

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

September 12, 2006 Board Meeting

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7-4

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**Subject**

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Appropriate \$1.11 million for rehabilitation projects for the Colorado River Aqueduct; award a \$541,000 construction contract to Denboer Engineering & Construction, Inc. for secondary containment structures at Intake Pumping Plant; and authorize (1) an increase of \$82,474 in change order authority for the CRA Aqueduct Repairs and Instrumentation; and (2) two CRA electrical reliability projects (Approps. 15385, 15438)

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**Description**

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The Colorado River Aqueduct (CRA) is a 242-mile-long conveyance system which transports water from Lake Havasu to Lake Mathews. The CRA consists of five pumping plants, 124 miles of tunnel, 63 miles of concrete-lined canal, 55 miles of cut-and-cover conduit, inverted siphons, and reservoirs. The CRA provides the only means for Metropolitan to convey water from the Colorado River to Southern California.

Rehabilitation of the CRA was initiated in 2001 and is expected to be substantially completed by 2009. Three planned rehabilitation projects are recommended to proceed at this time.

**Intake Pumping Plant Secondary Containment Structures – Construction (\$763,000)**

In January 2003, Metropolitan's Board authorized final design of chemical spill containment structures for the CRA pumping plants. The Intake Pumping Plant Secondary Containment Structures project will construct two approximately 2,000-square-foot unloading pads for sodium hypochlorite and diesel fuel truck unloading, a secondary containment structure for a 480-volt oil-filled transformer, and will modify the existing foundation of the 69 kV oil-filled transformers to create a secondary containment structure.

Specifications No. 1488 for the Intake Pumping Plant Secondary Containment Structures was advertised on May 23, 2006. As shown in [Attachment 2](#), three bids were received and opened on July 20, 2006. The low bid from Denboer Engineering & Construction, Inc., in the amount of \$541,000, complies with the requirements of the specifications. The bids ranged from \$541,000 to \$849,650. The engineer's estimate was \$385,000. Staff believes the difference between the low bid and the engineer's estimate is due to the bidder's assessment of the effort and risk involved with working near high voltage electrical equipment. For this contract, Metropolitan established an SBE participation level of at least 20 percent of the bid amount. Denboer has committed to meet this requirement.

This action appropriates \$763,000 and awards a \$541,000 construction contract to Denboer Engineering & Construction, Inc. In addition to the amount of the contract, the appropriated funds include \$81,000 for construction inspection; \$16,000 for Metropolitan force construction; \$55,000 for all other staff support; and \$70,000 for remaining budget. Support activities include project management, environmental monitoring, and technical support by design staff.

For this project, the anticipated cost of construction inspection is approximately 15 percent of the total construction cost. Engineering Services' goal for inspection of construction contracts less than \$3 million is 9 to 15 percent. Construction management and inspection will be performed by a consulting firm selected through a competitive process. The amount of the professional services agreement will be within the General Manager's contracting authority under Metropolitan's Administrative Code.

**Fault Current Protection – Preliminary Design (\$187,000)**

The CRA pumping plants' motor circuit breakers prevent injury to personnel, minimize damage to the electric motors and related electrical equipment, and limit the extent and duration of service interruptions during equipment failures, overloads, or short circuit. When these breakers were installed in the 1950s, they were sized for the rated electrical current of the power grid of that period. Over time, the addition of new power generating facilities, such as the Palo Verde Nuclear Generating Station in Arizona, has increased the available current in the power grid, exceeding the rating of the existing circuit breakers.

This project will assess the existing power grid characteristics, the requirements for upgrading the motor circuit breakers and related electrical equipment, and will conduct preliminary design to upgrade circuit breakers at the five CRA pumping plants.

This action authorizes preliminary design of the Fault Current Protection for CRA motor breakers. The work will be performed by Metropolitan staff and is planned to be completed in September 2007.

