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OPERATIONS COMMITTEE
JANUARY 20, 2005

SUBJECT: METRO RED LINE SEGMENT-1 REMOTE TERMINAL UNITS (RTU) UPGRADE PROCUREMENT

ACTION: APPROVE PROCUREMENT PROCESS FOR EQUIPMENT AND INSTALLATION

RECOMMENDATION

A. The Board finds that the Metro Red Line Segment-1 Remote Terminal Units (RTU's) consist of highly specialized telecommunications and other related electronic equipment, such that the procurement qualifies under Public Utilities Code section 130238 for procurement by competitive negotiation. Using this methodology, staff will solicit a package of system hardware (see Attachment A), design and installation services to be provided by a System Integrator.

   Requires Two-Thirds Vote

B. Approve the process for technical evaluation of proposals, identification of qualified sources, and selection for contract award as described in Attachment B. These procedures are consistent with and based upon MTA's existing Procurement Policies and Procedures.

ISSUE

Because of the highly specialized nature of the Metro Red Line (MRL) Segment-1 RTU equipment, staff recommends a negotiated process be utilized for the equipment procurement to allow consideration of non-price factors in the source selection approach. The use of a competitive negotiation procurement process for the acquisition of the RTU equipment requires a two-thirds Board authorization.

POLICY IMPLICATIONS

The Metro Red Line Segment-1 RTU replacement project involves the procurement, installation, and integration of new equipment for the existing Centralized Train Control and SCADA System. Due to the highly specialized nature of the equipment, and the many possible approaches for design and installation, it would be in the public's best interest to utilize competitive negotiation rather than a sealed bid process. Such a process would allow

MTA to consider factors other than price in the award of contracts for this equipment, as allowed under state statute (PUC 130238).

The ability to evaluate non-price factors is necessary in selecting the highly specialized equipment and services. Features such as performance, reliability, including plug-n-play compatibility, expandability, integration interoperability, and life cycle cost will all need to be considered when evaluating these components. These features represent benefits that may not be adequately quantified in a strictly low-bid procurement.

OPTIONS

Staff could utilize a sealed bid procurement process instead of a negotiated procurement process. The sealed bid process would not adequately account for any technical superiority of performance reliability or system life cycle costs that one firm may have over another since the process must award to the lowest responsive responsible bidder. The negotiated procurement process will provide for evaluation of non-price related factors in the selection process.

FINANCIAL IMPACT

Requested Board Action has no financial impact. The resulting procurement is included in the FY05 budget, in cost center 3920, CP number 3308009 under Project number 200015 Task 07.01.02.

BACKGROUND

The procurement process being recommended for Board Approval is for the procurement of equipment and services required to replace the existing Metro Red Line Segment-1 stations Remote Terminal Units with newer technology. This requires the design, procurement, fabrication and installation of new RTU equipment for the existing Metro Rail Central Train Control and SCADA System.

Remote Terminal Units are installed at each Metro Red Line station and provide an interface to train control, traction power, and station facilities. Segment-1 RTU locations include Union Station, Civic Center Station, Pershing Square Station, Seventh and Metro Station, Westlake/MacArthur Stations, Metro Central Control Facility, and MRL Yard.

Remote supervision and control are possible from the Central Control Facility through a communications interface to each RTU. These remote supervision and control capabilities are required for the safe, efficient, and reliable operation of the rail system. Mission critical functions supported by the RTU's include Supervision and control of:

1. Train movement in Metro Red Line tunnels
2. Station electrical power
3. Rail traction power
4. Station and tunnel ventilation
5. Fire detection devices and gas monitoring devices

6. Station elevators and escalators operation
7. Security systems and rollup gates.

The Metro Red Line Segment-1 Station Remote Terminal Units are now ten years old. This Remote Terminal Equipment consists of proprietary, non-industry standard, hardware and communications software. The vendor no longer supports the hardware and spare parts are not available from any known source.

