LAW ENFORCEMENT ASSISTANCE ADMINISTRATION (LEAA)

POLICE TECHNICAL ASSISTANCE REPORT

SUBJECT: Review of Radio Equipment Bids

REPORT NUMBER: 77-035-144

FOR: City of Overland Park, Kansas

Population	82,000
Police Strength	
(Sworn)	94
(Civilian)	25
Total	119
Square Mile Area	48

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

CONSULTANT: R. James Evans

CONTRACT NUMBER: J-LEAA-002-76

DATE: June 8, 1977

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FOREWORD

This report was prepared in response to a request for expedited technical assistance from the City of Overland Park, Kansas, in connection with a review of police radio equipment bids.

The consultant assigned to this project was Mr. R. James Evans, and other personnel involved in processing the request were:

Requesting Agency:	Mr. Myron Scafe Chief of Police Overland Park, Kansas
Approving Agency:	Mr. Jeffrey Peterson Police Specialist LEAA Region VII (Kansas City)
	Mr. Robert O. Heck Police Specialist LEAA Central Office of Regional Operations

I. INTRODUCTION

In August, 1976, the Overland Park, Kansas, Police Department requested technical assistance in improving and updating their communications facilities and systems. That assistance specifically covered three areas of concern:

1. A review of existing basic radio systems.

2. A determination of the feasibility of adding computer-aided-dispatch (CAD) to reduce police response time.

3. An assessment of how recommended changes in communications systems would interface with adjoining jurisdictions and the proposed telecommunications/CAD plans presently being developed by the State of Kansas.

The 1976 technical assistance was provided by the Public Administration Service through consultant R. James Evans, and included recommendations for system improvement and frequency changes. One specific recommendation was to purchase new hardware to update certain sections of the system.

The specifications for the hardware procurement were prepared early in 1977 and released for bid in the Spring. Two bids were received in response to the bid request, from General Electric and Motorola.

The current task was to assist the police department with the evaluation of the two bids and present a recommendation to the Chief of Police. The technical requirements involved reviewing each of the bids and the bid specifications in an effort to determine the best and most responsive system at the least cost.

Personnel interviewed during the on-site phase of the assignment on April 18-19, 1977 were:

Mr. Jeffrey Peterson
Police Specialist
LEAA Region VII (Kansas City)

Chief Myron Scafe
Overland Park Police Department

Lt. Gus Ramirez
Overland Park Police Department

Mr. Ron Parks
Planning Analyst
Overland Park Police Department

Floyd Bankson
Systems Specialist
LEAA Region VII (Kansas City)

II. UNDERSTANDING THE PROBLEM

The primary objective of this assignment was the evaluation of the radio bids. The first task involved background, nontechnical discussions with the three principal persons in the police department who had prior knowledge of the specifications and bids--Chief of Police Scafe, Lt. Ramirez, and Ron Parks.

The next task of the assignment was to completely review each bid document along with the specifications and their amendments. Since all bids vary to some extent, a chart was prepared that would assist in comparing the bids and visually indicate the item requested in the specifications, the quantity of items bid, and the price of the item. After compilation of this material, another meeting was held with police personnel to verify certain statements in each bid.

Final task in the evaluation procedure was the preparation of an evaluation narrative that would accompany the bid chart to the Police Committee for its review and action.

A copy of the bid chart and narrative along with the recommendation to the Chief of Police is attached as Appendix A.

The evaluation narrative was divided into 11 major areas that dealt with both the bid documents and the specifications.

The major areas are:

1. Price of equipment to be supplied
2. Conformance with specifications
3. Delivery dates
4. Performance bonds
5. Vendor integrity and qualifications
6. Capability of future system expansion and add-ons
7. System acceptance tests
8. Payment schedule
9. Warranties
10. System installation and maintenance
11. Operator training

The assignment was discussed with Mr. Jeffrey Peterson and Mr. Floyd Bankson of LEAA Region VII in Kansas City, Kansas. They indicated that the equipment in each bid should be reviewed to be certain that it would interface with future planning for the 911 common telephone number, the CAD plans and any future data additions such as a crime analysis unit.

The consultant did not discuss the bids with either vendor, since the police department had held prior meetings with both in order to clarify certain aspects of material and prices.

Further discussions with police department personnel indicated the need for additional radio frequencies. Recommendations were requested regarding the interface capability between the mutual aid radio system for several local cities and the new radio system being purchased. Each of these items were considered as part of the assignment and will be discussed below, under Analysis of the Problem.

III. ANALYSIS OF THE PROBLEM

The bids from General Electric and Motorola were evaluated by a comparison of their system design factors and with regard to how they met the equipment specifications that were sent out to vendors.

Each bidder was required to prepare a system design to determine the number of satellite receivers necessary. This is set forth in section 1.2 of the specifications, as follows:

> " It shall be the responsibility of the successful bidder to determine the number of satellite receivers necessary to accomplish system objectives, their location on City Owned property or other acceptable sites, transmitter power output and sites, antenna heights and other system variables and clearly to demonstrate in his response how the system proposed intends to meet the system design objectives."

This flexibility resulted in a variance in the bid items concerning the satellite receiver system.

The cost of the two systems was determined by the bid prices for the items considered necessary to provide the police department with a viable and dependable system with capability of future expansion. The final bid prices were:

General Electric	$229,247.00
Motorola	$176,566.90

The bid chart designed for evaluations used the following format (See Appendix A).

R.F.P.		G.E. BID			MOTOROLA BID			NOTES
Qty.	Desc.	Qty.	Desc.	Price	Qty.	Desc.	Price	

Bid Narrative

The following narrative describes the various details of each bid.

1. Price vs. Equipment to be Supplied

The two bids cannot be evaluated on the basis of price alone because of the latitude in system design allowed to the vendors in the city's request for proposals (attached as Appendix B) which stated:

> "1.9 Variant Systems and Exceptions
>
> In the event a bidder feels that he can supply a system that will meet all conceptual requirements of the Overland Park Police Department as set forth in Paragraph One, but which system varies from the specifications as set forth in this Request for Proposals, it is requested that a bid proposal be submitted with a detailed explanation of the proposed system, its capabilities and an intensive and extensive exposition of the reason the bidder believes the proposal is equal to or exceeds the system and specifications described herein. It shall also be the responsibility of the successful bidder to show his experience and competence in this field. Any other exceptions to the system concept and specifications shall be listed in the bid."

The General Electric bid has followed the general equipment specifications; however, it added extra satellite receivers in the central part of the city to improve the portable radio operation from within buildings. The amount of this figure in the GE bid cannot be determined from a lump-sum figure and was not available from the GE Sales Representative.

The GE control consoles have an expansion capability to a total of 10 channels (only eight channels are required at this time), and the GE base station repeater transmitters have 100 watts of power output which has a tendency to increase the receiving range of the portable units.

The standby transmitter unit bid by General Electric has 40 watts output power. This will provide adequate coverage to the mobile units and a less-than-desired coverage to portable units during any failures of the north and south repeaters.

The GE portable/mobile unit has an amplifier output of 25 to 30 watts. This amplification is desirable for vehicles required to work out of the city area but is not necessary for day-to-day operation within the city. (The GE system is designed for complete coverage with a 1- to 4-watt trans-

mitter using a unity gain antenna.

The Motorola bid followed the general specifications as set forth in the city's RFP and the equipment proposed, along with the use of options, should provide a very dependable system.

The base station repeater units are 75 watts output power. The mobile radio units are 25 watts output power. These are slightly less in power output than those furnished by General Electric. The Motorola portable/mobile unit does not have an amplifier and therefore will not produce the same range as the GE unit.

2. Conformance with Specifications

Both Motorola and General Electric have conformed with the RFP and its specifications. The GE bid includes additional items not in the Motorola bid, however, and these particular items pertain to the portable radio coverage within the city. The RFP and specifications contain a section regarding the desired radio coverage of the new radio system. This coverage is primarily related to the use of the portable radio units by officers on foot. Section 1.1 of the RFP alludes to this requirement and was amended in a letter to the prospective bidders dated February 25, 1977. Excerpts from the RFP and letter are as follows:

"1.1 Overall Goal and Objectives

It is the intent of these specifications to insure the purchase of an integrated communications system, so engineered and designed as to provide the Overland Park, Kansas, Police Department the capability for continuous two-way radio contact for every portable radio-equipped department member regardless of his location within the jurisdiction of the Overland Park Police Department and one mile beyond. This capability must be constant whether the officer is in his vehicle, on foot, or when encountering vertical policing situations in multi-story, hi-rise structures. Exceptions are enclosed elevators and bank vaults. The General System Design Considerations Section of the Minimum Specifications outline in greater detail the specifics and the intent of the system objectives. Limits of the jurisdictional area requiring guaranteed radio coverage are defined in Appendix A hereto."

"Per the pre-bid meeting held at 8500 Antioch on Thursday, February 17, 1977, the following points should be noted as a formal part of the earlier released 'Invitation to Bid for a Communications System for the Overland Park Police Department':

Page	Section	Line	Description of Change
1	1.1	7	change 'constant' to 'maintained'.
1	1.1	9	'. . . hi-rise structures at a 95% level of reliability.'"

The GE bid indicates that portable radio coverage will be possible inside commercial building within 95% of the city. The Motorola bid contains portable radio coverage charts that cover 95% of the city in normal operation outside of the building but do not include in-building coverage.

3. Delivery Dates

Delivery and installation dates from the date of award have been provided by each bidder. The Motorola equipment delivery is 91 days, and the total implementation time is 182 days. The General Electric delivery and installation dates from date of award are 200 days, and total implementation is 260 days.

This difference in the implementation time should be one of the deciding factors in awarding the bid.

4. Performance Bonds

Both Motorola and General Electric have included a 100% performance bond in their bids.

5. Vendor Integrity and Qualifications

Each of the two companies bidding on this project has a national reputation for integrity and is fully qualified to supply the necessary equipment items and perform the installation and maintenance required on this project. They both meet the qualification stipulations in the RFP.

6. Capability of Future System Expansion and Add-Ons

The radio systems proposed by the two vendors both have the capability of expansion. Future expansion will be necessary in two major areas: (a) Digital data and computer-assisted systems, and (b) frequency expansion of equipment, as the community grows and requires additional services.

The digital data systems primarily concern field mobile units and are now being used by many police departments through the country for direct computer access to and from the mobile units to centralized data files.

Frequency expansion will be necessary in the near future in equipment items such as base stations, mobile, and portable units because of the new frequency assignments presently being processed through the Federal Communications Commission. These assignments were not available for prior system planning.

7. System Acceptance Tests

Both bidders have agreed to perform system acceptance tests that will demenstrate to the City of Overland Park that the equipment and system perform properly in all areas of the city (these are primarily for the portable radio units). These tests will be conducted by the vendors' technical representatives and a representative from the City of Overland Park.

8. Payment Schedule

The RFP indicated a payment schedule to vendors of 90% upon equipment delivery and 10% final payment after system acceptance. Both vendors have agreed to this payment schedule.

9. Warranties

Both General Electric and Motorola have excellent warranty programs on their equipment.

The warranty or guarantee regarding the radio coverage for various areas of the city has been projected by each vendor through a series of transmitter power, receiver sensitivity, and signal propagation charts. These warranties indicate a theoretical coverage of 95% of the City, with actual coverage to be determined by final tests.

10. System Installation and Maintenance

These two equipment manufacturers both have excellent reputations for systems installation and maintenance programs. The Overland Park Police Department presently uses a GE maintenance facility which has been very satisfactory.

Motorola has a 24-hour service company in the area that includes a complement of 17 technicians, 3 of whom are assigned to the portable radio service. There are five installation personnel in the service company.

11. Operator Training

The new station control console equipment to be installed in the Police Department Communications Room will require operator training by the successful vendor. Both vendors have indicated in their bids that they have extensive operator training programs for customers available.

Consultant's Observations: If the low bid by Motorola is accepted, the police department should understand that the specifications and RFP call for 95% coverage in buildings or high-rise structures. The Motorola bid documents indicate that portable coverage of the City's areas does not include in-building coverage. This may not present a problem, since field tests will be performed after equipment installation and if poor reception areas are discovered in some buildings, additional satellite receivers may be installed at these sites. The cost of extra satellite-receiver systems is estimated at $2,700 each, plus the recurring cost of leased telephone line facilities and yearly equipment maintenance.

Additional Frequencies

The Overland Park Police Department was only able to obtain the assignment of two pairs of UHF radio frequencies in 1976. These were sufficient to operate the dual repeater system now being purchased. One pair of frequencies is used in the northern section of the City and one pair in the southern section. This patrol arrangement did not allow any channels for either detective or administrative operations, and the mobile data system planned for the future would be without a clear pair of UHF frequencies.

The communications section of the police department has recently been working with the FCC in Kansas City in an attempt to obtain additional frequencies that would be compatible with their present channels.

Future Additions

Mr. Jeffrey Peterson of LEAA Region VII in Kansas City expressed concern whether the equipment being purchased would interface with the following three communications improvements:

1. The 911 common telephone number
2. A computer-aided-dispatch (CAD) system
3. Data systems such as mobile digital and crime analysis.

