

- **Board of Directors**
Asset and Real Property Committee

October 11, 2005 Board Meeting

7-2

Subject

Award contract to FluidIQs in an amount not to exceed \$675,000 to complete Phase I of the Automatic Meter Reading System Upgrade

Description

Metropolitan's current Automatic Meter Reading (AMR) system was deployed in the mid 1990s and is installed at approximately 450 water meter locations throughout the distribution system. Over 370 of these meters measure and record water delivered to Metropolitan's member agencies and are the primary source of water billing data that accounts for approximately 80 percent of Metropolitan's revenues. Prior to the implementation of AMR, meters were read manually at each location and the information was compiled by hand.

While the existing AMR system has served Metropolitan well over the last decade, an update is required in that the system is no longer supported by its manufacturer, parts are no longer made for some of the hardware components, and the communication technology is being phased out by the cellular telephone service providers. The objective of the AMR upgrade project is to replace all AMR computer hardware (called remote terminal units) and communication equipment with modern, reliable, commercial off-the-shelf units that will reliably transmit meter readings while simplifying system maintenance and improving reliability of this critical aspect of Metropolitan's billing process ([Attachment 1](#) – Detailed Report).

A comprehensive set of requirements was developed and incorporated into a request for proposals (RFP 743) for services to provide an Automatic Meter Reading / Remote Terminal Unit Upgrade. The RFP was issued in February 2005 and a total of six proposals were received and thoroughly evaluated. Staff recommends that FluidIQs provide the upgrade of the AMR System. For this agreement, Metropolitan has established a Small Business Enterprise participation of 15 percent. FluidIQs has committed to meet this requirement.

Under the terms of the contract, FluidIQs will be responsible for designing the upgraded system, installing and configuring the software to meet Metropolitan's needs, installing the necessary hardware components (remote terminal units and communication equipment), as well as supporting the AMR system for one year following completion of the upgrade.

Approach

The contract and project will be structured in two phases. Phase I will upgrade the AMR system for approximately 30 meters. Phase II will then upgrade the remainder of the system. The scope of the RFP includes upgrade of the entire AMR system, up to 450 meters. Awarding the contract for Phase I work utilizes funding that was previously appropriated. The contract estimate for Phase I work is \$675,000. Once FluidIQs demonstrates its ability to successfully complete Phase I, staff plans to return to the Board with a recommendation to proceed with Phase II, including appropriation of additional funds and an amendment of the FluidIQs contract, to complete the remainder of the project. The estimated contract value for Phase II work is an additional \$4 million, for a total contract estimate of \$4.7 million. Both phases of work will have task-based components that will receive authorization to proceed upon successful completion of prior tasks.

The upgraded AMR system will enhance the reliability, availability and security of Metropolitan's water billing system and provide near real-time data to Metropolitan staff. The flow readings captured by the AMR system are also used for planning and system control, as well as providing important data to member agencies.

This action awards a contract to FluidIQs in an amount not to exceed \$675,000 to complete Phase I of the AMR Upgrade project. Funds to complete Phase I work have been previously appropriated and no additional funds are required at this time. This project has been evaluated and recommended by Metropolitan’s Capital Investment Plan evaluation team and funds have been included in the fiscal year 2005/06 capital budget.

Policy

Metropolitan Water District Administrative Code Section 8113 – Award of Contracts over \$250,000
Metropolitan Water District Administrative Code Section 8115 – Negotiated 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/Fiscal Impacts

Option #1

Adopt the CEQA determination and award a contract to FluidIQs in an amount not to exceed \$675,000 to complete Phase I of the Automatic Meter Reading System upgrade.

Fiscal Impact: Expenditure of \$675,000 of budgeted and previously appropriated capital funds under Approp. 15397

Option #2

Do not award contract.

Fiscal Impact: No additional expenditure of appropriated and budgeted capital funds. However, not upgrading AMR puts the long-term reliability of electronically collecting water meter readings at risk.

Staff Recommendation

Option #1



Roy L. Wolfe
Manager, Corporate Resources

9/8/2005

Date



Dennis B. Underwood
CEO/General Manager

9/20/2005

Date

Attachment 1 – Detailed Report

Detailed Report

Automatic Meter Reading Upgrade Project

Project Description

Metropolitan's existing Automatic Meter Reading (AMR) system is in need of upgrade. The system includes communication equipment, computer hardware (i.e., remote terminal units or RTUs) and software. The main goal of the upgrade is to improve long-term AMR system reliability. Reliability of AMR is important in that it is the primary source of water flow data used for water billing. In addition, the upgrade will provide more timely flow information for controlling Metropolitan's water system and for member agencies. Further, the upgrade will simplify AMR system maintenance and strengthen security of the system, while reducing monthly communication costs for data transfer.