The goal of the Segment-1 RTU Replacement Project is to replace the proprietary Segment-1 RTU equipment with industry-standard equipment that conforms to open-system requirements, is maintainable for at least fifteen years, with parts and services available from multiple sources in North America.

The Board approved a design-build approach for Rail and Maintenance of Way Facilities Capital Projects in June 2004 as agenda item number 22. MTA plans to utilize this approach for the equipment procurement. Additionally, MTA plans to contract with the original Metro Central Train Control and SCADA system vendor for the software modifications necessary to integrate the new RTU equipment.

NEXT STEPS

Upon approval of the recommendation, staff will proceed with the preparation of a Request For Proposal for the Segment-1 RTU Upgrade Procurement and advertise February 28, 2005 or later.

ATTACHMENT(S)

A. Metro Red Line Segment-1 Remote Terminal Unit Components to be Procured Through Competitive Negotiation Process
B. Metro Red Line Segment-1 Remote Terminal Units Upgrade Competitive Negotiation Procurement Process
C. Segment-1 Remote Terminal Unit Block Diagram
D. Picture of Segment-1 Remote Terminal Unit

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ATTACHMENT A

METRO RED LINE SEGMENT-1 REMOTE TERMINAL UNIT COMPONENTS TO BE PROCURED THROUGH COMPETITIVE NEGOTIATION PROCESS

METRO RED LINE SEGMENT-1 REMOTE TERMINAL UNITS UPGRADE

Remote Terminal Unit (RTU) - In Supervisory Control and Data Acquisition (SCADA) systems, an RTU is a device installed at a remote location that communications with the SCADA system to report status of, and control, field devices. RTU's are equipped with Central Processing Units, memory, input channels for sensing or metering, input channels for field device status, output channels for field device control, and ports for SCADA and other remote communications. An RTU refers to an assembly of various CPU, input, output, communications and peripheral modules necessary to implement the required functions.

Programmable Logic Controller (PLC) – A PLC is the Central Processing Unit (CPU) and memory component of an RTU. The PLC stores and executes the logic required to process SCADA communications and information for field device interface modules.

Discrete Input Module – A discrete input module allows an RTU to interface to field device status reported via discrete electrical contact closures. A contact in the field device opens or closes to indicate a specific status. For example, a smoke detector may close an electrical contact when smoke is detected and open the contact when it is reset.

Analog Input Module – An analog input module allows an RTU to interface to field device values determined by voltage or current levels. For example, a temperature transducer may convert the current temperature of a room to a voltage signal. An analog input module allows an RTU to read the value of this voltage signal and convert it into the temperature reading that it represents.

Discrete Output Module - A discrete output module allows an RTU to control a field device via a discrete electrical contact closure. For example, the module may interface to a fan that turns on when a contact is closed and turns off when the contact is opened.

Communications Module – A communications module allows an RTU to interface to remote equipment using a defined communications protocol and physical communications media. At least one communications module is required for communications with the remote SCADA system. Other communications modules are required for interfaces to other systems including Gas Detection and Fire Annunciation and Control systems.

Peripherals – Peripherals include miscellaneous equipment necessary for the proper installation and operation of the RTU. Peripherals include power supplies, circuit breakers/fuses, cables, panel lights, racks/enclosures, etc.

ATTACHMENT B

METRO RED LINE SEGMENT-1 REMOTE TERMINAL UNITS UPGRADE COMPETITIVE NEGOTIATION PROCUREMENT PROCESS

METRO RED LINE SEGMENT-1 REMOTE TERMINAL UNITS UPGRADE

Staff plans to release a single Request for Proposal (RFP) using a competitive negotiation process in February 2005.

Solicit Qualified Sources

Staff has identified a number of qualified sources as recommended by the MRL Segment-1 RTU Upgrade Project Technical Support Manager, and will augment that list by utilizing the MTA vendor database and other outreach methods prescribed by the Vendor Relations Department. This will improve the opportunity for the solicitation to maximize open competition.

RFP Preparation

The RFP will contain all information necessary to enable prospective contractors to prepare responsive and responsible proposals.

