COMMUNICATIONS PLAN

FLORIDA COUNTY AND MUNICIPAL LAW ENFORCEMENT

FLORIDA

COUNTY AND MUNICIPAL

LAW ENFORCEMENT COMMUNICATIONS PLAN

Prepared for

The Department of General Services
Division of Communications
Tallahassee, Florida

Prepared by

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FOREWORD

Law enforcement executives are beginning to require the aid of the most advanced technologies in order to detect and apprehend criminals and to prevent criminal activities. As a result, law enforcement agencies are becoming increasingly reliant upon such state-of-the-art electronic systems as automatic vehicle location (AVL) equipment, computer-based criminal identification systems (such as FCIC and NCIC), electronic surveillance equipment, and so on. The means by which these techniques are made possible and which expands the modern law enforcement officers range, mobility and capability is the communications network.

Perhaps nothing has been more significant or contributed more to the success of modern law enforcement than communications.

The intent of this plan is to provide the means by which law enforcement agencies can utilize this capability to the utmost efficiency, taking advantage of this technology to assist Florida Law Enforcement Departments in performing the basic function of Public Safety.

As you review this plan, you will note that cooperative dispatch systems are recommended extensively among the public safety agencies with common geographical or political relationships. A cooperative dispatch system is the very basis upon which farm cooperatives or citrus growers cooperatives are formed. No member agency gives up his political, jurisdictional or economic autonomy. However, it will be clearly seen that with such a system, the whole is greater than the sum of the parts. In other words, the individual police agency, acting alone, may not have access to or be able to afford the newer law enforcement technology. However, a cooperative organization with pooled resources could justify such modern law enforcement equipment and techniques.

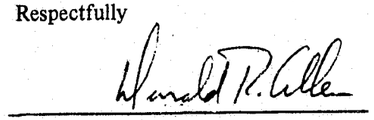
Of course there is another basic and very important reason for recommending cooperative dispatch arrangements, and that is to develop efficient police radio channel utilization. By efficient channel utilization, it is meant that one radio channel should be used as a communications link for 30 to 50 mobile and portable radios. Anything less than this radio quantity range per channel is inefficient and actually reduces the capability of Public Safety communications as a whole.

Today in Florida, there are over 380 county and municipal law enforcement agencies, and only some 53 UHF and VHF high-band radio channels reserved for police use. Even though these 53 channels may be reused with proper geographical separation, they are neither sufficient to provide each agency with a unique channel nor sufficient to allow for projected growth

and expansion. Nationwide in 1948 there were only some 86,000 licensed radio transmitters. By 1958 there were approximately 695,000 transmitters, and presently there are estimated to be approximately 3,500,000 licensed mobile radio transmitters. This represents a staggering growth of over 500 percent in a decade and a half, and if this trend continues without the advantage of careful long-range planning, such as is represented in this plan, the result could be seriously detrimental to the capabilities of law enforcement organizations.

As you read this plan, I respectfully request that the above facts and observations be kept in mind and used in evaluating the recommendations herein as they apply to your organization, to your citizens, and to the state of Florida.

Respectfully



D. R. Allen
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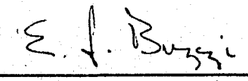

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1.0 INTRODUCTION

This report presents the plan for the organization of communications networks for all municipal and county law enforcement agencies within the state of Florida excluding the counties of Broward, Dade, Monroe and Palm Beach. This four county area is presently developing a separate law enforcement communication plan which together with this document represents the total Statewide Law Enforcement Communications Plan. The communications requirements for each agency included in this plan (approximately 282) were developed from a description of each agency's communications equipment, facilities and operational characteristics compiled by Atlantic Research Corporation during an earlier phase of this program.[1] Projected communications requirements were also developed for the next 10 years based on 10-year population trends provided by the Department of General Services.

The "Preliminary Plan"[2] was completed on March 28, 1973, and was transmitted to the Florida Sheriffs and Police Chiefs. Eleven regional meetings were held during the month of April 1973 to present the Preliminary Plan and to provide the opportunity for each agency to participate in the refinement of the plan. The result of this effort is presented herein as the "Statewide Law Enforcement Communications Plan."

Section 2.0 of this report describes the rationale used in developing the communications requirements. These include the required channel allocations, the coordination requirements, the dispatching requirements, the logging requirements, the immediate equipment requirements and the telephone requirements. Quantitative requirements for each agency both immediate and through 1982 are presented in Sections 4.0 through 8.0.

Four appendices are included which describe some basic considerations inherent in understanding and implementing this plan. Appendix A describes the mathematical method for determining maximum loading of a channel. Appendix B outlines the factors that must be considered in establishing a cooperative dispatch center and includes a typical Inter-Local Agreement that would represent the contract among the member agencies of a cooperative dispatch center. Appendix C contains an analysis of geographic separation required for interference-free operation. Appendix D presents a typical Operational Procedures Handbook which would be utilized by the participating agencies in a cooperative dispatch communications system.

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[1] "County and Municipal Law Enforcement Communications in the State of Florida," Atlantic Research Corporation, 1972. Prepared for the Department of General Services, Division of Communications, Tallahassee, Florida.

[2] "Preliminary Plan for County and Municipal Law Enforcement Communications in the State of Florida," Atlantic Research Corporation, March 1973, prepared for the Department of General Services, Division of Communications, Tallahassee, Florida.

1.1 Overview of the Plan

The Florida Communications Plan for county and municipal law enforcement agencies is based upon a concept involving establishment of 56 mobile radio zones within the State (see Section 3.0). The approach is compatible with many alternate modes of operation, thereby permitting maximum flexibility and option at the local level. A mobile radio zone refers to a geographical area within which all agencies participate in a coordinated communications police system. Sufficient channels are provided in each mobile radio zone to allow interference-free and lightly loaded channel conditions for all agencies.