The first improvement can be interfaced very easily in one of three ways. The 911 telephone operator, if separate from the dispatcher, can relay all emergency messages requiring assistance to the dispatcher.

The manual interface would take place by the transfer of the message on an incident card. The second method is to use a combination telephone operator/dispatcher, which is done successfully in many 911 installations and saves personnel cost. The third method of interface is the use of computer terminals and a mini-computer to store and relay all incoming emergencies and dispatch information.

The second improvement, CAD, can be easily accommodated if space for CRT terminals is planned in the new control room. Space for a mini-computer must also be available. The new communications consoles will be compatible with CAD.

The third improvement, data systems, will also be compatible with the new installation, since these require CRT terminals and printers. The input devices to the various computers may very well be a single CRT terminal. This would save space but would require special engineering, since one terminal would interface with two or more computers. The mobile digital units in the cars will interface with the same CRT terminal for the CAD; however, a separate pair of UHF frequencies will be necessary for the digital system. In addition, there will have to be base station equipment and appropriate channels on the mobiles.

IV. FINDINGS AND CONCLUSIONS

The basic findings and conclusions which follow were developed from the bid analysis as the basic task of the assignment. Other findings are related to secondary problems of frequency assignment and computer interface.

1. Finding: Motorola's is low acceptable bid.

   Conclusion: Taking all factors into consideration, the Motorola bid appears to supply the necessary items to implement a dependable radio system in the City of Overland Park. The only item in question was the 95% portable radio coverage within buildings. This was not guaranteed by Motorola and may require some additional satellite receiver installations after final testing. General Electric did provide the 95% guarantee within buildings; however, the bid difference was $52,680.10. The cost of extra satellite receivers is between $2,000 and $3,000, excluding towers and lines.

2. Finding: The police department requires additional radio frequencies.

   Conclusion: In order to provide a good mobile data system, an extra pair of UHF channels is required. This will provide faster and more dependable crime information checks from the vehicle. The detective division and administrative personnel should have a separate channel in the UHF band compatible with the existing frequencies.

3. Finding: Mutual aid frequency compatible.

   Conclusion: Review of the mutual aid radio system being implemented by the City of Lenexa is compatible to the existing UHF frequency plan for Overland Park. The installation of these frequencies in of these frequencies in the Overland Park vehicles and portables would greatly improve the area communications.

V. RECOMMENDATIONS

There are several specific recommendations, as follows:

1. Recommend that the City of Overland Park accept the low bid by Motorola, $176,566.90

2. Recommend that the police department add the area mutual aid frequency to their portable and mobile radio units at this time.

3. Recommend that the additional frequencies for data, detective units, and administrative use be applied for immediately (a minimum of two pairs of frequencies).

4. Recommend that the new portable and base units be ordered with a capability to accept the new frequencies.

5. Recommend that all digital and data requirements be planned and engineered into the new system.

6. Recommend the use of FCC rule 86-309 for all intelligence work where portables may be used with a power output of 2 watts or less.

APPENDIX A

Overland Park

REPORT TO THE GOVERNING BODY NO.76-117

TO THE HONORABLE MAYOR AND COUNCIL

December 21, 1976

SUBJECT: Bid Proposal for Communication Equipment

Report in Brief

Request authorization to distribute invitation to bid for replacement and upgrading of Police Department communication equipment on the UHF spectrum. The estimated project cost is $327,700. The project would be financed through the bond and interest fund.

Background

Prior to 1965, dispatching was provided by the Johnson County Sheriff's office. In November of 1965 the department began its own dispatching to four district units. The City has increased its number of mobile and portable units to sixty-nine with as many as forty-five being serviced by dispatchers at one time.

Efforts have been made to obtain additional frequencies on VHF, but to date we have met with negative results. Presently, we have two frequencies on VHF for the department and a third frequency is shared and known as the Johnson County Countywide Frequency. The Countywide Frequency is used on a daily basis by the Sheriff's office and is only utilized by county law enforcement officers in emergency type situations.

We have been informed that in order to obtain additional frequencies, we would have to go into the UHF spectrum, and this would require the replacement of all existing communications equipment.

The City and Department has had a tremendous growth since installation of the communication system. This growth has resulted in a rapid outmoding of the present radio communication equipment. This condition in detail is the result of the following:

a. Increase of departmental personnel.
b. Additional mobile and portable radios
c. Deterioration of present console, recording and R. F. equipment
d. Addition of radios used by school district
e. Portable units at Metcalf South and Oak Park
f. Increased calls for service
g. Increased phone calls
h. Inability to secure additional frequencies

i. Overload of present radio frequencies
j. Interference of present radio frequency (SKIP) from co-channel users to adjacent channel users (intermodulation.) SKIP from Tulsa, Oklahoma; Omaha, Nebraska; and Iowa is so strong it has sometimes completely cut off our car to car transmission.

Description of Current Operation

We presently have two dispatchers on duty twenty-four hours per day, seven days per week. The Patrol Division is on three shifts which includes ten district units on days, twelve on evenings and seven on midnights.

The following listed units are also serviced by the dispatchers on a day to day basis:

1. Two traffic units days and evenings
2. Humane Officers, 2 on days and 1 on evenings
3. Ride-Along, 1 evening and 1 midnight
4. Metcalf South Security, 2 on evening shift; Oak Park, 1
5. Wild cars, periodically
6. Stakeout units, periodically
7. Warrant and Maintenance Officers, daily
8. School Security, 3 daily
9. Reserve Units
10. Crime Prevention Units
11. Chief of Police
12. Three Division Commanders
13. Shift Commanders, each shift
14. Mayor, periodically
15. City Manager, periodically
16. Public Works Director, periodically
17. Police Legal Advisor, daily
18. Nine Detective Units, daily

A counter was placed on radio console to determine the average number of transmissions per day from the base station, and it has been running on an average of 3,300 per day by the dispatchers alone.

The problems outlined in this report have resulted in a breakdown in the communications system efficiency. This lowered efficiency has manifested itself in undesirable delays in response time, confusion in radio assignments, missed calls, and increased hazards to field officers whose ability to communicate with the dispatcher has been restricted.

Several attempts have been made to obtain federal funding for this system. The original grant that was filed called for city match of $130,000. This amount was approved from 1975 A Bond proceeds. When it became apparent that federal funding was limited, the Governing Body, on June 15, 1976, approved an additional $200,000.

A new grant application was presented at the GCCA office in Topeka in an effort to obtain funding. The staff at that time was advised that no communication grants were being accepted until the Statewide Communications Plan was completed.

On December 15, 1976, Police Department Staff met with Mr. Tom Kelly, Director of GCCA to ascertain if new funding would be available with the completion of the Statewide Plan. The Staff was informed that additional funding would be available; however, GCCA expected approximately 250 communications applications to be filed. Also, Sedgwick County and Wichita Police Department are submitting a joint grant for communications and this will be for a large amount of funds.

Based upon the facts that were presented, it is the opinion of the Staff that Overland Park would not receive the funding necessary to implement the system. It is, therefore, recommended by the Staff that we proceed with the bidding process and utilize the funds made available by the Governing Body.

Governing Body Budget Action

The City has on hand a total of $130,000 from the 1975 A Bond proceeds, which is to be applied toward the purchase of a new communications system.

At the Committee of The Whole Meeting held on June 15, 1976, approval was given to fund a capital improvement expenditure of an additional $200,000 in the Fall of 1976 for the purchase of communication equipment. This would result in a proposed principal and interest payment of $32,000 in 1977.

Alternate Courses of Action

A constant problem facing Public Safety Management persons is the response to constantly growing needs for additional police protection with even more limited financial and other resources. Most administrators find there are two basic alternates:

A. Purchase more equipment and hire more people,
B. Increase the efficiency of the available resources.

Alternate A

The quickest and cheapest method to reduce the problems as stated would be to add additional personnel and secure another frequency. This, however, is going to be a short-range solution. If we are able to secure another frequency, will there be additional frequencies available in the future for expansion? If we retain our present equipment, we will have to replace and add to our present walkie-talkies and mobile radios. Alternate A does not solve most of the problems facing us in the VHF system.

Alternate B

Replace existing system with UHF equipment. This would require the replacement of all existing radio communication equipment at a total estimated cost of $327,700. If the change from VHF to UHF communications were to be implemented, the results that could be anticipated are:

1. Decrease in response time,
2. Less confusion in radio transmissions,
3. Fewer missed calls,
4. Increase in quality and quantity of dispatcher-officer communications about the nature of situations,
5. More vehicle and person computer checks for wants and warrants,
6. No radio interference due to 'skip'.

These results would further enhance the safety of officers and citizens and the quantity and quality of officers' work.

Additionally, it could be expected that the two dispatchers could be utilized more efficiently. At the present, both dispatchers are transmitting over the same VHF frequency. With the new UHF equipment, one dispatcher could handle North Zone Patrol and Administrative/Detective calls, while the other dispatcher could handle South Zone Patrol and Intelligence calls.

In summary, dispatchers and officers could better perform their respective functions more effectively and efficiently with less hazard to officers and citizens resulting from overloaded radio communications and frequencies.

A copy of the invitation to bid is available for review in Chief Scafe's office.

Recommendation

It is recommended the Governing Body approve request to distribute invitations to bid.

Lee S. Ayres
City Manager

Prepared by Lt. Gus Ramirez
LSA/GR/mk

April 20, 1977

ACCEPTANCE OF COMMUNICATIONS EQUIPMENT BID

Report in Brief

The purpose of this report is to present staff recommendations to the City Council regarding the bids received on Friday, April 1, 1977, for the Overland Park Police Department's communication system.

Background

In past actions, the City Council has approved the budgeting through the bond and interest fund of $327,000 for a new communications system for the Overland Park Police Department. In 76-117 "Report to the Governing Body", dated December 21, 1976, the Council approved the distribution of the Invitation To Bid (see Attachment A).

Body of the Report

The bid specifications prepared by the Police Department consisted of performance guarantee. In essence, the bidders must insure that an officer equipped with a hand-held portable unit could conduct two-way communications with the dispatchers of the Justice Center from any place within the city limits of Overland Park and one mile beyond at a level of 95% reliability. In order to insure compliance with these specifications and to protect the city in such a large outlay, the following steps have been taken:

1. Field acceptance tests, supervised by city personnel at thirty selected problem areas of radio signal reception will be conducted before final payment on the system will be paid.

2. A performance bond of 100% of the purchase price will be required of the successful bidder.

3. A liquidated damages clause of $500 per day for the first thirty days and $1,000 per day thereafter, for delays beyond bidder-specified completion of the project.

4. A LEAA communications consultant has reviewed each bidder's system design and cost proposals.

The city received two (2) bids for the total communication system including a trade-in allowance for our present equipment: (See Attachment B).

1. General Electric Company's bid for the system was: $240,022 less trade-in $10,775 = $229,247

2. Motorola Communications & Electronics, Inc. - bid for the system was: $178,615 less trade-in of $10,950 = $167,665.

One major discrepancy in the bid from Motorola concerns the specification for the "basic" console. Motorola included what the department specified as the basic console design as an option.* The addition of this cost to Motorola's basic bid and other features suggested by the LEAA technical consultant would bring Motorola's price to $176,566.90.**There are no exceptions to the General Electric Company's bid. The low bid price is Motorola.

Another criterion for assessing the bids concerns the number of days to install, test and complete the communications system to the standards of performance contract. The two bidders submitted the following as the number of days needed to install the system:

1. General Electric Company - 260 days from receipt of order.

2. Motorola Communications & Electronics, Inc. - 182 days from receipt of order.

In terms of the time-for-installation criterion, Motorola has committed itself to a faster installation schedule.

Additionally, since the receipt of bids, Overland Park has determined from the Federal Communications Commission's authorities that we may obtain additional frequencies now for future expansion purposes.*** It appears wise to obtain these frequencies now because such frequencies are surely to become scarce in the future. (See Attachment C for LEAA consultant's report.) The additional costs of system features to support these frequencies would be approximately $30,000.

Alternative Courses of Action

1. Reject all bids. This would continue the problems outlined in "Report to the Governing Body" No. 76-117. (See Attachment A)

2. Accept one of the bids for the basic system with modifications**** without obtaining system equipment for additional frequencies. This alternative would solve our immediate problems but may cause severe problems should expansion to additional frequencies be necessary in five to ten years.

*This includes built-in modules for our present closed circuit TV system and a center set of modules for a variety of switches commonly used by both.

**See Attachment C for the LEAA consultant's report.

***We were told by state authorities that we could obtain only two sets of frequencies for our entire operation.

****The modifications apply only to the Motorola bid.

3. Accept one of the bids for the basic system and approve the additional cost (approximately $30,000) for equipping the system for present and future needs. This alternative, at a marginal increase in cost, would provide for the necessary frequencies for the future needs of the Police Department.

