



LAW ENFORCEMENT ASSISTANCE ADMINISTRATION (LEAA)

POLICE TECHNICAL ASSISTANCE REPORT

SUBJECT: Comments on an RFP for a Computerized  
Command and Control System - Phase I.

REPORT NUMBER: 76-100/102

FOR: New Orleans, La., Police Department

Population:	573,000 (1973)
Police Strength:	
(Sworn)	1,417
(Civilian)	453
Total	<u>1,870</u>
Square Mile Area:	197.1

CONTRACTOR: Public Administration Service  
1776 Massachusetts Avenue, N.W.  
Washington, D.C. 20036

CONSULTANT: Robert L. Marx

CONTRACT NUMBER: J-LEAA-002-76

DATE: March 30, 1977

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ACQUISITIONS

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## FOREWORD

The attached comments were prepared in response to a request from the New Orleans, Louisiana, Police Department for a consultant to review and comment on a draft RFP for a computerized command and control system and to render on-site assistance during the evaluation of the proposals submitted in response to the RFP. Because the RFP has not yet been issued, only that initial phase of the request could be completed, and the on-site technical assistance will be furnished later, as Phase II. The RFP is entitled "Requirements and Specifications for a Computerized Command and Control System and for Other Related Hardware and Services, Revision A," and it was prepared in September 1976 for the New Orleans Police Department by Joseph L. Lopez.

The consultant assigned to both phases of the technical assistance was Robert L. Marx. Other personnel involved with the request were:

Requesting Agency: Mr. Anthony D. Duke  
Acting Superintendent of Police  
New Orleans Police Department

Approving Agency: Mr. N. T. Fisher  
Police Specialist  
LEAA Region VI (Dallas)

## COMMENTS

The RFP, "Requirements and Specifications for a Computerized Command and Control System and for Other Related Hardware and Services, Revision A," is well organized and prepared and should result in the procurement of a useful command and control system for the New Orleans Police Department. The comments and suggestions that follow should make the contractor selection process somewhat easier; they are organized to be read along with the RFP, and each comment is prefaced with the page and section number to which it applies.

Page 7, Section 9.0. This section calls for submission by the vendors, along with their proposals, of a set of instruction manuals for each type of equipment bid in their proposal. This could result in a truly awesome pile of paper descending on the department, paper which is unlikely to be useful during the vendor selection process. It is suggested that this section be changed to require that sample instruction manuals are to be available on request from the city during the contract negotiation process after vendor selection.

Page 8, Section 11.0. This section requires that all plug-in printed circuit boards should be stocked for replacement on a 24-hour basis. It is not clear if this implies an actual inventory of parts at the police department, at the prime contractor's plant, or at original equipment manufacturers' facilities. This section should be clarified to satisfy the original intent of assuring rapid access to replacement parts.

Page 11, Section 23.0. This section requires 10-year cost estimates for the system. However, bidders should be required to use current equipment prices, maintenance contract prices, and labor rates in presenting their 10-year cost estimates. Any attempt to take account of future price trends and inflation rates in these calculations would add confusion to the comparative evaluation of vendors.

Page 12, Section 24.0. This section discusses a total system availability of 99%. "Availability" is a term that has been misused for years in the computer industry. Since the intent is covered later in the specifications under "reliability," this reference to system availability should be deleted.

Page 12, Section 25.0. This section specifies that the vendor must use a "high level language" to assist in software maintenance. The consultant agrees with the concept but suggests that it be softened somewhat to allow use of machine language and assembly language in those cases where execution speed is critical and the probability of changing the module is low. Specifically, it is suggested that the last sentence be changed to read, "For this reason, it is highly desirable

that the vendors use a high level language as an aid to this in house software maintenance. If machine language or assembly language routines are proposed, the vendor should describe the system performance benefits which led to their inclusion, and describe the impact on future program maintenance of that decision."

Page 17, Section 2.3.2.3. This section refers to "CPU generated CRT complaint format." Some vendors may wish to use intelligent terminals to provide formats rather than generating them at the main computer. This should be allowed.

Page 24, Section 2.6.1. This section specifies that the information code for the mobile digital terminals should be 7 bit ASCII. It is not clear if this specification excludes any of the mobile digital terminal vendors. If it does, that should be removed as an absolute requirement although it could be retained as a "desirable" system feature. The competition is already so narrow in this area that it seems inappropriate to further narrow it except under the most justifiable circumstances.

Page 26, Section 2.6.2 F. This section specifies a screen display as "between 240 and 256 characters" and "6 to 8 lines." The wording seems to exclude displays of more than 256 characters or more than 8 lines, which probably was not intended. The wording should be changed to, "As such, the screen shall be capable of displaying at least 240 characters spread over at least 6 lines."

Page 29, Section 2.6.2 I. This section specifies a "programmable identification number" for the mobile digital terminal. It is not clear why the identification number must be programmable, especially since the specification requires in other parts that the equipment identification number be translated in system software to a unit assignment number. Therefore, it is suggested that the word "programmable" be deleted from the specification.

Page 32, Section 2.7.2.2. This section specifies magnetic tape recording techniques to collect data for batch processing. This section should specify that batch processing software is not part of this procurement. Furthermore, there may be the possibility of doing this batch processing on the backup computer of the command control system rather than the city computer. This would remove many problems of compatibility in interface between the two computer systems. This possibility should be mentioned in the specification and vendors encouraged to discuss the area, while recognizing that the report generation software is not part of this procurement.