Large agencies within a mobile radio zone are assigned dedicated primary channels since these agencies are of sufficient size to justify independent operation. Smaller agencies will share the use of a primary channel. In addition, districtwide coordination channels will be allocated for interagency coordination between mobile radio zones.

Consolidation of communications services is highly recommended within each mobile radio zone. In other words, it is believed that establishment of one or more central dispatch facilities to serve the smaller agencies within each mobile radio zone will provide the most economical, professional and efficient operation. Strict centralization is not essential to compliance with this plan. However, the plan does prescribe the use of shared channels and common base station equipment.

Within the police mobile radio service there are three frequency bands which can be used. Namely, VHF low band, VHF high band, and UHF. Because of the frequency congestion and the severe skip interference in the VHF low band, this plan, for the most part, recommends police communications in the VHF high band or the UHF band. The UHF band is ideally suited for large municipal police departments because of its low susceptibility to man-made noise, because it does not cause skip interference and is therefore more "controllable," and because UHF frequencies tend to eliminate dead spots in and around large buildings. Therefore, municipalities within Florida, large enough to justify independent operation, will generally be allocated frequencies in the UHF band. A notable exception to this is the city of St. Petersburg which, because of the present worth of equipment, will remain in VHF high band.

VHF high-band frequencies, while slightly more susceptible to man-made noise than UHF, tend to propagate further because of lower diffraction losses. Therefore, VHF high band is better suited to longer range, countywide operation than is UHF. The plan utilizes VHF high band for sheriffs' operations and for small cities and villages which will share primary channels. A notable exception to this plan is the District I Plan which was developed prior to this program and which is presently being implemented.

This plan contains the guidelines and the detailed requirements and recommendations for each police agency within the state of Florida for improving police communications. The intent is that it be a flexible plan and one which can be modified with good justification.

The plan has been developed such that the county and municipal agencies have considerable option in their mode of operation. As already indicated, cooperative dispatching is highly recommended, but the use of common radio channels and base equipment is an acceptable alternative and one which would allow continued independent operation, but would still permit centralization at a later date if so desired.

In developing a cooperative dispatch facility, there are various options to be considered. In some instances it may be appropriate for the sheriff to assume operation of the center, while in other instances, the sheriff's operation may be completely independent. An alternative used successfully in many counties throughout the country is that of establishing an independent communications agency with representation from each law enforcement agency participating.

Throughout the plan two-frequency channel operation is recommended for primary dispatch channels; i.e., separate frequencies for base and mobile transmissions. This recommendation has been made to minimize interference between co-channel users. However, it is planned to retain single frequency cimplex operation for the intercity channel (155.370 MHz) and for the emergency coordination or mutual aid channels, such as 154.950 MHz.

This plan presents both the recommended frequencies and the required number of channels for each mobile radio zone. Since the frequency resources available to police mobile radio service are limited, it has not been possible, nor would it be desirable, to assign a separate channel to each agency. Smaller agencies must therefore share channels. It is believed, however, that the plan will result in a much more equitable channel assignment than that which exists and one in which virtually all channels within an area will be police-only with light loading and minimum co-channel interference. A detailed frequency plan identifying specific frequencies for each agency is included in Section 3.6. This will involve crystal changes for some agencies, frequency band changes for others, and no change for still others.

Features of this communication's plan are summarized on Table 1.1.

Table 1.1. Features of the Florida L.E. Communications Plan.

- Ten-year Plan
- Establishment of coordinated mobile radio zones
- Multichannel capability for all agencies
- Dedicated primary channels for large agencies
- Shared channels for small agencies
- District-wide coordination channels, mobile and base
- Use of shared common base equipment
- Recommended cooperative dispatch centers
- Two frequency channels to minimize interference
- Tone coded squelch
- Toll-free, easy-to-remember telephone numbering system
- New frequency plan providing equitable distribution of channels with reduced congestion and interference
- Standardized police radio procedures

1.2 Recommendations

The successful implementation of this plan hinges very heavily upon a conscientious and concentrated effort on the part of responsible personnel at all levels of government. This plan is in essence a catalyst which when mixed with the proper ingredients will result in the evolution of a highly coordinated statewide law enforcement communications system meeting the next ten year's requirements.

The next steps in implementation of the plan are outlined below as a series of recommendations for agencies at the local and state level.

At the County and Municipal Level

1. Each law enforcement agency should thoroughly review this Plan as it effects its operations.

2. The Division of Communications should be contacted for assistance in the following areas:

   - Time/Scheduling of System Implementation
   - Development of Inter-Local Agreements
   - Preparation of Financial Plan
   - System Design
   - System Specifications
   - Bid Evaluation
   - Post-Installation Acceptance Testing

3. It is recommended that all agencies review their radio dispatching procedures in relation to Appendix D and, where necessary, provide interim field officer and dispatcher training.

At the State Level

1. It is recommended that the Division of Communications expand or augment its managerial and engineering capability along FCC Public Safety Communication Services lines for implementation of this plan. With an expanded capability, the Division of Communications can provide assistance to the county and municipal agencies as outlined above in a timely and responsive manner.

2. The Division of Communications should work closely with the Governor's Council on Criminal Justice not only in approval of grant applications, which is the current practice, but also in assisting with the establishment of priorities and overall statewide system planning as it affects communications.

3. It is recommended that the Division of Communications work closely with APCO, IACP Police Standards Board, Florida Sheriffs' Association and Florida Police Chiefs' Association in developing and implementing standard radio procedures for adoption on a statewide basis.

