TO: HONORABLE CITY COUNCIL

FROM: CITY MANAGER

DEPARTMENT: UTILITIES

DATE: JULY 11, 2005

CMR:187:05

SUBJECT: APPROVAL OF A CONTRACT WITH ITRON, INC. IN THE AMOUNT OF $606,179 FOR FURNISHING AND INSTALLING A LIMITED AUTOMATED METER READING (AMR) SYSTEM

RECOMMENDATION

Staff recommends that Council:

1. Approve and authorize the City Manager to execute the attached contract with ITRON, Inc. in the amount of $556,179 for furnishing and installing a limited Automated Meter Reading (AMR) System in two phases.

2. Authorize the City Manager or his designee to negotiate and execute one or more change orders to the contract with ITRON, Inc. for related, additional but unforeseen work which may develop during the project, the total value of which shall not exceed $50,000.

BACKGROUND

Scope of Services Description

AMR leverages proven technology to provide timely and accurate meter reads with minimal human intervention. The first phase of this project (FY 2004-05) funds the purchase and installation of equipment consisting of software and hardware to remotely read selected customer meters for billing purposes. Initially, selected utility meters will be those that are particularly costly to read and include: hard to access meters, frequently read meters, hazardous to read meters, and meters located remotely in the foothills. The overall project will fund the conversion of a combination of approximately 4,355 electric, gas and water revenue meters.
The second phase of the project, which is planned for FY 2005-06, will incorporate AMR technology at customer sites in the Stanford Research Park area and in the Palo Alto Foothills. The results from this limited AMR system roll-out will determine the cost-effectiveness of additional phases covering more areas of the City.

Current Meter Reading Procedures:
Palo Alto uses a manual meter reading system which is reasonably efficient, reliable, and cost-effective.

The current meter reading system was installed in 1990. ITRON was the vendor selected for both the hand-held terminals (FS3) used by meter readers for collecting meter reads, and the “MV-RS” route management software/meter reading application software. MV-RS Route Management Software provides the link between the host billing system and the hand-holds. The system has been reliable and well understood. Equipment failures are rare, and backup policies and procedures are in place.

In 1999, in anticipation of a Y2K problem, CPAU purchased a new Customer Information System (CIS) utilizing BANNER applications from Systems and Computer Technology Corporation (SCT). This system maintains all customer information including the customer address file, meter reading history, billing history, service history, and meter inventory. Bills are sent to customers approximately three days after the meter is read. In September 2004, the system had 70,971 active meters at approximately 24,000 accounts (Electricity 28,352, Gas 23,373, Water 19,246). Six meter readers read CPAU’s 70,971 meters monthly in 19 cycles. Meter reading is organized into 103 routes. An average of 3,700 meters are read each working day. An average route has 600 meters and is read in an 8-9 hour shift.

Below are some of the challenges that CPAU faces with the current meter reading process:

- Estimated meter readings: Locked gates, locked buildings and other conditions prevent meter readers from reading 100% of the meters along the routes. Each meter that cannot be read is recorded as a Skip in the hand-held terminal. Bills for these customers are scheduled for a special reading or are printed based on estimated consumption. Customers do not welcome estimated readings.

- Off-cycle meter readings: Each month, approximately 1,000 off-cycle readings are taken, primarily due to change of customer’s readings. Other reasons for off-cycle readings are skips, meters, which failed the high/low check, and other check reads including responses to high-bill complaints.

- Tenant turnover: Due to our proximity to Stanford University, student tenant turnover in CPAU’s territory is high in late June and early July, and again in late September and early October. These are peak periods requiring 800-900 non-scheduled readings by
staff. A small peak occurs during the mid-year semester break. About 450 turn-ons and turn-offs are performed during other months.

- **By special arrangement:** Approximately 200 meters are read by special arrangements with customers who read their own meters and then the results are collected by mail or telephone. Since customers make reading errors, information on “reads-own” meters are less reliable than meters taken by the meter readers directly. CPAU performs “check-reads” on these meters once a year by appointment with the customer.

- **Inaccessible meters:** Approximately 566 meters are designated as difficult to access for a variety of reasons including: the utility customer is a government contractor and the meter reader assigned to read that meter must wait to be escorted by a security guard to and from the meter. This has become more apparent since the September 11, 2001 events, the meter to be read is locked behind a gate and the key is not available, the meter area is guarded by an unfriendly dog, the meter is in a location usually blocked by a parked vehicle or the customer insists on privacy.

- **Meters in remote locations:** Meters in remote locations are widely separated and therefore have high meter reading costs. In the foothills, the meter reader assigned to that route can spend up to 45 minutes traveling to and from the metered site every month.

- **Lack of precision:** Manual meter reading is not a precise activity. There is uncertainty about exactly when meters are read each month, whether they are read correctly, and if estimated, whether the estimate is developed correctly. As a result, there can be a lack of precision in the City’s billing schedule, accounts receivable, and cash flow forecasts.

- **Limitations on responding to customer requests:** Currently, meter reading and billing are locked into the same cycle. The billing date is tied to the meter reading date, which is determined by how routes are aligned. The billing date is determined by where the customer is rather than when the customer wants to be billed.

- **Hard to find meters:** Some meters are installed in unconventional locations and are hard to find. A new or temporarily assigned meter reader sometimes arrives at the correct address but has insufficient information to quickly and easily locate the meter. Time is wasted searching for the meter or for the correct meter within a bank of meters.

**DISCUSSION**

An evaluation committee consisting of 10 City staff reviewed the proposals. The committee considered 4 criteria for evaluating the proposals received: best fit, best price, compliance with specifications and needs, and potential of upgrading and migrating to more advanced meter reading technologies. The selection criteria and the evaluation are provided in Attachment E. In summary, out of the 6 proposals received on February 1, 2005, each of the proposals submitted by Hunt Technologies, SENSUS Inc, AMRON Technologies, Datamatic, and Hexagram failed
to meet one or more of the proposal requirements described in the Request for Proposal. AMRON’s proposal, for example, does not include any provisions for reading residential type electric meters, and does not include a walk-by or a drive-by meter reading solution. HUNT Technology, HEXAGRAM, and SENSUS INC.’s proposals do not include a walk-by or a drive-by meter reading solution. In addition, both the HUNT Technology and the SENSUS Inc. proposals do not meet the proposal submission requirements, and are disqualified for being incomplete. The references provided by HEXAGRAM do not include any AMR projects it had completed that automated reading of residential or commercial electric meters. The proposal from Datamatic indicates that the gas and water hardware it proposes to install is not compatible with all of the water and gas meters currently in service in the areas included in the scope of this project. The Datamatic proposal does not include any costs for furnishing and installing collectors and repeaters for the remote meter reading using a Fixed Network solution that utilizes radio frequency to communicate with the meters without the need to leave the office. This suggests that Datamatic intends to furnish two separate systems, one that uses radio frequency and is used with the walk-by and the mobile meter reading units and a second system that will use telephone lines. In addition, the Datamatic proposal does not include any provisions for automating the meter reading function for large commercial electric meters. Only ITRON, Inc. submitted a proposal that was superior in meeting the listed requirements in the specification and met all of the criteria listed below.

**Summary of Solicitation Process**

<table>
<thead>
<tr>
<th>Proposal Description/Number</th>
<th>Automated Meter Reading (AMR) System, RFP Number 110680</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Length of Project</td>
<td>4 months</td>
</tr>
<tr>
<td>Number of Proposals Mailed</td>
<td>16</td>
</tr>
<tr>
<td>Total Days to Respond to Proposal</td>
<td>25</td>
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<tr>
<td>Pre-proposal Meeting Date</td>
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<tr>
<td>No. of Company Attendees at Pre-proposal Meeting</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of Proposals Received:</td>
<td>6*</td>
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<table>
<thead>
<tr>
<th>Company Name</th>
<th>Location (City, State)</th>
<th>Selected for oral interview?</th>
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</thead>
<tbody>
<tr>
<td>ITRON, Inc.</td>
<td>Spokane, Washington</td>
<td>Yes</td>
</tr>
<tr>
<td>DATAMATIC, LTD</td>
<td>Plano, Texas</td>
<td>No</td>
</tr>
<tr>
<td>HEXAGRAM, Inc.</td>
<td>Cleveland, OH</td>
<td>No</td>
</tr>
<tr>
<td>AMRON Technologies Inc.</td>
<td>Hartsville, SC</td>
<td>No</td>
</tr>
<tr>
<td>SENSUS, Inc.</td>
<td>New Orleans, LA</td>
<td>No</td>
</tr>
<tr>
<td>Hunt Technologies, Inc.</td>
<td>Pequot Lakes, MN</td>
<td>No</td>
</tr>
<tr>
<td>Range of Proposal Amounts Submitted</td>
<td>$97,275 to $556,179</td>
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</tr>
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</table>

*Bid summary provided in Attachment B

The wide range in the proposal amounts submitted is primarily due to vendors submitting incomplete proposals. Five out of the 6 proposals received were incomplete and did not include all of the system components and features described in the scope of work of the Request for Proposal. The lowest proposal is $97,275 and the highest proposal is $556,179. When
comparing the total proposal cost to automate the 4,355 meters included in the scope of this project to the cost for doing similar projects at two other utilities, the per meter cost was $150 for one utility (based on a total of 80,000 meters) and $115 for another utility (based on a total of 97,000 meters). ITRON’s per meter average cost for this project is $127. Considering the size of this project in comparison to the size of the two projects listed above, staff believes that ITRON’s proposal to automate the meter reading of 4,355 meters is in line with the industry average. The majority of the cost for this project is for the infrastructure needed to collect the meter readings. As the AMR program expands, the average per meter cost is expected to drop, as most of the AMR infrastructure would have been already installed as part of this project.

ITRON, Inc. was selected because of its experience in providing systems of similar capabilities. ITRON’s other customers include: City of Georgetown, TX, City of Spokane, WA, Clark Public Utilities in Vancouver, WA, Virginia Power, City of Oswego, IL. Other utilities that gave favorable remarks when asked about their experience with ITRON included: City of Richland, WA, Sacramento Municipal Utility District, Navopache Electric, AZ, and Clallam County PUD, WA, East Bay Mud, Oakland, CA, City of San Diego, Albany Water, Gas, and Light.

The request for the contingency amount of $50,000 is for unplanned and unforeseen work that may occur during the installation phase of the project. The majority of the electric, gas and water meters included in this project were installed anywhere from 10 to 15 years ago. Unless a meter is upgraded or develops a problem requiring that it be pulled out of service (i.e. damaged registers, inaccurate reads requiring the meter be tested and recalibrated), most meters are designed with a service life of up to 25 years. This project was designed with the assumption that all of the water and gas meters can be retrofitted with a wireless radio transmitter to transmit gas or water meter reads, based on information obtained about each meter directly from the utility billing system. Since mistakes may have been made when this meter information was originally entered into the billing system, information about some water and gas meters included in the scope of this project may be incorrect, and the meters may turn out to be not supported by the vendor, and must be replaced. In addition, some of the gas meters included in the project scope are located inside vaults with metal lids. Gas meters are typically installed above ground. For the meters currently installed in vaults with metal lids, additional repeaters may be required to enhance the radio signals and minimize the interference caused by the metal lids. These modifications cannot be determined until the hardware is installed and tested at the meter sites.

**RESOURCE IMPACT**

Funds for Phase One of this contract have been budgeted in the FY2004-2005 Electric Fund Capital Improvement Program (EL-04014). Funds for Phase 2 are included in the approved FY 2005-2006 Electric Fund Capital Improvement Program (EL-04014). Maintenance following the first year is expected to be approximately $15,000 per year. The annual maintenance fees will provide for software product upgrades, hardware warranty, web-based support services, documentation updates, technical telephone support, and annual communication costs. Staff anticipates to shift the resource of one FTE from Customer Service Meter Reading to the Water-Gas meter shop after the new system is fully operational.
The first phase of the AMR project will convert approximately 4,355 costly and/or difficult to read electric, gas and water revenue meters (or 6 meter reading routes out of a total of 106 routes). The second phase of the AMR project, planned for FY 2005-06, will expand AMR coverage/penetration to include 905 commercial/industrial meters and 1,206 meters in the remote Palo Alto Foothills. Meters installed in the second (and subsequent Phases) will be read using the AMR backbone system purchased and installed in Phase 1. The results from this limited AMR system roll-out will determine the cost-effectiveness of additional phases covering more areas of the City.

The total combined estimated direct annual savings from the implementation of the proposed two phases of this project are expected to be in the range of $70,000 annually starting in FY 06-07, or the equivalent of one FTE in Customer Service Meter Reading. Based on a total implementation cost of $556,179, this pilot project is expected to pay for itself (provide a return on investment, ROI) in approximately 12 years based on current meter reader salary and benefit costs. Additional savings will be realized from a reduction in fleet operation and maintenance costs and from uniform costs.

The greatest Utilities ROI will be achieved if residential meters are converted from manual meter read to AMR. At a per meter estimated cost of $92/meter, the total cost to convert the remaining 65,370 utility meters to AMR is approximately $5,760,000. If the utility decides to convert all remaining meters to AMR, the expected reduction in meter reading operating costs will escalate to $300,000 annually, or the equivalent of 4 meter reader FTEs. These reductions would occur through attrition and would be reflected in reduced personnel, fleet and maintenance costs. The reduction in work force would occur gradually as the number of meter reading routes are converted. With existing personnel, it would take five years to convert the remaining utility meters to AMR.

POLICY IMPLICATIONS
This recommendation is consistent with the Council approved Utilities Strategic Plan Key Strategy No.3: Streamline and manage business processes to allow CPAU to work efficiently and cost-effectively.

ENVIRONMENTAL REVIEW
This project is categorically exempt from California Environmental Quality Act (CEQA).

ATTACHMENTS (Contract packet on file in the City Clerk Office)
A: Contract
B: Bid Summary
C: Selection criteria

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