THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Action

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

4/9/2024 Board Meeting

7-3

Subject

Authorize an increase of $1,100,000 to an agreement with HDR Engineering Inc. for a new not-to-exceed total amount of $1,735,000 for final design services to replace the 2.4 kV power line that serves the Black Metal Mountain Communications Site; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The Black Metal Mountain communications site is situated on top of a mountain and provides clear line-of-site connectivity to other Colorado River Aqueduct (CRA) communications sites. Given its prime location, the communications site also houses communications equipment from several other agencies that lease space from Metropolitan. The Black Metal Mountain communications site's power demand has increased over time, and an upgrade of both the 2.4 kV power line cables and supporting poles is recommended in order to maintain reliable communications service at this site. Furthermore, enhancements to the access road, with a focus on optimizing efficiency and safety for both construction and long-term maintenance operations, are also recommended. Preliminary design of this project has been completed.

This action authorizes an increase to an existing agreement with HDR Engineering Inc. (HDR) for the final design to replace the 2.4 kV power line that serves the Black Metal Mountain communications site and improve the main access road. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Listing 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 to an existing agreement with HDR Engineering Inc. for a new not-to-exceed amount of $1,735,000 for design services for the Black Metal Mountain 2.4 kV Electrical Power Upgrades project.

Fiscal Impact: Expenditure of $2.0 million in capital funds. Approximately $150,000 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 budget following board approval of the budget.
Business Analysis: This option will enhance the reliability of the Black Metal Mountain communications site by replacing key elements of its electric power systems and will optimize the efficiency and safety of both construction and long-term maintenance operations.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: This option would defer the replacement of the 2.4 kV power line, which would forego an opportunity to reduce the risk of unplanned outages of the Black Metal Mountain communications site.

Alternatives Considered

At the outset of this project, staff considered removing some of the electrical loads from the site so that the existing electrical supply capacities would be sufficient for Metropolitan's communication equipment. This alternative would potentially include terminating leases with California Highway Patrol and others. This approach is not recommended as it runs counter to the collaborative nature of radio communications sites, which are often uniquely situated. Historically, under this collaborative approach, agencies with strategic sites have leased space to other agencies seeking line-of-sight communications capabilities. Often, these types of leases are essential to ensure public safety communication. Additionally, this alternative does not address the deteriorating condition of the electrical system poles, which need to be replaced. Staff will take into account the cost of the recommended upgrades when the current leases are renewed and new leases are negotiated.

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 52506, dated September 14, 2021, the Board authorized an agreement with HDR to perform preliminary design for the Black Metal Mountain 2.4 kV Electrical Power Upgrades.

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

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

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, 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 Black Metal Mountain communications site is located on a prominent peak between the Gene and Intake pumping plants. The site serves as a critical link in the microwave communications system for Metropolitan's desert facilities. The site houses Metropolitan's wide-area communications equipment, as well as communications equipment for various government agencies such as the San Bernardino County Sheriff's Department, the California Highway Patrol, Caltrans, and the San Bernardino County Fire Department.

The power usage at the Black Metal Mountain communications site has increased over the years as additional government agencies have located equipment at this site. Today, the peak power demand at the site is larger than the existing one-mile-long power line can support. During the hottest desert conditions, air conditioners run constantly to keep the enclosed electronic equipment from overheating. This causes the circuit breakers to trip on a regular basis, and these events interrupt communications operations at the site. Under this project, the existing

power line conductors to the site will be replaced with higher capacity 2.4 kV conductors to ensure that the required electrical supplies can be provided to the communications equipment under all weather conditions.

In addition to the conductor upgrades, the poles that support the existing electrical power line are deteriorated due to age and weathering in the harsh desert environment. Some poles are currently held in place by multiple guy wires, leaving them vulnerable to collapse, while pole cross arms and extensions require frequent repairs. The new poles will be fabricated of galvanized steel and will be approximately 40 feet in height. Metal poles are recommended for this project due to the new high-voltage distribution lines that will be supported. This recommendation contrasts with the current wooden poles that are primarily used for lighter-weight, lower-voltage electrical and communications lines. The project also includes making improvements to the existing road that is used to access the site. The current road is unpaved and has a very steep gradient. The planned improvements will optimize the safe and efficient use of the road.

