THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Action

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

1/14/2025 Board Meeting

7-1

Subject

Authorize an increase of $5.55 million to an agreement with Arcadis U.S. Inc. for a new not-to-exceed total amount of $7.55 million for final design to rehabilitate the finished water reservoirs at the Henry J. Mills and Joseph Jensen Water Treatment Plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Metropolitan's finished water reservoirs provide operational storage capacity within the distribution system to regulate treated water deliveries to member agencies. The California Division of Drinking Water (DDW) requires all reservoirs holding treated water to be covered to protect them from contamination. The flexible floating covers and supporting infrastructure of two finished water reservoirs at the Henry J. Mills Water Treatment (Mills plant) and one finished water reservoir at the Joseph Jensen Water Treatment Plant (Jensen plant) have exceeded the recommended 20-year service life and need rehabilitation to protect water quality and maintain reliable water deliveries.

This action authorizes an increase to an existing agreement with Arcadis U.S. Inc. (Arcadis) for final design services to rehabilitate the finished water reservoirs at the Mills and Jensen plants. 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

Staff Recommendation: Option #1

Option #1

Authorize an increase of $5.55 million to an agreement with Arcadis U.S. Inc. for a new not-to-exceed amount of $7.55 million for final design to rehabilitate the finished water reservoirs at the Henry J. Mills and Joseph Jensen Water Treatment Plants.

Fiscal Impact: Expenditure of $8.4 million in capital funds. Approximately $5.2 million in capital funds will be incurred in the current biennium and have been previously authorized. The remaining capital expenditures will be funded from the next capital investment plan budget.
Business Analysis: This option will improve the reliability of the Mills and Jensen reservoirs, maintain treated water quality, and enhance operational flexibility.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: Under this option, staff would continue to inspect and repair the finished water reservoir covers and equipment, as required. If damage to a floating cover could no longer be reliably repaired, the reservoir would be removed from service until the floating cover is replaced.

Alternatives Considered

Upon completion of preliminary design for the rehabilitation of Mills and Jensen finished water reservoirs, staff reassessed the availability and capability of in-house Metropolitan staff to conduct final design, considering: (1) current work assignments for in-house staff to determine the potential availability of staff to conduct this work; and (2) specialized technical expertise needs.

Staff has determined that specialized technical expertise is required to complete the final design of the floating cover replacement. After assessing the current workload for in-house staff, the relative priority of this project, and the specialized technical expertise required, staff recommends continuing the use of both a professional services agreement and in-house staff to perform final design of the subject project. This approach will allow for the completion of this program and other capital work within their current schedule and ensure the work is conducted in the most efficient manner possible.

Applicable Policy

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

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

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

By Minute Item 50782, dated April 11, 2017, the Board authorized preliminary design to rehabilitate finished water reservoirs at the Joseph Jensen and Henry J. Mills Water Treatment Plants.

By Minute Item 53098, dated January 10, 2023, the Board authorized an agreement to provide engineering services to complete preliminary design for the rehabilitation of finished water reservoirs at the Mills and Jensen plants.

By Minute Item 53598, dated April 9, 2024, the Board appropriated a total of $636.5 million for projects identified in the Capital Investment Plan for Fiscal Years 2024/25 and 2025/26.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

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.)

CEQA determination for Option #2:

None required

Details and Background

Background

Located within the City of Riverside, the Mills plant was placed into service in 1978, has a current treatment capacity of 220 million gallons per day (mgd), and treats water directly from the East Branch of the State Water Project (SWP) and occasionally from Diamond Valley Lake. The plant operates two finished water reservoirs with floating covers and geomembrane liners. The Hypalon cover on Reservoir No. 1 was installed in 1997, while the polypropylene cover on Reservoir No. 2 was installed in 1996. Each reservoir has a capacity of 25 million gallons, and both are classified as jurisdictional dams by the state Division of Safety of Dams (DSOD).

Located in the community of Granada Hills, the Jensen plant was placed into service in 1972, has a current treatment capacity of 750 mgd, and treats water from the West Branch of the SWP. The plant has two 50-million-gallon finished water reservoirs. Reservoir No. 1 is a concrete structure with a concrete roof, while Reservoir No. 2 has a polypropylene floating cover installed in 1997.

Treated water is stored in these reservoirs to serve the downstream distribution system. DDW requires covering all finished water reservoirs to protect treated water from contamination. Metropolitan has a rigorous floating cover inspection and maintenance program to ensure compliance with DDW regulations. The floating covers are carefully inspected regularly to identify damage and signs of deterioration. The useful life of a reservoir's floating cover is determined by the longevity of the cover material based on staff's ability to repair and maintain the cover. As the cover material ages, the bonding capability of repair patches to adhere to the original material declines. The repair patches become increasingly less effective, the repair work becomes more difficult to perform, and eventually the cover material can no longer be reliably repaired. The typical useful life for a floating cover is approximately 20 years.