**230 kV and 69 kV Disconnect Switch Replacement – Preliminary Design (\$160,000)**

The disconnect switches at the CRA pumping plants' 230 kV and 69 kV switchyards provide the primary means for isolating the plants' two main transformer banks and high voltage circuit breakers for maintenance and repairs. These motor-actuated disconnect switches are original equipment installed in the 1930s and 1950s. These switches have reached the end of their useful life. Due to weathering and wear, several disconnect switches have become unreliable and do not operate properly. Furthermore, spare parts are no longer available. When switches become inoperable, outages must be extended to encompass larger areas of the power system, causing more disruption to the plants.

This project will evaluate alternatives for replacement of the disconnect switches at the CRA pumping plants' 230 kV and 69 kV switchyards, including the switch operators, and will perform preliminary design.

This action authorizes preliminary design of the CRA 230 kV and 69 kV Disconnect Switches Replacement project. The work will be performed by Metropolitan staff and is planned to be completed in September 2007.

**Change Order Authority for CRA Aqueduct Repairs and Instrumentation (No Funds Required)**

In August 2004, Metropolitan's Board awarded a \$10,848,201 construction contract to Banshee Construction, Inc. for the CRA Aqueduct Repairs and Instrumentation project (Specifications No. 1476). This project involved replacement of approximately 108,000 square feet of damaged canal liner. During construction, an additional 4,000 square feet of damaged canal liner was detected, and staff discovered that the existing liner thickness, which was originally designed to be a uniform 6-inch thickness, actually varied throughout the limits of the project. Banshee was directed to replace additional damaged canal liner, and to backfill the canal liner thickness variation with soil or concrete. In December 2005, Metropolitan negotiated the cost for a portion of these changes with the concrete demolition subcontractor and in June 2006, reached an agreement for the cost of all remaining portions of the changes with Banshee.

This action authorizes an increase in the General Manager's authority to execute change orders with Banshee from \$542,410 (which is 5 percent of the original contract, per Metropolitan's Administrative Code) to an aggregate amount not to exceed \$624,884 (an increase of \$82,474). This amount represents a total change order percentage of 5.7 percent for this contract. No additional funds are required, as sufficient funds are available within the existing appropriation.

**Summary**

This action appropriates \$1.11 million; awards a \$541,000 construction contract to Denboer Engineering & Construction, Inc. for Intake Pumping Plant Secondary Containment Structures; authorizes two CRA electrical reliability projects; and authorizes an increase in the General Manager's authority to execute change orders for the CRA Aqueduct Repairs and Instrumentation project.

These projects have been evaluated and recommended by Metropolitan's Capital Investment Plan (CIP) Evaluation Team and funds have been included within the fiscal year 2006/07 capital budget. These budgeted

funds fall under two capital programs established within Metropolitan's CIP to rehabilitate the CRA. See [Attachment 1](#) for the two Financial Statements, [Attachment 2](#) for the Abstract of Bids, and [Attachment 3](#) for the Location Map.

## **Policy**

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Metropolitan Water District Administrative Code Section 5108: Appropriations

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

## **California Environmental Quality Act (CEQA)**

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### **Intake Pumping Plant Secondary Containment Structures – Construction:**

CEQA determination for Options #1 and #3:

To comply with CEQA and the State CEQA Guidelines, Metropolitan as the Lead Agency determined that the proposed project was categorically exempt (i.e., Class 1, Section 15301 and Class 30, Section 15330 of the State CEQA Guidelines), and approved the project on January 14, 2003. A Notice of Exemption (NOE) was filed on the projects at that time and the statute of limitations has ended. The current board action involves the awarding of a construction contract and funding with no major modifications to the original approved project. Hence, the previously environmental documentation in conjunction with the project complies with CEQA and the State CEQA Guidelines. Accordingly, no further environmental documentation is necessary for the Board to act on with respect to the proposed actions.

