.

This action authorizes design of a replacement floating cover, a new liner and seepage collection system, minor modification of reservoir inlet and outlet structures, rehabilitation of an existing chemical feed system, and replacement of perimeter fencing. Design will be conducted under an existing agreement with Montgomery Watson Harza Americas, Inc. (MWH) and a specialty subconsultant. MWH was selected via a competitive process in response to RFP No. 575, and an agreement was authorized by Metropolitan's Board in September 2003.

For this project, the final design cost as a percentage of the estimated total construction cost is approximately 7 percent. The Engineering Services goal for design of projects with construction costs less than \$10 million is 9 to 15 percent.

This project has been reviewed by Metropolitan's Capital Investment Plan Evaluation Team, and funds have been included in the fiscal year 2004/2005 capital budget. See [Attachment 1](#) for the Detailed Report, [Attachment 2](#) for the Financial Statement, and [Attachment 3](#) for the Location Map.

Policy

Metropolitan Water District Administrative Code § 5108: Capital Project Appropriation
Metropolitan Water District Administrative Code § 8115: Negotiated 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. The project scope includes the replacement of a floating cover, minor modification of reservoir inlet and outlet structures, installation of a liner and leakage collection system, rehabilitation of an existing chemical feed system, and replacement of perimeter fencing. In addition, related operational and maintenance activities include remedial actions on isolated drainage problems at the reservoir. The overall activities involve the funding, design, and minor alterations, reconstruction or replacement of existing public facilities along with the construction of minor appurtenant structures with negligible or no expansion of use and no possibility of significantly impacting the physical environment. In addition, this proposed action involves minor modifications in the condition of land and/or vegetation that do not involve removal of healthy, mature, scenic trees. Accordingly, the proposed action qualifies under Classes 1, 2, 3, 4, and 11 Categorical Exemptions (Sections 15301, 15302, 15303, 15304, and 15311 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under five Categorical Exemptions (Class 1, Section 15301; Class 2, Section 15302; Class 3, Section 15303; Class 4, Section 15304; and Class 11, Section 15311 of the State CEQA Guidelines).

Board Options/Fiscal Impacts

Option #1

Adopt the CEQA determination and appropriate \$820,000 in Capital Investment Plan funds for design of a replacement cover, new liner and associated improvements at Orange County Reservoir.

Fiscal Impact: \$820,000 in budgeted Pay-As-You-Go Funds under Approp. 15417. A portion of these costs will be reimbursed when the cost-sharing agreement is finalized.

Option #2

Adopt the CEQA determination, do not authorize replacement of the floating cover at Orange County Reservoir, and continue to make repairs to the existing cover as necessary.

Fiscal Impact: No immediate fiscal impact – Metropolitan is presently reimbursed for operating and repair costs. The current agreement will expire in April 2006, at which time Metropolitan will renew the agreement or incur the annual operating and repair costs.

Staff Recommendation

Option #1


 Roy L. Wolfe
 Manager, Corporate Resources

8/25/2004

Date


 Ronald R. Gastelum
 Chief Executive Officer

8/25/2004

Date

[Attachment 1 – Detailed Report](#)

[Attachment 2 – Financial Statement](#)

[Attachment 3 – Location Map](#)

Detailed Report

Purpose/Background

Orange County Reservoir, which was constructed in 1941, provides regulatory storage necessary for operation of the Orange County Feeder. It is located in north Orange County, north of the city of Brea. The reservoir has a capacity of 212 acre-feet with a surface area of approximately 7 acres. The reservoir was initially operated without a cover from its completion until 1985. At that time, a floating cover was installed to meet increasingly more stringent water quality standards and to preserve distribution system water quality. Regulatory requirements now mandate that all reservoirs containing potable water be covered to avoid cross connections (Section 64600 of the California Waterworks Standards – CCR Title 22, Division 4, Chapter 16, Article 3). The synthetic rubber floating cover at Orange County Reservoir is at the end of its useful life and needs to be replaced.

In 1984, Metropolitan entered into an agreement with the Municipal Water District of Orange County (MWDOC) for reimbursement of costs associated with the installation of the existing floating cover in exchange for emergency storage capacity within the Orange County Reservoir. Under the terms of the agreement, the cities of Brea, Fullerton, and La Habra (Cities) are allocated a combined 150 acre-feet of storage capacity in the reservoir, and MWDOC serves as the coordinator between Metropolitan and the Cities. Both capital construction costs and annual maintenance costs are allocated to the Cities in proportion to the amount of storage provided. The parties to the original agreement have indicated a willingness to fund a replacement cover under a similar agreement.