The floating covers at both Mills reservoirs and Jensen Reservoir No. 2 have exceeded the recommended 20-year service life. Each cover must be rehabilitated to maintain treated water quality, comply with DSOD operating permits, and minimize the risk of costly urgent repairs. In addition to the new floating covers, other improvements are needed, including enhanced security features; rehabilitation of the rainwater removal systems and existing slide gates; installation of a slide gate at the Mills reservoirs; and reservoir mixing improvements.

In January 2023, Metropolitan's Board authorized an agreement for engineering services to perform preliminary design activities to rehabilitate the finished water reservoirs at the Mills and Jensen plants. The work was conducted as a hybrid effort of Metropolitan staff and a specialized consultant. Staff completed inspections of floating covers and supporting infrastructure, assessed required structural modifications, and made recommendations to improve low-flow operations at both plants. The consultant developed specialized studies, including low-flow water mixing scenarios utilizing computational fluid dynamics models and established design criteria for modifications to reservoir inlets, outlets, and associated valving to enhance water quality within the reservoirs. These low-flow mixing improvements will be implemented when the existing floating covers are removed during construction.

Preliminary design activities to rehabilitate the Mills and Jensen reservoirs have been completed, and staff recommends proceeding with final design at this time. The work will be staged based on a coordinated reservoir shutdown sequence. Staff will return to the Board to award several contracts to complete the reservoir rehabilitation work.

Mills and Jensen Finished Water Reservoirs Rehabilitation – Final Design

Planned rehabilitation work for Mills and Jensen reservoirs includes installation of new reservoir liners and floating covers; upgrades to the rain removal system, piping, and valving to enhance reservoir operational flexibility and mixing improvements; and installation of reservoir security features. The work will also include refurbishment of existing reservoir gates and installation of a new drop gate for Mills reservoirs; and improvement of the existing inlet configuration for Jensen Reservoir No. 2.

Final design phase activities include: (1) detailed structural analyses; (2) preparation of drawings and technical specifications; (3) development and coordination of a reservoir shutdown plan; (4) development of construction cost estimates; (4) value engineering; and (5) advertising and receiving competitive bids for multiple contracts. These activities are planned to be conducted by both Metropolitan staff and Arcadis U.S. Inc. under an existing agreement described below. Metropolitan staff will perform instrumentation and control design, DSOD coordination and permitting, project management, technical oversight, and review of the consultant's work.

A total of $8.4 million is required for this work. Allocated funds include $5.55 million for the final design activities by Arcadis described above. Other allocated funds for professional services include $130,000 for value engineering, which will be performed by an on-call consultant. Allocated funds for Metropolitan staff activities include $1.42 million for design services described above; $870,000 for DSOD permitting, environmental support, shutdown planning, project management, and project controls; and $430,000 for remaining budget. **Attachment 1** provides the allocation of the required funds.

As described above, final design will be performed by Arcadis and Metropolitan staff. Engineering Services' performance metric target range for final design of projects with a construction cost of more than $3 million is 9 to 12 percent. For this project, the performance metric goal for final design is 11.7 percent of the total

construction cost. The total estimated cost for design is $6.97 million, which includes $5.55 million for Arcadis and $1.42 million for Metropolitan design activities. The estimated cost of construction to rehabilitate the three finished water reservoirs at the Mills and Jensen plants is anticipated to range from $59.5 million to $64.5 million.

Engineering Services (Arcadis U.S., Inc.) – Amendment of Existing Agreement

In January 2023, Metropolitan's Board authorized an agreement with Arcadis to complete the preliminary design for the rehabilitation of finished water reservoirs at the Mills and Jensen plants. Arcadis was selected for this project through a competitive process via Request for Proposals No. 1328 based on their staff qualifications and their experience in evaluating and designing reservoirs. Preliminary design work activities have been completed, and Arcadis is now recommended to provide engineering services for final design as described above.

This action authorizes an increase of $5.55 million to the existing agreement with Arcadis for a new not-to-exceed total of $7.55 million to perform the final design to rehabilitate the finished water reservoirs at the Mills and Jensen plants. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 25 percent. Arcadis has agreed to meet this level of participation. The planned subconsultants for this work are listed in **Attachment 2**.