The CEQA determination is: Determine that the proposed actions have been previously addressed in the 2003 NOE (Classes 1 and 30, Sections 15301 and 15330 of the State CEQA Guidelines) and that no further environmental analysis or documentation is required.

CEQA determination for Option #2:

None required

### **Fault Current Protection and 230 kV and 69 kV Disconnect Switch Replacement – Preliminary Design:**

CEQA determination for Options #1 and #2:

The proposed actions are categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed actions consist of initiating design, and basic data collection and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action, which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed actions qualify as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed actions qualify under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

CEQA determination for Option #3:

None required

### **Change Order Authority for CRA Aqueduct Repairs and Instrumentation (Banshee Construction Co.):**

CEQA determination for Options #1, #2 and #3:

The proposed actions are not defined as a project under CEQA because they involve continuing administrative activities (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed actions are not subject to CEQA because they involve other government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed actions are not subject to the provisions of CEQA pursuant to Sections 15378(b)(2) and 15378(b)(4) of the State CEQA Guidelines.

## Board Options

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### Option #1

Adopt the CEQA determinations and

- a. Appropriate \$1.11 million in budgeted funds;
- b. Award a \$541,000 construction contract to Denboer Engineering & Construction, Inc. for the Intake Pumping Plant Secondary Containment Structures;
- c. Authorize preliminary design of the Fault Current Protection Project and the 230 kV and 69 kV Disconnect Switch Replacement project; and
- d. Authorize an increase of \$82,474 in the General Manager's change order authority, up to a total of \$624,884, for the CRA Aqueduct Repairs and Instrumentation project.

**Fiscal Impact:** \$763,000 of budgeted funds under Approp. 15385 and \$347,000 of budgeted funds under Approp. 15438

**Business Analysis:** The Intake Pumping Plant Secondary Containment Structures project is necessary to meet current environmental regulations for containment of chemical spills. The Fault Current Protection project will bring fault protection systems up-to-date to ensure the integrity and safety of the motor breaker system. The 230 kV and 69 kV Disconnect Switch Replacement project will permit maintenance and repairs on the CRA's main breakers and transformers with minimal plant disruptions.

### Option #2

Adopt the CEQA determinations and

- a. Appropriate \$347,000 in budgeted funds;
- b. Do not award the construction contract for the Intake Pumping Plant Secondary Containment Structures and re-advertise in an attempt to obtain more favorable bids;
- c. Authorize preliminary design of the Fault Current Protection project and the 230 kV and 69 kV Disconnect Switch Replacement project; and
- d. Authorize an increase of \$82,474 in the General Manager's change order authority, up to a total of \$624,884, for the CRA Aqueduct Repairs and Instrumentation project.

**Fiscal Impact:** \$347,000 of budgeted funds under Approp. 15438

**Business Analysis:** Re-advertisement of the Intake Pumping Plant Secondary Containment Structures project may or may not result in lower bids.

### Option #3

Adopt the CEQA determinations and

- a. Appropriate \$763,000 in budgeted funds;
- b. Award a \$541,000 construction contract to Denboer Engineering & Construction, Inc. for the Intake Pumping Plant Secondary Containment Structures;
- c. Do not authorize preliminary design of the Fault Current Protection project and the 230 kV and 69 kV Disconnect Switch Replacement project; and
- d. Authorize an increase of \$82,474 in the General Manager's change order authority, up to a total of \$624,884, for the CRA Aqueduct Repairs and Instrumentation project.

**Fiscal Impact:** \$763,000 of budgeted funds under Approp. 15385

**Business Analysis:** This option would defer the electrical reliability projects and forego an opportunity to improve Metropolitan's operational reliability.