4. It is recommended that the Division of Communications continuously upgrade and update the Plan to reflect changing requirements, changing technology and introduction of new and improved communication devices and techniques.

5. It is recommended that the Division of Communications investigate methods by which formal training programs may be established for both radio dispatchers and field officers in the area of radio operations.

2.0 COMMUNICATIONS REQUIREMENTS

2.1 Channel Allocations

Three types of channels are required to satisfy the majority of law enforcement agency needs in Florida and are referred to in this report as "primary," "emergency coordination" and "point-to-point." The "primary" channel as defined here would be used primarily for dispatching and other routine communication between the dispatching center and the patrol vehicle or patrolman. It would also be used for mobile-to-mobile communications when two or more vehicles are engaged in the same assignment. In some areas of Florida, the communications load on a channel by a single agency may be extremely light, in which case it is possible to share the channel among two or more adjacent agencies. When this situation occurs it is referred to in this report as a communication network and is the basis for designing land mobile radio zones. This subject is discussed in greater detail in Section 3.1.

The "emergency coordination" channel is defined as a separate channel that is used when an emergency situation arises requiring extensive use of the channel and when more than one agency's patrol vehicles may be involved. It is therefore desirable that this channel be common among agencies that provide mutual support during emergency situations.

The third type, defined as a "point-to-point" channel is used for coordination between agencies in different communications networks and for coordination with State Law Enforcement agencies.

Other channels may be required for special purposes such as surveillance, data, telefax and special emergency coordination channels within a network. Requirements for these types of channels are limited primarily to large operations serving highly populated areas.

Since the primary channel is the heart of the communication network it must have the capability of satisfying the communication needs of an agency without serious degradation even during the peak activity periods. The channel must be available to the dispatcher and to the officer on patrol with a minimum of delay.

The primary channel requirements developed in this report were based on the following assumptions:

a. The average time for a dispatcher or mobile operator (or portable operator) to gain access to a clear channel should not exceed 5 seconds.

b. The average time for transmitting a message is 10 seconds.

c. The average number of transmissions per mobile or portable working the channel is 4 per hour during a peak period of activity.

The usual method for calculating the acceptable communication load on a single channel is called queueing analysis. This method is explained in Appendix A and is now standard practice for solving this type of problem. It can be shown by using queueing analysis that 30 to 50 users (mobiles and portables) can effectively share a channel during a peak period. In this report 30 to 50 mobiles and/or portables per primary channel has been used as a design criteria.

2.2 Coordination Requirements

Interagency coordination is critically important to effective law enforcement. Communications required for this coordination are presented in Section 2.1 and include both

- Point-to-point intersystem communications (base-to-base).
- Emergency coordination (base-to-mobile, mobile-to-base and mobile-to-mobile communications).

Most state, county, and large municipal law enforcement agencies presently coordinate on a statewide point-to-point channel, 155.370 MHz. There is a requirement to expand the use of this channel to all law enforcement dispatch centers at all levels, including:

- All county and municipal police operations which have their own dispatching center
- Marine Patrol
- Game and Fresh Water Fish Commission
- Recreation & Parks
- The Florida Highway Patrol
- University Campus Police

- Correctional Institutions to include:

  Avon Park Correctional Institution
  DeSoto Correctional Institution at Arcadia
  Florida Correctional Institution at Lowell
  Florida State Prison at Raeford
  Glades Correctional Institution at Belle Glade
  Reception and Medical Center, Lake Butler
  Sumter Correctional Institution at Bushnell
  Santa Fe Corrections Farm
  Union Correctional Institution

The second coordination requirement is for emergency coordination communications between mobiles of different agencies within a radio zone, between mobiles of different radio zones and between dispatching centers and mobiles from other radio zones. Consequently, this plan provides one channel to all agencies for this purpose and is referred to in this report as an emergency coordination channel which is assigned on a regional basis. Where adjacent networks are operating on different bands such as VHF high band and UHF, cross-band repeaters or monitor receivers in the vehicles are recommended (see Section 3.4).

2.3 Dispatch Center Requirements

2.3.1 Modes of Operation

Dispatching is an operational requirement essential to every county and municipal police command and control center operation. Since the answering of incoming complaint calls and processing of this information is so closely related to the dispatching function both operations are discussed in this section.

Although incoming complaint calls from citizens which require dispatching police personnel to a particular location may be handled in several different ways, the steps in any process are basically the same. The difference between any one process and another is in the way a particular step is performed. They may be performed by one operation or distributed among a group of operations depending on the amount of traffic that must be handled. The steps in processing a complaint call as illustrated on Figure 2.1 are:

a. Answering the telephone call and obtaining the essential information.

