

- **Board of Directors**
Asset and Recreation Committee

July 11, 2006 Board Meeting

7-3

Subject

Appropriate \$557,000; and authorize Phase One of the Two-Way Radio System Upgrade as part of the IT Strategic Plan (Approp. 15376)

Description

In order to maintain reliable communications and ensure timely operational responses to normal and emergency conditions, an upgrade of the existing 15-year-old, two-way radio communications system is necessary.

The two-way radio system is an important element of Metropolitan's communication strategy and emergency response plan. The radio system is primarily used by Water System Operations field staff at the treatment plants, Colorado River Aqueduct (CRA) pump plants, and along Metropolitan's conveyance and distribution system for daily operational communications. Metropolitan has up to 250 employees using two-way radios during normal operations and may have as many as 500 users during emergencies. The radios are primarily used by employees to communicate with one another at various field facilities. In addition, the radios provide critical communications for individuals working along Metropolitan's distribution system and the CRA where other means of communication (such as cellular phones) are not available due to limited or non-existent signal. The radios also serve as a lifeline for personnel working in underground structures within the treatment plants. Radio communication is particularly vital during disasters such as earthquakes, when Metropolitan must be able to respond quickly and effectively to assess any damage to water conveyance, treatment and distribution facilities. Cellular phone services become overloaded and are not a reliable means of communication during major regional events. Therefore, it is important that Metropolitan maintain a two-way radio system for communication during emergencies.

Metropolitan's existing two-way radio communications system was initially designed and implemented fifteen years ago to support communication within each facility. Radio frequencies were purchased with the local needs in mind. There is now an important need to communicate between facilities to coordinate efforts, particularly in the event of major disasters that may impact more than one region of Metropolitan's service area. While the radio system has been expanded to partially address this need for expanded coverage, the current system design has significant limitations. For example, it does not provide complete geographic coverage of Metropolitan's service area. Also, the current system is complicated to use when communicating between facilities, as it requires the users to know which base stations to use and to manually tie them together using dialing codes. If either radio user is not in range of the user's normal base station, the connection cannot be made. Additionally, Metropolitan does not enjoy exclusive use of two-way radio frequencies that cover the entire service area. Therefore, at times, interference from other entities affects Metropolitan's two-way radio users.

A consultant communication study completed in December 2005 evaluated Metropolitan's existing two-way radio system and defined criteria to improve the system, including the areas of disaster recovery, coverage, capacity and availability. This study evaluated several alternatives and recommended one of two upgrade approaches, both of which would meet Metropolitan's critical requirements, depending on the availability of "clear channel" frequencies for Metropolitan's exclusive use in Southern California. Southern California is one of the most saturated radio markets in the country and clear channel frequencies are expensive and often difficult to obtain. The first upgrade approach would pursue securing additional UHF frequencies and allow Metropolitan to

some of its existing two-way radio equipment. The second approach would use Metropolitan's VHF frequencies, which would provide coverage for the majority of Metropolitan's service area. Switching from UHF to VHF would, however, require the replacement of most of the existing two-way radio infrastructure.

The study examined and recommended against leased service options (cellular phones and Nextel-type push-to-talk) due to their anticipated overload during an emergency event. For reliability purposes, the study recommended that Metropolitan continue to own and operate a private two-way radio system.

Based on this study, staff recommends proceeding with the initial component of the Two-Way Radio System Upgrade project, called Phase One. Phase One, anticipated to be completed in approximately six months, includes documenting the operational specifications for the Two-Way Radio System. Based on the specifications, staff will conduct a detailed assessment of each of the two preferred alternatives identified in the study, analyzing which UHF or VHF frequencies would be required in each option to provide comprehensive coverage for Metropolitan's service area. In addition, Phase One will determine the feasibility and cost of obtaining necessary UHF or VHF frequencies. As obtaining radio frequencies is a very specialized field involving the Federal Communications Commission, staff plans to obtain assistance from a consulting firm with extensive experience in this area. This selection will be made through a competitive process. It is anticipated that the General Manager will award an agreement under his Administrative Code authority. As there are no frequencies available through FCC auction, the consulting firm will identify which frequencies are available for sale on the open market. The firm will validate the proper ownership of the frequencies and the seller's compliance with FCC requirements. Once this analysis has been completed, staff will return to the Board with a recommendation for implementing one of the two (UHF or VHF) design alternatives and to request a full appropriation to complete remaining phases of the project, including procurement of frequencies and radio components and implementation of the system.

