



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

8/20/2024 Board Meeting

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7-2

## Subject

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Authorize an agreement with Carollo Engineers Inc. in an amount not to exceed \$1.3 million for owner's advisor services to assist with progressive design-build project delivery on the Lake Mathews Pressure Control Structure and Electrical System Upgrades; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

## Executive Summary

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Lake Mathews is the terminus of the Colorado River Aqueduct (CRA). The Lake Mathews facilities, including the electrical distribution system and forebay discharge facility, were constructed in the 1930s. Water is released from the lake through ten fixed-cone valves into a small forebay discharge facility which supplies feeders that travel to both the F.E. Weymouth Water Treatment Plant and the Robert B. Diemer Water Treatment Plant. All the key structures and a majority of the associated equipment date back to the original construction of the facility. The forebay discharge and outlet structures require significant rehabilitation, and the fixed-cone valves need replacement.

As the existing facility is a single point of failure for deliveries of CRA water to both the Upper and Lower Feeders, staff recommends that a new bypass and pressure control structure (PCS) be constructed to replace the existing structure and eliminate this system vulnerability. Additionally, the aging electrical distribution system is undersized for the facility's current needs and requires upgrading to reliably meet power demands and provide system redundancy. Collectively, these improvements will ensure overall system reliability and resiliency of the Lake Mathews facilities.

This action authorizes an agreement with Carollo Engineers Inc. to serve as the owner's advisor for the development of the Lake Mathews PCS and Electrical System Upgrades project utilizing the progressive design-build (PDB) delivery approach. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the List of Subconsultants, and **Attachment 3** for the Location Map.

## Proposed Action(s)/Recommendation(s) and Options

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### Staff Recommendation: Option #1

#### Option #1

Authorize an agreement with Carollo Engineers Inc. for a not-to-exceed amount of \$1.3 million to perform owner's advisor services for progressive design-build delivery of the Lake Mathews Pressure Control Structure and Electrical System Upgrades.

**Fiscal Impact:** \$2.8 million in capital funds, which will be incurred in the current biennium and have been previously authorized.

**Business Analysis:** This option will replace aging infrastructure and enhance the reliability of water deliveries from Lake Mathews to the Weymouth and Diemer plants.

**Option #2**

Do not authorize the agreement at this time.

**Fiscal Impact:** None

**Business Analysis:** This option would forego an opportunity to reduce the risk of unplanned electrical outages and interruption of water deliveries from Lake Mathews in a timely manner. This option could lead to higher repair costs, more extensive repairs, and unplanned shutdowns for repairs. Under this option, staff would continue to pursue the two projects separately utilizing a traditional design-bid-build delivery method.

**Alternatives Considered**

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Alternatives considered for completing the conceptual design activities and procurement document planning included assessing the availability and capability of in-house Metropolitan staff to conduct this work. Metropolitan's staffing strategy for utilizing consultants and in-house Metropolitan staff has been: (1) to assess current work assignments for in-house staff to determine the potential availability of staff to conduct this work; and (2) utilize consultants for long-term rehabilitation projects when resource needs exceed available in-house staffing or require specialized technical expertise.

After assessing the current workload for in-house staff and considering the complexity and magnitude of this project, staff recommends utilizing the services of an owner's advisor to assist with the development of the project's design-build procurement documents. This approach will allow for the completion of not only this project but also other budgeted capital projects within their current schedules and ensure that the work is conducted in the most efficient manner possible.

**Applicable Policy**

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

Metropolitan Water District Administrative Code Section 8140: Competitive Procurement

Metropolitan Water District Administrative Code Section 8148: Alternative Project Delivery

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

**Related Board Action(s)/Future Action(s)**

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By Minute Item 49672, dated February 11, 2014, the Board authorized preliminary design phase activities to perform repairs and replace the Howell-Bunger valves at the Lake Mathews forebay facility.

By Minute Item 50756, dated March 14, 2017, the Board authorized preliminary design phase activities for upgrades to the Lake Mathews electrical system.

By Minute Item 53188, dated March 14, 2023, the Board authorized amendments to the Metropolitan Water District Administrative Code to provide for the implementation of new legislation authorizing the use of alternative project delivery methods.

By Minute Item 53598, dated April 9, 2024, the Board appropriated a total of \$636.6 million for projects identified in the Capital Investment Plan (CIP) for Fiscal Years 2024/25 and 2025/26.

**Summary of Outreach Completed**

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Metropolitan highlighted this project at a September 2023 MetWorks event during the Inland Empire Utilities Agency Inland Empire Industry Day to allow adequate time for interested design-build entities to form in advance and prepare to submit proposals.