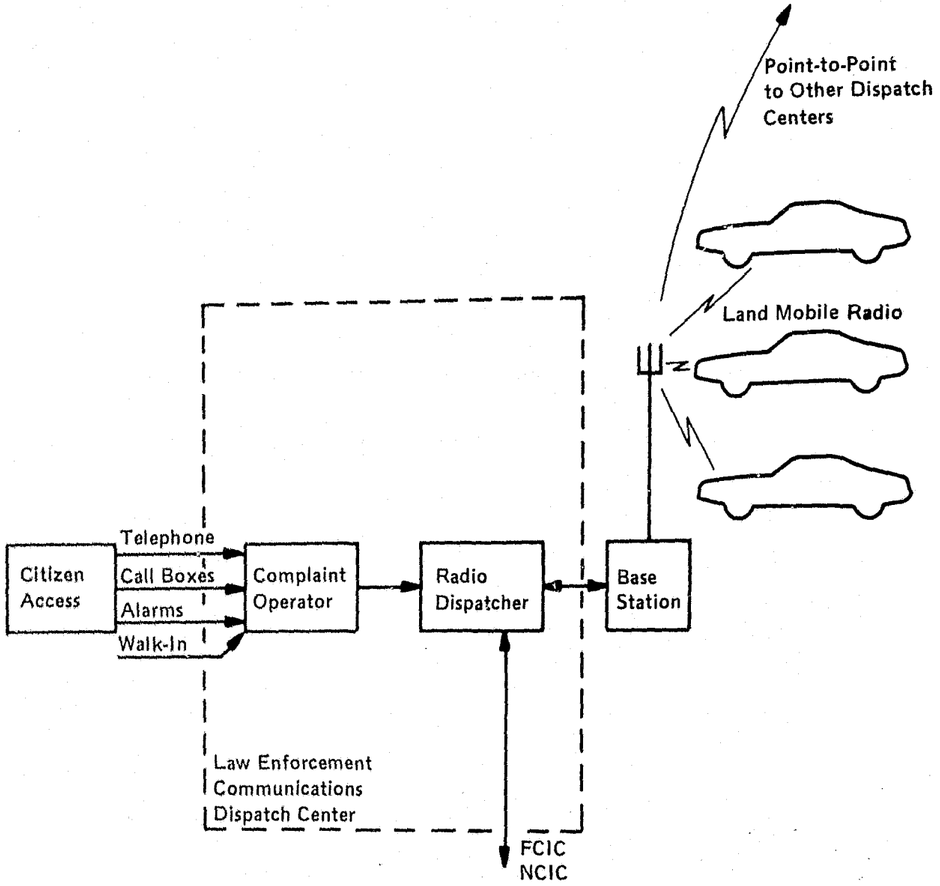


Figure 2.1. Dispatching Operation.

b. Recording the complaint information.

c. Transferring the complaint information to the dispatcher.

d. Dispatching the appropriate police personnel.

The simplest means for carrying out the above steps is to have a single person functioning as both complaint operator and radio dispatcher. Because no message switching or transfer of information is required for the complaint to reach the dispatcher, this method is very efficient, and, in fact, is the method used by many smaller departments in Florida. When the work load becomes too great for one person to handle both functions such as during peak traffic hours, the increased work load can be handled by two combined complaint writer/dispatchers or by separating the two functions using one man for complaint writing and the other for dispatching.

A second operational approach involves the use of separate complaint writers and dispatchers. In this case the complaint writer answers the request for service, completes a complaint card, detailing the nature and location of the complaint and transfers the information usually via a conveyor belt to the radio dispatcher. The radio dispatcher handles all radio transmissions.

Since response time is the single most important criterion for operation of a police command control center, the advantages of the combined complaint writer/dispatcher approach are evident. The combined complaint writer/dispatcher dispatches a vehicle immediately after ascertaining the nature and location of the complaint thereby minimizing response time. Where the functions are separated, time is lost by virtue of the necessity for transfer of information. The disadvantage of the combined approach is that calls must be answered sequentially, and to provide a given level of performance, a larger number of personnel are generally required. In addition, coordination between the operating personnel of the department is more difficult using the combined approach. The use of status display, therefore, becomes important in such an approach.

Computer-aided dispatching will undoubtedly become more widely used, particularly in large centers. A computerized system can eliminate the need for conveyor belts, provide accurate real-time status information, provide rapid data access and, with the use of an automatic vehicle monitoring system, provide automatic selections of the closest in-service vehicle to a complaint incidence. This plan is compatible with computer aided dispatching should an agency now or in the future select at its option to implement such an approach.

From an analysis of the steps required in processing a complaint call and a knowledge of the number of complaint calls expected or projected, requirements can be developed for the number of people and telephone lines to perform these functions efficiently.

2.3.2 Telephone Requirements

In developing the requirements for the number of emergency telephone lines, it is necessary to make certain assumptions based on practical considerations:

a. The analysis assumes separate emergency and administrative telephone lines as recommended in this Plan.

b. The probability that a citizen's call receives a busy signal should be very low. A probability of 0.1 percent was selected for this analysis; i.e., on the average 1 caller in 1,000 calling during the busy hour would encounter a busy signal.[1]

c. A reasonable peak-to-average communication load is on the ratio of 5 to 1.[2] This means that the peak rate of incoming telephone calls for assistance will be as high as five times as they are normally.

d. An average of one call per day can be expected per thousand population. This rate agrees with the findings reported in the Crime Commission Report.[2]

e. The average length of an emergency call may run between thirty (30) and forty-five (45) seconds. Forty (40) seconds was selected for this analysis.

Table 2.1 shows the number of telephone lines required as a function of the expected number of calls per day. The requirements on this table were generated using the formula first developed by A. K. Erlang and which is now standard practice for this type of problem. The formula used is:

[1]The line requirements are based upon the busy hour (see 3rd criterion). Therefore during the remainder of the day, the probability of a busy signal is considerably less than 0.1 percent. Since most agencies in Florida have fewer than 20 calls in the busy hour, the mean time between busy signals is on the order of a month or more.

[2]"Task Force Report," Science and Technology "A Report to the President's Commission on Law Enforcement and Administration of Justice 1967," U.S. Government Printing Office, Washington, D.C.

Table 2.1. Number of Emergency Telephone Lines[a] Required for Peak Periods.

