



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

5/12/2015 Board Meeting

8-4

Subject

Appropriate \$2.74 million; award \$1,120,810 contract to CSI Electrical, Inc. for installation of an Emergency Radio Communication System; and authorize increase of \$134,000 to an agreement with Advanced Electronics, Inc., for a new not-to-exceed total of \$6.72 million (Approp. 15376)

Executive Summary

This action awards a construction contract to install an Emergency Radio Communication System that will provide coverage across Metropolitan's entire service area. The planned system includes handheld, vehicle-mounted, and fixed-station radios utilizing modern, centrally managed digital technology, which will be networked across Metropolitan's existing communication infrastructure. This system will improve emergency and day-to-day communications, enhance workplace safety, and improve site security throughout Metropolitan's treatment plants and distribution system. This action also authorizes an amendment to an existing agreement that will provide additional radio equipment needed to complete the communication system.

Timing and Urgency

Metropolitan staff relies on handheld, vehicle-mounted, and fixed-station radios for both emergency response and day-to-day operational communications. The existing radio configuration uses a combination of three different localized systems which were deployed over a period of three decades. The current systems are not integrated, undermining the ability to communicate across Metropolitan's service area. As a result, the systems lack reliability, capacity, and coverage to meet disaster recovery needs, and are difficult to use. In addition, the current radio systems primarily rely on older analog technology, which has diminished voice quality and clear communications. During recent disaster recovery exercises, the radio systems could not provide an effective means of communication over the Metropolitan service area. This project will replace the existing three systems with a single system of sufficient capacity, usability, and coverage to communicate across the entire service area.

The radio frequencies needed for the Emergency Radio Communication System, along with the associated license, were previously obtained. Metropolitan's Board authorized design, procurement, and pilot testing of the new system in May 2014. To date, the pilot equipment has been installed and tested, and has successfully communicated across a portion of the service area. In addition, design of the full-scale system has been completed. Staff recommends proceeding with deployment of the full-scale system at this time to improve Metropolitan's emergency response capability.

This project is categorized as an Infrastructure Upgrade project within Metropolitan's Capital Investment Plan (CIP). Funds for this action are available within the capital expenditure plan for fiscal year 2014/15.

Details

Background

Metropolitan relies on radio communication by a variety of staff to perform core business functions. Radio users include patrollers, maintenance staff, operators, construction and shutdown staff, aircraft pilots, and others. In the event of a regional disaster, where conventional communications may fail, the radio system would be used by

emergency response personnel, patrollers, remote operators, Incident Command Centers, and the Emergency Operations Center/Operations Control Center located in Eagle Rock.

Metropolitan's current radio systems are not integrated and are unable to communicate across the entire service area. The current radio systems also rely primarily on older analog technology, which suffers from diminished voice quality over long distances in comparison with modern digital technology. In addition, the radios are difficult to use, requiring dialing and tower codes to be mutually known in order for remote parties to talk, or access the system when traveling over any moderate distance. These shortcomings create critical challenges to system-wide communication, especially during emergencies.

The new radio system will include 19 integrated high-elevation repeater stations located at various mountaintop sites stretching across Southern California; 13 low-elevation radio stations located at key facilities such as Metropolitan's treatment plants, pumping plants, and the Headquarters Building at Union Station; approximately 400 handheld radios; approximately 400 vehicle-mounted radios; 26 updated base-stations for the Member Agency Response System (MARS); a trunked network management system; and support equipment such as power supplies, cabling, software, and antennas. The end-to-end communication networking will be performed by Metropolitan's existing backbone microwave and fiber-optic telecommunication systems.

In May 2014, the Board authorized design and procurement of equipment for the new Emergency Radio Communication System. The action also authorized a pilot test to validate the design and equipment on a limited scale, prior to full-scale deployment. This test, which included the installation of antennas and equipment at the La Verne site and two nearby mountaintops and functional testing of the equipment and frequencies, has been completed. Staff was able to demonstrate successful communication with the planned radio system through this test. The results also enabled the specific types and quantities of needed equipment to be confirmed. The necessary local radio frequencies were obtained previously from the Federal Communications Commission (FCC), along with the associated license, but maintaining the license requires timely and beneficial use of the frequencies.

In addition to the pilot test, design of the full-scale system has been completed, and most of the radio equipment has been ordered. Staff recommends proceeding with installation and deployment of the full-scale system and procurement of additional equipment at this time.