**Staff Recommendation**

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Option #1

  
\_\_\_\_\_  
Roy L. Wolfe  
Manager, Corporate Resources

8/18/2006  
Date

  
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Jeffrey Kightlinger  
General Manager

8/23/2006  
Date

**Attachment 1 – Financial Statements**

**Attachment 2 – Abstract of Bids Received**

**Attachment 3 – Location Map**

BLA #4565

**Financial Statement for CRA Discharge Containment Program**

A breakdown of Board Action No. 4 for Appropriation No. 15385 for the Intake Pumping Plant Secondary Containment Structures project is as follows:

	<b>Previous Total Appropriated Amount (Jan. 2003)</b>	<b>Current Board Action No. 4 (Sept. 2006)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies and Investigations	\$ 116,000	\$ -	\$ 116,000
Design and Specifications	202,000	-	202,000
Owner Costs (Program management, environmental monitoring)	157,000	55,000	212,000
Construction Inspection and Support	17,000	-	17,000
Metropolitan Force Construction	82,000	8,000	90,000
Materials and Supplies	33,000	-	33,000
Incidental Expenses	38,000	8,000	46,000
Professional/Technical Services	-	81,000	81,000
Equipment Use	10,000	-	10,000
Contracts	-	541,000	541,000
Remaining Budget	86,000	70,000	156,000
<b>Total</b>	<b>\$ 741,000</b>	<b>\$ 763,000</b>	<b>\$ 1,504,000</b>

**Funding Request**

<b>Program Name:</b>	CRA Discharge Containment Program		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15385	<b>Board Action No.:</b>	4
<b>Requested Amount:</b>	\$ 763,000	<b>Capital Program No.:</b>	15385-W
<b>Total Appropriated Amount:</b>	\$ 1,504,000	<b>Capital Program Page No.:</b>	E-17
<b>Total Program Estimate:</b>	\$ 5,500,000	<b>Program Goal:</b>	R-Regulatory-Other

**Financial Statement for CRA Reliability – Phase II Program**

A breakdown of Board Action No. 1 for Appropriation No. 15438 for the Fault Current Protection Project and 230 kV and 69 kV Disconnect Switch Replacement Project is as follows:

	<b>Board Action No. 1 (Sept. 2006)</b>
Labor	
Studies and Investigations	\$ 252,000
Owner Costs (Program management)	47,000
Materials and Supplies	-
Incidental Expenses	1,400
Professional/Technical Services	-
Equipment Use	-
Contracts	-
Remaining Budget	46,600
<b>Total</b>	<b>\$ 347,000</b>

**Funding Request**

<b>Program Name:</b>	CRA Reliability – Phase II Program		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15438	<b>Board Action No.:</b>	1
<b>Requested Amount:</b>	\$ 347,000	<b>Capital Program No.:</b>	06709-I
<b>Total Appropriated Amount:</b>	\$ 347,000	<b>Capital Program Page No.:</b>	E-21
<b>Total Program Estimate:</b>	\$ 1,100,000	<b>Program Goal:</b>	I-Infrastructure Reliability

**The Metropolitan Water District of Southern California**

**Abstract of Bids Received on July 20, 2006 at 2:00 P.M.**

**Specifications No. 1488**

**Intake Pumping Plant Secondary Containment Structures**

The project consists of construction of secondary containment basins for unloading of sodium hypochlorite and diesel fuel; construction of secondary containment structures for the 69-6.9 kV transformers and the 2.4 kV-480V transformer; relocation of an existing eyewash and installation of a new eyewash station, all at Intake Pumping Plant.

**Engineer's Estimate: \$385,000**

<b>Bidder and Location</b>	<b>Total</b>	<b>SBE \$</b>	<b>SBE %</b>	<b>Met SBE*</b>
Denboer Engineering & Construction, Inc., Palm Springs, CA	\$ 541,000	\$ 541,000	100%	Yes
Mehta Construction Co., Inc. dba MCC, Santa Fe Springs, CA	\$ 549,000	-	-	-
Gantry Constructors, Inc., Clarkdale, AZ	\$ 849,650	-	-	-

\* SBE (Small Business Enterprise) Participation set at 20 percent



### CRA Conveyance Reliability Projects