Average Calls per Day	Number of Emergency Telephone Lines Required
1 — 17	2
18 — 82	3
83 — 181	4
182 — 324	5
325 — 605	6
606 — 994	7
995 — 1,339	8
1,340 — 1,598	9

[a]Assuming: (1) the probability of a busy signal is less than 0.1 percent; (2) peak to average communication load is 5 to 1 and (3) an average call duration of 40 seconds.

$$P_b = \frac{\frac{a^n}{n!}}{1 + \frac{a}{1!} + \frac{a^2}{2!} + \frac{a^3}{3!} + \ldots \quad \frac{a^n}{n!}}$$

where

P_b = probability of a busy signal

a = (number of calls per peak hour) X (average length of emergency call)

n = number of telephone lines

There is a requirement for some agencies to provide foreign exchange lines to provide toll free calling from certain areas in their jurisdiction. To determine this requirement the exchange boundaries of every telephone company in Florida were plotted. All exchanges within an agency's jurisdiction were then analyzed to determine which, if any, were toll calls to the exchange where the dispatching center was located. For agencies whose jurisdiction included telephone exchanges that were toll calls, a queueing analysis was performed to determine the number of foreign exchange lines required based on the expected number of calls from that exchange.

2.3.3 Complaint Operator Requirements

The engineering technique used for determining the number of complaint operators necessary is also based upon queueing theory and depends upon the expected rate of incoming calls, the average duration of the telephone conversation and the probability of and duration of the delay that a citizen might expect in reaching a complaint operator.

The rate of incoming calls and the average duration of the telephone conversation was previously discussed. The probability that an incoming call may not be immediately answered should be small. Since there is no generally accepted standard, a 1 percent probability of a 10-second wait was selected as a tolerable criteria for this study. This means that out of every 100 calls only 1 would have to wait as long as 10 seconds on the average.

The queueing analysis pertinent to calculation of the required number of complaint operation can be found in standard textbooks[1] covering the subject. It is found that the probability that all operators are available is

$$P_o = \frac{1}{\sum_{n=0}^{n=c-1} \frac{(c\rho)^n}{n!} + \frac{(c\rho)^c}{c!(1-\rho)}} \qquad (1)$$

where

C = number of operators

ρ = operator loading factor ($\lambda/c\mu$)

λ = number of calls per unit time

μ = reciprocal of average message length

The probability that all operators are busy can be written

$$P(>o) = \frac{(c\rho)^c}{c!\,(1-\rho)} P_o \qquad (2)$$

With all operators busy, the probability of having to wait a time

$$P(>t) = P(>o)\exp[-c\mu t(1-\rho)] \qquad (3)$$

Equations (1) through (3) serve as the basis for determining the required number of operators. Table 2.2 shows the number of operators required for varying numbers of expected calls per day.

2.4 Logging Requirements

Records must be kept by all stations in accordance with the FCC Rules and Regulations. In addition, other information pertaining to the nature of complaint calls, the

[1] Thomas L. Saaty, "Elements of Queueing Theory," McGraw-Hill Book Company, Inc., 1961, p. 116.

Table 2.2. Number of Complaint Operators Required[a] for Peak Periods.

Average Number of Calls per Day	Number of Operators Required
1 — 5	1
6 — 82	2
83 — 230	3
231 — 436	4
437 — 672	5
673 — 816	6
817 — 1,056	7
1,057 — 1,320	8
1,321 — 1,598	9
1,599 — 1,757	10

[a]Assuming: (1) a 1 percent probability of a 10-second wait; (2) peak to average communications load is 5 to 1 and (3) an average call duration of 40 seconds.

department's action and the timeliness of this action may be desirable. Such information is often useful in follow-up investigation, court room testimony and statistical reports. The recommended method for recording and retaining this type of information with a minimum of time and effort on the part of the dispatcher is by the use of multi-channel, 24-hour logging tape recorders.

These recorders would be configured to record all voice communications on the emergency telephone lines and on the radio channels.

This equipment reduces the dispatcher work load by avoiding manual logging of dispatch information. It is also useful in playing back emergency telephone calls if the citizen's problem or location were not clear. In addition, the logging recorder is invaluable for determining the time sequence of events for later court purposes. Logging recorders are therefore recommended for all command and control centers particularly for the larger ones.

3.0 THE COMMUNICATIONS PLAN

3.1 Establishment of Land Mobile Radio Zones

This communication plan is based upon an approach which was developed to meet the following general requirements:

- The Plan must be sufficiently flexible to meet the varying requirements of the various law enforcement agencies throughout the state for the next 10 years.
- The Plan must be responsive to needs of all law enforcement agencies, large and small.
- The Plan must provide efficient channel utilization and an equitable distribution of frequency resources.
- The Plan must be compatible with cooperative dispatching arrangements while retaining the autonomy of all local agencies.
- The Plan must provide improved citizen access to the police.
- The Plan must provide coordination capability with other law enforcements at the municipal, county, and state levels.

To accomplish these overall goals, the communication plan has been developed using the mobile radio zone concept. The concept provides a logical means for the organization of police mobile radio networks.

A mobile radio zone is simply a geographic area within which all law enforcement agencies are served by a common coordinated communication system. There are sufficient channels provided in each mobile radio zone to allow interference free and lightly loaded channels for all agencies.

Large police departments within a mobile radio zone will operate on independent dedicated primary channels since their operations require and justify separate channels. Smaller departments on the other hand will share radio channels. In all cases, the design criterion has been 30 to 50 radio units per channel. Coordination channels are also provided for all agencies. These channels are assigned on a district basis to permit coordination between radio zones.

Cooperative dispatching is recommended extensively throughout the Plan. The cooperative dispatch concept and its advantages are discussed in Section 3.3, and in Appendix B. In all cases common base equipment with control units at each individual agency is the recommended configuration. This arrangement will allow the preferred cooperative dispatch mode or individual agency dispatching.

With respect to the frequency band of operation, VHF high band is recommended for most county systems while UHF is recommended for some of the larger cities and in more highly populated counties. Since District I, which encompasses the northwestern part of the state, is currently in the process of implementing a UHF plan, no substantial changes are recommended.