Scope of Full-Scale Deployment

Deployment of the full-scale communication system will involve removal of existing radio equipment, installation of the new equipment, extension of utilities, building modifications, and start-up of the new system. Under the contract awarded in this action, the contractor will install and test radio equipment furnished by Metropolitan. This equipment includes antennas (for use on towers or in underground areas at the treatment plants), radio transmission equipment, battery racks, seismic bracing, and associated cabling.

Metropolitan forces will perform specific construction activities in support of the communication system. These activities include extending power and communication cabling to the 32 radio sites, and installing the radio equipment at four locations (including three in Nevada) where construction by a contractor is not recommended due to site-specific constraints or licensing requirements.

The final element of construction for the new communication system includes minor building repairs, modifications to existing utility connections, and removal of the existing obsolete radio equipment. In addition, at sites where Metropolitan leases space from other entities for housing the communication system components, site-specific modifications may be required. Staff's plan for completing this final element of work is to utilize a future competitively bid construction contract. This approach will maintain continuity of operation during the period when the old and new communication systems are operating in parallel. The final contract will be issued in March 2016 and is planned to be awarded under the General Manager's Administrative Code authority. The estimated amount of this completion contract is \$240,000.

Emergency Radio Communication System – Construction (\$2,740,000)

Specifications No. 1835 for the Emergency Radio Communication System was advertised for bids on March 20, 2015. As shown in [Attachment 2](#), two bids were received and opened on April 15, 2015. The low bid from CSI Electrical, Inc. in the amount of \$1,120,810 complies with the requirements of the specifications. The other bid was \$1.23 million, while the engineer's estimate was \$920,000. Due to the specialized nature of the work, no Small Business Enterprise participation level was established for this contract. The subcontractor list for this contract appears in [Attachment 3](#).

This action appropriates \$2.74 million and awards a \$1,120,810 construction contract to CSI Electrical, Inc. for installation of the Emergency Radio Communication System. In addition to the amount of the contract, the requested funds include \$539,000 for Metropolitan force construction activities, which include installation of power and communication cabling, cabinets and electrical equipment; installation of radio equipment at four sites; and provision of start-up support. The requested funds also include \$195,000 for construction inspection; \$134,000 for procurement of radio equipment identified during the pilot test, which will be provided by Advanced Electronics, Inc., as discussed below; \$82,000 for site-specific licensing activities and project management; \$67,000 for submittals review and preparation of record drawings; \$240,000 for the completion contract to perform minor building repairs, modifications to utility connections, and equipment removal; and \$362,190 for remaining budget.

Construction inspection will be performed by Metropolitan staff. For this project, the anticipated cost of inspection is approximately 3.6 percent of the total construction cost. Engineering Services' goal for inspection of projects with construction cost greater than \$3 million is 9 to 12 percent. The total cost of construction for this project, which includes the construction contracts, Metropolitan force activities, and radio equipment, is \$5.4 million. Procurement of the radio equipment was authorized by Metropolitan's Board in a previous action.

Technical Services During Construction (Advanced Electronics, Inc.) – Amendment to Existing Agreement

Advanced Electronics, Inc. provided radio equipment and performed design and pilot testing of the Emergency Radio Communication System under a board-authorized agreement. The scope of that agreement also includes installation oversight, testing, and start-up of the new system. To date, pilot testing and design of the full-scale system have been completed, while equipment procurement is underway.

As a result of the successful pilot test, the final configuration of the communication system has been confirmed, and a determination was made that several additional equipment items need to be procured in order to fully deploy a reliable system. These include additional antenna components needed to account for spacing constraints at several towers, extended antenna cabling at two sites to ensure clear underground communication, and a radio dispatch station at the Eagle Rock facility. To ensure compatibility of this equipment with the radio system components that are currently being procured, staff recommends that the new components be provided by Advanced Electronics, Inc. via an amendment to its existing agreement. Staff has negotiated the cost of the new components, which have a not-to-exceed total of \$134,000.

This action authorizes an increase of \$134,000 to the existing agreement with Advanced Electronics, Inc., for a new not-to-exceed total of \$6.72 million.

Summary

This action appropriates \$2.74 million; awards a \$1,120,810 contract to CSI Electrical, Inc. to install an Emergency Radio Communication System; and authorizes an amendment to an agreement with Advanced Electronics, Inc. This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2014/15 capital expenditure plan. See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Abstract of Bids, [Attachment 3](#) for the Subcontractor List; and [Attachment 4](#) for the Location Map.

The total estimated cost to complete the Emergency Radio Communication System, including the amount appropriated to date and current funds requested, is \$13,987,000. This project is included within capital Appropriation No. 15376, the Information Technology System – Infrastructure Appropriation, which was initiated

in fiscal year 2001/02. With the present action, the total funding for Appropriation No. 15376 will increase from \$45,801,000 to \$48,541,000.