Background/Purpose

Metropolitan's member agencies receive water through Metropolitan's delivery system that includes approximately 450 meters. These meters feed data to the AMR system, which uses RTUs to store and forward the flow information to the water billing system. Of the 450 meters, approximately 80 meters are also directly monitored by Metropolitan's Supervisory Control and Data Acquisition (SCADA) system and are used to control the distribution system and treatment plants. The flow values from these SCADA-connected meters are collected continuously and are available at the Operations Control Center (OCC) and treatment plants throughout the day. Readings from the remaining 370 meters are transmitted once per day to the water billing system via older analog cellular phones. In addition to storing the meter readings, all RTUs perform continuous alarm processing for flow violations, sensor failures, power failures and other abnormal conditions.

The original AMR system was installed approximately nine years ago. While the AMR system served Metropolitan well during this period, the system is now old and needs to be upgraded. The equipment manufacturer no longer supports the RTU hardware and the analog communication systems are outdated and are being discontinued by the cellular telephone providers. In 1999, Metropolitan initiated an effort to update AMR. That 1999 update was based on a vendor-specific, proprietary design and a communication method that would not work for all meter sites. Given these limitations, the approach was reexamined as part of the IT Strategic Plan and it was decided to discontinue the effort after installation of 25 devices. Instead, a new phased approach was adopted using a portion of the money previously appropriated for this project. The new approach is based on commercially available off-the-shelf technology and more reliable communication methods.

Staff has developed the requirements and specifications for upgrading the AMR system. The upgraded system will utilize commercial off-the-shelf equipment, provide more timely member agency local readings, utilize more reliable and cost-effective communications, provide increased security, and be able to communicate up-to-date readings from all 450 meters to the OCC every 15 minutes to provide near real-time flow information.

Approach

Metropolitan staff will provide oversight to the provider on this upgrade project. The provider will be responsible for successfully upgrading the AMR system including replacement of hardware, software, and communications as necessary. Staff from Information Technology, Engineering Services and Water System Operations will provide assistance, guidance and coordination for the project.

The project consists of several elements: a communication survey and network design, RTU hardware and software design, development of interfaces to the SCADA and water billing systems, RTU installation, and system integration. The existing system will be upgraded on a unit-by-unit basis to ensure a smooth and successful transition. Initial work under Phase I of the project will upgrade approximately 30 meters and their corresponding RTUs. Sufficient funds have already been appropriated for the Phase I work. Upon successful completion of Phase I, staff plans to return to the Board with a recommendation to proceed with Phase II, including approval of additional funds and amendment of FluidIQs' contract to complete the remainder of the project.

Contractor Selection Process

A comprehensive set of requirements was developed and incorporated into a request for proposals (RFP 743) for services to upgrade the AMR system. The scope of the RFP includes upgrade of the entire AMR system up to 450 meters. The RFP was issued in February 2005 and a total of six proposals were received from the following respondents:

- Accurate Measurement Systems
- Campbell Scientific Inc.
- FluidIQs
- Montgomery Watson Harza (MWH)
- Systems Integrated
- Toolworx

A Small Business Enterprise (SBE) goal of 15 percent was established for this work, with additional scoring points provided for SBEs and Regional Business Enterprises (RBEs). All respondents were SBEs except MWH, and all respondents were RBEs except Toolworx. An evaluation committee reviewed the proposals to determine compliance with the proposal instructions as set forth in the RFP and identified the best-qualified respondents via a defined scoring process. The top two firms were short-listed and each was invited to make a presentation to the evaluation committee. An evaluation score sheet was prepared for each phase of the evaluation process and individually scored by each of the committee members. The final conclusion of the evaluation committee members, based on the evaluation scores and the interviews, is to recommend FluidIQs as the successful provider. FluidIQs has successful experience completing this type of project for other clients and understands the scope and needs of Metropolitan's AMR system. Further, the recommended project approach will ensure that FluidIQs performs well in Phase I before they are given additional authorization to complete the Phase II work. Under the proposed contract provisions, FluidIQs will also be responsible for providing one year of post-implementation support for the AMR system.

The contract cost estimate for Phase I work is \$675,000 and for Phase II work is \$4 million, for a combined estimated contract total of \$4.7 million. The total estimate for the project is \$5.9 million, which includes the cost of the contract, Metropolitan's internal labor and remaining budget.