The recommended mobile radio zones are shown in Figure 3.1. Note that a mobile radio zone may encompass one to three counties. The radio zones were established based on the following considerations:

- A radio zone should be no smaller than a county since the jurisdiction of a sheriff's office is countywide.
- Radio zone boundaries should coincide with county boundaries.
- A radio zone should be sufficiently large such that there is enough radio traffic to justify a radio channel (at least 30 to 50 radio units).
- Radio zone boundaries should be selected with consideration given to geographic variables such as highways, rivers, lakes and other factors affecting the flow of radio traffic.

In addition to the above, the communication plans for various counties which existed prior to this study were reviewed.

The mobile radio zone approach to organization of police radio systems has a number of significant advantages worthy of mention. Table 3.1 lists these advantages.

3.2 Typical Mobile Radio Zone Systems

To provide greater insight into the mobile radio zone concept three typical systems, which represent the various mobile radio zone configurations used in the Plan, are described in this section. The three types are referred to as: (1) rural, (2) rural with major city, and (3) densely populated mobile radio zone.

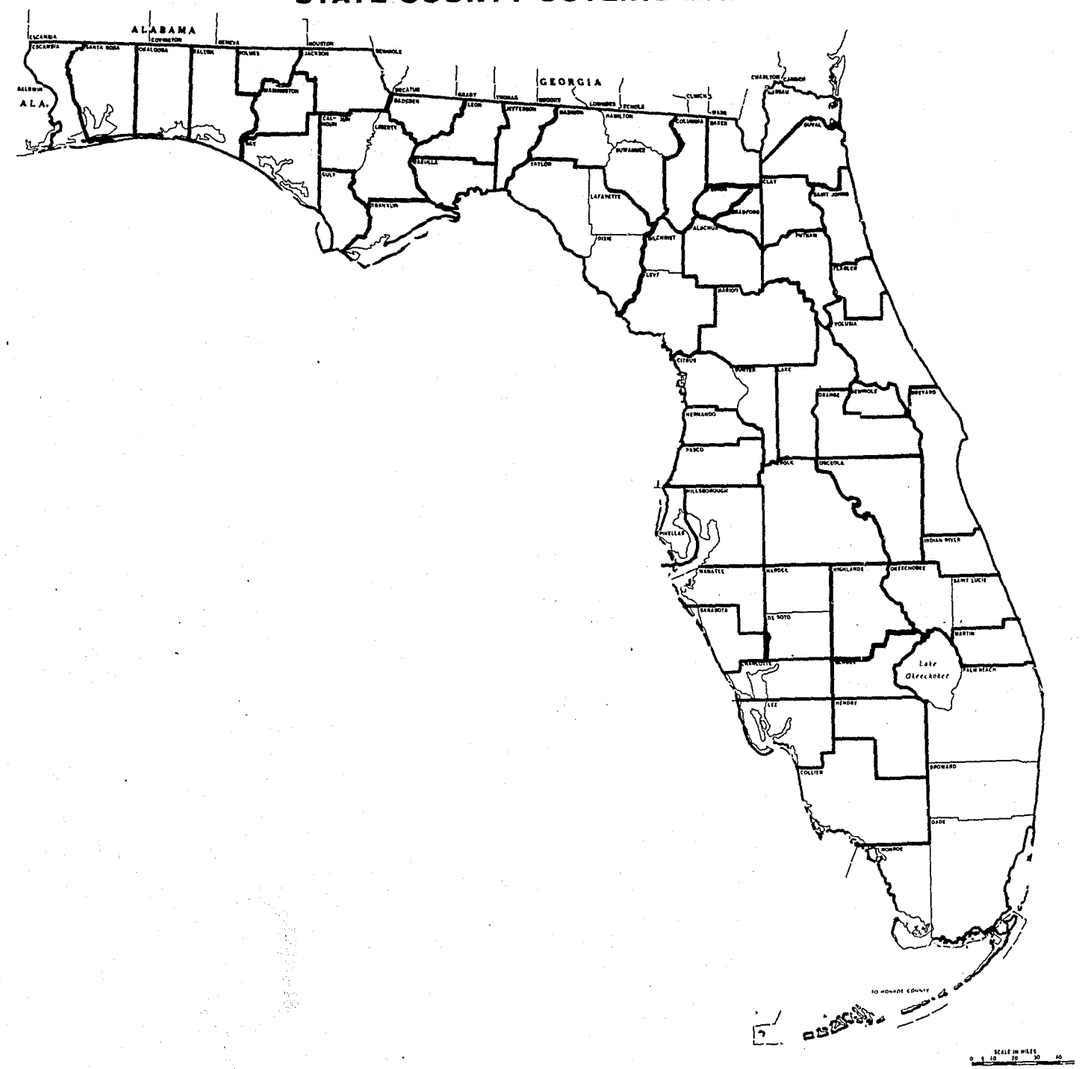


Figure 3.1. Recommended Land Mobile Radio Zones.

Table 3.1. Advantages of Mobile Radio Zone Approach.

- Provides equitable distribution of frequency resources.
- Multiple channel capability for all agencies.
- Facilitates cooperative dispatching arrangement, but is flexible to permit independent agency dispatch.
- Facilitates establishment of single emergency telephone number.
- Provides interagency coordination capability.
- Provides use of common base equipment.
- Provides lightly loaded channels with minimum interference.

3.2.1 Rural Mobile Radio Zone (see Figure 3.2)

The rural mobile radio zone involves one to three counties depending upon the degree of law enforcement activities within the counties. There are typically several small municipal agencies in addition to the sheriff's offices. One primary channel is assigned to this type of mobile radio zone using the criteria of 30 to 50 mobiles per channel. In addition, a district coordination simplex channel and the simplex intercity channel (155.370 MHz) are also included.

