1976

1.0 INTRODUCTION

This plan for implementation of a Rock Island, Illinois, Law Enforcement Telecommunications System was developed as partial fulfillment of a contract between the City of Rock Island and Spectra Associates, under ILEC Grant Number 1744, dated February 11, 1976. Work commenced on this contract on February 11, 1976, and is completed upon final acceptance of this plan by the Rock Island Project Committee.

The analysis of the present system was based on on-site visits during the period February 11-13, 1976, and several one day visits since that time. That analysis, along with summaries of agency communications data for law enforcement agencies in Rock Island County, and a set of preliminary candidate plans for upgraded communications within the County, and more specifically for the Rock Island Police Department, were presented in an "Interim Report, Rock Island Law Enforcement Communications Study" dated 5 April 1976 and Revised 14 April 1976. The contents of that report will not be reproduced herein but will be briefly reviewed as necessary.

Briefly, the candidate consolidated Comm Center proposals were as follows:

1. A joint Comm Center/PSAP for Rock Island Police and Fire, Rock Island County Sheriff, and the Milan Police.
2. A joint Comm Center/PSAP for Rock Island Police and Fire; PSAP for Milan.
3. A joint Rock Island-Moline Center at the Moline Emergency Center's METROCOM Comm Center.
4. A single County-wide Joint Comm Center/PSAP for all law enforcement and fire dispatch in Rock Island County.
5. A tri-county consolidated Comm Center/PSAP for Rock Island, Henry, and Mercer Counties.

On April 13, 1976, the interim report was presented to the Project Committee for review. Changes which had taken place in present system operation since the on-site visit in February were discussed and the Project Committee requested that the Interim Report be revised to reflect those changes. On 19 April 1976 the revised report was presented to Chief Meyers and on 3 May 1976 it was presented to the Rock Island City Council for review and selection of the candidate system for

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implementation. The City Council, after a discussion with the Rock Island Project Director, Chief Meyers, and Spectra personnel, elected to have two options detailed in the final report:

1. A consolidated Comm Center/PSAP for the Rock Island Police and Fire Departments;
2. A consolidated Comm Center/PSAP shared by the Rock Island Police and Fire Departments and by the Rock Island Sheriff's dispatch operation. PSAP also for Milan.

2.0 IMPLEMENTATION PLAN

This plan is divided into sections which describe various aspects of the system to be implemented:

1. A general descriptive review of the Implementation Plan (section 2.0.1).
2. PSAP and Comm Center Operations (Sections 2.1 to 2.4).
3. A detailed frequency plan including mobile and portable equipment requirements. (Section 2.5).
4. Rock Island law enforcement communication system descriptions (Section 2.5.7)
5. An Emergency Operations Center (Section 2.6).
6. Management of the Communications System (Section 2.7).
7. Operator Training Procedures (Section 2.8).
8. Maintenance Standards (Section 2.9).
9. Supplemental Planning Information (Section 2.9).
10. Propagation Information (Section 2.10).
11. Implementation Phasing Schedule (Section 2.11).
12. Budgetary Costs (Section 2.12).
13. Summary Site Descriptions for Base Stations (local and remote) (Section 2.13).

2.0.1 THE IMPLEMENTATION PLAN - AN OVERVIEW

In this section we describe the overall system design plan, including a joint City of Rock Island and Rock Island County Comm Center/Public Safety Answering Point (911), a new UHF system for the Rock Island Police Department including base station and satellite receiver sites.

2.0.1.1 COMMUNICATION CENTER: Option 1 (Rock Island Police and Fire)

The system will operate from a Comm Center located at the Rock Island Police Department. The Comm Center will serve as:

1. Public Safety Answering Point (PSAP) for 911 and/or other incoming emergency calls for Rock Island and Milan*
2. Dispatch center for Rock Island Police and Fire vehicles.
3. Terminal center for LEADS.
4. Intrusion and fire alarm center.
5. Emergency communications recording site.

2.0.1.2 COMMUNICATION CENTER: Option 2 (Rock Island City and County)

This system will also operate from a Comm Center located at the Rock Island Police Department. The Comm Center will serve as:

1. PSAP for 911 and other incoming emergency calls for Rock Island and Milan and for those areas of Rock Island County not otherwise covered by 911 PSAP's. (we strongly recommend that this PSAP serve all of Rock Island County except, perhaps, Moline which already operates a 911 PSAP. (See Section 2.1))
2. Dispatch center for Rock Island Fire and Police, the Rock Island County Sheriff, and all agencies currently dispatched by the Sheriff. This would include most law enforcement agencies outside of Milan, Moline, East Moline, and Silvis Police Departments.
3. Terminal center for LEADS.
4. Intrusion and fire alarm center.
5. Emergency communications recording site.

2.1 PSAP AND COMM CENTER OPERATIONS

In either of the above Comm Center options, 911 PSAP operations will be essentially the same except as otherwise noted below.

*It is adviseable to include the Milan exchange in the Rock Island PSAP since it serves a large number of Rock Island residents.

Under Option 1, the PSAP would handle emergency calls from all City of Rock Island and Milan telephone exchanges.

Under Option 2, the following central office (CO) exchanges would also be included: Andalusia, Barstow, Buffalo Prairie, Cordova, Hillsdale, Illinois City, Port Byron, and Reynolds. Depending upon the outcome of present 911 planning for East Moline, Silvis, Hampton, and Carbon Cliff, the East Moline and Hampton exchanges would also be included.

We recommend that consideration be given by communities in the East Moline - Silvis area to implement 911 in the County-wide PSAP. With a proliferation of answering points for 911, a great deal of confusion can result from the fact that telephone exchange boundaries in Rock Island County have very little relationship to political jurisdiction boundaries. A single county-wide PSAP (possibly excepting Moline exchanges which are presently served by the Moline METROCOM Center) could more easily sort out which agency or agencies should respond to 911 requests for emergency service and either transfer or relay the call to the appropriate agency for dispatch or, otherwise, dispatch the request directly. Bi-State Computer geocoding, when implemented, will further enhance the capabilities of a single PSAP.

Note that HB911 requires (by 1985) that all public safety agencies be covered by 911. This includes law enforcement - city/town /village/county, fire protection districts, and public ambulances and other EMS agencies. (Some private ambulance companies may wish not to participate in delivery of emergency servcies). Moreover, sections 14 and 15 of the Law requires mutual aid agreements, both County-wide and Inter-County, so that whenever a PSAP dispatches an emergency vehicle, that vehicle must respond to the emergency, whether or not it lies within the responding agency's jurisdiction, unless otherwise relieved by the PSAP.

If PSAP's proliferate, the mutual aid and inter-agency call handling agreements will become more and more difficult to develop and enforce. Moreover, since HB 911 also requires each County to submit an approved 911 final implementation plan by 1982 and a preliminary plan by January 31, 1980, there is considerable question that a multi-PSAP plan (more than two or three PSAPs) would receive approval.

2.1.1 911 DISPATCH PROCEDURES, JOINT COMM CENTER

Presently viable procedures for dispatch of 911 calls in Rock Island County are as follows:

1. Direct Dispatch -
   All calls for police assistance will normally be dispatched by radio from the Comm Center. Under Option 2, if no officer from one of the smaller communities is available to respond to a call within his jurisdiction, the PSAP will dispatch the nearest available Sheriff's deputy or other officer as appropriate. All City of Rock Island (and other, as appropriate) fire calls or rescue unit calls will also be dispatched directly from the Comm Center.
2. Relay Method -
   Calls for ambulance, rural fire departments, or special emergency services (e.g., for public utilities) normally will be answered by the PSAP operator who will obtain the pertinent information and relay that information by telephone or "hot line" to the appropriate agency for response.
3. Transfer Method -
   All other calls for emergency service will be dispatched in this manner. The PSAP operator will determine the proper responding agency and connect the caller directly to that agency which will, in turn, perform the necessary dispatch. This method might be used in accommodating calls which originate outside of Rock Island County but from exchanges located inside the County. For example, residents of Henry County who are served by the exchange might request their Sheriff. The PSAP operator would connect the caller to the Henry County Sheriff using an automatic dialer.. Note, however, that those same Henry County residents may obtain their ambulance (or rural fire service) from within Rock Island County.
4. Referral Method -
   This method, in which the PSAP operator refers the calling party to a second seven digit number, will be used primarily in response to non-emergency calls. For example, a call to report a leaking fire hydrant might be referred to the water department. Emergency calls for a public utility (water department, power and light company, etc.) will normally be handled by the direct dispatch, relay or transfer method, however.

In those situations in which the relay or transfer method is used, telephone dialing will be accomplished with automatic dialing equipment using telephone numbers pre-recorded on a magnetic tape, via direct "hot lines" or by intercom. Hot lines will be used to communicate with Trauma Center, the Rock Island Fire Stations, Illinois State Police, the Court House Office of the Sheriff's Department, and possibly one or more ambulance services.

Outgoing (only) emergency telephone lines will be used to contact the ambulance service, the hospitals, the rural fire departments, the residences of police officers in outlying communities and all nearby out-of-county public safety agencies. Two digit "Speed Call" should be used for frequently dialed numbers.

Separate non-911 emergency numbers should be maintained for use by residents of Rock Island County who reside outside of the area initially implemented in the Rock Island and Milan Central Office switching areas. As telephone central office equipments in outlying areas are updated so that they can be included in 911, these outlying exchanges can be added to the system. Most of the Illinois Bell subscribers served by exchanges in Rock Island County can be included in the system either immediately or in the near future. Implementation scheduling of 911 from telephone company exchanges should be arranged jointly with those companies and Illinois Bell.

A suitable system for pro-rating the cost of 911 trunks to outlying areas should be developed by the Comm Center administrators, Rock Island and Milan City Councils, the Rock Island County Board, and other interested agencies such as METROCOM. If each small outlying community must bear its monthly 911 trunk costs, on an annual per capita basis these costs will be prohibitive.* Hence, upon County-wide implementation we recommend that, if possible, <u>all</u> 911 costs be borne by the county. Moreover, without some such system for distributing 911 operating costs equitably, it is often difficult to obtain the necessary cooperation of locally owned telephone companies. Note, however, that state level 911 planning may well provide 911 funding guidelines and/or direct support.

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* Per capita 911 costs in the Metropolitan area will be a few cents. Per capita trunk costs to a more remote community could be several dollars.

We recommend that the customers of the area telephone companies be served as follows:

1. List "911" in the telephone directory as available for subscribers whose prefixes are in the initial 911 implementation schedule.
2. Notify all rural fire district subscribers who reside outside of Rock Island County, but are served by 911, whether or not they may call "911" for fire or ambulance.
3. Notify all Rock Island County subscribers not served by the 911 system of their procedure to request emergency service by means of separate non-911 numbers.
4. Implement the magnetic dialer at the PSAP with pre-coded telephone numbers of appropriate sheriff, police, fire, and ambulance agencies in surrounding areas. "Speed Call" should be used.

We suggest that a special notification (perhaps printed on a gummed label) be prepared for telephone customers explaining how to report emergencies and how their emergency requests will be handled.

2.1.2 911 - COMMENTARY

One of the principal problems we have observed in implementation of a 911 system is one of public information and education. Before a system is successfully implemented it is essential that the public be informed about the nine-one-one concept. Fortunately, within Rock Island County 911 information and education has been fairly widely disseminated particularly by Moline for implementation of its system. Hence, the principal problem of 911 education will be in the rural areas. A pocket planning guide, designed to provide general 911 information, is provided as part of this study.

The public must also be educated in the proper <u>use</u> of 911 during the installation phases so that the system can achieve its purposes. To this end we recommend that an instruction sheet be prepared and mailed to affected customers with the first telephone directory published after each rural exchange is added to the 911 system is listed. This sheet should inform the user when and when not to use 911. We recommend that 911 be used:

1. For emergency ambulances calls-cornaries, serious accidents, poisoning, etc.
2. Fires
3. To request police services for crime in progress or just committed armed robbery, burglary, breaking and entering, assults, etc.
4. To report motor vehicle accidents in which there has been a personal injury or which pose a hazard to traffic or to report any other emergency which poses an immediate threat to persons or property.

We recommend that use of 911 be discouraged for NON-emergency calls such as:

1. Minor compliants to police agencies (e.g. noisy parties, barking dogs, traffic problems, etc.)
2. Request for routine transfer of patient by ambulance
3. Administrative or routine business calls, or any other call which does not require rapid response to protect persons or property or to apprehend a fleeing suspect.

2.1.3 BUDGETARY ESTIMATES - 911 IMPLEMENTATION

Table 2.1.3 provides budgetary information for monthly trunk costs of the 911 system operating from a PSAP in Rock Island as well as other 911 implementation information (recommended numbers of trunks, etc.). The estimates are based on a trunk cost per mile per month of $5.10 (present tariff) and $ 6.10 (proposed tarfiff), termination charge of $16.35 per month per trunk at each end of the trunk, and $14.00 per trunk per month for 911 options (ringback, called party hold, trace, transfer, forced disconnect, and dial tone first). Comm Center telephone console equipments and features are estimated at $150 (maximum) per console per month for Option 2 and $ 100 for Option 1.

Annual Budgetary 911 operating costs for Option 1 and Option 2 are provided in Table 2.1.3.1. Costs include 911 consoles (five).

TABLE 2.1.3

ESTIMATED BUDGETARY OPERATING COSTS FOR 911 TRUNKS

Central Office Location	Exchange Prefixed Served By Central Office	Recommended Number Of Trunks	Estimated Monthly Cost per Trunk		Total Monthly Trunk Cost For this Central Office	
			Old Tariff	Proposed Tariff	Old Tariff	Proposed Tariff
Rock Island	786,788,793, 794*	8	$ 29.35	$29.35	$ 234.80	$234.80
Milan	787	2	66.08	70.57	132.16	141.14
Andalusia	795, 798	4	89.83	99.00	359.32	396.00
Barstow	496	2	104.69	116.77	209.38	233.54
Buffalo Prairie	536	2	137.93	156.56	275.86	313.12
Cordova	654	2	137.93	156.56	275.86	313.12
East Moline	755,792,796, 799	8 **	83.90	91.89	671.20	735.12
Hampton	496	2	92.56	108.24	195.12	216.48
Hillsdale	658	2	158.12	180.72	316.24	361.44
Illinois City	791	2	139.11	157.98	278.22	315.36
Port Byron	523	2	122.49	138.08	244.98	276.16
Reynolds	372	2	113.59	127.42	227.18	254.84
Moline	762,764, 797	6	70.80	75.53	424.80	453.18
				Total, All Trunks--	$ 3,845.12	$4,244.30

* Served by Moline Central Office but located primarily in Rock Island

** May require fewer trunks

TABLE 2.1.3.1

ANNUAL 911 BUDGETARY COST ESTIMATES

Option	Comments	Total Annual Cost Old Tariff	Total Annual Cost Proposed Tariff
1	Rock Island & Milan Exchanges only	$ 8,000	$ 8,110
2	All Rock Island Co. Exchanges except Moline	50,050*	54,500*
2	All Rock Island Co. Exchanges except Moline & East Moline	42,000*	45,700*
2	All Rock Island Co. Exchanges Moline, East Moline & Hampton*	39,700*	43,100*
2	All Rock Island Co. Exchanges	55,000*	60,000*

* Significant reduction in costs might be effected if TELPACS could be used for both 911 trunks and "Hot" lines to Moline and East Moline.

The various combinations listed in the comments section of Table 2.1.3.1 relate to:

1) The present situation in which Moline operates its own 911 system and would probably not be a candidate for initial inclusion in a Rock Island PSAP; and
2) Proposals currently being considered by East Moline, Silvis, Hampton and Carbon Cliff for one or more 911 PSAP's in that complex of communities.

2.1.4 911 COMMITTEE AND FUTURE IMPLEMENTATION

In concurrance with the Illinois Local Goverenment 911 Planning Manual (updated Preliminary Draft, See Appendix A). We recommend that participating agencies, perhaps through the METROCOM Governing Board, develop a 911 Implementation Committee with County-wide representation to plan future 911 mplementation. Recommendations on the representation of such a Board are as follows:

1. Rock Island County Board of Supervisors
2. Rock Island and Milan City Councils
3. City Councils of Moline, East Moline, and Silvis*
4. Other local governments in Rock Island County (one or more members-at-large to be selected from the local governments) *
5. Rock Island County Sheriff
6. Rock Island Police Department
7. Rock Island Fire Department
8. Milan Police Department
9. Milan Fire Department.
10. Police and Fire Departments of Moline, East Moline, and Silvis *
11. City and County Civil Defense
12. Emergency medical services (Trauma Center, public ambulance services, etc.)
13. Rural fire districts (one or more members selected at large to represent all districts)
14. Illinois State Police
15. Private ambulance services (one representative to be selected at large from those ambulance services wishing to participate in delivery of emergency services)
16. Public representatives-at-large.

* As appropriate under Option 2.

This Committee should also include representation of various County Telephone Companies to assist in developing a schedule for future 911 implementation of each in-County exchange, to review and assist east company in resolving any operational problems associated with 911, and to plan for the funding of 911

trunks, etc., to the PSAP. This committee should also work with all participating agencies - fire, police, EMS, etc. - to develop recommended procedures for handling 911 calls intended for each agency. The Committee should keep abreast of State-wide 911 planning and insure that Rock Island County implementation conforms to State guidelines.

We have noted that the implementation of 911 in remote rural areas can be relatively expensive in terms of trunks from each exchange since many emergencies are reported by several individuals and may require several calls before the PSAP has a complete picture of the extent of the emergency. Note that trunks to one of the exchanges in the northern end of Rock Island County could cost $.50/ month per capita. Most rural communities would consider this exorbitant and might well refuse to participate in 911. Since the 911 per capita costs in urban areas may be only one or two cents, rural telephone subscribers may well object to paying 10 to 20 times as much for the same service.

Hence, at the time of County-wide 911 implementation, we reiterate, that the Rock Island County 911 Implementation Committee seriously consider recommending to the County Board that the County fund the entire cost of 911 operation. In this way the cost is spread over the entire County on an equitable cost-for-service basis.

2.1.5 JURISDICTIONAL CONSIDERATIONS

Note that the Reynolds (prefix 372) and Buffalo Prairie (prefix 537) central offices serve telephone customers in Mercer County, although relatively few compared to the number of customers served in Rock Island County. Moreover, the Sherrard (prefix 593), Andover (prefix 476) and Matherville (prefix 754) central offices in Henry and Mercer Counties serve a limited number (less than 500) telephone subscribers in Rock Island County. Hence, as 911 implementation proceeds, a joint plan should be developed among Rock Island, Whiteside, Henry, and Mercer Counties to provide appropriate response to emergency calls originating from within these exchanges but from outside the political subdivision in which the central office is located. At this time we do not propose selective Call Routing as a viable alternative to isolating Rock Island County Residents. Aside from Illinois Bell exchange, we know of no near term plans to implement the ESS necessary for selective routing.

2.1.6 AUTOMATIC LOCATION IDENTIFICATION

The Bi-State Computer management has been developing plans to implement Automatic Location Identification (ALI) based on geocoding of public utility data. In circumstances in which it was necessary to identify the address of the calling party, the calling number would be automatically identified by the appropriate central office of Illinois Bell (or other company, as appropriate) and displayed at the PSAP operator's console. The operator would re-transmit the number to the Bi-State Computer which would access the address via the geocoded files. This system, of course, requires constant up-date of address files and will, on occasion, fail to identify the correct address. This should occur infrequently if continued update procedures are well conceived.

2.1.7 STATE OF ILLINOIS 911 PLANNING - SRI REPORT

Current planning by the Illinois Commerce Commission (ICC) based on the contents of HB 911, 79th General Assembly, and the Stanford Research Institute 911 reports may have some impact upon recommendations made herein. To our knowledge, this

implementation plan conforms to all technical, management, and operational standards contained in preliminary ICC planning documents. Drafts of these standards are included as Appendix A. Included also, in Appendix C, Communications Personnel Qualifications, is a copy of the ICC "Public Safety or Emergency Telecommunicator" job description. Final version of the ICC 911 guidelines and standards for local government planning are due for release in mid-August. The mandatory requirements of HB 911, and its implementation by ICC Regulations, will have bearing on future Rock Island County 911 implementation. In particular, the areas in which ICC plans may have immediate impact are:

1. Management Techniques - At present three types of system management are allowed, joint powers agreement, contract, and special districts.
2. Requirements for trained 911 operators. A 911 operator/dispatcher should be dedicated to the emergency communications function and not serve also as a jailer or clerk.
3. All 911 emergency traffic must be recorded on a master logging recorder.
4. Each County must submit a 911 plan for approval by the ICC.

While none of these standards may pose a problem to the City or County of Rock Island, at least under the provisions of Options 2, they may pose serious financial problems to smaller communities who may be considering 911 implementation. In particular, a smaller community may have to hire as many as five additional (dedicated) 911 operators or operator/dispatchers and, in addition, purchase a suitable master logging recorder. Moreover, none of the smaller communities visited in the on-site survey have adequate physical security. Hence, extensive construction or remodelling may be required if one or more such communities were contemplating a separate PSAP.

Telephone exchanges are readily identified at a 911 console. If automatic number/location identification is implemented in Rock Island County (through the Bi-State System), identification of the responding agency (i.e., jurisdictional identification) to an emergency call will normally be fairly easy. Hence, traditional arguments for a local PSAP, in which the operator "knows the territory", are shaky at best.

2.1.8 911 RECOMMENDATIONS FOR PSAP LOCATION

Hence, under our interpretation of preliminary ICC 911 planning documents, it would seem most advantageous to implement 911 on a County-wide basis under a single PSAP located in Rock Island, whether or not it was eventually determined that radio dispatch would be conducted from a single Comm Center. An acceptable alternative might consider continued operation of the existing Moline 911 system.

2.1.9 COMPUTER AIDED DISPATCH (CAD)

The CAD system which is being developed by Bi-State for the Quad Cities area has been incorporated into telecommunications planning for the Rock Island Police Department. In particular, dispatch consoles have been specified with blank panels to accommodate two side-by-side 14" CRT CAD displays at each operator position, one for incident reporting and one for vehicluar status.

2.1.10 LONG RANGE COMM CENTER PLANNING

The Comm Center location proposed at the Rock Island Police Department under Options 1 and 2 should suffice for the Rock Island Municipal and County public safety agencies which would initially be a part of the system under either option. This location, at least as discussed herein, does not have adequate growth capacity to accommodate a County-wide joint Comm Center. It would have adequate space if the entire training room were to be made available for future expansion. Even then, however, growth would be limited.

Hence, the equipments in the present system have been planned to accommodat considerable system growth so that they could be transferred to and operated effectively as part of a larger communications complex in the future.

For the long term, we feel that a single County-wide Comm Center/PSAP would be a cost-effective approach to emergency communications control in Rock Island County. If, in the opinion of Municipal/County planners, this approach is valid, then planning should commence as soon as possible to acquire a suitable location for a joint Comm Center, perhaps as part of a joint public safety center.

2.2 OPERATING PERSONNEL, JOINT COMM CENTER

Under normal operating conditions, we estimate that three four* PSAP operators/dispatchers will be required to man the Comm Center. These individuals should be trained and capable to perform either the 911 answering or dispatch function. Note that the estimate of three operators assumes that routine business (non-emergency) calls will be handled by a separate operator outside of the PSAP.

Preliminary ICC guidelines favor the use of dedicated 911 telephone operators rather than combined operator/dispatchers. We note however, that fairly large public safety comm centers Peoria) operate successfully with the operator/dispatcher concept. The choice of which mode of operation is to be used in the Rock Island PSAP is one which should be made by the Governing Board and the Comm Center Supervisor.

Under conditions of peak traffic load, it may be necessary to augment the Communications Center personnel. Provisions for four dispatch and four PSAP operator positions could readily be made (See Figures 2.2.1B and 2.2.2B) by adding portable tables to accommodate the telephone consoles. These can be implemented by installing a Call Director at each of the dispatch positions so that the Call Directors can be moved to adjacent desks, or even folding tables, to provide the additional operator positions.

Overall supervision of the Comm Center should be by a Communications Supervisor.

Basic qualifications and job descriptions for communications personnel are discussed in Appendix C.

2.3 BASIC COMMUNICATIONS CENTER DESIGN

2.3.1 CONSOLES

The radio consoles are specified to accommodate all features of the system which will be implemented. Basic functional console specifications are listed in Appendix E, Specification U. It is clear, of course, that all radio consoles must be able to control, transmit and receive all base station

* Four on peak shift

FIGURE 2.2.1 - A COMMUNICATION CENTER CITY OF ROCK ISLAND

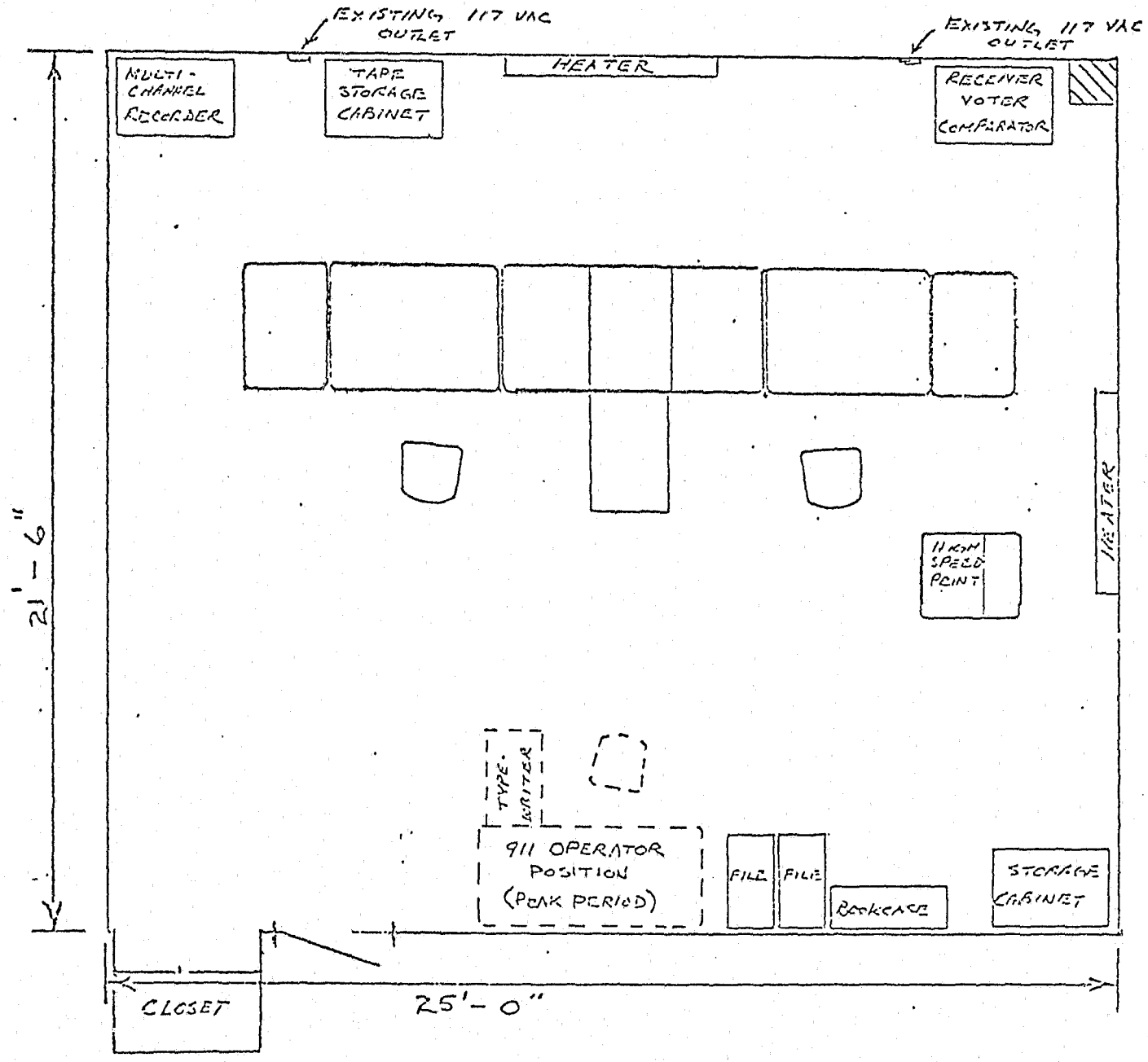


FIGURE 2.2.13

COMMUNICATION CENTER - CONSOLIDATED CITY OF ROCK ISLAND/ROCK ISLAND CO.

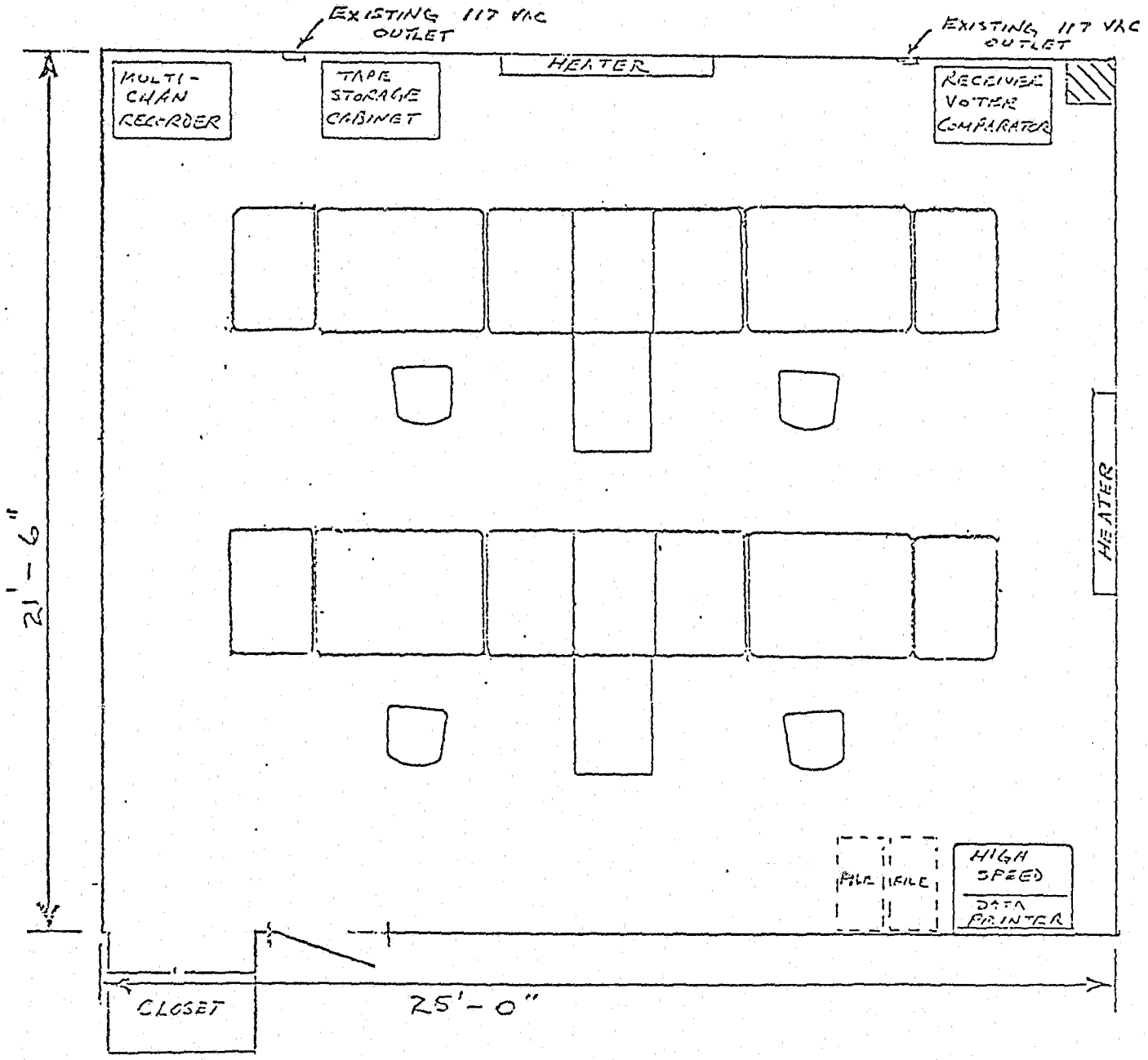


FIGURE 5.5.2 A

COMMUNICATION CENTER

CITY OF ROCK ISLAND.

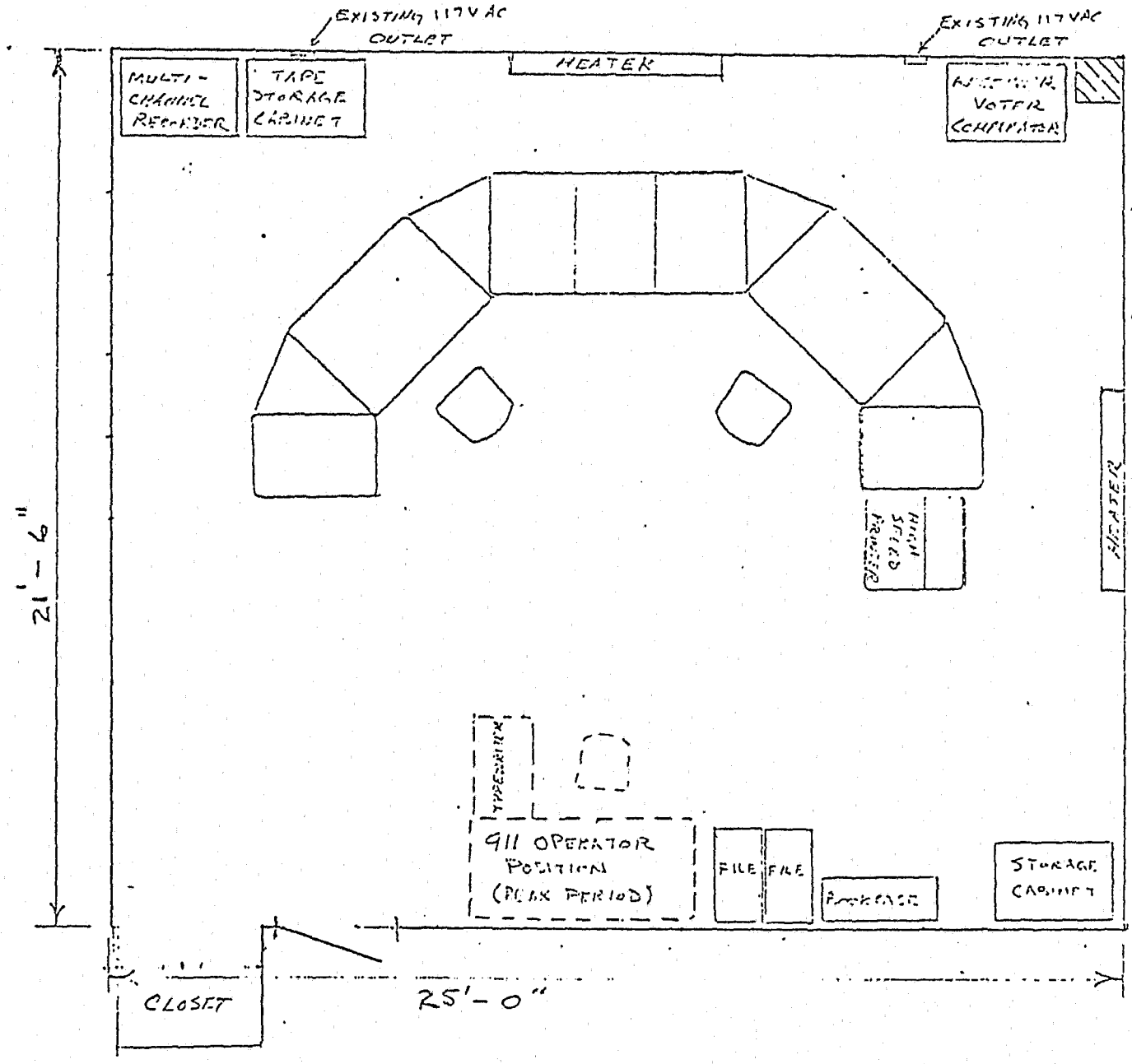
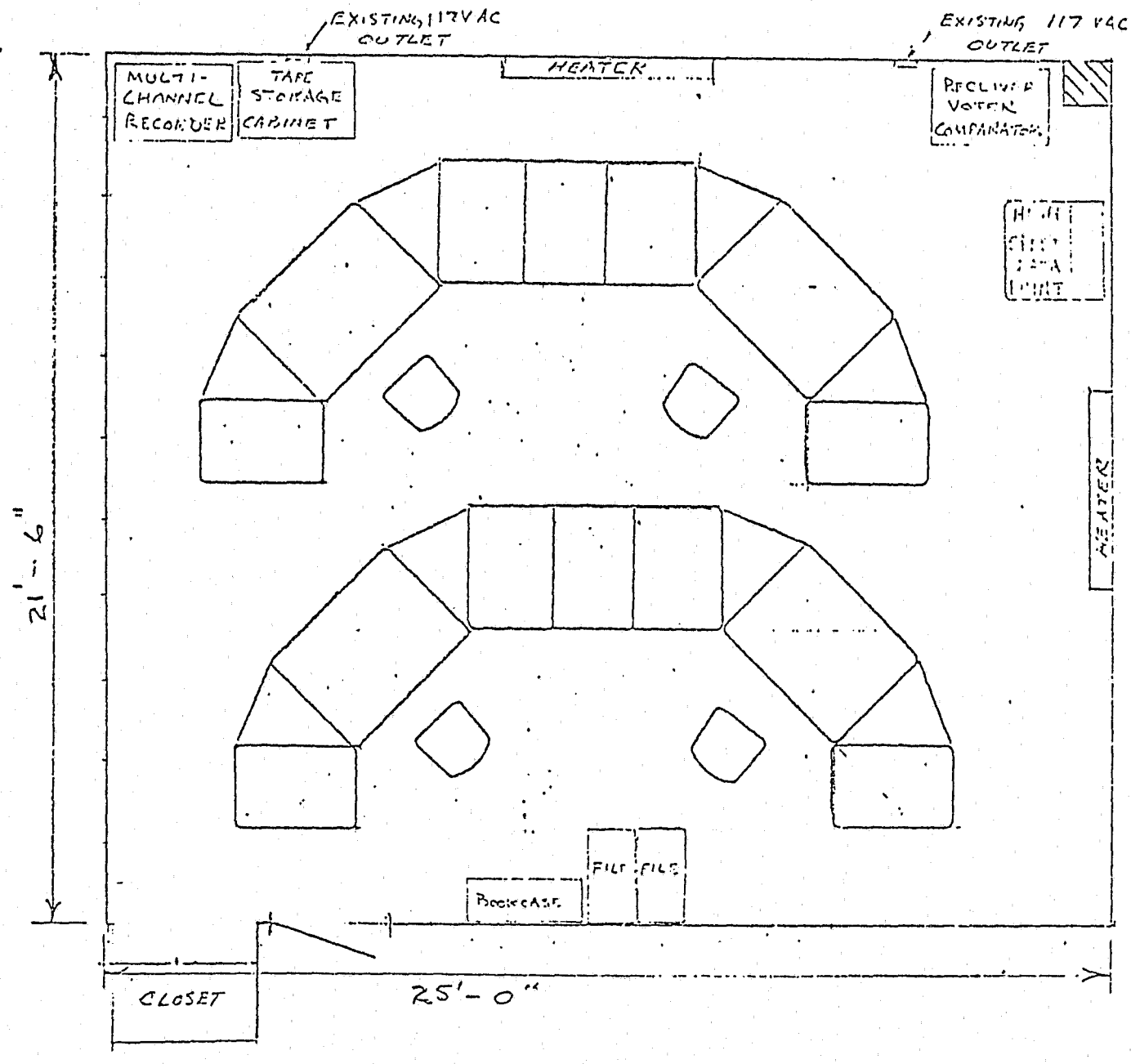


FIGURE 2.2.2B

COMMUNICATION CENTER – CONSOLIDATED

CITY OF ROCK ISLAND / ROCK ISLAND COUNTY



frequencies and in addition, monitor the system's mobile frequencies. Moreover, switching provisions must be made for control of all optional features such as intercom, alarms, cross patch/phone patch, etc. Each operator (radio and telephone) requires a remote control for playback of the instant replay tape recorder equipments.

Telephone consoles are standard Bell 310's or similar equipments. Each telephone console will accommodate all incoming and outgoing emergency lines, administrative and dedicated lines. Each must have the capability to transfer any emergency call to a radio dispatcher's telephone handset, to a "hot line" or to any other telephone number. (Telephone console should have a conferencing feature to allow multiple party conference calls). Each operating position should have an associated date/time stamp device. In addition to the above features the space above one or more consoles shall have an intrusion alarm panel to monitor alarms, both internal (base station sites, etc.) and external (banks, etc). It should also have a status panel to monitor the Comm Center environmental or physical system, including the emergency power system. See Specification N.

Data consoles are those presently used in the Bi-State Computer system.

The radio console should have a rear projection system. (See Specification U-1).

2.3.2 COMMUNICATION CENTER ORGANIZATION

The Communication Center, to be located on the second floor of the Police Dept. building, will house the communication control consoles, data terminals, multi-channel audio recorder, rear screen projector and telephone answering instruments. Security for the communication center will be enhanced by utilizing appropriate wall partition materials and remotely controlled door strike to limit access to the room. Environmental control measures to remove heat from the center will be implemented. Room size is approximately 25' x 21'. Additionally, sound conditioning the communication center room will be necessary to provide isolation between it and the adjacent lecture room as well as making the room itself acoustically "dead" to reduce ambient noise levels.

The control console functions shall include all the transmitter and receiver remote controls necessary for the police communications UHF system and the fire department's high band communication system. In addition, monitoring of contiguous communities police primary radio operational channels (or alternately, a common channel when established) will be provided as well as monitoring of the ISPERN and the national mutual aid channel (155.475 MHz). The control console also provides a convenient housing for other functions needed by the operator, such as, data terminals, building intercom, instant replay recorder for incoming emergency telephone lines, rear screen projector for reference maps and data, status card date/time stamping and status light actuation. Figures 2.3.2.A and 2.3.2.B show possible layouts of two-position consoles.

The telephone equipment room is located in the basement area of the Police Department. It may need to be expanded in length as the existing walls to which telephone line terminal boards and wall mounted cabinets are mounted, are almost completely utilized except an area which has limited height. The area is readily expandable however, and another four to six feet of room length appears feasible without reducing the recreation/locker room area appreciably.

Following is a list of basic equipment for a Joint Comm Center:

	ITEM	QTY	SPECIFICATION REFERENCE
1.	Control Consoles	4 (2)	U
1 a.	Telephone Consoles	5 (3)	(Ill. Bell)
2.	Audio Recording System		
	a. Multi-channel recorder	1	O
	b. Portable reproducer	1	O-1
	c. Instant replay recorder	8	O-2
3.	Intrusion alarm terminal and display	1	N
4.	Fire alarm terminal and display	1	N-1
5.	Rear projection and status system	2 (1)	U-1
6.	Voting comparators for satellite receivers	2	V
7.	UHF control station	2	A-1-15

NOTE: Numbers in parenthesis apply to Option 1.

FIGURE 2.3.2 A

DUAL CONTROL CONSOLE LAYOUT

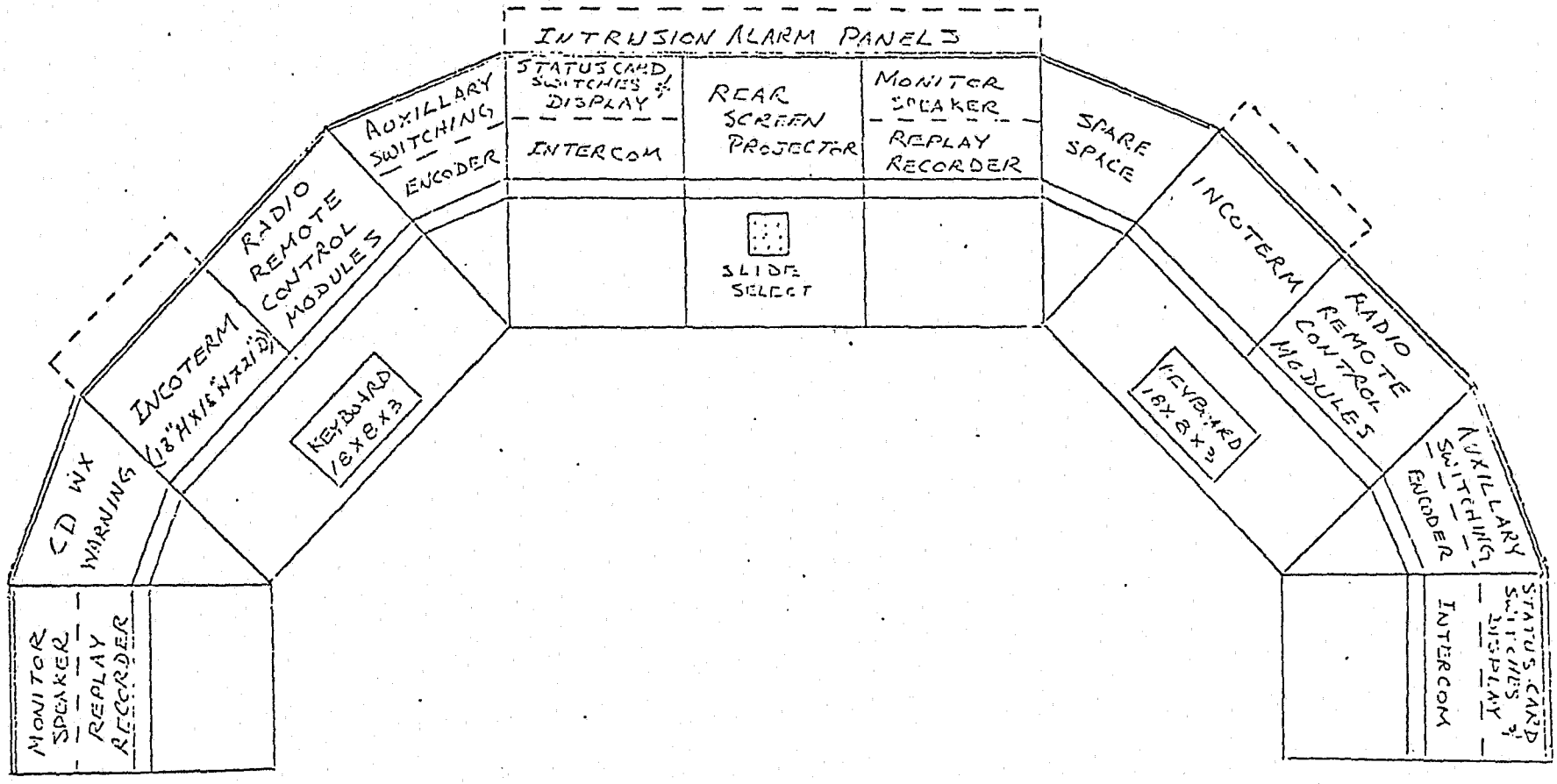
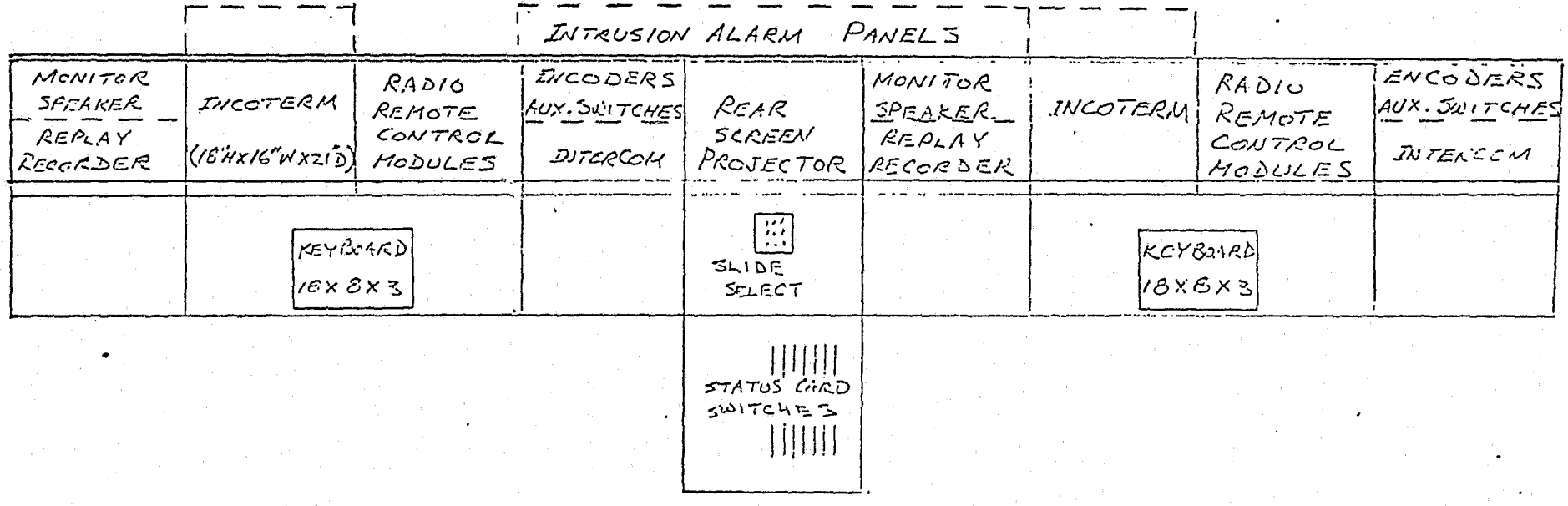


FIGURE 2.3.2 B

DUAL CONTROL CONSOLE LAYOUT



2.3.3 ACOUSTIC AND LIGHTING LEVELS

Acoustic power levels are recommended in Specification AA. Lighting levels at the consoles should normally be in the range of 50-100 foot candles. However, because of wide variation in operator preference, provisions should be made to reduce light levels by one half or more. Individual adjustable level console lighting should be considered at the radio and telephone dispatch operating positions.

2.3.4 ELECTRICAL POWER REQUIREMENTS

Maximum electrical power requirements for Comm Center equipments are listed in Specification BB. These requirements do not include power for convenience outlets (e.g., for the "coffee pot", electrical typewritter, etc.) and therefore should be considered as additional to ordinary "office" power requirements.

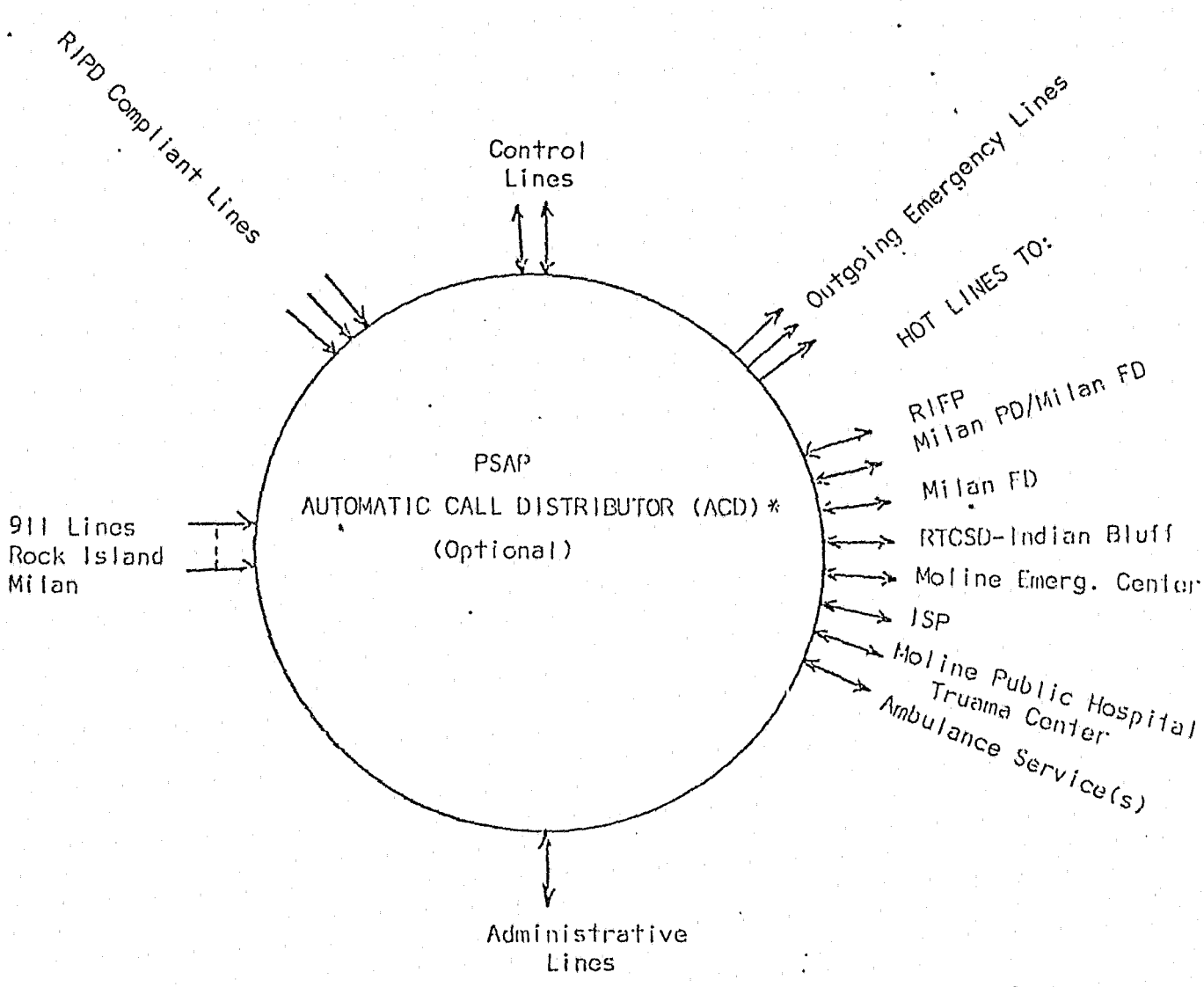
2.4 TELEPHONE REQUIREMENTS, JOINT COMM CENTER

The incoming emergency/complaint lines into the PSAP initially will be distributed as follows:

1. Rock Island, Milan County, and other participating community 911 trunks.
2. Three to four lines for County residents not initially served by 911.
3. Two complaint lines each, (non-emergency) for Rock Island Police and Fire.
4. Existing emergency lines for Rock Island Police and Sheriff.

At least three dial up lines will be required for outgoing calls to request auxillary emergency service (wreckers, outside-of-county law enforcement agencies, public utilities, etc.) or to transfer or relay calls. An automatic dialing "speed call" device for outgoing calls should be attached to the telephone console so that such outgoing calls may be dialed automatically. Provision should be made for at least two administrative lines for routine business. Figures 2.4A and 2.4B describe telephone service functional requirements.

Projected emergency line requirements are based on a probability of no more than .001 (one chance in 1000) of an incoming emergency call receiving a busy signal. Note that this is a somewhat more stringent design criterion than that proposed (.01 or one in 1000) by the SPI plan for Rock Island County.

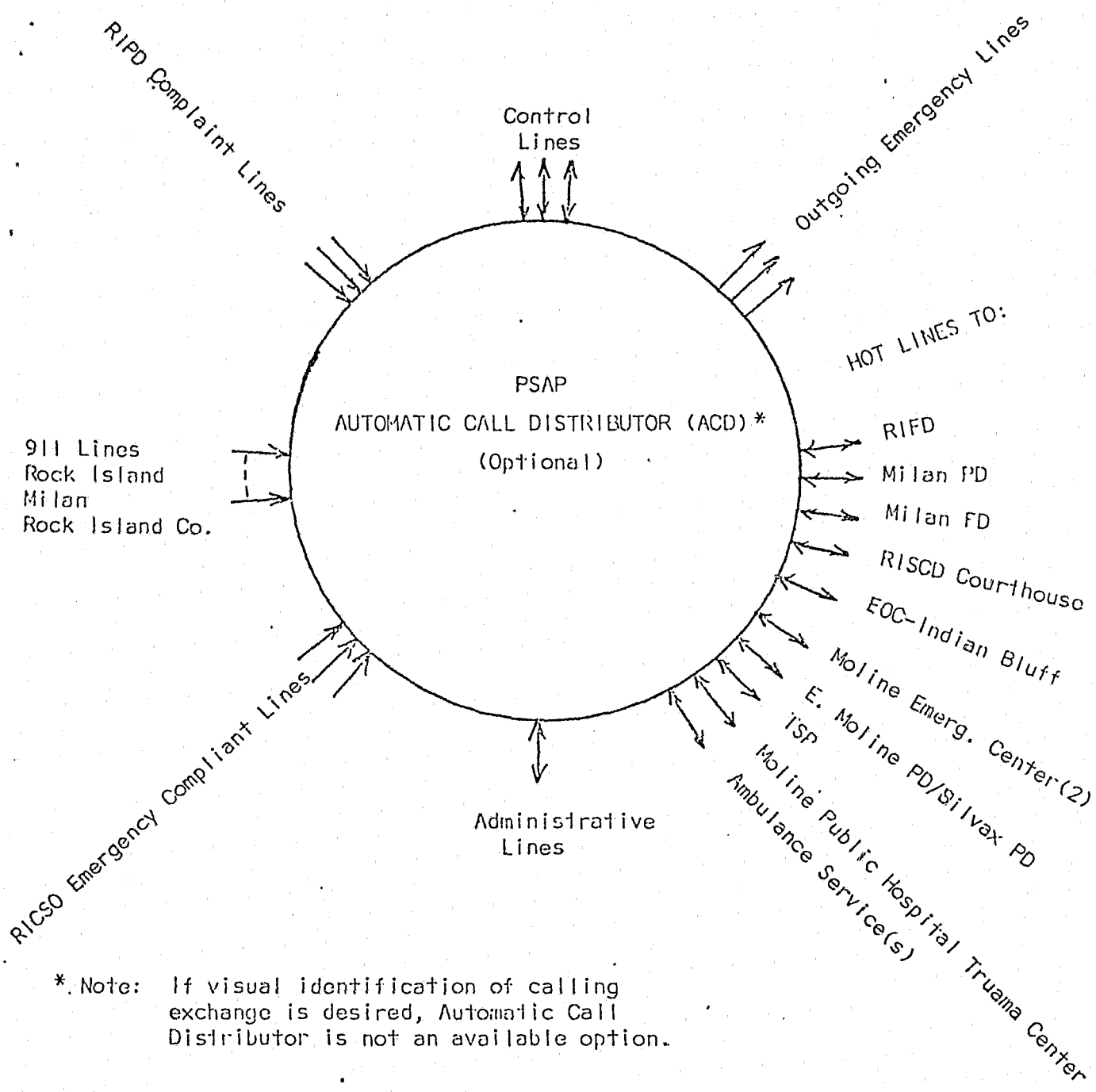


* Note: If visual identification of calling exchange is desired, Automatic Call Distributor is not an available option.

FIGURE 2.4 A

PSAP TELEPHONE TRUNK DIAGRAM

Option I



*. Note: If visual identification of calling exchange is desired, Automatic Call Distributor is not an available option.

FIGURE 2.4B

PSAP TELEPHONE TRUNK DIAGRAM

Option 2

2.5 FREQUENCY PLAN

2.5.1 EXISTING SYSTEM PLANNING

The existing frequency plan for Rock Island County provides VHF high band operation in the County and UHF operation in the city of Moline. The Sheriff's system will consist of two, two-frequency simplex channels, one for routine operations and based on a portable-mobile, vehicular repeater operation and the second for information/coordination. The information/coordination channel will be capable of operating in a mobile-relay mode for County-wide mobile-to-mobile contact. Each two frequency channel will consist of a base frequency and a mobile-only frequency.

2.5.2 ROCK ISLAND POLICE DEPARTMENT FREQUENCY PLAN

Message traffic analysis of radio message data for the Rock Island Police Department would indicate that it should have two radio channels; one for operations and one for coordination/information. This is in agreement with population based statistics for communities of its size. The addition of a separate common talk-around channel would make the total requirement three (3) UHF channels. Since Moline, Davenport, and Bettendorf are either operating on UHF or are currently implementing it, we recommend that a common UHF channel be implemented in the Metropolitan area for pruposes of inter-agency coordination, etc. (An existing channel presently licensed to Davenport-Bettendorf might be approrpiate for this use. We understand from former Acting Chief Ashcroft, Davenport Police Department, that this channel is seldom used at present.)

2.5.2.1 OPERATIONS CHANNEL

This channel will be used as a primary dispatch channel for routine command and control functions.

2.5.2.2 COORDINATION/INFORMATION CHANNEL

This channel will be used for information requests such as 10-27's, 10-28's, and 10-29's, and for other non-emergency communication functions. The associated base frequency (460.XXX) can be used, without tone coding, for local mobile-to-mobile traffic by radar units, etc.

2.5.3 COMMON COORDINATION CHANNEL

High band coordination among law enforcement and other public safety mobiles is provided directly on a region-wide or county-wide coordination channel (implemented as ISPERN F-3 whenever possible) or by means of a cross patch through the Communications Center.

The Common Coordination Channel (CCC) would be implemented on a local government frequency so that police, ambulance, fire, and rescue vehicles could have a common channel for coordination of emergency activities and meet aid. We suggest that this channel be implemented on both sides of the Mississippi River in Rock Island County in Illinois and Scott, Clinton and Muscatine Counties in Iowa. Depending upon the eventual mode of implementation of the "E.R.C." channel which is discussed in the Henry and Mercer Counties Communication Plan, it might be appropriate for the CCC to be the same as the "E.R.C." We recommend, however, that the CCC be used primarily as a mobile channel and that base stations be strictly limited in number (no more than one per county) and that base stations be strictly limited in number (no more than one per county) and that base stations use be restricted to situations in which its use is necessary (e.g., providing directions, contact with mobiles when no other mobile respondes, etc.). Whenever a County has a County PSAP, the PSAP should be the County's control point for the CCC.

2.5.4 GENERAL

The result of the combined UHF and VHF frequency usages is to require a minimum number of frequencies to cover City and County jurisdictional areas without interference and to provide for system growth.

The existing Rock Island high band channel will be retained as a defective channel. VHF-to-UHF mobile contact can be accomplished either through the ISPERN F-3 coordination channel or by means of a cross patch.

2.5.5 FREQUENCY PLAN LISTING

The frequency plan shown in Table 2.5 encompasses the public safety channels in the Rock Island area. Frequencies are shown for agencies outside of the Rock Island City and County areas for use in coordination and planning discussions.

2.5.6 FREQUENCY COORDINATION

The particular frequencies chosen were based on a search of the Action Radio data base and appear to have a high probability of coordination within the State of Illinois. Ultimate approval for the frequency assignments, however, rests with the FCC and the APCO Frequency Coordinating Committee. The APCO Coordinator for Illinois has been contacted informally with the indication that the selected frequencies can be coordinated successfully. A "Request for Frequency Coordination" form (APCO PS4-A) has been prepared and is attached as Appendix D. Formal submission of the PS4-A must be done by the manager of the joint communication system.

TABLE 2.5 ROCK ISLAND COUNTY FREQUENCY PLAN

A. ROCK ISLAND PD	BASE TX (MHz)	BASE RX (MHz)	NOTES
1. Operations	460.225	465.225	Primary operational frequency for base/mobile communications
2. Coordination/Information	460.475	465.475	Primary coordination and information (data) frequency for base/mobile and mobile/mobile communication when operator control of mobile-relay.
3. Local Talk Around	460.XXX	460.XXX	Local (non-mobile relay) portable-to-portable.
4. Command Talk Around	460.XXX	465.XXX	Common Talk Around
B. MOLINE PD (Under Implementation)			
1. Operations	460.300	465.300	Primary operational frequency for base/mobile communications, including repeater capability.
2. Local Talk Around	460.400	460.400	Used on a simplex basis only with portables.
C. ROCK ISLAND COUNTY SHERIFF			
1. Repeater	159.150	154.770	Primary Operations Frequency
2. Inquiry	154.815	154.815	For use by all County law enforcement agencies for accessing Bi-state computer data files.
3. Common Coordination Chan.	154.XXX	154.XXX	Public Safety mutual assistance coordination channel for use by police, fire and EMS agency vehicles.
4. LEA LB-Operations	39.50	39.66	Existing
5. LEA LB-Point-Point	39.46	39.46	Existing
6. LEA LB-Interegency	39.50	39.50	Existing
7. LEA HB-Point-Point	155.370	155.370	Existing W/Selective Call
8. Fire County	154.265	154.265	Existing
D. CITY OF ROCK ISLAND OTHER PUBLIC SAFETY AGENCIES AND/OR CHANNELS			
1. Fire Operations	154.340	154.340	Primary radio communications link between fire vehicles and fire station communication center.
2. Fire County	154.265	154.365	Coordination Channel for county-wide fire communications (2nd set of frequencies on the Rock Island FD base station).
3. PD Existing HB Operations	155.610	155.610	Maintained during interim period when UHF system under implementation and check-out. Thereafter, as a detective channel.
4. LEA ISPERN	-------	154.680	Monitor Only.
5. LEA National Mutual Aid	-------	155.475	New Monitor Only.
E. OTHER PUBLIC SAFETY AGENCIES OUTSIDE THE IMMEDIATE ROCK ISLAND AREA			
1. Davenport PD	460.125 460.150	465.125 465.150	Operations Channels
2. Bettendorf	460.375	465.375	Operations

2.5.7. SYSTEM CONFIGURATION

The Rock Island Police Department communications system which is designated for portable operation will consist of two base station sites plus two additional satellite receiver sites. The equipment sites have been colocated with existing water storage tanks which will provide an excellent antenna support structure on city owned property. (See Section 2.10 for propagation information).

2.5.7.1 BASE STATION SITES

The primary base station site will be at the existing high band base station site located at the Reservoir, 1600 block on 16th Avenue. An equipment house at the base of the water tank will provide adequate shelter for the two base station equipments. The output power for the UHF operations channel base station will be 50 watts which is fed into 175 feet (approximately) of 7/8 inch pressurized coaxial transmission line which is terminated in a 6 dBd gain antenna (one-half of a dual antenna) mounted off the top of the water tank. A second base station colocated at this site will provide a second UHF channel for data and a backup for the primary operations base station. A regional channel can also be added to this base station on the F2 position to allow communications with Moline and Davenport mobile units if desired. The base station receivers are terminated in voting-comparator units located at the communication center. An emergency power generator unit with automatic start/stop and cutover switch gear will provide power to the base stations in the event of commercial power failure.

A secondary UHF base station site will be at the Ridgewood Road water tank. It, too, will have the two UHF base stations as described in the previous section for the primary base station plus emergency power if required. The Ridgewood water tank and the Fire Department Station are adjacent to each other at this site, thus the Fire Station will provide a secure place to house the base station equipment. See Figure 2.5.7.1-1 and 2.5.7.1-2 for block diagrams for the system.

FIGURE 2.5.7.1-1

CITY OF ROCK ISLAND - LEA COMM SYSTEM
OPTION 1

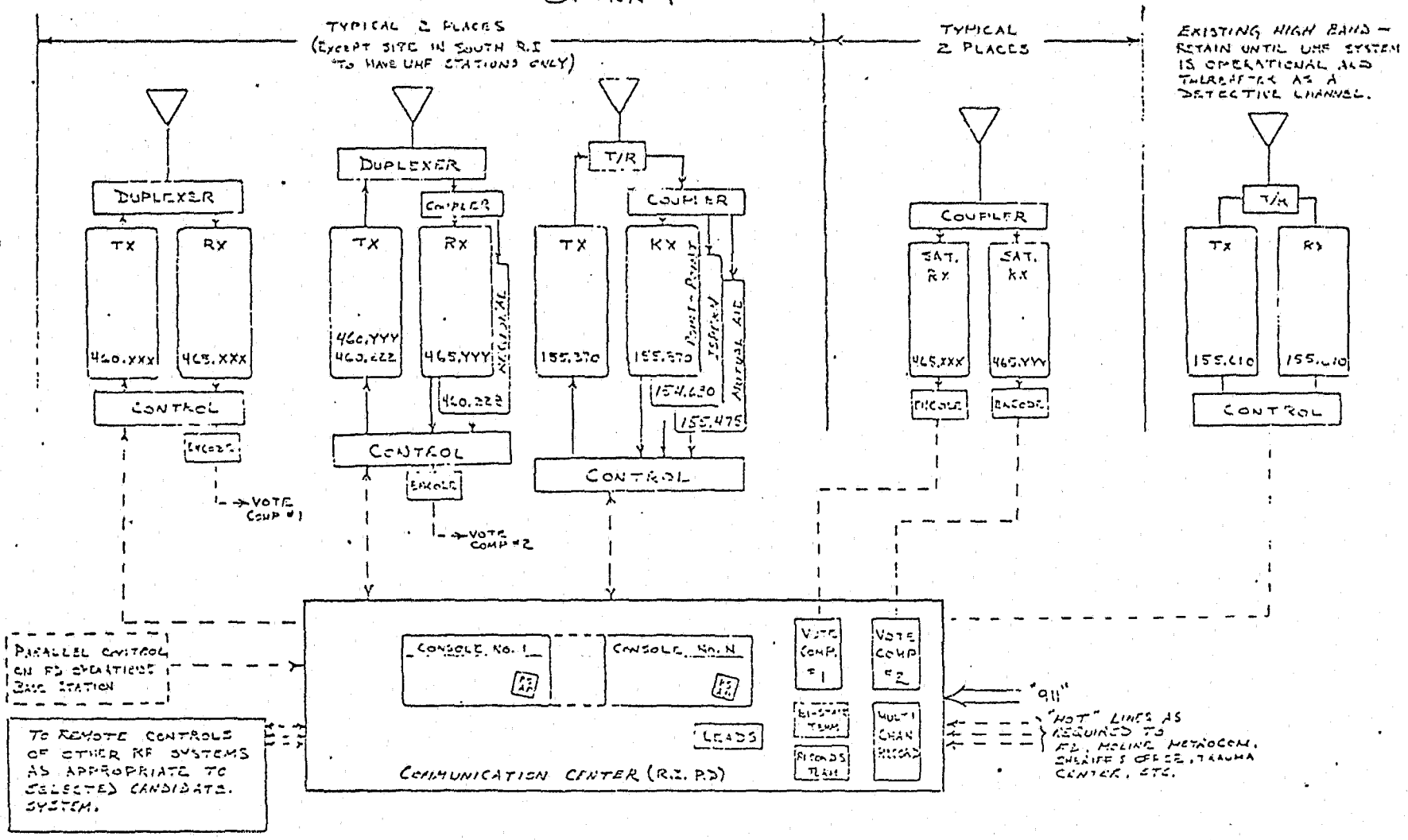
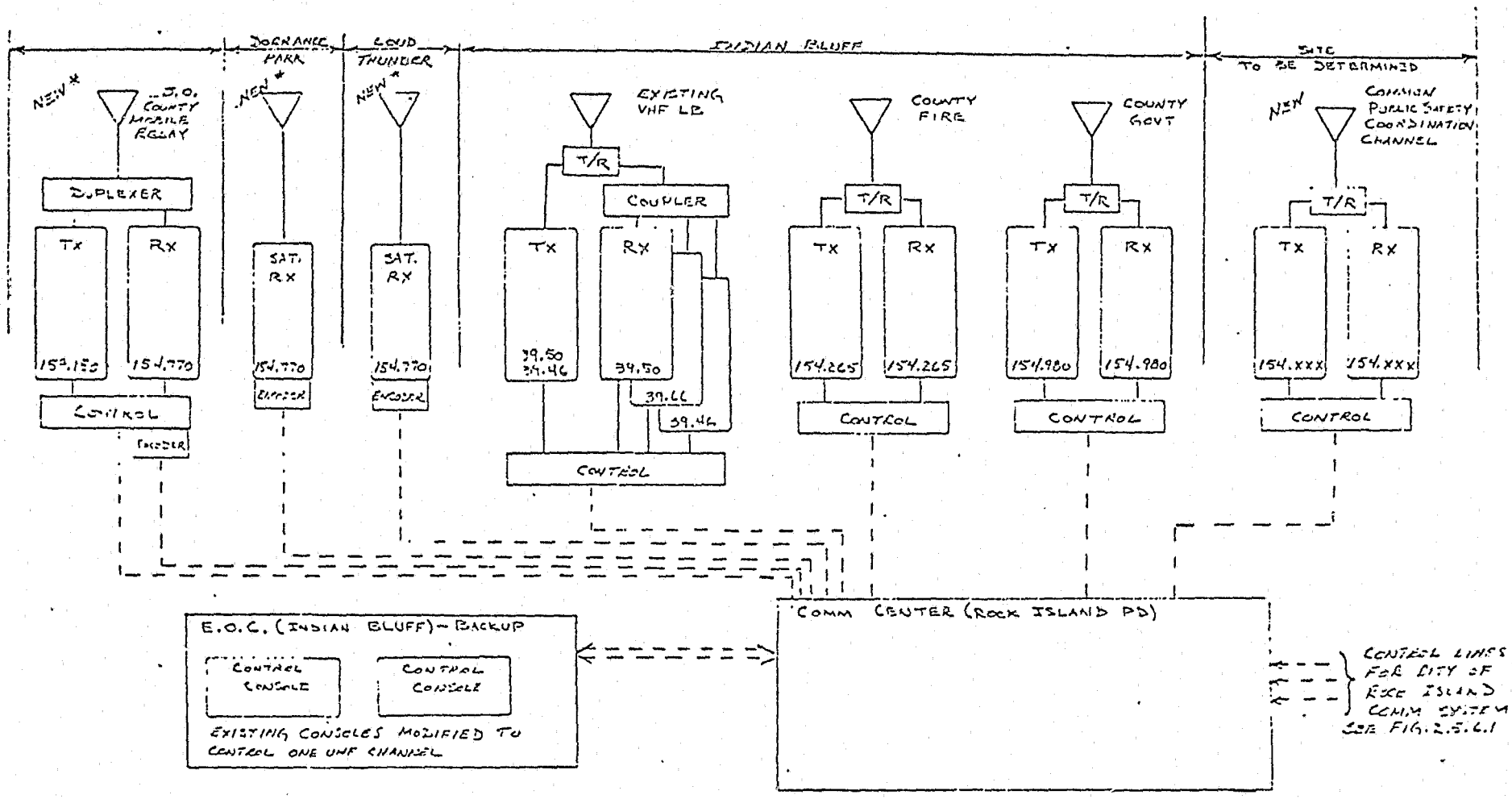


FIGURE 2.5.7.1-2

ROCK ISLAND COUNTY COMMUNICATIONS OPTION 2



* UNDER SEPARATE GRANT FUNDING

2.5.7.2 SATELLITE RECEIVER SITES

Satellite reciever stations are located at the following sites:

1) Water tower north of the Rock Island Railroad tracks near 38th Street and 5th Avenue.
2) Police Department

Each satellite receiver site will have receivers on both UHF channels and the individual receiver audio output will be carried back to the communication center via telephone lines and terminated in the voting comparator units. The voting-comparator unit will select the receiver with the best signal-to-noise audio for presentation to the control console speakers. In addition, automatic selection of the base transmitter will be made depending on which satellite receiver has been voted (selected) by the comparator. Each receiver site will have a battery backup power supply to maintain reception during power outages. Antennas for the satellite receivers will be mounted on water tanks except at the Police department where a stub tower will be used. The primary base station will be favored in that a timer will be employed to automatically switch to that base thirty seconds after the most recent satellite voting has selected the secondary base. However, the operator will have control over which base he wishes to use for a given transmission.

2.5.7.3 DEDICATED LINE REQUIREMENTS

A. Control Lines
   1. Three pair, Point-Point/Mutual Aid and ISPERN monitor Base Station Site
   2. One pair, Existing High Band Base Station (PD)
   3. Five pair, one each for UHF satellites and base stations.
   4. Two pair, Fire Department Base Station
   5. Eight pair, County Communications Base Stations (Option 2)

B. "Hot" Line, one each to:
   1. Rock Island and Milan Fire Departments
   2. Illinois State Police
   3. Moline Public Hospital Trauma Center (if required)

4. Ambulance services, as appropriate (recommend funding by ambulance services)
5. Sheriff's Court House Office
6. Milan Police Headquarters
7. Moline Emergency Center (2 lines for Option 2)
8. Indian Bluff Comm Center (Option 1 only)

C. Administrative Lines Required

1. Two

2.5.7.4 PORTABLE/MOBILE UNITS

In both options the UHF system is designed for personal portable use within the City of Rock Island. Using the in-car charger with external antenna, the range is extended well beyond the corporate limits of Rock Island. Either the one or the four watt portable would be acceptable in the system. The one watt portable typically weighs less than the four watt unit and may be more desirable from the man-on-the-street viewpoint.

The personal portable will require a minimum of four channels and have both CTCS encode and decode functions. A companion in-car charger with external antenna connection, standard hand-held microphone and external speaker audio provided for operation from the car is included in the Specification as an option. When the officer leaves the car, he will remove the personal portable unit from the charger mount and carry it with him in a "holster" attached to his belt. Personal portable requirements are based on the number of on-duty officers at peak shift (including shift overlap) plus 10% for spares.

Under Option 2, the county communications system is primarily a high-band mobile system and the plan (partially under construction with existing grant funds) is to use 4-channel, 100-watt, trunk mounted equipment.

2.6 EMERGENCY OPERATIONS CENTER

The existing EOC at Indian Bluff (the Sheriff's Comm Center) should continue to serve this function, under either option, with the existing Sheriff's consoles. It should, however, implement control of at least one channel each for both the Rock Island and Moline Police and Fire Departments and the principal EMS channel.

2.7 COMMUNICATIONS MANAGEMENT

If Option 2 is selected, we recommend that a Governing Board be established under a joint power agreement to develop operating, management, maintenance, and fiscal policies under which a Rock Island Metropolitan Public Safety Communications System, including the PSAP/Comm Center, would operate. The present METROCOM Governing Board and the joint powers agreement under which it operates may be the appropriate mechanism for management. If not, the Governing Board should include, at least, two representatives each from the Rock Island Police and Sheriff's Departments, one from the Rock Island Fire Department, two selected at large from those agencies (smaller community police and fire departments, etc.) presently dispatched by the Sheriff and suitable representation from other agencies servied by the PSAP for 911 emergency calls (EMS agencies, police and fire departments from larger jurisdictions, etc.) Each agency sharing in the funding of the PSAP/Communications System should have a vote on sharing in the funding of the PSAP/Communications System should have a vote on the Governing Board at least proportional to its funding share. This Board would be responsible for planning and policies concerning handling of 911 calls for the vaious agencies and jurisdictions served by the 911 PSAP. The Board would also be responsible for hiring, or promoting from within one of the existing communications organizations, a Communications Supervisor who, in turn, would implement the day-to-day policies of the Board. (See Appendix C. Communications Personnel Qualifications). It is vital that this Supervisor be experienced in public safety (preferably law enforcement) communications to insure that communication operations are conducted in a competent, efficient manner.

We also recommend that the Communications Supervisor, shift supervisors, or operator/dispatchers be selected under a civil service or merit system to insure competent, career-minded personnel.

Specific responsibilities of the Governing Board will include at least the following areas of activity:

1. Provide assistance in the system implementation grant preparation
2. a) Provide the impetus for preprration of applications for the official APCO frequency coordination and FCC license changes.
   b) Provide assurance that FCC license renewals are current for each associated facility
   c) Develop guidelines for selection and evaluation of a Communications Supervisor.
3. Develop policies for center operations, funding and maintenance cost proration to the user agencies.
4. Develop plans and policies concerning handling of incoming 911 and other emergency calls. This would include policies and procedures for call relay or transfer, direct dispatch, response time goals, etc.
5. Develop plans and policies concerning handling of incoming 911 and other
   a) Message priorities, all agencies,
   b) Network discipline,
   c) Use of procedural codes,
   d) Message security devices,
   e) Log keeping ,
   f) Record retention,
   g) Reports to individual agencies,
   h) Evaluation of emergency response time, dispatch action response time and other performance measures.
6. Develop dispatcher/operator job descriptions, selection and evaluation guidelines and assure the Communications Supervisor is following those in developing and maintaining a capable staff.
7. Develop a policy for training of all dispatchers and officers in the dispatch procedures and network discipline.
8. Develop maintenance methods for assuring equipment reliability. This can be via in-house maintenance or contract maintenance technicians.

9. Maintain a planning function for maintaining the County system implementation at a functinal level which meets the growing requirements of the communities and agencies which the center serves.

2.8 OPERATOR TRAINING AND PROCEDURES

We recommend that an operator/dispatcher instruction program be conducted to insure that operators have uniform training. Such a program should include, but not necessarily be limited to:

1. Duties and responsibilities
2. Telephone operating procedures
   (a) Taking complaints,
   (b) Call handling (transfer, relay, etc.),
   (c) Public relations,
   (d) Priorities.
3. Radio operating procedures
   (a) Operator disciplines
   (b) Message formats
   (c) Station procedures
4. Dispatching and mobile operations
5. Message traffic
6. Logs and record keeping
7. Station security
8. Emergency/Tactical communications and contingency planning
9. FCC Rules and Regulations

During this training program, we strongly recommend that dispatch personnel be encouraged to accompany public safety vehicles on dispatched calls so that they can observe the problems of the emergency service personnel in performance of their duties. Conversely, we encourage the various emergency service personnel to observe (perhaps assist) the operation of the PSAP/Comm Center. In this way both the dispatchers and the dispatche- can better appreciate the others problems. The possibility of a multi-county training program should be explored with surrounding counties.

We further recommend that an in-service training program be established. This should include simulated disaster operations or other procedures which are vital but, hopefully seldom used.

Procedures need to be established for emergency or disaster communications operations such as:

1. Riot and insurrection
2. Tornadoes
3. Major power outages
4. Major fires
5. Aircraft crash in populated area
6. Blizzard
7. Search and rescue

2.9 MAINTENANCE STANDARDS

Maintenance of public communication systems in Rock Island County is normally done by commercial two-way radio repair facilities. Maintenance standards observed by an in-house repair department are naturally easier to set and their performance monitored. Personnel competence is readily assessed, etc. On the other hand, there are probably insufficient amounts of equipment operated by County LEA's and other public safety agencies to justify employment of an in-house, full-time maintenance staff. Normally, approximately 200-300 mobiles are required to justify a full-time maintenance technician and the necessary test equipment. Moreover, the present contract maintenance organizations appear to be providing satisfactory service.

Some equipment in a department, such as mobile radios, are available for periodic performance checks, e.g. when units are transferred from an old to a new vehicle. Fixed station and repeater equipment should also be checked periodically, at least every six (6) months and preferrably at three (3) month intervals. Emergency power units need to be operated and checked weekly. With proper backup equipment at the base stations, it is certainly less critical when the main transmitter or one of the receivers fail. The key, of course, is to keep the backup equipment functioning at a satisfactory performance level.

We advise that the Governing Board establish performance levels for the equipment equivalent to its original specification limits as provided by the successful equipment vendors.

2.9.1 SUPPLEMENTARY PLANNING INFORMATION

Present system planning in the Quad City Metropolitan Area includes Computer Aided Dispatch/Law Enforcement Information System, etc. There are two areas, however, which should be addressed in future planning. One of these is message (voice or digital) privacy, i.e., scrambling. The other is automatic vehicle location (AVL).

2.9.2 SCRAMBLERS

We recommend, in accordance with Standard 23.3(2) of the National Conference on Criminal Justice, that in a latter phase of implementation, base stations and mobiles be equipped with voice scrambler/descrambler equipment. If such equipment is installed, however, we strongly recommend that its use be strictly limited to highly confidential conversations, (e g. discussion of fatal accident before next of kin are notified, discussion of burglaries in progress, etc.). Otherwise, users of scanners, etc. will be encouraged to find ways to decode such transmissions. See Specification W. Data scrambling can be accomplished rather easily by the data communications equipments or their host computers.

2.9.3 AUTOMATIC VEHICLE LOCATION (AVL)

The present status of automatic vehicle location is somewhat unclear. Of the several types of systems in operation or under development, one or two appear promising, although expensive at present. The St. Louis Police Department is currently evaluating a FLAIR System based on a strapped-down inertial navigation principal which, according to preliminary reports, is both accurate and simple in operation. We recommend that the Governing Board, through the Communications Supervisor, keep abreast of such developments. AVL, in conjunction with the proposed CAD system, could dramatically reduce dispatcher loads, minimize Comm Center growth requirements, and, most important, enhance officer safety.

2.10 PROPAGATION

A computer propagation analysis of the proposed UHF portable system has been conducted. Critical worst case paths were analyzed from each of the two satellite base station sites at the Water Filtration Plant tower and at the Ridgewood Road water tower . Based on use of four watt personal portables, communication over worst case paths was excellent. Based on one watt portables, coverage was marginal from the Quad Cities Airport in Moline due to building loss. Note that the analysis assumed a 12 dB loss due to a helical (stubby) antenna. Use of one quarter wave antennas would improve performance. Use of mobile chargers with external gain antenna would result in a considerable improvement in coverage well beyond the corporate limits of Rock Island.

ILEC portable coverage (97%) guidelines should be met by either four or one watt portables.

2.11 IMPLEMENTATION PLANNING SCHEDULE

The time and fiscal phasing of the implementation plan is shown in Figure 2.11. The plan, of course, is dependent upon available funds and can be compressed, extended or altered as necessary. As indicated in the time phase chart, certain categories of effort can be done independently.

If budgeting prevents simultaneous implementation of all phases of this plan, we suggest the following priorities for implementation:

Phase I:
Control Center Equipments

Phase II:
Rock Island Police Department Base Stations (including satellites)

Phase III:
Rock Island Police Department Portable System

Phase IV:
High Band Mobiles for Town Police Departments Dispatched by Rock Island Sheriff

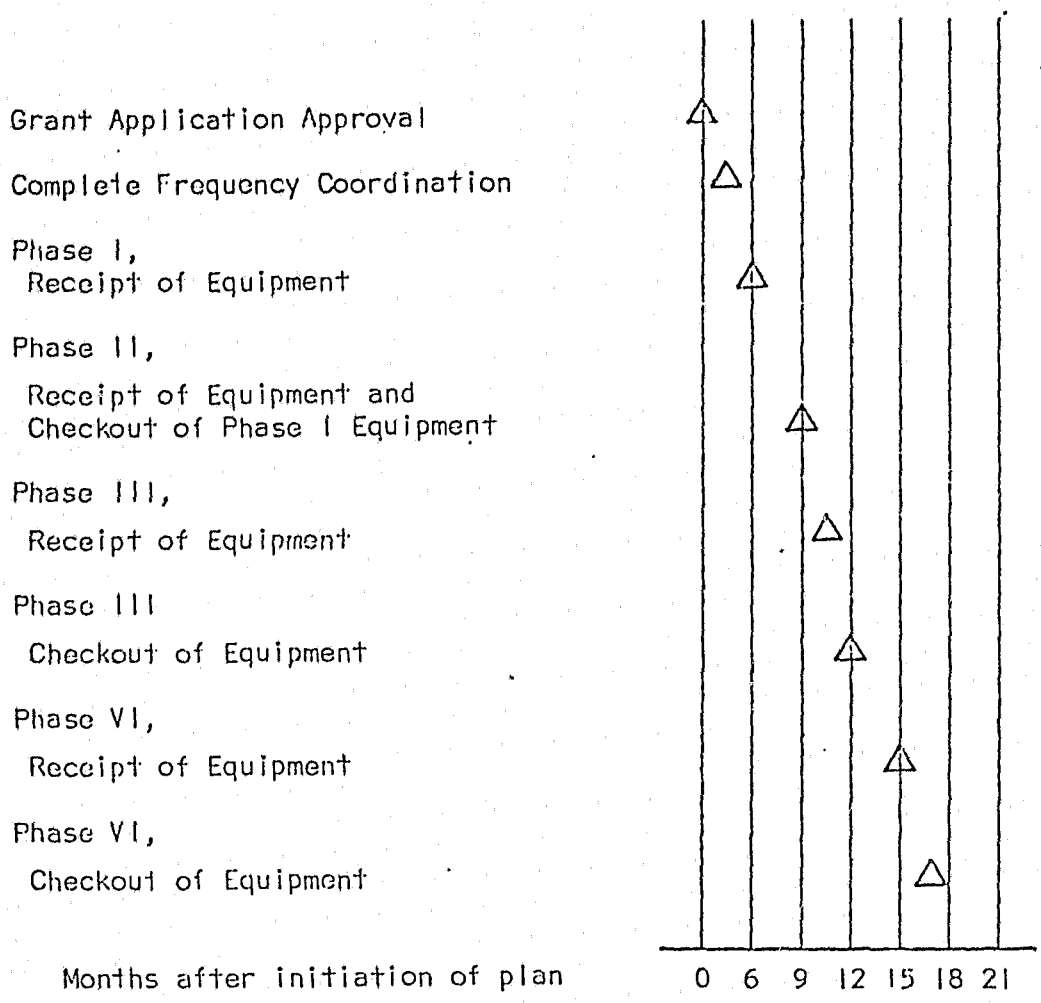


FIGURE 2.11
IMPLEMENTATION PLANNING SCHEDULE

2.12 BUDGETARY ESTIMATES

Tables 2.12.A and 2.12.B give hardware budgetary estimates for Options 1 and 2 respectively. Operating Costs are estimated in Table 2.12.C.

2.13 SUMMARY SITE DESCRIPTIONS

A detailed description of each satellite base station and/or receiver site and the Comm Center Site is provided in Appendix F. These descriptions include equipments required, antenna heights, tower requirements, transmission line requirements, recommended filtering, etc. Assuming no changes in site requirements prior to system implementation, these descriptions are suitable for inclusion in an invitation-to-bid for the system.

Both site descriptions and equipment specifications (Appendices F and E, respectively) are bound separately so they may be readily included as part of an invitation-to-bid.

TABLE 2.12.A

OPTION I - BUDGETARY COST ESTIMATES

	ITEM	COST	
ty 4	UHF Sat. Base Station (40 Watt) 2 @ 4,580 ea. (2 Tx/ 2 Rx*) 2 @ 3,790 ea. (1 Tx/ 1 Rx)	$ 16,740	
ty 4	200' coax (7/8" foam) - 546 ea. & 6 dBd ants. for Sat. Bases - 168 ea.	2,856	
ty 2	Satellite Rx (dual w/coupler) @ 2,840 ea.	5,680	
ty 2	200' coax (7/8"foam) & 6 dBd ants. for Sat. Receivers 168 ea.	1,468	
ty 2	Voting / comparators for 6 receivers @ 3,000 ea.	6,000	
ty 1	Monitor receivers (METROCOM @ Moline plus R.I.S.O.) @ 390 ea.	390	
ty 1	1 Tx/ 2 Rx VHF HB Base for P-P & Mutual Aid Monitoring	4,180	
ty 1	20 Channel Audio Recorder w/accessories	17,255	
ty 1	Portable reproducer	3,795	
ty 1	Two-position console	29,150	
ty 1	Rear Screen Projector @ $ 3,750	3,750	
ty 3	Emergency Power Generator Systems 2 @ Remote Bases	10,000	
	FIXED EQUIPMENT		$ 101,654
ty 34	Portables (4 watt) @ 1500 ea. w/carrying case 4 Tx / 4 Rx w/CTCS	51,000	
ty 18	Vehicular Charger - 18 @ $500 ea. (Optional)	9,000	
ty 34	Port (1 watt) @ 1400 ea. (Optional)	47,600	
ty 3	Multiple Unit (10) Rapid Battery Charger @ $700	2,100	
ty 6	Single Unit Rapid Battery Charger @ $65	390	
ty 1	UHF Mobile Units for Command Cars @ $ 1,770	1,770	
			64,260
			$ 165,914
	Installation (excluding portables) At 8%		9,162
	Warranty (all items) @ 7%		8,017
	GRAND TOTAL		$ 183,093

* Separate receiver for common channel

TABLE 2.12.B

OPTION 2

BUDGETARY COST ESTIMATES

Qty 4	UHF Sat. Base Station (40 Watt) 2 @ 4580 (2 Tx / 2 Rx *) 2 @ 3790 (1 Tx / 1 Rx(	$ 16,740	
Qty 4	200' coax (7/8" foam) - 546 ea.& 6 dBd ants. for Sat. Bases - 168 ea.	2,856	
Qty 2	Satellite Rx (dual w/coupler) @ 2840 ea.	5,680	
Qty 2	200' coax (7/8" foam) & 6 dBd ants. for Satellite Receivers @ 168 ea.	1,468	
Qty 2	Voting / Comparators for 6 receivers @ 3,000 ea.	6,000	
Qty 1	Monitor receivers (METROCOM @ Moline @ 390 each	390	
Qty 1	1 Tx / 2 Rx VHF HB Base for P-P & Mutual Aid Monitoring	4,180	
Qty 1	20 Channel Audio Recorder w/accessories	17,255	
Qty 1	Portable Reproducer	3,795	
Qty 2	Two-position console @ 36,350	72,700	
Qty 2	Rear Screen Projector $ 3,750	7,500	
Qty 3	Emergency Power Generator Systems 2 @ Remote Bases	10,000	
	Fixed Equipment		$ 148,174
Qty 34	Portables (4 watt) @ 1500 ea. w/carring case 4 Tx / 4 Rx w/CTCS	51,000	
Qty 18	Vehicular Charger: 18 @ $500 each	9,000	(Optional)
Qty 34	Port (1 watt) @ 1,400 ea. (optional) $ 47,600		
Qty 3	Multiple Unit (10) Rapid Battery Charger @ 700	21,000	
Qty 6	Single Unit Rapid Battery Charger @ 65 ea.	390	
Qty 1	UHF Mobile Units for Command Cars @ 1770 ea.	1,770	
Qty 12	VHF High band Mobile units for Town Police Dispatched By Sheriff @ $ 1.700	20,400	
			$ 84,660
	Installation (Excluding portables) @ 8%		12,755
	Warranty (all items) @ 7%		14,578
	GRAND TOTAL		$ 260,167

* Separate receiver for common channel

TABLE 2.12.C

ESTIMATED ANNUAL BUDGETARY OPERATING EXPENSES (See Figure 2.1.3.1 for 911 Cost Estimates)

	OPTION 1	OPTION 2
Personnel *	$ 222,000	$ 190,000
Dedicated Telephone Trunks	1,500	1,950
Control Lines	900	1,200
Misc. (Supplies, tape, etc.)	11,000	9,500
TOTAL	$ 235,400	$ 202,650

ncludes Fringe Benefits and Supervisors Salary

END