Recommendation

Because the entire system with future expansion capability can be purchased for $100,000 less than the anticipated cost of the original system, it is recommended that the city accept the bid of Motorola Communications & Electronics, Inc. (with suggested modifications as outlined by the LEAA technical consultant) and approve the additional system equipment cost necessary for future expansion (also outlined in the LEAA consultant's report in Attachment C). This would involve $206,566.90 as the total system cost.

Prepared by:

Lt. Gus Ramirez, Commander
Services Division

Approved by:

Gary Hunt, Interim City Manager

GR:mk

Attachments: 3

OVERLAND PARK POLICE DEPARTMENT
OVERLAND PARK, KANSAS

FRIDAY, APRIL 1, 1977

2:00 p.m.

BID TABULATIONS

UHF COMMUNICATIONS EQUIPMENT

BIDDERS →	Motorola Communications & Electronics, Inc.	General Electric Company Mobile Radio Department	R. C. A. Communications Systems Division
Total Cost	$178,615	$240,022	No bid presented
Less Trade-In	$10,950	$10,775	
Days to Install	182 days from receipt of order	260 days from receipt of order	
Performance Bond	yes	yes	
Bid Security	yes	yes	
Variances	none	none	
1977 TOTAL BUDGET AMOUNT - $330,000			

PERSONS PRESENT AT BID OPENING:

Kent Kalwitz - Motorola
Gus Ramirez - OPPD
Ron Parks - OPPD
Harold Reinhardt-C
Jack Smith - Motorola
Jim Lee - OPPD
Elmer Goos - 2-Way Comm.
E. N. Gaulding - GE
Jack Beverly - Kustom Data
Camille McCauley - Asst. City Recorder

TO: Chief Myron E. Scafe DATE: April 20, 1977

FROM: Jim Evans, Communications Consultant
LEAA/Public Administration Service

Enclosed is an evaluation of the Communications Equipment Bids for the City of Overland Park.

The bids from General Electric and Motorola both meet the intent of the R.F.P. and specifications prepared by the City of Overland Park. The GE bid, at $229,247.00, contains some equipment items, namely satellite receivers, that are not in the Motorola bid. The exact cost of these items is not available from GE at this time. Each company was requested to propose a suitable system design. Therefore, a difference in bid items occurred.

The Motorola bid, as amended, is $206,566.90 which includes the necessary items for immediate implementation of a viable system for the City. Additional equipment items may be required, such as satellite receivers (after tests are conducted), and extra equipment and frequency elements to utilize new frequencies now being requested from FCC. (The additional frequency availability was not known prior to our equipment request.)

Enclosed are evaluation criteria and charts indicating R.F.P. equipment items and bid prices for the two vendors.

My recommendation and evaluation establishes Motorola as the best bid choice for the dollar figure.

EVALUATION OF COMMUNICATIONS BIDS
FOR OVERLAND PARK POLICE DEPARTMENT

4/19/77

EQUIPMENT IN R.F.P. LIST WITH CHANGES IN LETTER DATED 2/25/77		GENERAL ELECTRIC BID			MOTOROLA BID		
QTY	DESCRIPTION	QTY	DESCRIPTION	TOTAL PRICE	QTY	DESCRIPTION	TOTAL PRICE
2	Dispatch Consoles w/Chairs	2	Dispatch Consoles w/ Chairs	N/A	2	Primary Dispatch Consoles w/Chairs	$30,163.50
1	2-Channel Voting System w/ Satellite Receivers, Comparator and antenna mounting	1	2-Channel Voting System w/Satellite Receivers, Comparator and Antenna mounting	N/A	1#	2-Channel Voting System w/Satellite Receivers, Comparator and Antenna mounting	7,861.50
2	Main Repeater Base Stations w/Tone Coded Squelch, Automatic Operation w/Towers	2	Main Repeater Base Stations w/Tone-Coded Squelch, Automatic Operation w/Towers	N/A	2	Main Repeater Base Stations w/Tone-Coded Squelch, Automatic Operation w/Towers	11,451.00
22	Portable Radios, Standard Type, 4-frequency w/battery, antenna, crystals and case	22	Portable Radios, Standard Type, 4-frequency w/battery, antenna, crystals and case	$20,293.46	22	Portable Radios, Standard Type, 6-frequency w/battery, antenna, crystals and case	23,600.50
6	Portable Radios (extended mike model) 6-frequency w/ battery, antenna, crystals and case	6	Portable Radios (extended mike model) 6-frequency w/battery, antenna, crystals and case	6,494.58	6	Portable Radios (extended mike model) 6-frequency w/battery, antenna, crystals and case	6,941.10
2	Portable Radios, 2 watts or less, 4-frequency w/battery, antenna, crystals & case	2	Portable Radios, 2 watts or less, 4-frequency w/battery, antenna, crystals & case	2,138.86	2	Portable Radios, 2watts or less, 4-frequency w/battery, antenna, crystals & case	1,728.90

#Referred to by Motorola as '3' (satellite receivers) which make up 1 system.

EQUIPMENT IN R. F. P. LIST
WITH CHANGES IN LETTER
DATED 2/25/77

QTY	DESCRIPTION	QTY	GENERAL ELECTRIC BID DESCRIPTION	TOTAL PRICE	QTY	MOTOROLA BID DESCRIPTION	TOTAL PRICE
30	Trunk-mount mobile unit, 8-frequency UHF radios w/crystals	30	Trunk-mount mobile unit, 8-frequency UHF radios w/crystals	31,716.00	30	Trunk-mount mobile unit, 8-frequency UHF radios w/crystals	35,947.50
7	Trunk mounted mobile unit, 8-frequency w/scanning capability	7	Trunk mounted mobile unit, 8-frequency w/scanning capability	8,569.40	7	Trunk mounted mobile unit, 8-frequency w/scanning capability	10,003.00
4	Motorcycle mounted mobile unit 8-frequency UHF radios w/ crystals	4	Motorcycle mounted mobile unit, 8-frequency UHF radios w/crystals	6,396.80	4	Motorcycle mounted mobile unit, 8-frequency UHF radios w/crystals	6,136.00
14	Portable/mobile 8-frequency units	14	Portable/mobile 8-frequency units	22,420.02	14	Portable/mobile 8-frequency units	20,440.00
20	Spare rapid-charge batteries	20	Spare rapid-charge batteries	542.00	20	Spare rapid-charge batteries	1,120.00
	Multiple-unit, rapid-charge chargers for 20 batteries or radios		Multiple-unit, rapid-charge chargers for 20 batteries or radios	1,185.00		Multiple-unit, rapid-charge chargers for 20 batteries or radios	720.00
1*	Multi-Channel Phone Patch	1*	**	-0-			
1*	Radio Control Repeating System	1*	Radio Control Repeating System=960MHz	33,631.00		Radio Control Repeating System (NOT RECOMMENDED)	-0-
1*	UHF-VHF Interface System	1*	UHF-VHF Interface System=X PATCH **	-0-	1*	UHF-VHF Interface System	-0-
1	Control Station for Mutual Aid Frequency	1	Control Station for Mutual Aid Frequency	1,220.00	1	Control Station for Mutual Aid Frequency	1,450.00
2	Monitor Receivers	2	Monitor Receivers	1,619.00	2	Monitor Receivers	4,022.00

EQUIPMENT IN R. F. P. LIST
WITH CHANGES IN LETTER
DATED 2/25/77

QTY	DESCRIPTION
1	Standby Emergency System w/ 2-frequency capability

GENERAL ELECTRIC BID

QTY	DESCRIPTION	TOTAL PRICE
1	***	-0-

MOTOROLA BID

QTY	DESCRIPTION	TOTAL PRICE
2	MOTOROLA Model B1224N. Cabinet & desk top to allow mounting existing data terminals.	1,085.80
1	MOTOROLA Model 1220N. Cabinet w/left & right upper turret to allow mounting existing CCTV.	1,673.20
2	MOTOROLA Model K570. Interface kits to allow telephone headset interface.	445.00
2	MOTOROLA Model B1326. Phone patch modules to add phone patch.	1,103.30
2	MOTOROLA Model 1252A. Time Stamps	- 1,400.86
1	MOTOROLA Model C34RCB3106. MICOR COMPA 12-watt UHF base station w/1 frequency transmit & receive, private line, tone-coded squelch, LS 450-470 PLP antenna & line, & 12V DC operation.	1,360.00

EQUIPMENT IN R. F. P. LIST
WITH CHANGES IN LETTER
DATED 2/25/77

QTY	DESCRIPTION	QTY	DESCRIPTION	GENERAL ELECTRIC BID TOTAL PRICE	QTY	DESCRIPTION	MOTOROLA BID TOTAL PRICE
					1	MOTOROLA Model C64RCB3126. MICOR COMPA 75-watt UHF base station w/2-frequency transmit & receive, private line, tone-coded squelch, tone control, Db 410 antenna, 200' low-density foam heliax & 12V AC operation.	2,334.80
	TRADE IN ALLOWANCE			10,775.00		Excludes 2 remote consoles	10,950.00
				**** 229,247.00			**** 158,636.90
						Installation & Maintenance (one year)	17,930.00
							176,566.90
			Estimated cost of equipment for future expansion	30,000.00		Estimated cost of equipment for future expansion	30,000.00
				259,247.00			206,566.90

* Options
** Included in Console price
*** Included in Base Station bid
**** Trade-in Allowance has been subtracted from each of these figures.

NOTE: Price not available on first 3 items on GE Bid.

EVALUATION OF BIDS

1. Price vs. Equipment to be Supplied

The two bids cannot be evaluated upon price alone. This is due to system latitude design allowed to the vendors in the City R.F.P. stated as follows:

"1.9 VARIANT SYSTEMS AND EXCEPTIONS

In the event a bidder feels that he can supply a system that will meet all conceptual requirements of the Overland Park Police Department as set forth in Paragraph One, but which system varies from the specifications as set forth in this Request for Proposals, it is requested that a bid proposal be submitted with a detailed explanation of the proposed system, its capabilities and an intensive and extensive exposition of the reason the bidder believes the proposal is equal to or exceeds the system and specifications described herein. It shall also be the responsibility of the successful bidder to show his experience and competence in this field. Any other exceptions to the system concept and specifications shall be listed in the bid."

The General Electric bid has followed the general equipment specifications, however, has added extra satellite receivers in the central part of the City to improve the portable radio operation from within buildings. The amount of this figure in the GE bid cannot be determined from a lump-sum figure and is not available from the GE Sales Representative.

The GE control consoles have an expansion capability to a total of ten channels. (Only eight channels are required at this time.)

The GE base station repeater transmitters have 100 watts of power output which has a tendency to increase the receiving range of the portable units.

The standby transmitter unit bid by General Electric has 40 watts output power. This will provide adequate coverage to the mobile units and a less-than-desired coverage to portable units during any failures of the north and south repeaters.

The GE portable/mobile unit has an amplifier output of 25 to 30 watts. This amplification is desirable for vehicles required to work out of the City area, but is not necessary for day-to-day operation within. (The GE system is designed for complete coverage with a 1-to-4 watt transmitter using a unity gain antenna.

The Motorola bid has followed the general specifications as set forth in the R.F.P. The equipment proposed with the use of options should provide a very dependable system.

The base station repeater units are 75 watts output power. The mobile radio units are 25 watts output power. These are slightly less in power output than those furnished by General Electric. The

Motorola portable/mobile unit does not have an amplifier, therefore will not produce the same range as the GE unit.

2. Conformance with Specifications

Both Motorola and General Electric have conformed with the R.F.P. and specifications.

The GE bid includes additional items over the Motorola bid. These particular items pertain to the portable radio coverage within the City. The R.F.P. and specifications contain a section relative to the desired radio coverage of the new radio system. This coverage is primarily related to the use of the portable radio units of the officer while on foot. Section 1.1 of the R.F.P. alludes to this requirement and was amended in a letter to the prospective bidders dated February 25, 1977. Excerpts from R.F.P. and letter are as follows:

"1.1 OVERALL GOAL AND OBJECTIVES

It is the intent of these specifications to insure the purchase of an integrated communications system, so engineered and designed as to provide the Overland Park, Kansas, Police Department the capability for continuous two-way radio contact for every portable, radio-equipped Department member regardless of his location within the jurisdiction of the Overland Park Police Department and one mile beyond. This capability must be constant whether the officer is in his vehicle, on foot, or when encountering vertical policing situations in multi-story, hi-rise structures. Exceptions are enclosed elevators and bank vaults. The General System Design Consilerations Section of the Minimum Specifications outline in greater detail the specifics and the intent of the system objectives. Limits of the jurisdictional area requiring guaranteed radio coverage are defined in Appendix A hereto."

"Per the pre-bid meeting held at 8500 Antioch on Thursday, February 17, 1977, the following points should be noted as a formal part of the earlier released 'Invitation to Bid for a Communications System for the Overland Park Police Department':

Page	Section	Line	Description of Change
1	1.1	7	change 'constant' to 'maintained'.
1	1.1	9	' . . . hi-rise structures at a 95% level of reliability.'"

The GE bid indicates that portable radio coverage will be possible inside commercial buildings within 95% of the City of Overland Park. The Motorola bid contains portable radio coverage charts that cover 95% of the City in normal operation outside of the buildings. They do not include in-building coverage.