Project Milestones

December 2015 – Start-up of radio communication system

June 2016 – Completion of project

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

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

California Environmental Quality Act (CEQA)

CEQA determination for Option #1

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve the funding, design, minor alterations and replacement of existing public facilities with negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1 and Class 2 Categorical Exemptions (Sections 15301 and 15302 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under two Categorical Exemptions (Class 1, Section 15301 and Class 2, Section 15302 of the State CEQA Guidelines)

CEQA determination for Option #2

None required

Board Options

Option #1

Adopt the CEQA determination that the proposed action is categorically exempt, and

- a. Appropriate \$2.74 million;
- b. Award \$1,120,810 contract to CSI Electrical, Inc. for installation of an Emergency Radio Communication System; and
- c. Authorize increase of \$134,000 to an agreement with Advanced Electronics, Inc., for a new not-to-exceed total of \$6.72 million.

Fiscal Impact: \$2.74 million in capital funds under Approp. 15376

Business Analysis: This option will provide a radio communication system with sufficient coverage, capacity, and usability for daily operational and emergency response needs.

Option #2

Do not proceed with the project at this time.

Fiscal Impact: None

Business Analysis: This option would forgo an opportunity to improve operational and emergency communication capabilities.

Staff Recommendation

Option #1


James F. Green
Manager, Water System Operations

4/29/2015
Date


Jeffrey Kightlinger
General Manager

4/29/2015
Date

- Attachment 1 – Financial Statement**
- Attachment 2 – Abstract of Bids**
- Attachment 3 – Subcontractor for Low Bidder**
- Attachment 4 – Location Map**

Ref# wso12636519

Financial Statement for Information Technology System – Infrastructure Appropriation

A breakdown of Board Action No. 17 for Appropriation No. 15376 to provide an Emergency Radio Communication System¹ is as follows:

	Previous Total Appropriated Amount (May 2014)	Current Board Action No. 17 (May 2015)	New Total Appropriated Amount
Labor	\$ 16,635,898 ²	\$ -	\$ 16,635,898
Studies & Investigations	97,500	-	97,500
Final Design	378,600	-	378,600
Owner Costs (Licensing, tech. review, program mgt.)	877,900	82,000	959,900
Submittals Review & Record Drawings	19,000	67,000	86,000
Construction Inspection & Support	95,000	195,000	290,000
Metropolitan Force Construction	367,000	539,000	906,000
Materials & Supplies	11,414,989	-	11,414,989
Incidental Expenses	234,493	-	234,493
Professional/Technical Services	6,087,608	-	6,087,608
Equipment Use	43,231	-	43,231
Contracts	759,558	-	759,558
CSI Electrical, Inc.	-	1,120,810	1,120,810
Advanced Electronics, Inc.	6,583,000	134,000	6,717,000
Future completion contract	-	240,000	240,000
Remaining Budget	2,207,223 ²	362,190	\$ 2,569,413
Total	\$ 45,801,000	\$ 2,740,000	\$ 48,541,000

Funding Request

Appropriation Name:	Information Technology System - Infrastructure		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15376	Board Action No.:	17
Requested Amount:	\$ 2,740,000	Budget Page No.:	295
Total Appropriated Amount:	\$ 48,541,000	Total Appropriation Estimate:	\$48,541,000

¹ The total amount expended to date on the Emergency Radio Communication System is approximately \$3,695,000. The total estimated cost to complete the project, including the amount appropriated to date and current funds requested, is approximately \$13,987,000.

² Includes the reallocation of \$8,664 to remaining budget from completion of the Two-Way Radio, Phase 2 and IT Network Upgrades, Phase 2.

The Metropolitan Water District of Southern California**Abstract of Bids Received on April 15, 2015 at 2:00 P.M.****Specifications No. 1835****Emergency Radio Communication System Upgrade**

The project will install new radio equipment at various sites throughout Metropolitan's service area, electrical transmission system, and the Colorado River Aqueduct.

Engineer's Estimate: \$920,000

Bidder and Location	Total ¹
CSI Electrical Inc., Santa Fe Springs, CA	\$ 1,120,810
Southern Contracting Company, San Marcos, CA	\$ 1,230,000

¹Due to the specialized nature of the work, no Small Business Enterprise participation level was established for this contract.

The Metropolitan Water District of Southern California

Subcontractor for Low Bidder

Specifications No. 1835

Emergency Radio Communication System Upgrade

Low Bidder: CSI Electrical, Inc.

Subcontractor and Location
Inland Valley Construction, Bloomington, CA