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

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### **CEQA determination for Option #1:**

The proposed action is not defined as a project under CEQA because it involves organizational, maintenance, or administrative activities; personnel-related actions; and/or general policy and procedure making that will not result in direct or indirect physical changes in the environment. (Public Resources Code Section 21065; State CEQA Guidelines Section 15378(b)(2) and (5)). Furthermore, the proposed action is exempt from CEQA because it involves only feasibility or planning studies for possible future actions which the Board has not approved, adopted, or funded. (Public Resources Code Section 21080.21; State CEQA Guidelines Section 15262.) In addition, the proposed action also involves basic data collection and resource evaluation activities that 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 action qualifies as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines.)

### **CEQA determination for Option #2:**

None required

## **Details and Background**

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### **Background**

Lake Mathews is the terminus of the CRA and delivers water into the Central Pool. The Lake Mathews facilities were initially constructed in 1938 and expanded to their current capacity in 1961. The original facilities included the main dam embankment, the lake's first outlet tower, discharge facilities, and the forebay which has its own outlet tower. In 1961, the main dam embankment was raised, and two dikes were constructed, increasing the lake's volume to its current capacity of 182,000 acre-feet.

The Lake Mathews discharge facility is used to convey water from the lake to the Upper and Lower Feeders to supply the Weymouth and Diemer plants. The facility includes the forebay, its outlet tower, and ten 32-inch-diameter Howell-Bunger fixed-cone valves that control flow from the lake into the forebay to dissipate the excess energy. The forebay is a reinforced concrete reservoir with a storage capacity of 31-acre-feet and includes a 60-foot-tall rectangular concrete outlet tower with steel slide gates.

The ten original Howell-Bunger valves have gradually deteriorated through continuous use and must be replaced. In addition, five 54-inch-diameter butterfly valves within the headworks structure and four large slide gates on the forebay outlet tower need to be refurbished or replaced. The facility's design makes it difficult to access the fixed-cone valves for maintenance or repairs while the facility is in operation. The entire discharge facility and forebay must be shut down and dewatered to perform work on the outlet slide gates. All CRA water deliveries serving the Central Pool portion of the distribution system are funneled through these 85-year-old outlet facilities. Scheduling shutdowns for routine maintenance and repairs has become challenging due to Metropolitan's heavy reliance on these facilities.

Due to the critical nature of this facility and the difficulty getting an adequate shutdown duration to perform the work, staff recommends the construction of a new bypass facility. The bypass would include a new PCS structure to replace the existing Howell-Bunger valves. The bypass and PCS would be constructed in parallel, with a short-duration shutdown to perform the final tie-in. Once completed, the bypass would provide needed system redundancy and allow for routine maintenance or rehabilitation work currently limited by the short shutdown window.

The Lake Mathews power distribution system has undergone numerous modifications and upgrades over the years. The incoming electrical service is 480-volt (V) AC, three-phase from Southern California Edison. The incoming service voltage is stepped up from 480V to 2.4 kilovolts (kV) and distributed to outlying loads through a radial network of overhead and underground cables. At each load, a unit power center with a step-down transformer converts the 2.4kV back to 480V. The loads consist of office buildings, maintenance and repair

shops, reservoir outlet structures, outlet headworks, fire pumps, dam seepage pump structures, chlorination structure, a hydroelectric power plant, and a Communication/Disaster Recovery Building, which is considered a critical facility for Metropolitan operations.

The current electrical system is at capacity and cannot support new equipment loads. The components have also reached the end of their useful life and need replacement. A significant portion of the electrical system upgrade work is located near the planned PCS structure. Since the electrical system upgrades are necessary to supply the new PCS structure, successive design-bid-build contracts with the electrical system upgrades first would be needed to avoid conflict between the two contractors. To reduce the schedule without risking conflict between the two contractors, staff recommends combining the new bypass, PCS, and electrical system upgrades into a single PDB contract.

With the passage of SB 991 in August 2022, Metropolitan was granted authority to utilize PDB delivery for projects over \$5 million. The PDB model utilizes a two-phase process. Under Phase 1, a design-build entity would be selected based on qualifications in response to a Request for Qualifications (RFQ). The selected design-build entity would then progress the design to the point where a guaranteed maximum price could be estimated. Metropolitan would negotiate the guaranteed maximum price with the selected design-build entity before entering Phase 2 for completion of design and construction. If unable to reach an agreement, Metropolitan would discontinue negotiations and select a different design-build entity for negotiations.

