THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Action

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

5/14/2024 Board Meeting

7-1

Subject

Authorize an increase of $2.35 million to an agreement with HDR Engineering Inc. for a new not-to-exceed total amount of $5.15 million for final design services for erosion control improvements along the Colorado River Aqueduct; the General Manager has determined the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Over the 83-year service life of the Colorado River Aqueduct (CRA), the original stormwater management features have deteriorated, and now strong storms are more frequently causing severe erosion over the aqueduct's underground cut-and-cover conduits. Once exposed, the unreinforced conduits are vulnerable to structural damage from rock and debris flows and potential undermining of the conduit foundation. Specific sites along the aqueduct have been identified where recurring erosion damage occurs during storm events. This project constructs erosion control features at 23 conduit locations along the CRA, which are vulnerable to damage during storm events.

This action authorizes an increase to an existing agreement with HDR Engineering Inc. (HDR) for final design services for erosion control improvements along the CRA system. This project will maintain the overall reliability of water delivery through the CRA to Metropolitan's service area. 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 $2.35 million to an agreement with HDR Engineering Inc. for a new not-to-exceed amount of $5.15 million for final design of erosion control structures along the CRA system.

Fiscal Impact: Expenditure of $4.3 million in capital funds. Approximately $20,000 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 (CIP) budget.
Business Analysis: This option will enhance the reliability of the CRA and reduce the risk of damage during storm events and unplanned outages.

Option #2

Do not proceed with this project at this time.
Fiscal Impact: None
Business Analysis: This option would forego an opportunity to reduce the risk of damage to the CRA conveyance system.

Alternatives Considered

Alternatives considered for completing final design activities for the CRA Conduit Erosion Control Improvements project 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) 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 the relative priority of this project, staff recommends the use of a professional services agreement to complete the subject project. This approach will allow for the completion of not only this program, but also other budgeted capital projects within their current schedules.

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 52733, dated March 8, 2022, the Board authorized an increase to an agreement with HDR Engineering Inc. for preliminary design of CRA Erosion Control Improvements.

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of $600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/2023 and 2023/2024.

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.) In addition, the proposed action is exempt from CEQA because it consists of basic data collection, research, experimental management, and resource evaluation activities that do not result in a serious or major disturbance to an environmental resource. These may be strictly for information-gathering purposes or as part of a study leading to an action that a public agency has not yet approved, adopted, or funded. (State CEQA Guidelines Section 15306.)

CEQA determination for Option #2:

None required

Details and Background

Background

The CRA is a 242-mile-long conveyance system that transports water from the Colorado River to Lake Mathews. It consists of five pumping plants, 124 miles of tunnels, siphons, and reservoirs, 64 miles of canals, and 55 miles of cut-and-cover conduits. The aqueduct was constructed in the late 1930s and was placed into service in 1941.

Along the 55 miles of cut-and-cover conduits, selected locations allow stormwater flows to cross the aqueduct. Originally, a series of berms and diversion devices channeled storm flows safely over the aqueduct at these crossings. The diversion and flood control devices have deteriorated over time, and now heavy storm events often cause severe erosion, exposing the aqueduct conduits. Once exposed, the unreinforced conduits are vulnerable to structural damage from rock and debris flows and potential undermining of the conduit foundation.

In October 2018, major storms caused extensive erosion over the cut-and-cover conduits at 36 sites along a nine-mile stretch of the CRA west of the Hinds Pumping Plant. The storms also damaged patrol roads, earthen berms, and drainage channels. Metropolitan forces made short-term repairs to patrol roads and restored ground cover over the cut-and-cover conduit. Due to the extent of the damage, Metropolitan's Board awarded a construction contract in April 2019 to re-establish the original berms and drains that historically served to channel storm flows across the CRA conduit. In light of the 2018 storm event, Metropolitan's Board authorized preliminary design for erosion control structures along the CRA. Twenty-three areas along a 55-mile stretch of the aqueduct were identified with a history of recurring erosion damage during storm events. Preliminary design for

the erosion control improvements is complete, and staff recommends proceeding to final design. 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 CRA Reliability Program.

CRA Conduit Erosion Control Improvements – Final Design

Planned work includes constructing permanent erosion protection features such as riprap revetment blankets, grade control structures, concrete slabs, berm improvements, and sheet pile cutoff walls at 23 conduit locations that are vulnerable to erosion during storm events. The recommended improvements are designed to minimize the need for significant maintenance following future storm events and are configured to prevent potential inundation of facilities in the vicinity, including bridges, local roads, and utility lines.

