



● **Board of Directors**

Organization, Personnel and Technology Committee

1/8/2019 Board Meeting

7-1

Subject

Authorize an agreement with Hatfield & Dawson Consulting Engineers, LLC, with a not-to-exceed amount of \$480,000 for professional technical services to upgrade the Metropolitan's microwave radio wide-area-network system at 24 sites within the Desert operating region; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA

Executive Summary

This action authorizes an agreement for professional technical services to upgrade the microwave radio wide-area-network (WAN) system at Metropolitan's 24 most critical Desert region microwave tower sites.

Timing and Urgency

Metropolitan's microwave WAN includes 72 sites located throughout Southern California. The Desert portion of the network consists of 24 sites with 62 microwave radios installed. The Desert region requires high capacity communication links that are carrier-grade to provide reliable data, voice and video transmission. The existing microwave radios are over 12 years of age and approaching their end of useful service life. Typical life expectancy for these radios range from 12 to 15 years. In addition, the existing microwave radios do not provide carrier-grade transmission, and have reliability issues causing intermittent network communication failures. A preliminary design and assessment was conducted to determine the type and model of replacement radios and availability of Federal Communication Commission (FCC) frequencies to provide a carrier-grade transmission. As a proof of concept, a microwave network has been successfully deployed and tested in the Diamond Valley Lake region.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria and is included within the Infrastructure Reliability Program. Funds for this action are available within the appropriation for planned biennial CIP expenditures for fiscal years 2018/19 and 2019/20.

Details

Background

Metropolitan's wireless WAN and Local Area Network extend over a 5,200 square mile area covering the entire distribution system and the Colorado River Aqueduct. Metropolitan's microwave WAN includes 72 sites located throughout Southern California. The microwave radio network paths transport data and communications associated with the distribution and conveyance systems to Metropolitan's Headquarters Building in Los Angeles, the Operations Control Center in Eagle Rock, and various other Metropolitan facilities.

The Desert region microwave network consists of 24 sites with 62 microwave radios and at least one new path is planned into the Las Vegas region to provide reliability with a new redundant path that connects to the Desert region. Consequently, an assessment and design plan is needed for their replacement. This project considers the existing communications traffic, as well as anticipated growth or changes in the data and voice traffic, and establishes current and future interface requirements to other Metropolitan subsystems.

Once established, technical specifications will be developed into a Request for Proposal (RFP) to conduct procurement. This proposal will include microwave radios, antennas, transmission lines, and battery backup systems, Network Management Systems, FCC microwave licenses and network equipment associated with the

microwave towers. Other project tasks in this agreement will include assisting Metropolitan with vendor proposal reviews, selecting the equipment brand and model, installation oversight, and final customer acceptance testing for each site.

Desert Microwave Tower Sites Upgrade

The scope of this agreement includes performing assessment and evaluation of 24 Desert region microwave tower sites, and completing the final design, development and deployment activities. The planned work will: (1) collect existing system documentation and establish projects goals, objectives and milestone schedule; (2) develop assessment, requirements and design testing criteria for a pilot program; (3) conduct field verification of existing and new microwave paths; (4) evaluate technology options based on current industry standards; (5) create detailed design for microwave radios, antennas, transmission lines; (6) prepare network topology drawings and specifications; (7) develop construction cost estimate; (8) assist staff with advertisement and receipt of competitive bids for the construction; (9) assist staff with vendor scoring, evaluation and selection process; (10) conduct pilot design and Factory Acceptance Tests; and (11) provide oversight of full deployment, vendor installation and final acceptance tests and transition plans.

All other activities including project management will be performed by Metropolitan staff.

This action awards a new not-to-exceed total of \$480,000 agreement to Hatfield & Dawson Consulting Engineers, LLC, for their technical professional services.

The estimated construction cost for this project is anticipated to range from \$3.91 million to \$4.3 million. Staff will return to the Board at a later date for the award of the construction contract to the selected vendor.

Design and Implementation Oversight Services (H&D Consulting Engineers, LLC) – New Agreement

Hatfield & Dawson (H&D) Consulting Engineers, LLC is recommended to perform the final design for upgrading the identified 24 critical Desert region sites plus one new path into the Las Vegas region. H&D was selected to provide design services through a competitive bid process via RFP No. 1179.

Four firms responded with vendor proposals and were evaluated during the selection process. Subsequently, H&D was selected for this project due to its technical capabilities and planned approach for the work proposed. The estimated cost for these services is \$480,000.

Summary

This action authorizes an agreement of \$480,000, for the professional technical services to upgrade Metropolitan's Desert region microwave radio WAN, at 24 sites within the Desert operating region.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2018/19 and 2019/20 capital expenditure plan within Appropriation No. 15509.

Project Milestones

- December 2019 – Completion of detailed design of upgrades to the Metropolitan's Desert region microwave radio WAN, construction RFP and Vendor Selection Process
- January 2020 – Request Board to authorize a contract to the selected vendor for Construction
- April 2021 – Completion of Construction and Factory Acceptance Testing of equipment
- September 2021 – Commissioning, deployment and testing of all Desert region sites

Policy

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

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

By Minute Item 51353, dated October 9, 2018, the Board appropriated a total of \$290 million from projects identified in the Capital Investment Plan for fiscal years 2018/19 and 2019/20

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed actions are categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed actions involve the funding, studying, design, minor alterations and replacement of existing public facilities, and a check for performance of an operation, or quality, health, or safety of a project. The proposed actions also consist of basic data collection and resource evaluation activities, which 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. In addition, these activities involve negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed actions qualify under Class 1, 2 6, and 9 Categorical Exemptions (Class 1, Sections 15301, Class 2, Section 15302, Class 6, Section 15306, and Class 9, Section 15309 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an agreement with Hatfield & Dawson Consulting Engineers, LLC for a not-to-exceed amount of \$480,000 for professional technical services to upgrade Metropolitan's Desert region microwave radio wide-area-network.

Fiscal Impact: \$480,000 of capital funds under Appropriation No. 15509

Business Analysis: In order to ensure the continuity of reliable business functions within the Metropolitan headquarters and other facilities, staff recommends proceeding with design to upgrade the microwave radio network systems at this time. This option will enhance the reliability and performance of Metropolitan's Desert region microwave radio WAN systems.

Option #2

Do not proceed with the project at this time.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to reduce the risk of disruption of Metropolitan's microwave radio WAN system components including communications associated with its distribution and conveyance systems to Metropolitan's Headquarters building in Los Angeles, the Operations Control Center in Eagle Rock, and among various other Metropolitan facilities .

Staff Recommendation

Option # 1


 _____ 12/14/2018
 Charles Eckstrom Date
 Group Manager, Information Technology


 _____ 12/19/2018
 Jeffrey Kightlinger Date
 General Manager