The information concerning MTA requirements shall be clear and concise so as to avoid ambiguity and to allow for proposals to match the needs of the MTA. The MRL Segment-1 RTU Upgrade System/Technical Support Manager is developing the scope of work and functional specifications for the System Integrator.

Pre-Proposal Conferences and Site Visits

A pre-proposal conference and site visit will further assist potential contractors in understanding MTA requirements, as well as providing an opportunity for proposers to understand the working environment where the project will take place.

Source Selection

The solicitation evaluation criteria shall be stated such that technical and qualification factors together will be weighted greater than overall price. However, the combination of factors shall be constructed in a manner that will assure that staff will recommend a source that is most advantageous to the MTA.

A formal source selection committee will be established that possesses a technical fluency in the components that make up the Segment-1 RTUs and Metro Rail SCADA system. The committee will consist of qualified individuals that meet the prescribed technical background to ensure an impartial evaluation of all proposals.

Competitive Range

One of the results of the evaluation committee's work will be the establishment of a Competitive Range, consisting of those proposers that have met the standards established by the evaluation criteria and are deemed responsive and responsible to all proposal requirements.

Those in the Competitive Range shall be invited to participate in oral and written discussions, as well as price negotiations. They will also be invited to participate in formal presentations to the evaluation committee to further improve the committee's understanding of the offers.

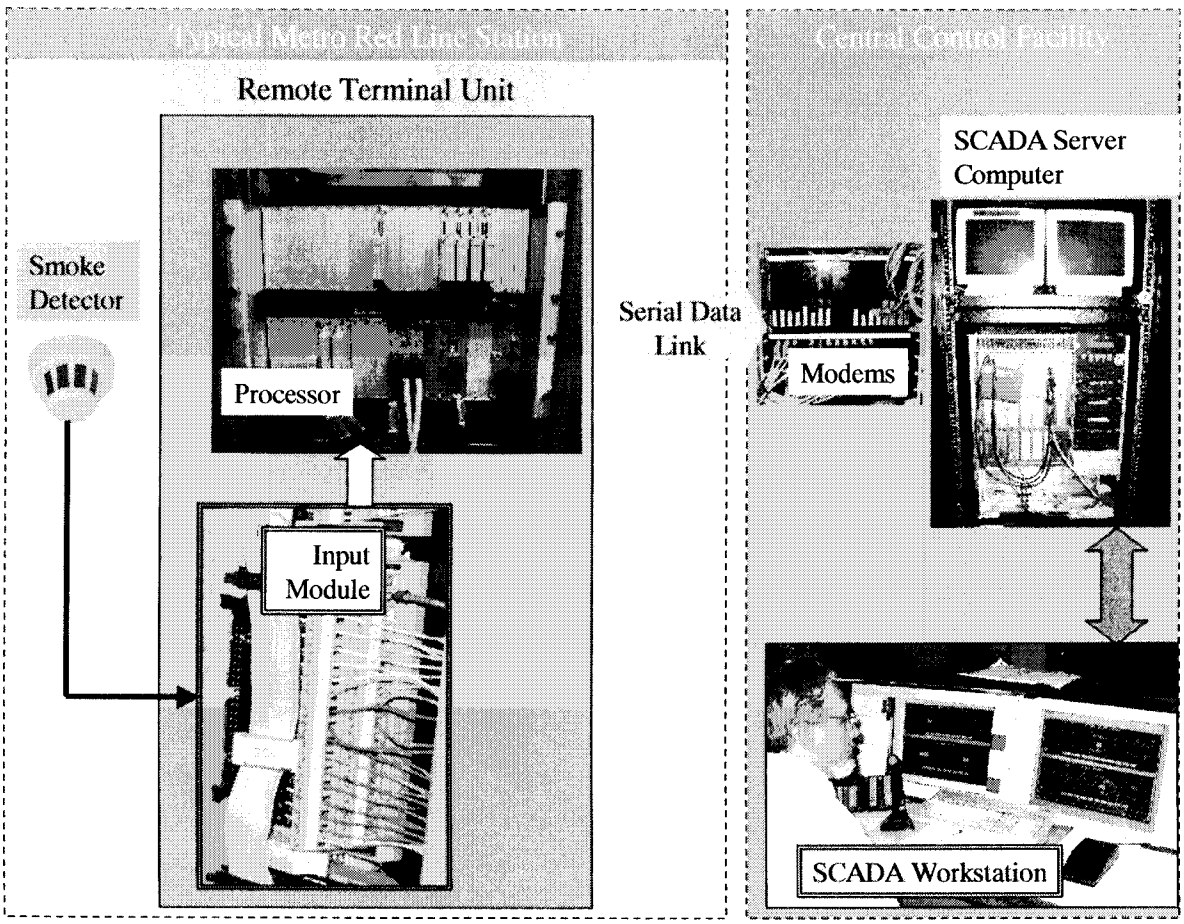
A price analysis will be performed on all price proposals from the Competitive Range. And unless adequate competition is determined, those cost proposals will also be audited prior to price negotiations.