In September 2021, Metropolitan's Board authorized a consultant agreement for the preliminary design of the Black Metal Mountain 2.4 kV Electrical Power Upgrades. Preliminary design is complete, and staff recommends moving forward with final design at this time. 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.

Black Metal Mountain 2.4 kV Electrical Power Upgrades – Final Design

Planned work includes upgrading the existing power line and performing improvements to the main access road. Improvements along the one-mile-long distribution line include installing new power poles and larger electrical conductors. Improvements to the existing access road include slope reduction, enhanced drainage, enhanced road base materials for improved traction, installation of guardrails, and stabilization of adjacent slopes. These road enhancements will optimize efficiency and safety for both construction and long-term maintenance operations.

Planned final design activities will be conducted by a consultant as described below. Metropolitan staff will coordinate final design with the facility users and provide consultant oversight and project management.

A total of $2.0 million is required for this work. Allocated funds for professional services include $1.1 million for the final design activities by HDR as described below; $80,000 for constructability review; and $150,000 for an environmental consultant to prepare documentation to address air quality, noise mitigation, and biological and cultural resources, under an existing on-call agreement. The constructability review will be performed by a specialty firm under separate contracts planned to be executed under the General Manager's Administrative Code authority to award agreements of $250,000 or less. Allocated funds for Metropolitan staff activities include $290,000 for performing technical oversight and review of consultant's work; $270,000 for contract administration, environmental support, and project management; and $110,000 for the 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 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 $1.39 million, which includes $1.1 million for HDR Engineering Inc. and $290,000 for Metropolitan staff design and consultant review. The estimated cost of construction to upgrade the 2.4 kV power line and main access road that serves the Black Metal Mountain communications sites is anticipated to range from $11.9 million to $12.2 million.

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

In September 2021, Metropolitan's Board authorized an agreement with HDR Engineering Inc. for the preliminary design of the Black Metal Mountain 2.4 kV Electrical Power Upgrades. Those preliminary design work activities have been successfully completed, and HDR is now recommended to provide engineering services for final design of the project. The planned activities for HDR during this phase of the project include: (1) development of final design drawings and specifications as detailed above; (2) technical assistance through bidding; (3) participation in a constructability review; and (4) preparation of an engineer's cost estimate. HDR was prequalified for this type of work via Request for Qualifications No. 1305.

This action authorizes an increase of $1.1 million to the existing agreement with HDR Engineering Inc. for a new not-to-exceed total amount of $1.735 million to provide engineering design services for the Black Metal Mountain 2.4 kV Electrical Power Upgrades. 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

April 2025 – Completion of final design for the Black Metal Mountain 2.4 kV Electrical Power Upgrades

3/19/2024

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

3/22/2024

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Listing of Subconsultants

Attachment 3 – Location Map

Ref# es12698579

Allocation of Funds for Black Metal Mountain 2.4 kV Electrical Power Upgrades

	Current Board Action (Apr. 2024)
Labor	
Studies & Investigations	$ -
Final Design	290,000
Owner Costs (Program mgmt., envir. planning)	270,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
HDR Engineering Inc.	1,100,000
Constructability Review Consultant	80,000
Environmental Consultant	150,000
Contracts	-
Remaining Budget	110,000
Total	**$ 2,000,000**

The total amount expended to date is approximately $1.43 million. The total estimated cost to complete the 2.4kV electrical power upgrades at Black Metal Mountain, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $18 million to $19.5 million.

The Metropolitan Water District of Southern California

Subconsultants for Agreement with HDR Engineering Inc.

Subconsultant and Location	Service Category; Specialty
DRP Engineering Inc. Monterey Park, CA	CAD services & road design
TJC and Associates Concord, CA	Electrical network modeling

Location Map