This action appropriates \$557,000 in budgeted funds and authorizes Phase One of the Two-Way Radio Systems Upgrade project. The requested funds include the cost of the December 2005 communications study. The preliminary total project cost is estimated to range from \$5,900,000 to \$6,900,000. This estimate will be refined at the conclusion of Phase One.

This project is an element of the IT Strategic Plan, which was based on a comprehensive assessment of Metropolitan's IT infrastructure, and which recommended necessary replacements and upgrades to key infrastructure components that support Metropolitan's water and business operations. This project has been evaluated and recommended by Metropolitan's Capital Investment Plan Evaluation Team and funds have been included in the fiscal year 2006/07 capital budget.

See [Attachment 1](#) for the Financial Statement.

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

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 proposed action consists of funding, preliminary design, solicitation of proposals, 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. Accordingly, the proposed action qualifies as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

CEQA determination for Options #2 and #3:

None required

Board Options/Fiscal Impacts

Option #1

Adopt the CEQA determination and

- a. Appropriate \$557,000 in budgeted funds; and
- b. Authorize Phase One of the Two-Way Radio Upgrade Project.

Fiscal Impact: \$557,000 in budgeted funds under Approp. 15376

Business Analysis: Improves the ability of Metropolitan field staff to effectively communicate with one another, especially during regional emergencies; meets emergency response plan goal

Option #2

Do not upgrade Metropolitan’s two-way radio system.

Fiscal Impact: No additional expenditure of budgeted capital funds

Business Analysis: Deferral of this project will require use of the existing system, which may result in ineffective communications during regional emergencies; delays meeting emergency response plan goal.

Option #3

Lease cellular phone-based push-to-talk services.

Fiscal Impact: Approximately \$150,000 in lease costs per year, plus the initial cost of establishing the contract

Business Analysis: Provides two-way radio-like communication capability for field staff but does not provide full coverage for Metropolitan’s service area and would be less reliable in a regional emergency due to the high volume of system usage; does not meet emergency response plan goal

Staff Recommendation

Option #1

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|  _____ Roy L. Wolfe Manager, Corporate Resources | 6/19/2006 Date |
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|  _____ Jeffrey Kightlinger General Manager | 6/19/2006 Date |
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Attachment 1 – Financial Statement

BLA #4205

Statement for the ITSP Infrastructure Program

A breakdown of Board Action No. 5 for Appropriation No. 15376 is as follows:

| | Previous Total Appropriated Amount (Jan. 2006) | Current Board Action No. 5 (July 2006) | New Total Appropriated Amount |
|------------------------------------|---|---|--|
| Labor | \$ 4,050,680 | \$ 208,000 | \$ 4,258,680 |
| Materials and Supplies | 6,596,550 | - | 6,596,550 |
| Incidental Expenses | 85,000 | - | 85,000 |
| Professional/Technical Services | 2,371,200 | - | 2,670,200 |
| Communications Study | - | 54,000 | - |
| Frequencies Analysis & Negotiation | - | 245,000 | - |
| Contracts | 245,000 | - | 245,000 |
| Remaining Budget | 1,305,570 | 50,000 | 1,355,570 |
| Total | \$ 14,654,000 | \$ 557,000 | \$ 15,211,000 |

Funding Request

| | | | |
|-----------------------------------|---|----------------------------------|--------------------------|
| Program Name: | ITSP Infrastructure Program | | |
| Source of Funds: | Revenue Bonds, Replacement and Refurbishment or General Funds | | |
| Appropriation No.: | 15376 | Board Action No.: | 5 |
| Requested Amount: | \$ 557,000 | Capital Program No.: | 15376-I |
| Total Appropriated Amount: | \$ 15,211,000 | Capital Program Page No.: | E-36 |
| Total Program Estimate: | \$ 38,800,000 | Program Goal: | Reliability & Efficiency |