3. Delivery Dates

Delivery and installation dates from the date of award have been provided by each bidder. The Motorola equipment delivery is 91 days. The total implementation time is 182 days. The General Electric delivery and installation dates from date of award are 200 days, and total implementation is 260 days.

The difference in the implementation time should be one of the deciding factors in awarding the bid.

4. Performance Bonds

Both Motorola and General Electric have included a 100% Performance Bond in their bids.

5. Vendor Integrity & Qualifications

Each of the two companies bidding on this project has high integrity on a nationwide basis, and are fully qualified to supply the necessary equipment items and perform the installation and maintenance required on this project. They both meet the qualification stipulations in the R.F.P.

6. Capability of Future System Expansion & Add-Ons

The radio systems bid by the two vendors both have the capability of expansion. Future expansions will be necessary in two major areas: (a) Digital data and computer-assisted systems, and (b) frequency expansion of equipment, as the community grows and requires additional services.

The digital data systems primarily concern field mobile units and are now being used by many police departments through the country for direct computer access to and from the mobile units to centralized data files.

Frequency expansion will be necessary in the near future in equipment items such as base stations, mobile and portable units. This is due to new frequency assignments presently being processed through the FCC. These assignments were not available for prior system planning.

7. System Acceptance Tests

Both bidders have agreed to perform system acceptance tests that will indicate to the City of Overland Park that the equipment and system perform properly in all areas of the City. (These are for the portable radio units primarily.) These tests will be conducted by the vendors' technical representatives and a representative from the City of Overland Park.

8. Payment Schedule

The R.F.P. indicated a payment schedule to vendors of 90% upon equipment delivery, and 10% final payment after system acceptance. Both vendors have agreed with this payment schedule.

9. Warranties

The two vendors, General Electric and Motorola, have excellent warranty programs on their equipment.

The warranty or guarantee regarding the radio coverage for various areas of the City has been projected by each vendor through a series of transmitter power, receiver sensitivity, and signal propogation charts. These warranties indicate a theoretical coverage of 95% of the City, and actual coverage will be determined by final tests.

10. System Installation & Maintenance

These two equipment manufacturers both have excellent reputations for systems installation and maintenance programs. The Overland Park Police Department presently uses a GE maintenance facility which has been very satisfactory.

Motorola has a 24-hour service company in the area using a compliment of 17 technicians, 3 of which are assigned to the portable radio service. They have 5 installation persons in the service company.

11. Operator Training

The new station control console equipment to be installed in the Police Department's Communications Room will require operator training by the successful vendor. Both vendors have indicated in their bids that they have extensive operator training programs for customers in the area.

Consultant's Recommendations: The Consultant recommends that the City of Overland Park accept the low bid of the Motorola Company. This recommendation is based upon several factors including price and delivery date.

Consultant's Observations: If the low bid of Motorola is accepted, the Police Department should understand that the specifications and R.F.P. call for 95% coverage in buildings or high-rise structures. The Motorola bid documents indicate that portable coverage of the City's areas does not include in-building coverage. This may not present a problem since field tests will be performed after equipment installation and if poor reception areas are discovered in some buildings, additional satellite receivers may be installed at these sites. The cost of extra

satellite-receiver systems is estimated at $2700 each plus the recurring cost of leased telephone line facilities and yearly equipment maintenance.

The Consultant further recommends the use of telephone control lines rather than radio control to the north and south repeater sites. The rationale for this decision is based upon the high original cost of the radio control equipment(approximately $30,000) and the yearly maintenance of approximately $1,600 on the additional equipment.

APPENDIX B

INVITATION TO BID FOR

A COMMUNICATIONS SYSTEM FOR

THE OVERLAND PARK POLICE DEPARTMENT

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(continued)

SECTION 1

SYSTEM CONCEPT; OBJECTIVES AND CONSIDERATIONS

SECTION 1

SYSTEM CONCEPT; OBJECTIVES AND CONSIDERATIONS

1.1 OVERALL GOAL AND OBJECTIVES

It is the intent of these specifications to insure the purchase of an integrated communications system, so engineered and designed as to provide the Overland Park, Kansas Police Department the capability for continuous two-way radio contact for every portable radio-equipped Department member regardless of his location within the jurisdiction of the Overland Park Police Department and one mile beyond. This capability must be constant whether the officer is in his vehicle, on foot, or when encountering vertical policing situations in multi-story, hi-rise structures. Exceptions are enclosed elevators and bank vaults. The General System Design Considerations section of the Minimum Specifications outline in greater detail the specifics and the intent of the system objectives. Limits of the jurisdictional area requiring guaranteed radio coverage are defined in Appendix A hereto.

1.2 BIDDER RESPONSIBILITY

It shall be the responsibility of the successful bidder to determine the number of satellite receivers necessary to accomplish system objectives, their location on City owned property or other acceptable sites, transmitter power output and sites, antenna height, and other system variables and clearly to demonstrate in his response how the system proposed intends to meet the system design objectives.

1.3 QUALIFICATION OF BIDDER

Each firm submitting a bid shall furnish a company history including, but not limited to, the following data and meeting the following qualifications:

A. Bidders shall have been actively engaged in the manufacture and installation of commercial and law enforcement two-way radio equipment for a period of at least 10 years and UHF two-way radio equipment for a period of at least 5 years.

B. Systems utilizing equipment offered by the bidder and of equal scope, shall have been installed and in continuous, satisfactory operation. A list of such installations shall be included with the bid.

1.4 STATE OF THE ART MODIFICATIONS

A written guarantee by the bidder as an indispensable part of the bid is required by which guarantee the bidder agrees to incorporate the latest modifications and change of the state-of-the-art in the system, and that both parties shall be permitted to review and make adjustment to the system as required and mutually agreed.

1.5 PROJECT SCHEDULE

Bidder must guarantee that the system proposed will be installed and totally operational by the agreed number of days from contractual agreement date. Time is the essence of the agreement. Bidders will submit a Project Schedule showing time in days

from contract agreement date for the following:

A. Contract Award

B. Radio Survey

C. Site Determination

D. Site Preparation

E. Field Installation

F. System Phase-Over

G. Operational Training

H. Field Acceptance Tests

I. System Operational

1.6 SYSTEM PHASE-OVER

Bidder shall submit with his bid a detailed Phase-Over Plan for the period of transition from the present to the new system.

1.7 SYSTEM INSTALLATION

Due to the nature and complexity of the system design, the City of Overland Park is interested only in a "turn-key" installation with one bidder being responsible for the furnishing, installation and "de-bugging" of all necessary equipment and components.

1.8 OTHER MANUFACTURERS EQUIPMENT

It is understood that no one bidder may manufacture all the necessary system equipment components, however, all bidders are required to submit complete system bids. All equipment bids must be identified by manufacturer's model number and the bidder is in no way relieved of the responsibility for the

performance of equipment so furnished. Nor is the bidder relieved of the responsibility for assuring the timely delivery of equipment bid that is not of his own manufacture. Additional consideration will be given bidders manufacturing all basic systems conponents.

1.9 VARIANT SYSTEMS AND EXCEPTIONS

In the event a bidder feels that he can supply a system that will meet all conceptual requirements of the Overland Park Police Department as set forth in Paragraph One, but which system varies from the specifications as set forth in this Request for Proposals, it is requested that a bid proposal be submitted with a detailed explanation of the proposed system, its capabilities and an intensive and extensive exposition of the reason the bidder believes the proposal is equal to or exceeds the system and specifications described herein. It shall also be the responsibility of the successful bidder to show his experience and competence in this field. Any other exceptions to the system concept and specifications shall be listed in the bid.

1.10 BID SURETY

A bid bond or certified check in an amount equal to five (5%) per cent of the amount of the basic bid must accompany the bid. Refund of the Bid Surety to the successful bidder will be contingent upon compliance with all requirements set forth. Unsuccessful bidders will receive full refund of the Bid Surety.

1.11 BID PRICE DURATION

Bidders will state period of time, not less than six months from date of acceptance, during which City may purchase additional equipment at bid prices.

1.12 RETURN AND FILING BIDS

Bids are due and will be filed with the City Clerk at the Overland Park City Hall, 8500 Santa Fe Drive, Overland Park, Kansas 66212, on April 1 , 1977, at 2:00 pm. Because time is of the essence, the City will not extend the time for any bidder to file.

1.13 EVALUATION OF BIDS

Only complete bids signed by an authorized officer of the company bidding, which bids are determined by the City to conform to the system concept and the intent of the specifications, will be considered. Bid evaluation will include delivery dates, loss of equipment, vendor's previous record in this field, maintenance and parts availability, and other factors.

1.14 ACCEPTANCE OR REJECTION OF BIDS

Acceptance of bids shall be contingent upon full compliance to bid requirements. The City reserves the right to reject any or all bids.

1.15 PERMITS, LICENSES, SYSTEM COMPLIANCE

The successful bidder shall be responsible to acquire all applicable Federal, State, and Local Licenses or Permits

necessary for the execution and completion of the project, including the F.C.C. and F.A.A. System design and bid equipment specifications must come within the parameters established by the State of Kansas, and must be consistent with the State communications plan.

1.16 INSURANCE AND BOND

Prior to beginning of work, the successful bidder must file with the City of Overland Park, Kansas, a Performance Bond equal to the amount of the contract price with terms and surety subject to prior approval by the City.

1.17 LIQUIDATED DAMAGES

Bidders are hereby notified that failure to complete installation within the prescribed time will result in damages to the City of $500.00 per day for the first thirty (30) days and $1,000.00 per day thereafter. These amounts will be deducted from the total bid price prior to final payment. Acceptance of this clause is a condition of the contract. It will be agreed that the amounts stated in this clause represent reasonable liquidated damages and do not constitute a penalty.

1.18 EXTENSION OF PROJECT SCHEDULE

Installation and satisfactory operation of the system must be completed within the time specified by the bidder in the Project Schedule to be submitted with the bid. It must be agreed that

time is the essence of the contract. Extension of time for completion will be granted by the City at its option because of any delay:

A. Caused by the City or its agents

B. Caused by changes ordered in the system.

C. Caused by acts of God, not in control of the vendor.

1.19 ACCEPTANCE TESTING AND PROOF OF PERFORMANCE

A. Field Acceptance Tests

Subsystem performance and operation test shall be performed in the field, and overall tests shall be made to assure that the system is functioning and performing in full compliance with the specifications.

The bidder must supply with his bid his proposed acceptance test plans, showing a specific format of acceptance test reports for both factory and field acceptance test procedures. Test procedures and acceptance criteria will be subject to prior approval by the City.

1.20 SYSTEM MAINTENANCE, REPAIR, SERVICE FACILITY

The successful bidder will assume responsibility for maintenance of the entire system for an initial period of one (1) year.

The bidder must state in the formal bid letter, the name, location and capabilities of the service facility which will provide any and all installation, service and maintenance, both initial and continuing. If the service facility is not wholly owned by the bidder, a copy of the agreement between the bidder and the service facility shall be submitted with

the bid. This agreement shall clearly show the nature and duration of the agreement. Additional consideration will be given bidders offering factory service for portable radios. General provisions for maintenance will be the following:

1. The Maintenance Contractor certifies that he is technically qualified and properly equipped to install and service the licensee's two-way radio equipment in accordance with good engineering practices and factory-recommended procedures.

2. The Maintenance Contractor, properly covered by liability insurance and all applicable Workmen's Compensation requirements and personnel licensed by the Federal Communications Commission, will assume the responsibility for the proper technical operation of the licensee's two-way radio equipment in accordance with current F.C.C. regulations.

3. The licensee agrees to make no technical adjustments or repairs or allow same to be made without the knowledge of the Maintenance Contractor.

4. In the maintenance of licensee's equipment, Maintenance Contractor agrees to use the replacement parts of the manufacturer of the equipment, used or replacement parts of equal or better quality.

5. In the event of equipment failure, service calls will be received promptly by the Maintenance Contractor at one regular telephone number 24 hours per day.

6. Repairs and servicing of base station units, transmitters, receivers, and monitors owned by the licensee shall be made at the licensee's location.

7. Drive-in service will be available at the Maintenance Contractor's shop during prevailing shop hours.

8. In the event of a disaster or civil disorder, the Maintenance Contractor agrees to have sufficient personnel available at the scene to make emergency repairs.

9. In the event of failure of any base station equipment, the licensee must notify the Maintenance Contractor forthwith. Upon notification the Maintenance Contractor agrees to begin repairs on the base station within four (4) hours, 24 hours per day, 7 days per week.

10. Service on mobile units will be at the Contractor's shop during the hours of 8:00 am to 4:30 pm, Monday through Friday, and 8:00 am until noon on Saturday.

1.21 TELEPHONE COMPANY INTERFACE

The successful bidder shall submit a detailed list of all specific areas of equipment or service requiring Telephone Company participation.

1.22 CONSTRUCTION AND ALTERATIONS

The successful bidder shall prepare complete design specifications for all construction and alterations at all sites in structural, environmental and electrical major functional areas.

1.23 DRAWINGS

The successful bidder shall supply system drawings as set out below with sufficient information included so that an average technician or engineer, unfamiliar with the system, will be able to define its operation and perform corrective maintenance on it.

The following drawings must be supplied:

A. Communications Control Center

(1) Floor plan layout showing all major equipment.

(2) Block and level diagram showing the levels and impedances of all major equipment signal paths.

(3) Equipment drawings:

(a) Rack face elevations of all major equipment.

(b) Interconnect wiring drawings of all major equipment.

B. Land Mobile Radio

(1) System geographical layout, to scale, showing physical locations of:

(a) Main transmitter site.

(b) Emergency base station site.

(c) Communications Control Center.

(d) Satellite receiving sites.

(2) Floor plan layout at each site where there is equipment operating.

(3) System block and level diagram showing:

(a) Levels

(b) Impedances

(c) Transmitter(s) power outputs

(d) Polarization

(e) Coordinates of each transmitter and receiving sites.

(4) Equipment drawings:

(a) Rack face elevations of all major equipment.

(b) Interconnect wiring drawings of all major equipment.

(c) Power wiring diagrams.

(5) Antenna system layout drawings at each antenna location.

1.24 TRAINING

The successful bidder shall be responsible for conducting a comprehensive training course to instruct both field personnel and radio dispatch and telephone complaint personnel in the proper operation of the equipment supplied.

A simplified brochure or training manual shall be prepared and supplied to attendees at the training course. The training course shall be given "on site", utilizing the actual equipment.

1.25 INQUIRIES

Any inquiries regarding technical system details and requirements are to be directed to Lt. Gus Ramirez, Commander, Services Division; Overland Park Police Department; 8500 Antioch; Overland Park, Kansas 66212; Phone 913-381-5252.

1.26 WARRANTIES

All equipment must be fully warranted for a minimum period of one (1) year from date of acceptance. Bidders will submit provisions and terms of proposed express warranties. Implied warranties shall include, but not be limited to, a warranty of suitability for purpose of all equipment supplied. Any equipment items failing to operate satisfactorily or are not repaired satisfactorily during the warranty period, will be replaced by the vendor, and the warranty shall be extended upon the new item.

SECTION 2

MINIMUM SPECIFICATIONS

SECTION 2

MINIMUM SPECIFICATIONS

GENERAL SYSTEMS DESIGN CONSIDERATIONS

2.1 BASE SYSTEM

The general system design shall be for the operation of an initial minimum of three (3) channels in the 450-470 MHz portion of the spectrum in such fashion that each law enforcement officer with exceptions as noted may be personally equipped with a portable radio. Portable and mobile units shall have the capability of transmitting to satellite repeater sites strategically located throughout the City to insure constant contact with the Communications Center and to insure the capability of continuous contact with other law enforcement officers operating on the same or other radio channels, regardless of their location in the existing jurisdiction of the Overland Park Police Department and one mile beyond.

2.2 SATELLITE VOTING REPEATER SYSTEM

The satellite repeaters must be so located and interconnected that the strongest RF signal being received is constantly being selected and the weaker signals by comparison are automatically rejected. The process must be continuous and selective and provide for automatic switchover without interruption of speech to the best RF signal during a transmission as changes of condition or location occur.

2.3 REPEATER OPERATION

The radio signal selected shall also have the capability (with dispatcher discretion) of being automatically and simultaneously rebroadcast on the base transmitter(s) and from the satellite sites so as to provide direct communication from vehicle-to-vehicle and/or from officer-to-officer.

2.4 SATELLITE REPEATER SITES

It shall be the responsibility of the bidder to determine the number of satellite repeaters, their locations on City owned property or other acceptable sites, antenna heights, power output of transmitter(s) and all associated components necessary to meet the system concept and the intent of the system objectives.

The engineering survey must demonstrate that the system is designed so as to minimize the number of repeaters and minimize or eliminate both intermodulation and interference problems.

Antenna heights must comply with FAA Regulations.

2.5 BLOCK DIAGRAM

A block diagram of the system proposed, clearly defining the engineering of the system and all signal paths must be included at time of bid.

2.6 TONE-CODED SQUELCH

To minimize interference the entire system will be equipped with tone-coded squelch.

2.7 SYSTEM VARIABLES-RESOLUTION

The successful bidder will provide the system which most equitably balances the system objectives with a design employing minimum power output/antenna height in order to minimize interference with co-channel users.

2.8 THE COMMUNICATIONS CENTER

For all purposes of these specifications, the initial frequencies upon which the system will operate are identified and designated as follows:

A. PATROL 1 -460.375/465.375 MHz*
B. PATROL 2 -460.500/465.500 MHz*
C. Mutual Aid 460.250/465.250
D. Countywide 155.370
E. Point-to-Point 39.460

The following Communications Center equipment design criteria are based upon the need for maximum reliability, flexibility, and ease of expansion and service. To meet these criteria, the electronic hardware must be totally solid state, preferably without relays or with a minimum of relays, completely modular, and reflect all of the latest state-of-the art concepts in police communications command and control center design. Non-electronic hardware must also be modular in design.

There will be two identically equipped dispatching consoles, capable of transmitting, receiving and interconnecting the five frequencies

*Licenses received from FCC for these frequencies.

listed above. Each of the operational modules contained in the two dispatch consoles must be totally self-contained, incorporating all of the components, devices, controls, and indicators required to perform their designated functions. All of the operational modules shall be designed to plug into their respective panels from the operator's side and must match the panel design.

The operator panels with the modules shall be designed so they can easily be secured into any section of the console for maximum flexibility in design and arrangement. The panels shall be removable from the operator's side to expedite equipment access when setting up, reprogramming, or performing general maintenance. Dispatcher convenience shall be a primary consideration.

Printed circuit connections shall be used extensively in all module design and in all inter-module connections within a particular panel assembly.

Each dispatch console shall provide the equipment or potential necessary to operate and control a minimum of eight (8) base stations by a central dispatcher capable of future expansion. The necessary equipment shall include: A status map assembly shall be securely attached to the wall facing the dispatch consoles. The map viewing area shall be approximately 48 inches wide and be visible from both consoles. The map shall be photographically reproduced on translucent polyester material which is to be sandwiched between two glass surfaces to prevent slipping in the frame. The outside surface of the front glass shall be fluoride etched to produce a glare-free surface, but in no way reduce the visibility or clarity of the map. The map shall be

removable from the front. Additionally, the bidder will provide these break-resistant, non-glare, transparent, interchange covers for the map area because district boundaries vary according to shift.

The map housing will contain sufficient fluorescent lamps to produce a uniform illumination of the map. The map assembly shall also include a grid situated behind the viewing surface for the support of red and green spotting lights for permanently assigned district units. These lights shall work in conjunction with a status card slot switch and a three position toggle switch; left shall be lights extinguished; center shall be green in district; and right shall be green out of zone. Status card slot switches shall automatically change the illuminated zone unit status light from green to red when a dispatch card is placed in the slot. Three position toggle switches and interconnecting card slots shall control status lights mounted in vertical rows on either side of the map housing. Each site light shall have a slot to provide insertion of a unit designation number, plate or tag.

All furniture shall be modular to permit maximum flexibility and to facilitate Communications Center expansion.

Each dispatch console shall have a swivel, armless chair which shall be adjustable and styled to match other Communications Center furniture components.

Communications consoles shall be modular in design capable of expansion to a minimum capability of eight (8) frequency dispatch and also capable of including, with minimal effort and expense such features as additional CRT, CCTV, alarm modules,

digital communications, unit location systems and other state-of-the-art functions.

Each dispatching console will include the following equipment:

1. Independent volume controls for up to ten (10) monitored frequencies.
2. Foot transmit switch.
3. Hand transmit switch.
4. Plantronic or state-of-the-art headsets.
5. Directional microphones.
6. Power supplies.
7. Amplifiers.
8. Logic circuits.
9. Interconnect media.
10. Visual and audible notice of dispatcher pre-emption for each of the five frequencies.
11. Alert tone.
12. Twenty-four hour digital cyclometer clock.
13. VU meter.
14. Volume controls for each of the five transmitting frequencies.

Additionally, between the dispatching consoles will be located a custom-designed, extended leg that will contain the card slots, unit status switches, and Civil Defense switches. (See Appendix "B" for General Console Design.)

All electric wiring and cables shall be run under the raised flooring of the Communications Center. Main wire and cable pathways shall

not be located under dispatch modules. Convenient and frequent access to below the floor wiring shall be of the type commonly employed in computer centers having raised flooring.

The successful bidder shall provide cooperation and assistance to City contractors and to personnel of all firms engaged in the construction or installation of the Communications Center and its equipment.

The Communications Center itself shall be modular in design, capable of adding new dispatch consoles by expansion to the side. A separate equipment room located in close proximity to the Communications Center shall be provided by the City. The equipment room shall contain all local base station equipment.

2.9 THE BASIC SYSTEM

Base Transmitter: Transmitter RF power output in watts shall be stated by bidder; minimum use of tubes is desired. The number of tubes, if any, shall be stated by bidder. Power shall be the minimum consonant with the standard system philosophy, intent and specifications and all efforts shall be made to minimize interference with co-channel users. Base stations will be equipped with tone-coded squelch. Complete base transmitter physical and electrical specifications and performance data shall be provided by bidder.

Satellite Repeater: Complete satellite repeater physical and electrical specifications and performance data shall be provided by bidder.

Receiver-Encoder Unit (Receiver Voting System): (If applicable.) The function of the Encoder unit is to evaluate the intensity of the radio frequency signal being received by its associated receiver and convert this information into audio frequency tones. The conversion from RF signal strength to audio tones is done in discrete step functions, normally in 10db steps. Receiver quieting data shall be supplied by bidder. Bidder shall state whether and within what parameters or steps multiple audio frequency tones are employed in the Encoder unit to maximize receiver quieting. This tone signal is combined with the audio signal from the receiver and after amplification is transmitted to the comparator unit.

Electrical Specifications: Complete receiver-encoder physical and electrical specifications and performance data shall be provided by bidder.

Timing: (If applicable.) Carrier Squelch Receiver - Tone information is present at the output of the Encoder unit within 120 milliseconds after receipt of a 20db quieting signal. Bidder will state elapsed time (in milliseconds) before tone information is present at the output of the Encoder unit after receipt of a 20db quieting signal.

Options: State if available or proposed substitutes or additions.

A. Receiver Test Modules - receiver metering facilities and speaker

B. Encoder Test Modules - voting level simulator and four test lamps for tone "A", tone "B", squelch and "test"

C. Emergency Power Modules - automatic primary power switchover and trickle charge

Comparator Unit (Receiver Voting System): The function of the Comparator unit is to select the receiver presenting the best signal and use it as its output. Complete physical and electrical specifications and performance data shall be provided by bidder.

Mechanical Specifications: Physical dimensions and material data for the following shall be provided by bidder:

A. Comparator Chassis:

B. Comparator Power Supply Panel:

2.10 PORTABLE RADIOS

It is the intent that the standard portable radio be worn by the officer as part of his personal equipment. When the officer is in his vehicle the radio will in no way be connected to the vehicle. The portable radio will be worn on the user's belt in a carrying case for protection.

The equipment shall be a minature 4 or 6 channel two-way radio set, self-contained, in a one piece housing with tone-coded squelch, integral microphones, and operating in the 450-470 MHz band. The antenna will be of the heliflex type and directly attached to the unit. Each unit shall be supplied with crystals as designated by the City. Each portable radio shall have wide space transmit

capability. Bidder shall state battery duty cycle to insure at least 8 hours per charge with a nickel-cadmium battery.

The radio housing shall be constructed of high impact-resistant material and shall be sealed to protect internal circuitry against dust, foreign particles, moisture, and splashing water. Opening the battery compartment shall not break the seal in the radio circuitry. These units will be supplied with a case and a means for attachment to the standard police duty belt which attachment will permit removal of the radio without removal of the belt. Size and weight factors will be of primary consideration.

2.11 PORTABLE RADIOS (extended microphone)

The extended microphone portables will be of the same basic design and specifications as the standard portable radio except that an extended microphone may be plugged into the unit while on the officer's belt and the microphone may be clipped to the officer's shirt or coat near the shoulder for easy use. Additionally, these units will be provided with optional earphones which will allow the officer to hear radio transmissions without others hearing such transmissions. When the microphone and/or the earphones are detached, the portable will operate as a standard portable unit. (see section 2.10).

2.12 STANDARD PORTABLE (2 watts or less)

The selected contractor will also provide standard portable units with designated crystals for 2-watt or less portables. These portable units must meet all other specifications listed in section 2.10.

2.13 TRUNK MOUNT RADIOS (standard type)

For those applications within the system not compatible with the hand-held radio concept, traditional trunk mount type units will be used.

Trunk mount radios shall be an 8-channel radio operating in the 450-470 MHz band with tone-coded squelch and wide space transmit capability. The trunk mount radios shall be all solid state design with no tubes in radio or power supply. Units shall provide instant communications, low current drain and no power slump. Full physical and electrical specifications and performance data for bid unit shall be supplied by bidder.

The trunk mount radios shall be capable of being easily installed in an automobile trunk or in any other suitable location. The radio shall be fully interchangeable without modification with other radios of the same type and make in front or rear mount installations.

The trunk mount radio set housing shall completely enclose the transmitter and receiver drawer unit. A strong handle shall be provided to facilitate removing and carrying the drawer unit.

2.14 SCANNING MOBILE RADIOS and MOTORCYCLE MOUNTED MOBILE RADIOS

Scanning mobile radios shall meet the general specifications of the standard mobile radio except that there must be a scanning capability of up to six channels. Push button operated lock in mechanism must be available for selective scanning or lock-in capability to one frequency.

Motorcycle radios must meet the general specifications of the standard mobile radios and must be weather, dust and vibration resistant and

must be capable of being mounted on either Harley Davidson 74 Police Special or Harley Davidson Electra Glide Police Special motorcycles. Special consideration will be given to motorcycle mobile radios that permit ease of operation while riding.

2.15 PORTA-MOBILE RADIOS

For special uses certain automobiles will be equipped with dual purpose portable/mobile radio units. These units will be mobile units of standard mobile transmission capability when in the in-car holder, and operate off the automobile's power source. A separate microphone attached to the mobile radio housing will be provided. The unit will be so constructed that the transceiver can be removed from the mobile housing and be used like the standard portable unit. The portable transceiver unit will be equipped with a heliflex antenna and a standard portable carrying case.

2.16 BATTERY CHARGING UNITS (For Hand-Held Units)

The battery charging units will operate from 117 VAC, 50/60 cps primary power, capable of full or trickle charging rates. Shall be capable of charging the rapid charge battery fully in one hour or less. A light shall indicate when the battery is fully charged. Units shall be capable of recharging batteries when they are out of the radio. The battery charging units shall be capable of wall mounting and supplied and installed in the necessary quantities required to handle the number of portable radios purchased pursuant to this bid.

2.17 PRESENT BASE STATIONS

The Department's two present base station transmitters will be inspected and repaired and reconditioned as appropriate by the successful bidder. These base stations will operate upon the following frequencies:

A. 155.370 MHz - Countywide

B. 39.460 MHz - Point to Point

The successful bidder will then determine a site or sites within the City on City-owned property or other acceptable sites where the antennas for these base stations may be mounted in such a way so as to eliminate or minimize presently experienced intermodulation and interference problems. As stated above, the two dispatch consoles will have transmit/receive capability on these frequencies.

2.18 OPTIONS AND PRICE DIFFERENTIALS

The City of Overland Park would also like bidders to submit cost plus installation charge for the following:

A. An interface system of UHF to VHF and VHF to UHF via the dispatch consoles so that officers in the field equipped with UHF portable units may communicate without interruption and directly to VHF equipped agencies over the countywide VHF frequency.

B. The price differential of providing and installing radio-control satellite repeating system rather than a land line based system.

C. A multi-channel telephone patch system allowing direct telephone communications with portable equipped officers in the field.

Should any of the options be included in the final system, bidders will be requested to submit specifications of the included option(s).

SECTION 3

PERFORMANCE PAYMENT PLAN

METHOD OF PAYMENT

The City of Overland Park, Kansas, will pay for the system in the following manner:

A. 90% net 30 days for items as shipped.

B. The remaining 10% upon satisfactory completion of field acceptance tests.

Any cost differential as a result of this performance payment plan must be noted. (see Section 4)

SECTION 4

BIDDER'S RESPONSE

SECTION 4

BIDDER'S RESPONSE

In order to conveniently evaluate each bidder's response, it is required that the bidder's offer document follow the same format as this document.

In addition to a system design and equipment performance and physical and electrical specification data, each bidder must submit with his proposal, the following:

ITEM DESCRIPTION	REFERENCE SECTION
Company history and list of similar successful projects	1.3
Detailed project implementation schedule	1.5
Detailed phase-over plan describing how the new system will replace the existing one with minimum outages and delays	1.6
List of equipment manufactured by "Other Manufacturers"	1.8
Detailed list of exceptions taken	1.9
Bid surety cashier's check	1.10
Performance Bond	1.16
Specimen of field acceptance tests for each subsystem and the entire system	1.19
Identification of subcontractors planned for system maintenance	1.20
Detailed list and complete description of the drawings to be prepared and submitted by the successful bidder	1.23

ITEM DESCRIPTION	REFERENCE SECTION
Outline and description of training course to be given by successful bidder	1.24
Format of equipment guarantee and warranties to be offered by bidder	1.26
Optional radio control repeater system price differential amounts	2.4
A block diagram of the system proposed	2.5
Options and Cost Differentials	2.18
Price differential for performance payment plan	Section 3

Bidders should also be aware of the following date and time:

A preproposal conference will be held on Thursday, Feb. 17, at 9 am. o'clock at the Overland Park Justice Center; 8500 Antioch, Overland Park, Kansas. Attendance is not required of prospective bidders; however, they are strongly encouraged to attend. Details can be obtained from Lt. Gus Ramirez at 913-381-5252.

SECTION 5

EQUIPMENT LIST

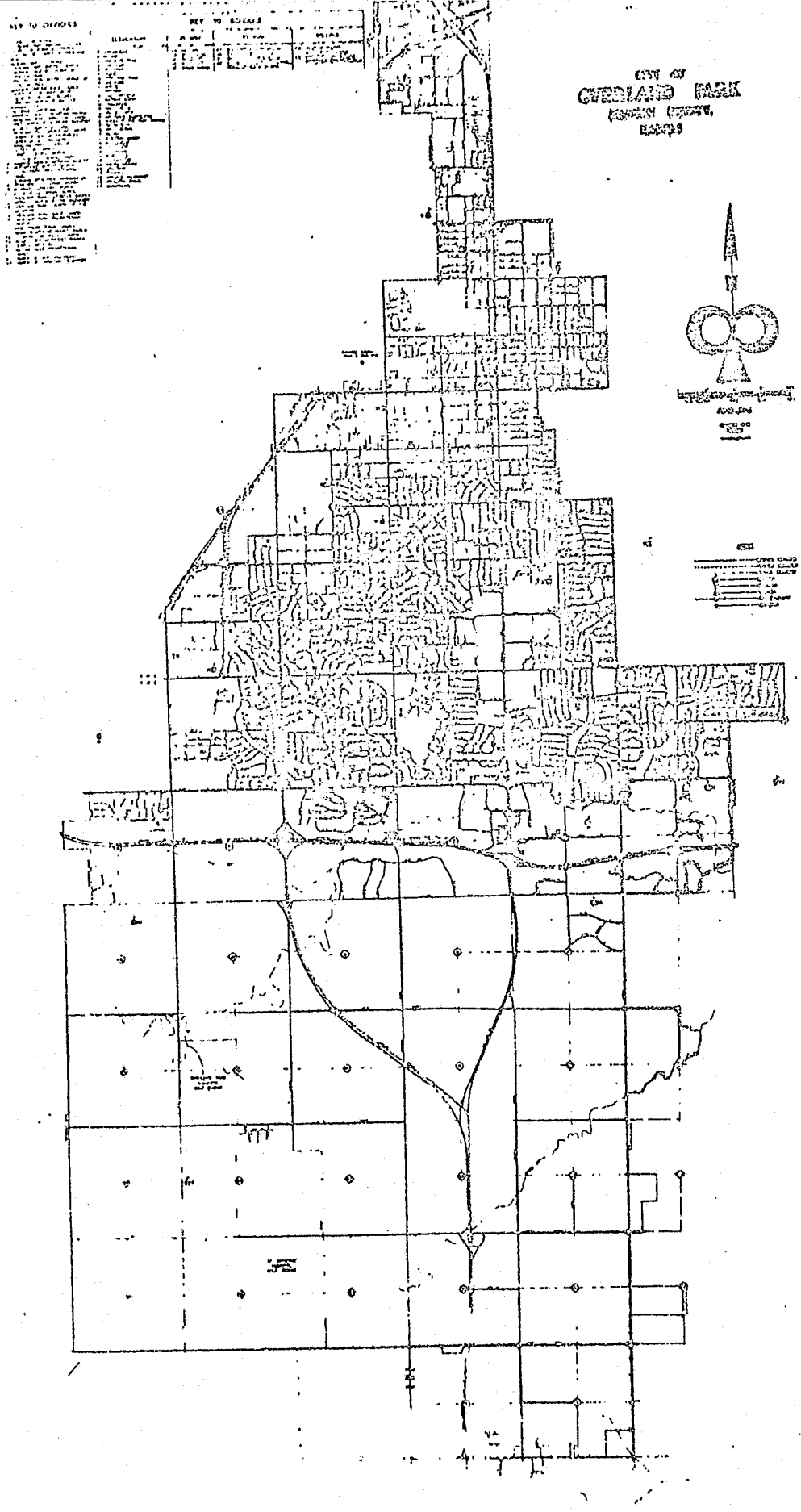
SECTION 5

EQUIPMENT LIST

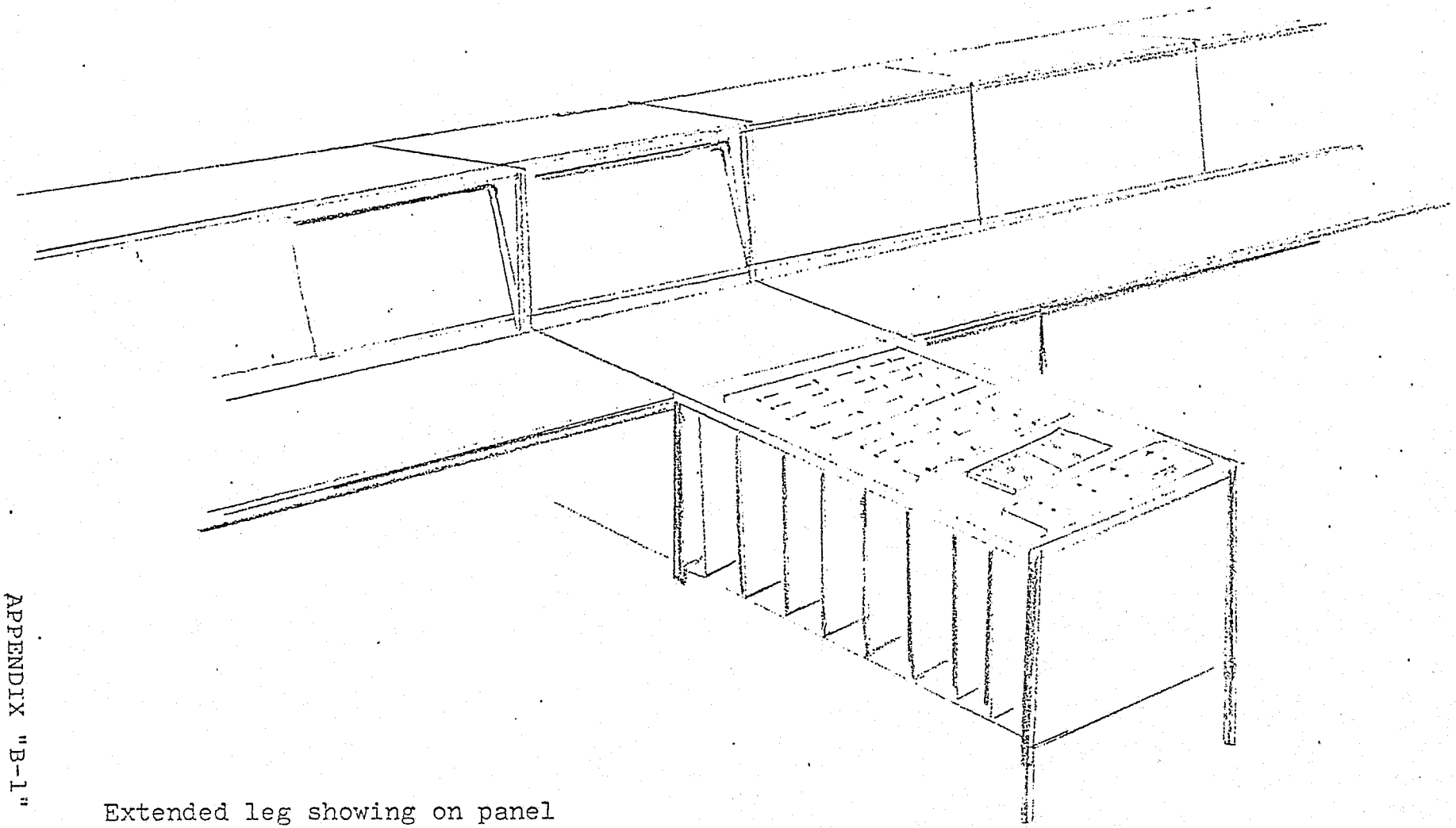
The bidder shall specify the type and quantities of "Base System" and Communications Center equipment required which will meet the intent of the specifications as described herein. A single cost amount for the entire system described herein shall be supplied. In addition, a price breakdown shall be furnished for the following equipment items.

QTY.	DESCRIPTION	UNIT PRICE	INSTALLATION COST/UNIT	TOTAL
2	Primary dispatch consoles w/chairs	_____	_____	_____
1	Three-channel voting system w/satellite receivers, comparator and standard antenna mounting (Land line)	_____	_____	_____
3	Main repeater base stations w/tone-coded squelch, automatic operation in the event of land line or comparator failure w/towers	_____	_____	_____
22	Portable radios, standard type, four frequency with battery, antenna, crystals and case	_____	_____	_____
6	Portable radios (extended microphone model) six frequency w/battery, antenna, crystals and case	_____	_____	_____
2	Portable radios 2 watts or less, four frequency with battery, antenna, crystals and case	_____	_____	_____
30	TOTAL PORTABLE RADIOS			

QTY.	DESCRIPTION	UNIT PRICE	INSTALLATION COST/UNIT	TOTAL
30	Trunk mount mobile unit - eight frequency UHF radios w/crystals	_____	_____	_____
7	Trunk mounted mobile unit- eight frequency w/scanning capability	_____	_____	_____
4	Motorcycle mounted mobile unit - eight frequency UHF radios w/crystals	_____	_____	_____
14	Portable/mobile eight frequency units	_____	_____	_____
20	Spare rapid-charge batteries	_____	_____	_____
	Multiple unit rapid-charge chargers for 20 batteries or radios	_____	_____	_____
	OPTIONS AND PRICE DIFFERENTIALS			
1	Multichannel Phone Patch System			
1	Radio control repeating system			
1	UHF-VHF interface system			



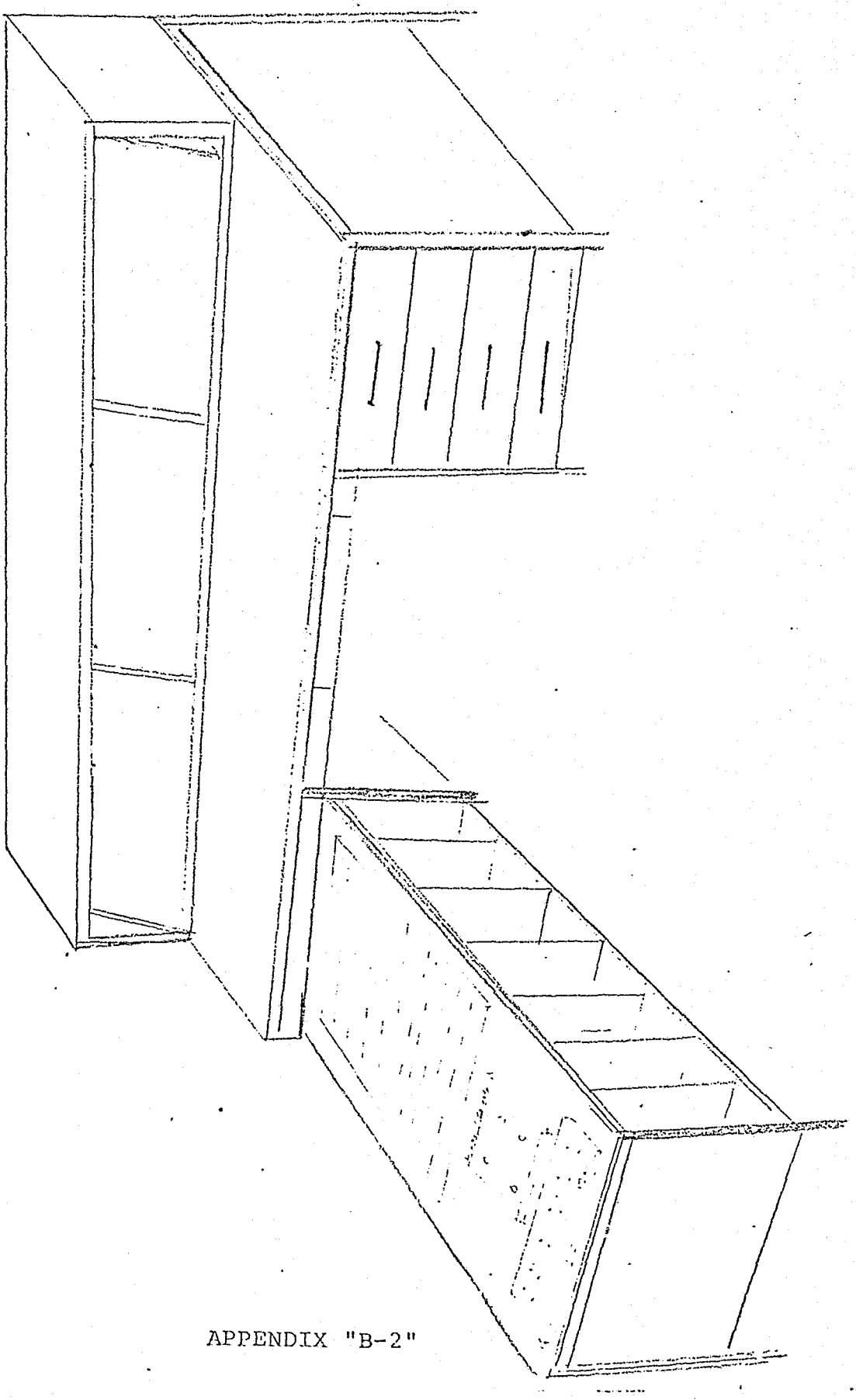
APPENDIX "A"



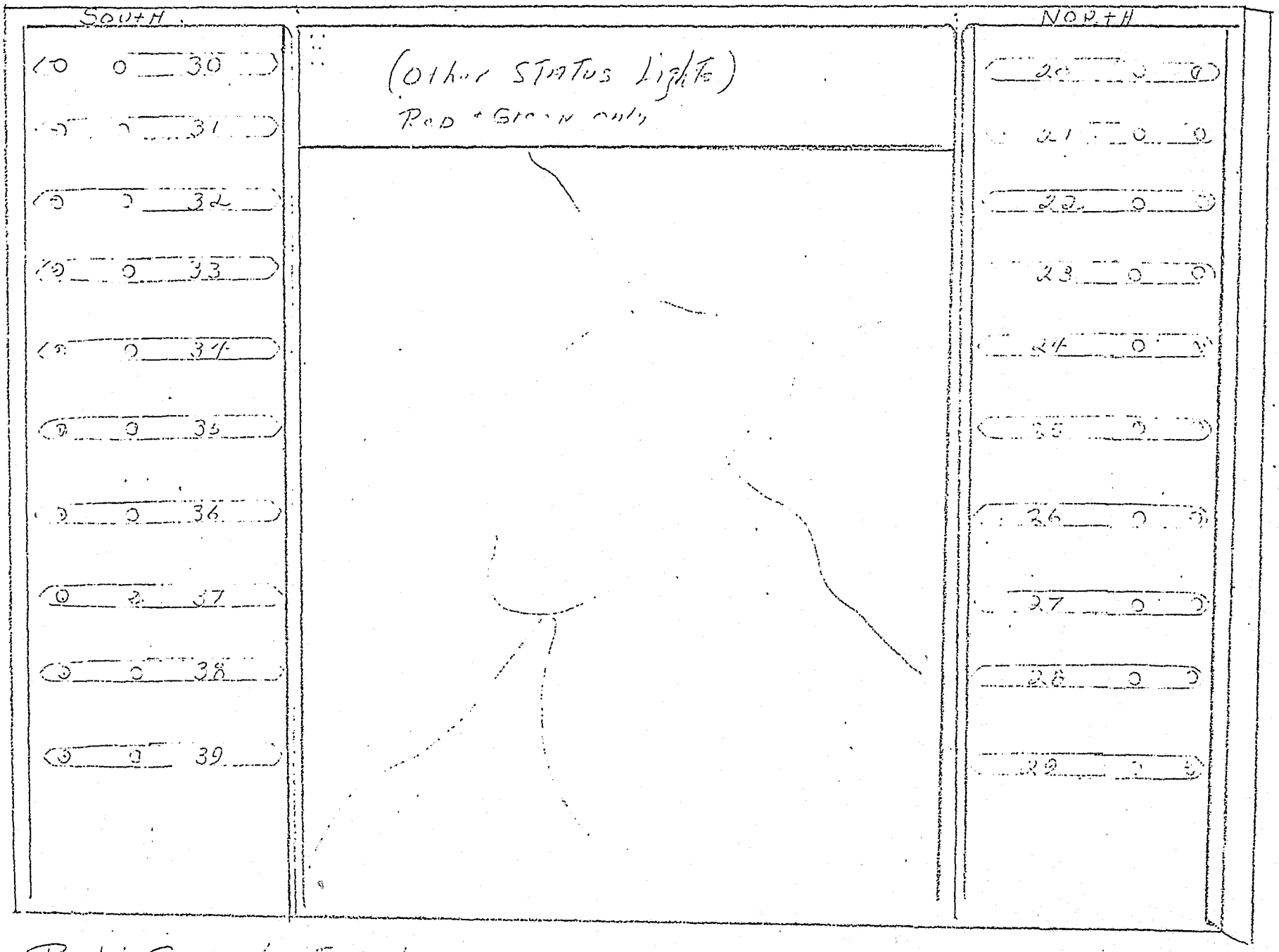
Extended leg showing on panel

1. Vehicle staus board
2. Garage Door Control
3. Civil Defense Siren Control
4. Storage Facilities

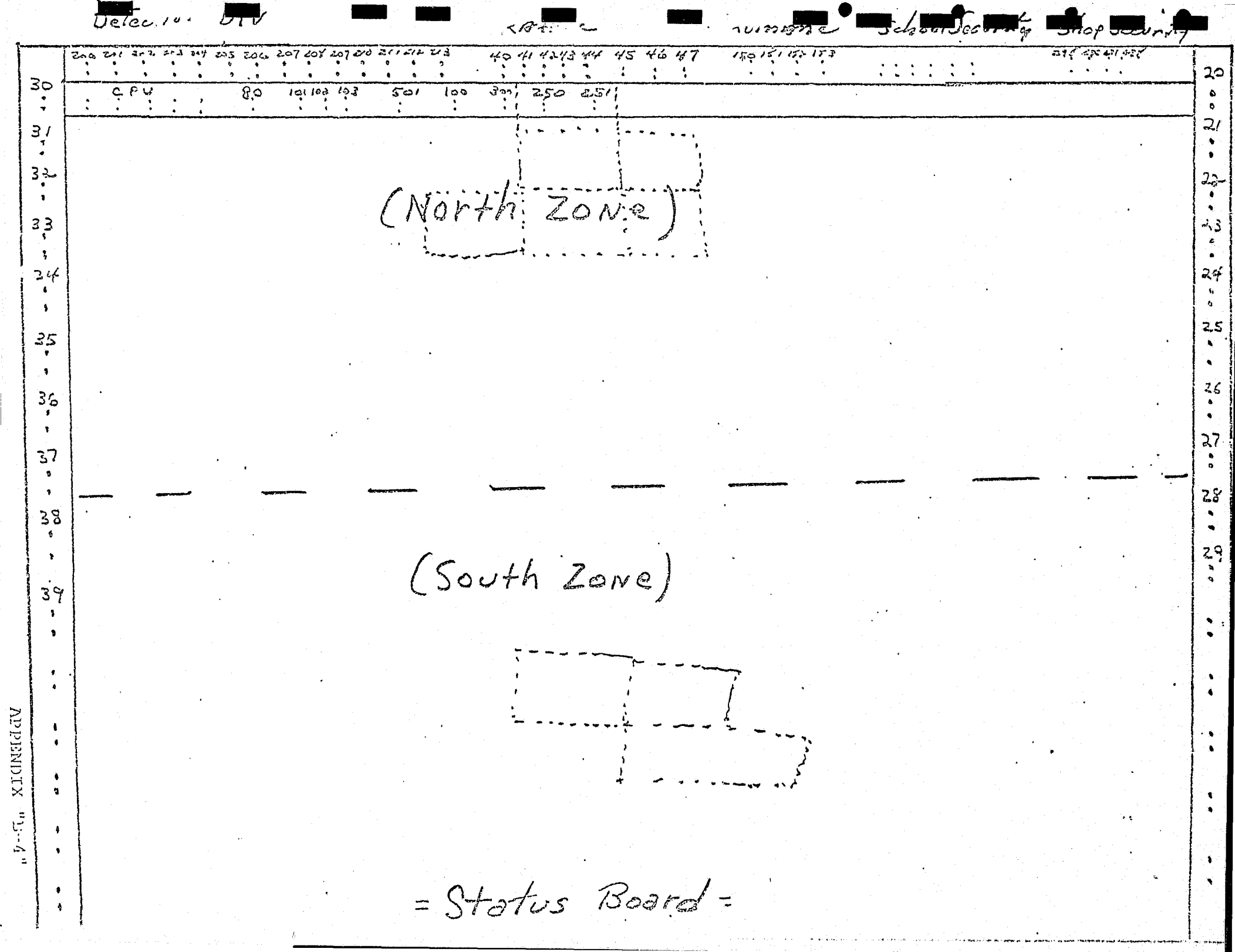
APPENDIX "B-1"