Page 32, Section 2.8.1. This section requires that each of the CPU's of the redundant command control computer system be capable of carrying the entire peak load of the system. It may be desirable to allow load sharing between the two computers rather than a primary/backup configuration. This might allow smaller computers, and therefore lower procurement costs and ongoing maintenance costs. This possibility should be considered, and if the city finds it appropriate, it should be allowed as an option in the specifications.

Page 34, Section 2.8.1.2.1. This section requires disc filing and on-line retrieval of up to 70,000 closed complaints for the prior 60-day period. This single requirement will add a few mega bytes of additional disc storage requirement, for an application that seems to have very little potential payoff. Between the magnetic tape logging and the printout logging already imposed on the system, there should be plenty of information available to meet the occasional need to review a closed complaint. Although the access time may be minutes or hours rather than the seconds involved in the real time access, the cost savings could be substantial. It is suggested that the requirement to hold closed complaints on disc be cut to a minimum, perhaps 24 hours.

Page 37, Section 2.8.2. This section describes the requirements for the CRT terminals within the dispatch center. The limitation on weight to 40 pounds seems unnecessary for this procurement. It is unclear as to whether the terminals are to be used in a telecommunications mode to the computer or directly cabled to the computer. The specifications provided for transmission rates and transmission mode increase the confusion. If a telecommunications mode is to be used, the high parallel transfer rates are not needed, and in any case the low end of the serial transmission rates (110 bits per second) is inappropriate.

Page 38, Section 2.8.4.1. The specification seems to be trying to say that the tape should be compatible with the IBM 370 available in city data processing. If this is the case, it would be best to say that directly, since vendors would then be responsible for the entire compatibility problem including tape labeling and other specifications not presently in the document. On the other hand if the vendor is going to be allowed to avoid the IBM compatibility issue by doing batch reporting on the backup system, much of the tape specification language could be relaxed or removed.

Page 38, Section 2.8.4.2. This section specifies that the tape controller unit be able to control up to eight tape decks. This seems excessive. Ability to control two decks should be sufficient to meet any reasonable operational requirements of the system.

Page 39, Section 2.8.5. This section requires that the computer control terminal utilize a matrix impact printer "although other techniques may be proposed." I can think of no good reason to suggest that a dot matrix printer be the preferred solution in this case, since other print mechanisms provide equally readable print with equal quietness and reliability. If there is some reason to propose the dot matrix solution, it should be spelled out in the specifications for the benefit of vendors.

Page 40, Section 2.9. This section specifies certain features of data integrity checking during system recovery. This would be a good place to require a written description of the method by which the system returns to normal operation after an extended period of manual operation imposed by system failure. It is necessary to know exactly what processes are undertaken to bring the data bases back to current status and what effect, if any, manual operation has on system performance statistics. For example, during the recovery time do the complaint takers and dispatchers override the system clock to put in "old" data without harming the statistical reports generated later from the data.

It is also necessary to know the detailed procedures of switching from the primary computer to the backup computer in case of a system crash. Are there any physical interconnections between the systems, do disc packs have to be manually transferred from one drive to another, who does what, and how long does it take?

Page 62, Section 4.2.4.3.1. This section specifies that the operators radio control panel will include a cardioid pattern dynamic microphone (gooseneck type). The need for this microphone is not apparent, since a lightweight telephone type headset is already provided.

Page 80, Section 6.2. This section requires the vendor to calculate total reliability using a technique described in a previous section of the specifications. Further specification in this area would be useful in order to assure that vendors provide comparable data concerning overall reliability. To this end the following wording is recommended:

In calculating overall system reliability, vendors are directed to exclude from consideration mobile digital terminal and mobile radio equipment but to include all other system equipment including computers and peripherals, displays and terminals, fixed receivers and transmitters, etc. Three separate system reliability figures are requested, along with supporting data.

First, using the terminology described in Section 6.1 of these specifications,  $R(1000)$  is to be calculated for the entire system. In short, the number wanted is the probability that

the entire system (with the exclusions noted above) will operate without system failure for 1,000 hours. In calculating this figure, a failure to any system component, even if it is backed up with a redundant component, is to be counted as a failure.

Second, concepts described in Section 6.1 are to be utilized "backwards" to determine the median time between failures for the system. That is, using the MTBF data for individual system components and fixing  $r(t) = 0.50$ , the expression shown in Section 6.1 is to be solved for  $t$ , the median time between system failures. In this computation, as in the one above, component failures even when backed up by redundant components are to be counted as system failures.

Third, the same "median time to failure" calculation as described earlier above is to be performed except that component failures backed up by redundant components are not to be counted as system failures if the vendor can demonstrate that failure determination, failure diagnosis and system recover using redundant components can be accomplished in 10 minutes or less after failure occurrence. The number desired then represents a 50% probability that the stated time will elapse between system failures requiring more than 10 minutes to recover from.

Page 79, Section 6.1. This section presents reliability design goals for computer elements and disc/tape mechanisms. Another section should be provided giving a design goal for reliability of the mobile digital terminal equipment.

Final Comment. Somewhere in the RFP "boilerplate," the city should reserve the right to select a contractor and then negotiate with that company on all aspects of the system including makes and models of all equipment.

A 45-day period should be allowed for proposal preparation.





**END**