As noted in Figure 3.2, the sheriff's office in each county operates a centralized dispatch facility serving all police agencies in the county. The center has control of the mobile relay on the primary channel, the simplex base station on the coordination channel, and one simplex base station on the intercity channel. In addition, each agency has a radio control unit on the primary channel. This provides the means for both monitoring of the communication network and for direct contact to a patrol vehicle in case of emergency. In other words, each police chief has the capability for monitoring his operation and contacting any patrol vehicle. Normal dispatching, however, would be left to the central command and control center.

The primary channel is used for dispatching purposes, base-to-mobile and mobile-to-base and for mobile-to-mobile within a particular agency. Interagency mobile-to-mobile communications both within the mobile radio zone and with mobiles and bases in different mobile radio zones are accomplished on the coordination channel. The intercity channel is utilized for point-to-point (base station to base station) contact with other dispatch centers.

A single countywide emergency telephone number is possible where toll-free calls can be made from anywhere in the county to the command control center. Where tolls are required, foreign exchange lines are used to provide toll-free calls to the citizen.

Note that the system configuration will also permit independent dispatching if desired; however, the technical, operational, and economic advantages of central dispatching are such that all counties should give serious consideration to some form of cooperative dispatch.

3.2.2 Rural Mobile Radio Zone with Major City (see Figure 3.3)

The requirements for a rural mobile radio zone which contains a major city within its boundaries differ slightly from those previously described. In this case, only one county is involved. The resources and the size of the city police department are such that an independent radio system is justified. This radio system may use one or more primary channels. The remaining agencies within the county share additional primary channels. Both the rural agencies and the city

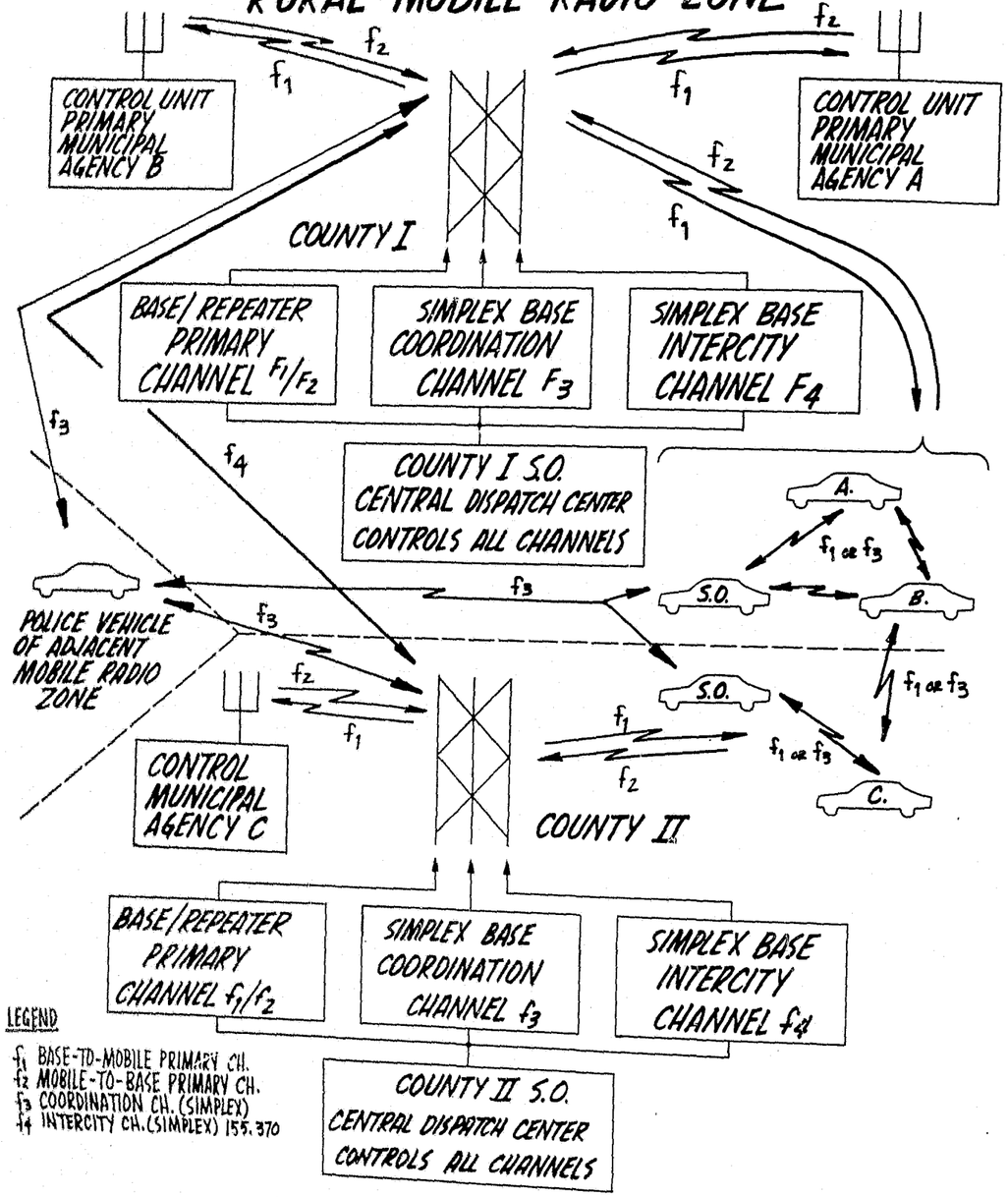


Figure 3.2. Rural Mobile Radio Zone.