The governing bodies of each entity have already taken action to extend the term of the original agreement until the details of the new cost-sharing agreement can be finalized. Metropolitan's share of costs for the existing cover was approximately 13 percent under the terms of the existing agreement. Since Metropolitan still retains 30 percent of the storage capacity within the reservoir, the other parties have expressed a desire for Metropolitan to develop the rationale for an ongoing cost-sharing agreement. Based on the current storage allocation, Metropolitan's maximum share for the floating cover replacement and other associated improvements would be no more than 30 percent or \$1.5 million. Once the cost-sharing agreement is finalized, the Cities will incorporate their respective share of costs into their upcoming FY 2005/2006 budget cycles. This action allows design to proceed concurrently with the negotiations and budgeting in order to maintain the project schedule.

The floating cover is constructed of a synthetic rubber material known as Hypalon. It was originally installed in 1985, and has now been in service for almost 20 years, the commonly accepted service life of the Hypalon material. Due to ultraviolet exposure, the existing Hypalon cover material has aged and become increasingly difficult to repair. For example, in response to a large tear in the cover in 1997, a specialty contractor was utilized to perform numerous repairs in an attempt to extend the useful life of the existing cover. Those repairs themselves are now showing signs of deterioration. Further, minor repairs performed by Metropolitan maintenance crews have become increasingly difficult. Due to the aging of the existing cover material, repair adhesives no longer provide an acceptable bond, making repairs ineffective. The existing floating cover at Orange County Reservoir has therefore reached the end of its useful life and requires replacement.

Project Description

The Orange County Reservoir Cover Replacement Project consists of the replacement of the existing floating cover, installation of a flexible membrane liner, and other associated improvements. The new cover will contain an improved surface rainwater drainage and pumping system.

The reservoir's existing gunite lining is extremely rough and is a major cause of some of the more significant damage to the existing cover. Installing a membrane liner will minimize tears, eliminate seepage and increase embankment stability. The installation of a membrane liner will be performed concurrent with the new cover installation. The membrane liner requires installation of an underdrain system to collect potential seepage and groundwater flows beneath the liner. The underdrain system will consist of a pump well, submersible pump, and associated piping.

Minor modifications to the existing inlet and outlet works are required to provide increased circulation. The existing inlet channel in the floor of the reservoir will be extended and covered to provide more flow in the stagnant eastern portion of the reservoir. The existing protective grillage surrounding the reservoir outlet will be removed or modified to reduce its impact on the replacement cover installation.

The existing sodium hypochlorite chemical feed system, installed in 1993, requires some minor rehabilitation. In addition, some of the existing chemical feed piping has deteriorated and requires replacement. The existing chemical feed system will be upgraded while the reservoir is removed from service for the replacement cover installation to minimize impacts to the distribution system and to Metropolitan's member agencies.

This action authorizes final design of the following: floating cover replacement, new surface rainwater drainage and pumping system, new flexible membrane liner, seepage collection system, modification of the reservoir inlet and outlet structures, rehabilitation of the chemical feed system and piping, and replacement of the perimeter fencing.

Project Milestones

- September 2005 – Award construction contract
- May 2006 – Complete construction

Financial Statement for the Reservoir Cover Replacement Program

A breakdown of Board Action No. 2 for Appropriation No. 15417 to fund design of a replacement cover at Orange County Reservoir is as follows:

	Previous Board Action No. 1 (Jan. 2004)	Current Board Action No. 2 (Sep. 2004)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 0	\$ 43,000	\$ 43,000
Owner Costs (Program management, environmental documentation, design review, bidding process)	20,000	285,000	305,000
Incidental Expenses	5,000	10,000	15,000
Professional/Technical Services	80,000	355,000	435,000
Remaining Budget	15,000	127,000	142,000
Total	\$ 120,000	\$ 820,000	\$ 940,000

Funding Request

Program Name:	Reservoir Cover and Replacement Program		
Source of Funds:	Construction Funds (Pay-As-You-Go Fund)		
Appropriation No.:	15417	Board Action No.:	2
Requested Amount:	\$ 820,000	Capital Program No.:	15417-S
Total Appropriated Amount:	\$ 940,000	Capital Program Page No.:	E-53
Total Program Estimate*:	\$ 12,903,000	Program Goal:	Supply & Delivery Reliability

*A portion of the funds to be reimbursed