Project Milestone

February 2027 – Completion of final design for rehabilitation of Mills and Jensen reservoirs

12/19/2024
Mai Hattar *Date*
Interim Chief Engineer
Engineering Services

12/26/2924
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Listing of Subconsultants

Attachment 3 – Location Map

Ref# es12698150

Allocation of Funds for Mills and Jensen Finished Water Reservoirs Rehabilitation

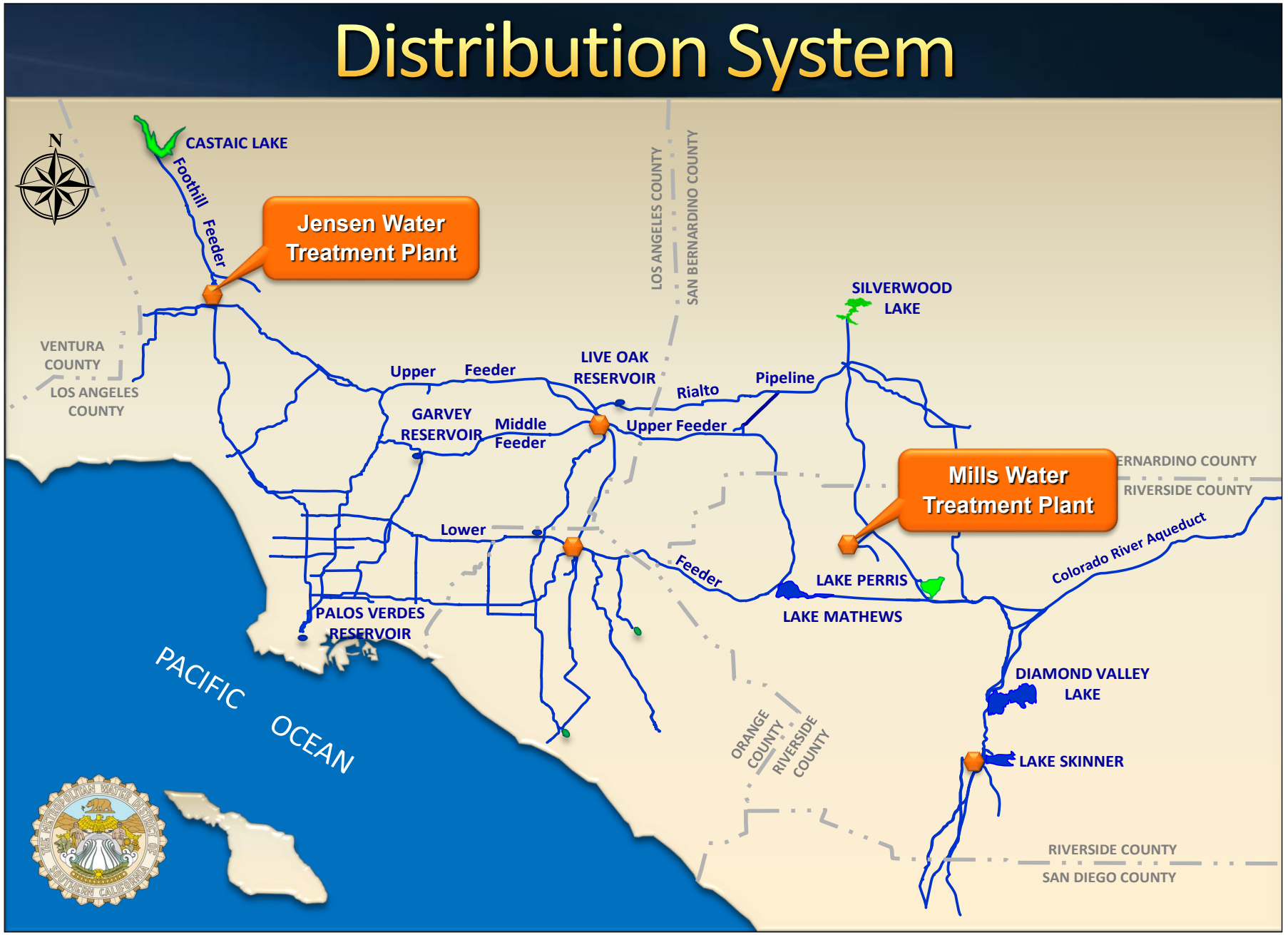
	Current Board Action (Jan. 2025)
Labor	
Studies & Investigations	$ -
Final Design	1,420,000
Owner Costs (Program mgmt., permitting, & project controls)	870,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	
Arcadis US Inc.	5,550,000
Value Engineering	130,000
Contracts	-
Remaining Budget	430,000
Total	**$ 8,400,000**

The total amount expended to date is approximately $2.9 million. The total estimated cost to rehabilitate the finished water reservoirs at the Mills and Jensen plants, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $75 million to $85 million.

The Metropolitan Water District of Southern California

Subconsultants for Agreement with Arcadis U.S. Inc.
Mills and Jensen Reservoir Rehabilitation

Subconsultant and Location	Service Category; Specialty
Hilts Consulting Group Inc. Yorba Linda, CA	Reservoir cover and liner design
Paul Hansen Engineering Rancho Palos Verdes, CA	Cost estimating
Greg Drilling Signal Hill, CA	Geotechnical
DRP Inc. Monterey Park, CA	Drafting


Distribution System
N
CASTAIC LAKE
Foothill Feeder
Jensen Water Treatment Plant
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
VENTURA COUNTY
LOS ANGELES COUNTY
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
Mills Water Treatment Plant
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Lower Feeder
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY