ITEM 22

OFFICE OF THE CITY MANAGER
DES MOINES, IOWA

CITY COUNCIL COMMUNICATION 97-412
AUGUST 4, 1997 AGENDA

SUBJECT:	TYPE:	SUBMITTED BY:
STUDY FOR PROCESS CONTROL SYSTEM AT WRA REGIONAL WASTEWATER TREATMENT PLANT	◆ RESOLUTION ORDINANCE RECEIVE/FILE	HAROLD E. SMITH, P.E. CITY ENGINEER

SYNOPSIS —

An agreement has been negotiated with the professional engineering firm of EMA Services, Inc., George Mathes, President, 1970 Oakcrest Avenue, St. Paul, MN 55113 to provide Engineering Services for a study to produce information necessary to identify the improvement or replacement components of the Process Control System Project at the WRA Regional Wastewater Treatment Plant. The proposed agreement is a cost plus fixed fee arrangement and provides for Professional Engineering Services for the study phase of the proposed project. The proposed fee for such work is $86,957 plus a fixed fee of $9,543, which results in a total maximum fee of $96,000 for this agreement.

FISCAL IMPACT —

Funds to support this project will be provided by fund account number 396663 utilizing funds on hand from the WRA Renewal and Replacement Fund. Funds have been accumulated in the Renewal and Replacement Fund account as a result of continuing planned monthly contributions by all the WRA Constituent Communities for WRA renewal and replacement purposes.

RECOMMENDATION —

Approval of the proposed Engineering Services Agreement with EMA Services, Inc.

BACKGROUND —

The WRA wastewater reclamation facility currently uses a Distributed Control System (DCS) which incorporates a JC 5000 computer system, which is a proprietary system that was provided by Johnson Yokogawa Corporation (JYC) which was formerly Johnson Controls, to perform vital operational and data acquisition functions at the treatment facility. The original DCS consists of two area control centers, one in the Sludge Processing Building and one in the Blower Building, in addition to a central control center in the Administration Building. The system also includes 16 intelligent distributed control stations. Connections between the units are made via a dual fiber optic highway.

The facility also uses a Supervisory Control and Data Acquisition (SCADA) system for surveillance of over 45 remote pumping stations provided by Control Installations of Iowa, Inc. (CI3). The SCADA system is linked by Microwave Data Systems Transceivers to the WRF.

The existing equipment was installed and placed in service at various times prior to 1990. The equipment is now becoming obsolete, as is the software utilized by the equipment. Breakdowns requiring hardware and software attention are frequent. Repairs to the proprietary hardware are expensive as a result of various essential parts being practically unavailable. Support for the programming and maintenance of the software is also expensive because of the proprietary nature of

the software. The current annual cost for hardware repairs and software reprogramming and maintenance is $100,000 and is expected to increase in the future.

Since the installation of the current DCS system, the wastewater division of JYC has separated from its parent company and has formed Parsons Systems Engineers, Inc., which has recently filed for reorganization and has been purchased by another company. The many changes of ownership have fostered confusion with regard to responsibilities and costs concerning the proprietary hardware and software.

This study will review the current systems, the installed hardware and software in current use, and the problems being experienced with operations and maintenance. It will evaluate the costs and long-term viability of the existing systems and the interface with the Local Area Network (LAN) and the connection to the City of Des Moines net. It will review existing available technology, make recommendation for improvement to the system or replacement of the system, and develop and prepare a cost-effective analysis of the selected system and its components to allow procurement of the most viable process control system at the least cost using a broad base of potential suppliers of hardware and software for this application to minimize the potential for acquiring proprietary hardware and software.