This project will combine the new PCS and the electrical system upgrades into a single PDB contract. Metropolitan has one existing PDB contract that is currently underway, the Sepulveda Feeder Pump Stations project. With the complexity and the anticipated sizable contract amount for this project, staff recommends utilizing the services of an owner's advisor. The owner's advisor will assist with development of the project's design-build procurement documents. Metropolitan's current contract documents are tailored to the traditional design-bid-build delivery method. Substantial revisions are needed to convert them into a more performance-based format suitable for PDB. The performance-based format will ensure the project meets Metropolitan's requirements while allowing for more collaboration, innovation, and cost-saving opportunities with the design-build entity. This action authorizes an agreement for a consultant to advise staff and provide support for the preparation of specifications and an RFQ in support of a solicitation for a competitively advertised PDB contract for the Lake Mathews PCS and Electrical System Upgrades. Staff will return to the Board at a future date for award of the Phase 1 design-build contract.

In accordance with the April 2024 action on the biennial budget for fiscal years 2024/25 and 2025/26, the General Manager will authorize staff to proceed with the action described herein, pending board authorization of the agreement described below. Based on the current CIP expenditure forecast, funds for work to be performed pursuant to this action during the current biennium are available within the CIP Appropriation for Fiscal Years 2024/25 and 2025/26 (Appropriation No. 15535). This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP evaluation team to be included in the Distribution System Program.

### **Lake Mathews Pressure Control Structure and Electrical Upgrades – Progressive Design-Build**

This project will construct a new PCS with a bypass pipeline alongside the existing forebay. Major items include large-diameter control valves, isolation valves to allow maintenance while the facility remains in service, and control systems. The PCS will reside inside an enclosed building with HVAC, a bridge crane, and access hatches. The facility-wide electrical system upgrades include replacing the underground and overhead distribution lines; replacing the existing unit power centers and adding additional unit power centers where needed; and integrating the new electrical system with Metropolitan's supervisory control and data acquisition system.

A total of \$2.8 million is allocated for this work. Allocated funds include \$1.3 million for Carollo Engineers Inc. to provide owner's advisor services as discussed further below. Allocated funds for Metropolitan staff include \$509,000 for technical oversight, development of design and operational criteria, geotechnical support, and review of conceptual plans and specifications, \$766,000 for project management, preparation of procurement documents, environmental investigation, and other owner's costs, and \$225,000 for remaining budget.

**Owner’s Advisor Services (Carollo Engineers Inc.) – New Agreement**

Carollo Engineers Inc. is recommended to provide owner’s advisor services for the Lake Mathews PCS and Electrical Upgrades project. Carollo Engineers Inc. was competitively selected via RFP 1364 based on the firm’s expertise in design-build contracts for water conveyance and distribution projects. The planned owner’s advisor services activities will include: (1) development of engineering documents for the selection of design-build contractor; (2) development of the project schedule; (3) preparation of engineering and construction estimates for the design-build contract; (4) providing plans, procedures, and schedules; and (5) preliminary geotechnical investigations.

This action authorizes a new agreement with Carollo Engineers Inc. with a not-to-exceed amount of \$1.3 million for owner’s advisor services during the first phase of PDB for the Lake Mathews PCS and Electrical System Upgrades project. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 10 percent. Carollo Engineers Inc. has agreed to meet this level of participation. See **Attachment 2** for a listing of subconsultants.

**Project Milestone**

April 2025 – Issue an RFQ for PDB services to construct the new Lake Mathews PCS and upgrades to the electrical system

	8/6/2024
_____ Mai M. Hattar Interim Manager/Chief Engineer Engineering Services	Date

	8/6/2024
_____ Deven Upadhyay Interim General Manager	Date

**Attachment 1 – Allocation of Funds**

**Attachment 2 – List of Subconsultants**

**Attachment 3 – Location Map**

Ref# es12701039

**Allocation of Funds for Lake Mathews Pressure Control Structure and Electrical System Upgrades**

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	<b>Current Board Action (Aug. 2024)</b>
Labor	
Studies & Investigations	\$ 509,000
Owner Costs (Program mgmt., envir. monitoring)	766,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	
Carollo Engineers Inc.	1,300,000
Right-of-Way	-
Contracts	
Remaining Budget	225,000
<b>Total</b>	<b>\$ 2,800,000</b>

The total amount expended for the Lake Mathews Pressure Control Structure and Electrical System Upgrades is approximately \$6.3 million. The total cost to complete this project, including funds allocated for the work described in this action and future actions, is anticipated to range from \$160 million to \$180 million.

**The Metropolitan Water District of Southern California**  
**Subconsultants for Agreement with Carollo Engineers Inc.**  
**Lake Mathews Pressure Control Structure and Electrical System Upgrades**

<b>Subconsultant and Location</b>	<b>Service Category; Specialty</b>
Schnabel Engineering Boise, ID	Mechanical
ProjectLine Technical Services Costa Mesa, CA	Electrical
Brierley Associates Denver, CO	Geotechnical

# Distribution System