Best and Final Offers and Contract Award

Best and Final Offers will be requested from proposers determined to be in the competitive range after discussions, clarifications and price negotiations have been conducted. After evaluation of the Best and Final Offers, the evaluation committee will make a recommendation to the Contracting Officer.

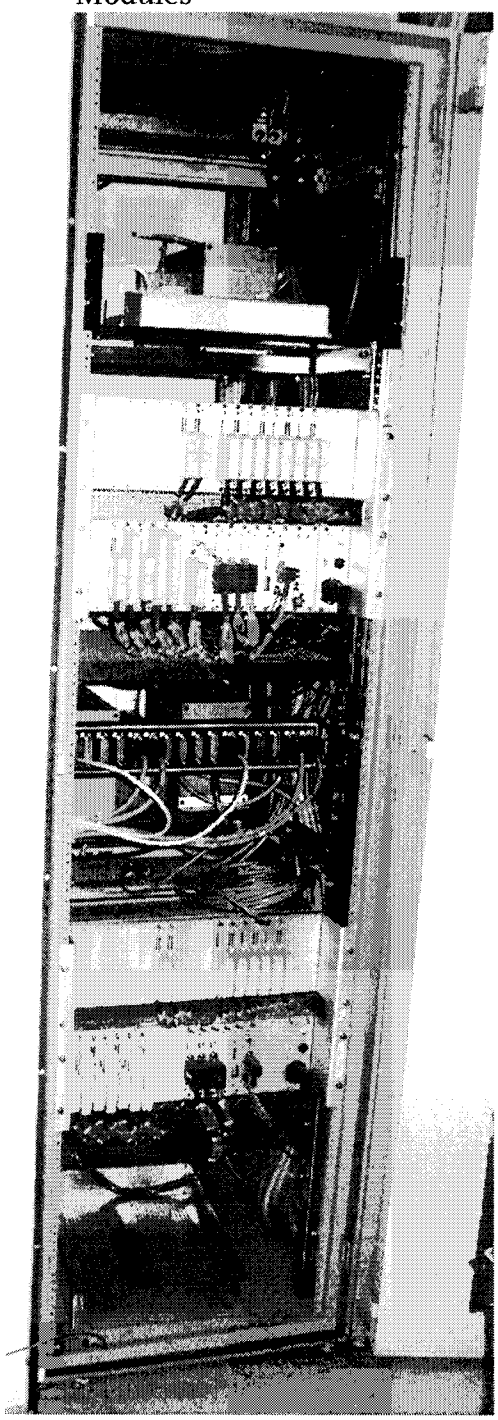
After formal notification to all proposers, a formal recommendation will be presented to the Board for contract approval.

METRO RED LINE SEGMENT-1 REMOTE TERMINAL UNITS UPGRADE



METRO RED LINE SEGMENT-1 REMOTE TERMINAL UNITS UPGRADE

RTU CPU and Support Modules



RTU Input and Output Modules