



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

3/8/2022 Board Meeting

7-4

Subject

Authorize a professional services agreement with HDR Engineering, Inc. in an amount not to exceed \$2,800,000 for preliminary design services in support of erosion control improvements along the Colorado River Aqueduct; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Over the more than 80-year service life of the Colorado River Aqueduct (CRA), significant storms have caused recurring erosion over the aqueduct's cut-and-cover conduits. Successive heavy erosion events may cause damage to the aqueduct. This project constructs erosion control features at 19 conduit locations along the CRA which are vulnerable to erosion during storm events. This action authorizes an agreement with HDR Engineering, Inc. for preliminary design of erosion control improvements along the aqueduct. This project will improve the overall water delivery reliability of the CRA in these desert regions.

Details

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; 63 miles of canals; and 55 miles of conduits. The aqueduct was constructed in the late 1930s and was placed into service in 1941.

The CRA has 55 miles of cut-and-cover conduits, and at selected locations stormwater flows can cross the aqueduct. At these crossings, the original work on the aqueduct constructed a series of berms and diversion devices that channel storm flows over the aqueduct. The diversion and flood control devices have deteriorated over time, and heavy storm events often cause severe erosion which exposes the aqueduct conduits. Once exposed, the unreinforced conduits are vulnerable to structural damage from rock and debris flows, and to potential undermining of the conduit foundation.

In October 2018, storms caused extensive erosion over the cut-and-cover conduits at 36 sites along a nine-mile stretch of the CRA, west of Hinds Pumping Plant. The exposed lengths of the CRA in these locations varied from 15 feet to 150 feet in length, and up to 11 feet in depth. 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. However, due to the extent of damage, Metropolitan's Board awarded a construction contract in April 2019 to reestablish the original berms and drains that historically served to channel storm flows across the CRA conduit.

In light of the 2019 storm event, staff conducted a study to proactively address erosion issues along the CRA. The study is now complete, and staff recommends proceeding with preliminary design of erosion control measures in 19 areas along the aqueduct. The selected sites have a demonstrated history of recurring erosion damage during storm events. The recommended improvements will be designed to minimize the need for significant maintenance following future storms, and will be configured to prevent potential inundation of facilities in the vicinity including bridges, local roads, and utility lines.

In accordance with the April 2020 action on the biennial budget for Fiscal Years 2020/21 and 2021/22, the General Manager will authorize staff to proceed with the actions described herein, pending board authorization of

the design services agreement described below. Based on the current Capital Investment Plan (CIP) expenditure forecast, funds for the work to be performed pursuant to this action during the current biennium are available within the Capital Investment Plan Appropriation for Fiscal Years 2020/21 and 2021/22 (Appropriation No. 15517). Funds required for work to be performed pursuant to the subject contract after fiscal year 2021/22 will be budgeted within the Capital Investment Plan Appropriation for Fiscal Years 2022/23 and 2023/24.

CRA Conduit Erosion Control Improvements – Preliminary Design

Planned improvements include grading of the eroded areas and the addition of permanent erosion protection features such as grouted or ungrouted rock riprap, soil cement, drop structures, and cutoff walls or concrete encasements to protect the conduit, along with drainage improvement facilities as needed.

The preliminary design phase activities will be conducted with a hybrid effort of consultants and Metropolitan staff; consultant activities are described below. Metropolitan staff will perform overall project management, conduct site surveys, and provide consultant oversight.

A total of \$5 million is required for this work. Allocated funds include a total of \$2,800,000 for preliminary design activities by HDR Engineering, Inc under a new agreement, and \$260,000 for preparation of environmental documentation by Aspen Environmental Group under an existing agreement, as described below; and a total of \$255,000 for constructability workshop and geotechnical investigation activities. The constructability and geotechnical work will be performed by specialty firms 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 includes \$584,000 for technical oversight and review of consultant's work; \$853,000 for surveying of 19 sites, preparation of preliminary environmental documentation, regulatory agency coordination, project management, and project controls; and \$248,000 for remaining budget.

The total cost of the project to improve the CRA conduit erosion control will be re-evaluated during preliminary design. Currently, the future construction contract is estimated to range from \$25 million to \$30 million.

Attachment 1 provides the allocation of the required funds.

Preliminary Design Services (HDR Engineering, Inc.) – New Agreement

HDR Engineering, Inc. (HDR) is recommended to provide engineering services for the design of the CRA Erosion Control Improvements. HDR was selected through a competitive process via Request for Proposals No. 1286, based on the expertise of the firm's staff, its technical approach and methodology, and its cost proposal for the planned work. HDR was previously prequalified through a process based on the firm's technical expertise and its experience with projects of a similar nature.