Planned final design activities will include: (1) preparing drawings and specifications, which will include the design of permanent erosion protection features as mentioned above; (2) preparing the environmental documentation and seeking board adoption of the CEQA determination, as necessary; (3) obtaining environmental permits with jurisdictional agencies; (4) developing the engineer's cost estimate; (5) conducting a constructability review workshop; and (6) advertising and receiving competitive bids. Biological and habitat surveys of the 23 impacted areas will be conducted. Staff will evaluate the project's potential environmental impacts and prepare the appropriate environmental documentation.

A total of $4.3 million is required for this work. Allocated funds for professional services include $2.35 million for the final design activities by HDR as described below; $75,000 for a constructability review; $220,000 for geotechnical investigations; $50,000 for a topographic survey that will capture the latest site terrain since various storms have affected the region recently; and $240,000 for preparation of environmental documentation and providing support of permitting efforts with multiple jurisdictional agencies. Specialty firms will prepare the environmental documentation, conduct the constructability review, geotechnical investigations, and topographic surveys under contracts planned to be executed under the General Manager's Administrative Code authority to award contracts of $250,000 or less. Allocated funds for Metropolitan staff activities include $485,000 for technical oversight and review of the consultant's work; $116,000 for support and review of environmental documentation and permits coordination with various regulatory agencies; $577,000 for project management, bidding and advertising, and project controls; and $187,000 for remaining budget. **Attachment 1** provides the allocation of the required funds.

As described above, the final design will be performed by HDR and Metropolitan staff. Engineering Services' performance metric target range for final design 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 7.1 percent of the total construction cost. The total estimated cost for design is $2.835 million, which includes $2.35 million for HDR and $485,000 for Metropolitan staff design and consultant review. The estimated cost of construction for the CRA Conduit Erosion Control Improvements project is anticipated to range from $40 million to $45 million.

Engineering Services (HDR Engineering Inc.) – Amendment of Existing Agreement

HDR Engineering Inc. (HDR) was selected for this project through a competitive process via Request for Proposals No. 1286. In March 2022, Metropolitan's Board authorized an agreement with HDR for preliminary design of the CRA Conduit Erosion Control Improvements. HDR has completed preliminary design and is recommended to provide engineering services for final design. The planned activities include: (1) development of final design drawings and specifications as detailed above; (2) technical assistance through bidding; (3) participation in a constructability review workshop; and (4) preparation of an engineer's cost estimate. HDR completed preliminary design for this project.

This action authorizes an increase of $2.35 million to the existing agreement with HDR for a new not-to-exceed amount of $5.15 million to provide engineering design services for the CRA Conduit Erosion Control Improvements. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 25 percent. HDR has agreed to meet this level of participation. The planned subconsultants for this work are listed in **Attachment 2**.

Project Milestone

January 2026 - Completion of final design & advertisement for construction bids

4/18/2024

John V. Bednarski *Date*
Manager/Chief Engineer
Engineering Services

4/29/2024

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Planned Subconsultants

Attachment 3 – Location Map

Ref# es12696398

Allocation of Funds for CRA Conduit Erosion Control Improvements

	Current Board Action (May 2024)
Labor	
Studies & Investigations	$ -
Final Design	485,000
Owner Costs (Program mgmt., envir. support)	691,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	2,000
Professional/Technical Services	
HDR Engineering, Inc	2,350,000
Environmental Consultant	240,000
Geotechnical Investigations	220,000
Topographic Survey	50,000
Constructability Review	75,000
Contracts	-
Remaining Budget	187,000
Total	**$ 4,300,000**

The total amount expended to date is approximately $3.2 million. The total estimated cost to complete the CRA Conduit Erosion Control Improvements, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $48 million to $60 million.

The Metropolitan Water District of Southern California

Subconsultants for Agreement with HDR Engineering Inc.

Subconsultant and Location	Service Category; Specialty
CWE Corp. Fullerton, California	Civil Engineering
WEST Consultants Inc. San Diego, California	Hydrology
DRP Engineering Inc. Alhambra, California	Environmental Engineering
C-Below Corona, California	Utility Potholing
Aurora Industrial Hygiene San Diego, California	Industrial Hygiene Consultant

Location Map