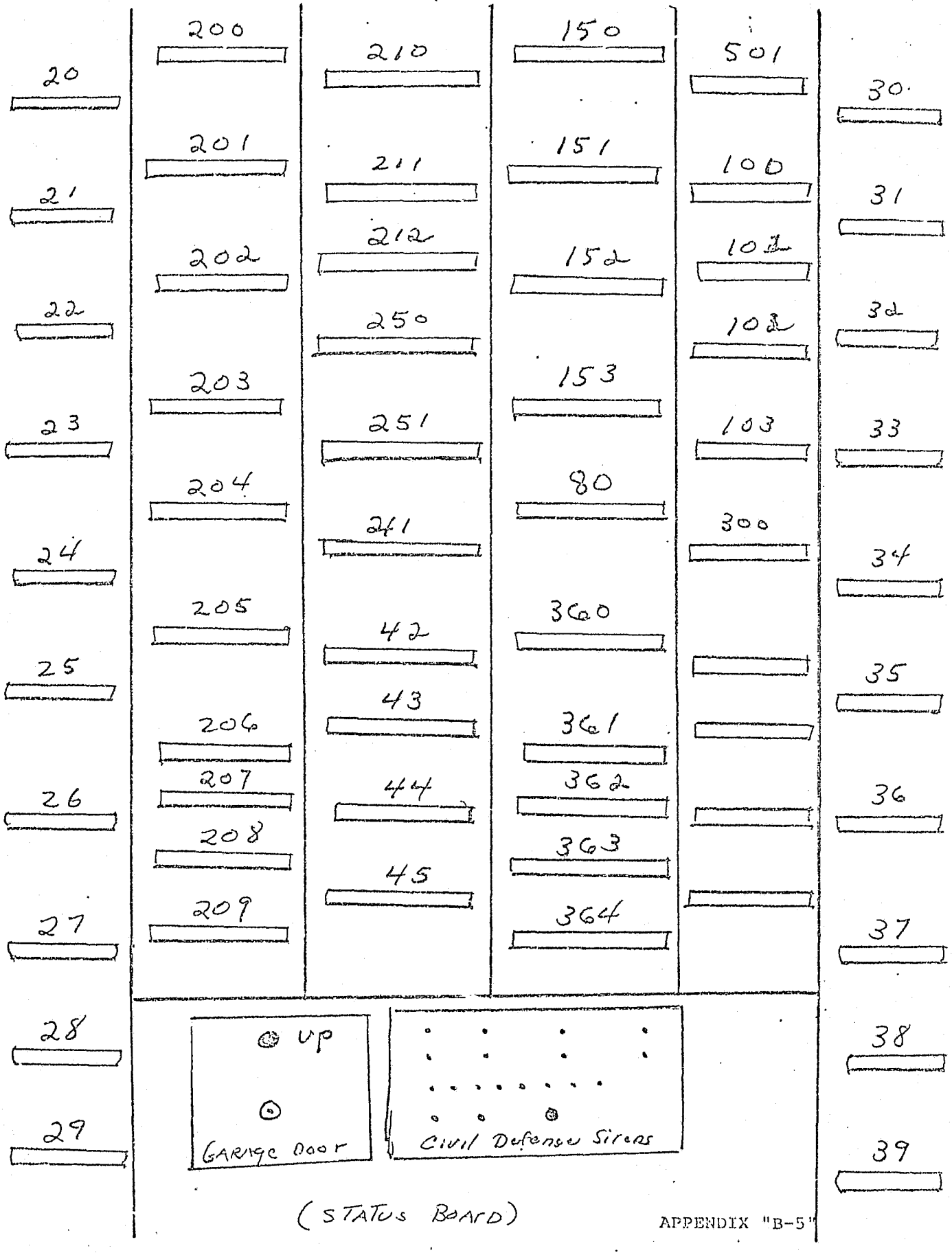


APPENDIX "B-2"



Red & Green Lights only


(North Zone)
(South Zone)
= Status Board =



(STATUS BOARD)

APPENDIX "B-5"

Department of Police
Myron E. Scafe, Chief of Police
Emergency 648-6260
Administrative 384-5252

February 25, 1977

Dear Prospective Bidder:

Per the pre-bid meeting held at 8500 Antioch on Thursday, February 17, 1977, the following points should be noted as a formal part of the earlier released "Invitation to Bid for a Communications Ssytem for the Overland Park Police Department":

Page	Section	Line	Description of Change
1	1.1	7	change "constant" to "maintained".
1	1.1	9	" . . . hi-rise structures at a 95% level of reliability."
5	1.11	2	insert "system" in " . . . date of system acceptance . . . "
5	1.13	4	change "loss" to "cost".
5	1.15	1	change to "The successful bidder shall provide assistance to the City in the acquisition of . . . "
6	1.15	4	delete last sentence in 1.15 starting with "System design and bid equipment . . . ".
6	1.17	1	change part of first sentence to read "Bidders are hereby notified that failure to complete installation and field acceptance tests within . . . " (Remainder of the sentence is the same.)
12	2.1	7	change "constant" to "continuous".
12	2.2	2	change to read " . . . that the strongest and/or quality RF signal . . . "
12	2.2	7	Add sentence "There will be a complete definition of the bidder's interpretation of 'strongest and/or quality' signal."
14	2.8	16	change "int reconnecting" to "crosspatching".

To Prospective Bidders
Re: Communications System
February 25, 1977

Page	Section	Line	Description of Change
15	2.8	34	" . . . central dispatcher and be capable of future expansion."
16	2.8	50	Delete sentence beginning with "These lights shall work in conjunction . . . ". Replace sentence with "These lights shall work so that the dispatcher can discern whether a designated patrol officer is available for service, unavailable for service, or out of his zone and available for service."
17	2.8	82	delete from Item 10 "and audible".
18	2.9		General section will be amended so that new system operates on tone control rather than DC. All appropriate changes in the Invitation to Bid should be changed to reflect this.
20	2.9	Options	delete Item C."Emergency Power Modules - automatic . . . ".
20	2.10	6	delete " . . . 4 or . . . ".
20	2.10	9	change "heliflex" to "flexible". Also any further reference to "heliflex" should be changed to "flexible" in this Invitation to Bid.
22	2.13		add to this section the following: "The mobile radios control head shall be located in such a manner in the vehicle so as to provide maximum convenience to the officer driving the vehicle, and shall be mounted so that other equipment (shotguns, mobile terminals, and speedradar units) will not be interfered with."
23	2.15	Title	change to Portable/Mobile Radios.
23	2.16	3	change "one" to "four".
24	2.17		General section should include "The bidder will also change and additional existing VHF base station to the Civil Defense frequency for control of area warning sirens."
26	Section 3		Item B should be changed to read "The remaining 10% within thirty (30) days after satisfactory (95% reliability) completion of the field acceptance tests."

To: Prospective Bidders
Re: Communications System
February 25, 1977

Page	Section	Line	Description of Change
29	Section 5		change to "Two-channel rating system w/satellite receivers, comparators, and standard antenna mounting . . . ".
29	Section 5		change to 2 - - "Main base stations . . . ".
29	Section 5		add "1 control station for mutual aid frequency."
30	Section 5		add "2 monitors with receivers".
30	Section 5		add under OPTIONS AND COST DIFFERENTIALS: "1 standby emergency system with two-frequency capability."

Additionally, attached to this letter please find the list of test sites for field tests, a copy of the LEAA Consultant's report, and a list of City-owned property on which towers for repeaters may be located.

Sincerely,

Ron Parks
Planner/Analyst

RP:bb

att.

TEST SITES

TO: Prospective Bidders

Attached is a list of locations that have been designated as test sites for the new radio system. These tests will consist of transmissions from portable to base, and base to portable. There is to be a total of 150 test-transmissions with no less than 3 transmissions from each test site area.

For your information, this list includes the tests made and the results received on our present VHF system utilizing a fully-charged portable radio.

TEST SITES

	LOCATION:	RESULTS:
1.	South Park Lake, 87th & Conser; SW corner.	All okay.
2.	Oak Park Shopping Center, 95th & Quivera; NW corner of Macy's along the fire lane.	Weak; scratchy; barely audible.
3.	Oak Park Shopping Center, 95th & Quivera; West side of Penny's in front of the sprinkler control door.	No contact.
4.	Oak Park Shopping Center, 95th & Quivera; West of Penny's under large J.C. Penny's sign.	No contact.
5.	Oak Park Shopping Center, 95th & Quivera; Lower level inside shopping center.	Weak; readable.
6.	Oak Park Shopping Center, 95th & Quivera; SW parking lot entrance, north side.	Weak; scratchy.
7.	99th Terrace & Quivera; SW corner.	Weak; readable.
8.	I-435 & Quivera; new hospital building site, extreme SW corner.	Unreadable.
9.	119th & Quivera; SW corner.	Unreadable.
10.	Corporate Woods, 10800 Benson; between the large, multi-story building to the South and the leasing office on the North.	All okay.
11.	US #69 & US 69A; Southbound lanes.	No contact.
12.	K-150 & US #69; Southbound, at the Tomahawk Creek sign.	No contact.
13.	US #69 & 179th; at the Blue River sign, North and Southbound.	No contact.
14.	Stanley, Kansas; at the 4-way stop sign, East-bound.	No contact.
15.	Stanley, Kansas; in front of the old high school.	No contact.
16.	151st & Hall; SW corner.	No contact.
17.	151st & Mission Road; NE corner.	No contact.
18.	143d & Mission Road.	No contact.
19.	127th & Mission Road; NW corner (top of hill)	All okay.

CONTINUED

1 OF 2

20.	123d & State Line; South side of Leawood Drive-In Theatre.	Weak; readable.
21.	95th & Mission Road, Ranchmart Shopping Center; South side of lower-level parking.	No contact
22.	Ranchmart Shopping Center, 95th & Mission Road; in front of Safeway.	Unreadable.
23.	Metcalf South Shopping Center, 95th & Metcalf; Lower level inside shopping center.	Weak; readable.
24.	83d & Cherokee Circle; NE corner.	No contact.
25.	83d & Roe; NW corner.	No contact.
26.	83d & Russell; SW corner.	Cutting out.
27.	Foster & Metcalf; 300' west of Metcalf in the wooded valley.	No contact.
28.	I-35 & Metcalf; Westbound lanes, just West of the overpass.	No contact.
29.	54th Terrace & Newton; SE corner.	Cutting out.
30.	I-35 & Metcalf; Southbound at Turkey Creek.	Unreadable.
31.	I-35 & Lamar; Eastbound lane, East of the overpass.	No contact.
32.	Antioch & Johnson Drive; SW corner.	Weak; readable.
33.	9701 West 67th; in front of Meyer Lumber Co.	Unreadable.

TO: Prospective Bidders

Please find attached a City of Overland Park map indicating those properties owned by the City. If you will note, we have a tentative arrangement for a possible repeater site with the manager of the Foxridge Office Center located at 5800 Foxridge Drive. Also, we have indicated a tentative antenna site at the Overland Park Municipal Golf Course located at 129th & Quivera Road.

CITY OF OVERLAND PARK, KANSAS ▒▒▒▒▒▒ PARK AND OPEN SPACE AREAS

A. PARK ADMIN. 8500 Santa Fe.

B. PARK MAINTENANCE 7912 Foster

1. HICKORY HILLS
2. NORTH PARK
3. ROBINSON PARK
4. ANTIOCH ACRES
5. PRAIRIE VIEW
6. YOUNTS PARK
7. ANTIOCH SQ. *
8. COMANCHE PARK
9. ELMHURST SQ. *
10. SOUTHLAKE PARK
11. LOUISBURG SQ.
12. STRANG PARK
13. MAPLE HILL
14. CHEROKEE PARK
15. EMPIRE ESTATES PARK
16. LINWOOD SCH. AREA
17. BLUEJACKET PARK
18. BROOKRIDGE PARK
19. ROSEHILL PARK
20. STONEGATE PARK
21. FOXHILL NO.
22. FOXHILL SO.
23. ROE PARK
24. HALL PARK
25. JAMES PLACE
26. PINEHURST EAST
27. PINEHURST WEST
28. INDIAN CREEK REC. CTR.
29. INDIAN CREEK CAMPSITE
30. OVERLAND PARK COMM. PK.
31. OVERLAND PARK MUN. GOLF CLUB
32. ST. ANDREWS MUN. GOLF CLUB

Greenspot parcels.....*

Fox Ridge OFFICE CENTER 5800 Foxridge Dr.

Justice Center

(See Park Profile Sheets for Address of Each Site.)

O.P. Municipal Golf Course

I-35
JOHNSON DR.
U.S. 50
67th
75th
80th
87th
95th
103rd
I-435
111th
119th
127th
135th
143rd
LAMAR
ROE
SWITZER
MISSION
PFLUMM
QUIVIRA
U.S. 69
METCALF
HALL

N

1 MILE

END