The planned activities for HDR include: (1) site reconnaissance, data collection, and utility investigations; (2) hydrologic and hydraulics analyses; (3) sediment transport modeling; (4) geomorphology and scour analyses; (5) preparation of hydrology and hydraulics report; (6) structural assessments; (7) evaluation of erosion control measure alternatives; (8) coordinating with local jurisdictions and/or agencies; (9) preparation of preliminary design drawings; (10) conducting studies and preliminary analysis to determine required environmental documentation including initiation of as-needed permits; (11) development of a Class 3 construction cost estimate; and (12) participation in value engineering review workshops.

This action authorizes an agreement with HDR for a not-to-exceed amount of \$2.8 million to provide engineering design services for CRA 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**.

Environmental Documentation - Aspen Environmental Group (No Action Required)

Aspen Environmental Group (Aspen) is recommended to provide environmental support services under an existing board-authorized agreement. Aspen was selected based on the firm's extensive experience with CEQA compliance and environmental clearances, and its specific experience with Metropolitan's desert facilities.

The planned scope of work includes performing biological and habitat surveys; and providing technical support such as identifying temporary construction impacts or environmental impacts such as air quality, noise, and traffic.

Metropolitan has an existing board-authorized four-year rollover agreement with Aspen in place to conduct work of the nature described in this letter. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 25 percent. The planned scope of work includes preparing the environmental documentation; performing biological and habitat surveys; and providing technical support such as identifying project environmental impacts. The estimated cost for these services is \$260,000. No subconsultants are planned for this work.

Alternatives Considered

Alternatives considered for completing design activities for the CRA erosion control improvements included utilizing 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) to use project-specific professional services agreements when resource needs exceed available in-house staffing or require specialized technical expertise in order to provide a concentrated engineering effort over an extended duration.

This strategy relies on the assumption that in-house engineering staff will handle the baseload of work on capital projects, while professional services agreements are selectively utilized to handle projects above this baseload or where specialized needs are required. This strategy allows Metropolitan's staff to be strategically utilized on projects to best maintain key engineering competencies and to address projects with special needs or issues. 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 for this subject project. 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.

Summary

This action authorizes an agreement with HDR Engineering, Inc. for a not-to-exceed amount of \$2,800,000 to provide engineering services for preliminary design of erosion control improvements along sections of the CRA.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2020/21 capital expenditure plan. 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. See **Attachment 1** for the Allocation of Budgeted Funds, **Attachment 2** for Planned Subconsultants, and **Attachment 3** for the Location Map.

Project Milestone

April 2023 – Complete preliminary design of CRA erosion control improvements

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

By Minute Item 51963, dated April 14, 2020 the Board appropriated a total of \$500 million for projects identified in the Capital Investment Plan for Fiscal Years 2020/21 and 2021/22.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA because it involves only feasibility or planning studies for possible future actions which the Board has not approved, adopted or funded (Section 15262 of the State CEQA Guidelines). In addition, the proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines because the proposed action involves basic data collection and research activities which do not result in a serious or major disturbance to an environmental resource, which 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 (Class 6, Section 15306 of the State CEQA Guidelines)

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an agreement with HDR Engineering, Inc. for a not-to-exceed amount of \$2,800,000 for preliminary design to improve erosion protection structures along the aqueduct.

Fiscal Impact: Expenditure of \$5 million in capital funds. Approximately \$250,000 will be incurred in the current biennium and has been previously authorized. The remaining capital expenditures will be funded from future CIP budgets following board approval of those budgets.

Business Analysis: This option will allow for the completion of not only this project, but also other budgeted capital projects within their current schedules.

Option #2

Do not proceed with the agreement at this time.

Fiscal Impact: None

Business Analysis: This option may delay the completion of preliminary design for erosion control improvements in the CRA system.

Staff Recommendation

Option # 1

John V. Bednarski
Manager/Chief Engineer
Engineering Services
2/14/2022 Date

Adel Hagekhalil
General Manager
2/15/2022 Date

Attachment 1 – Allocation of Funds**Attachment 2 – Planned Subconsultants****Attachment 3 – Location Map**

Ref# es12684390

Allocation of Funds for CRA Conduit Erosion Control Improvements

	Current Board Action (Mar. 2022)
Labor	
Studies & Investigations	\$ 584,000
Final Design	-
Owner Costs (Program mgmt., environ. planning, survey)	828,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	25,000
Professional/Technical Services	-
HDR Engineering	2,800,000
Specialized Geotechnical Services	180,000
Specialized Environmental Services (Aspen)	260,000
Value Engineering Consultant	75,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	248,000
Total	\$ 5,000,000

The total amount expended to date to upgrade the CRA Conduit Erosion Control Improvements is \$450,000. The future construction contract is estimated to range from \$25 million to \$30 million.

The Metropolitan Water District of Southern California**Subconsultants for Agreement with HDR Engineering, Inc.**

Subconsultant and Location
CWE Corp. - Fullerton, California
WEST Consultants, Inc. - San Diego, California
DRP Engineering, Inc. - Alhambra, California

Location Map