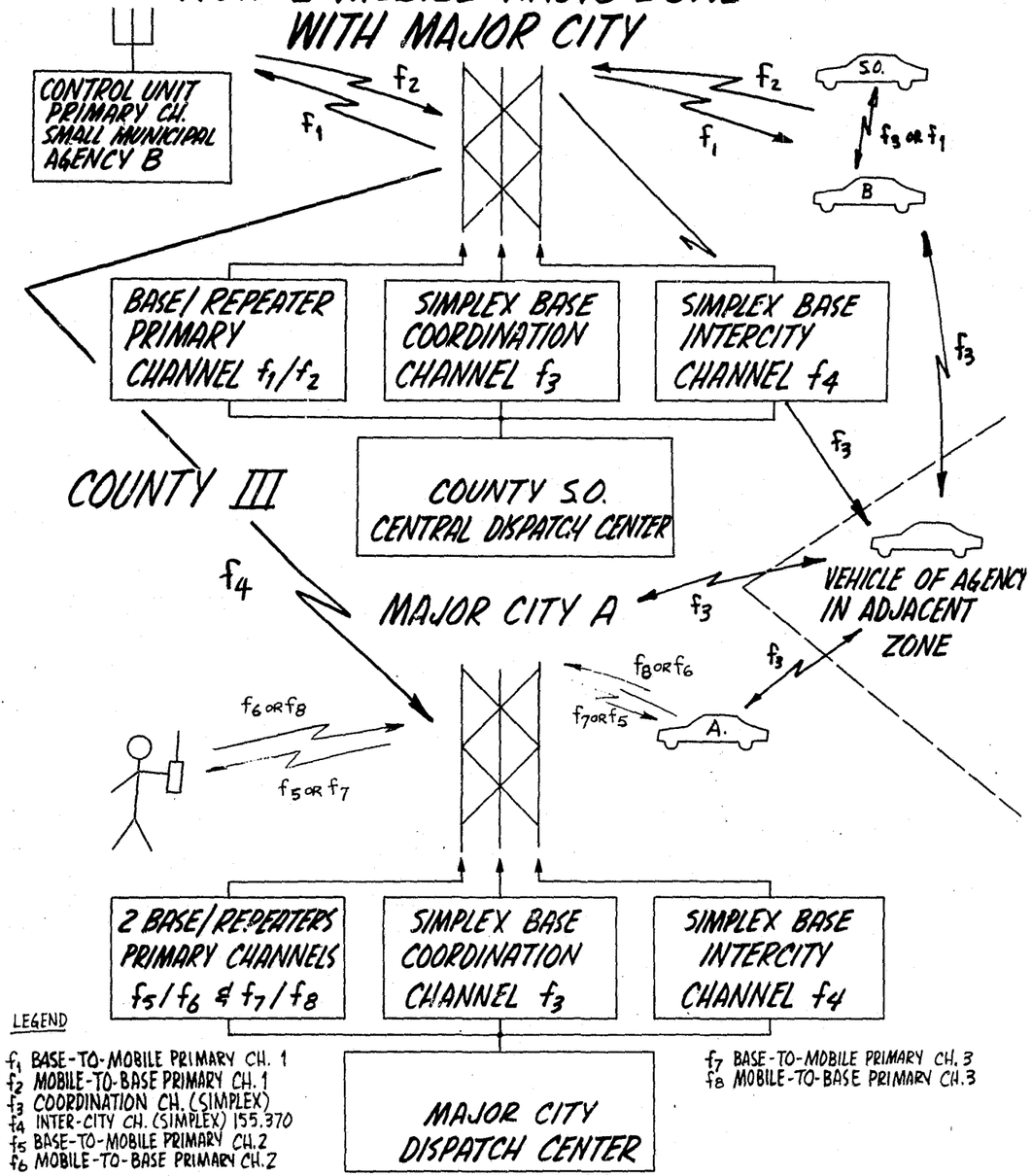


Figure 3.3. Rural Mobile Radio Zone with Major City.

police department would have access to a simplex coordination channel providing interagency communications both within and outside the mobile radio zone, and the simplex intercity channel. If the city department operates in a different frequency band, cross-band repeaters are required to provide car-to-car communications. The city department will usually operate its own independent command and control center. Centralized dispatching for the remaining agencies is provided. The rural mobile radio zone which contains a major city is, therefore, somewhat similar to the all-rural mobile radio zone with the exception that it contains an independent radio system for the city and usually involves a smaller geographic area.

3.2.3 Densely Populated Mobile Radio Zone (see Figure 3.4)

The densely populated mobile radio zone illustrated on Figure 3.3 contains a number of radio net subsystems and involves only one county. The county is further subdivided into radio networks which may require one or more channels, depending upon radio activity. This subdivision into radio networks is necessary since a single command and control center cannot readily handle the large number of agencies involved and the high volume of traffic expected. These facilities can be operated by the sheriff's department or by one of the major agencies within the particular area. Interagency communications between mobiles from all networks and agencies is accomplished on the common simplex coordination channel and the simplex intercity channel (155.370 MHz).

3.3 Centralized Dispatching

This communications plan has been structured to provide maximum flexibility so that most local entities can select the mode of operation they desire. Independent operation by each agency within a county, for example, is an acceptable alternative and consistent with the plan. However, throughout this report, the importance and the advantages of centralized or cooperative dispatching are continuously emphasized. The benefits to be derived from a cooperative dispatching arrangement are summarized below as well as the problems which would be encountered in establishing such a center. All agencies are encouraged to review the advantages and applicability of the cooperative dispatching arrangement with their neighboring departments. There are both operational and technical advantages to cooperative dispatching and in many cases economic advantages. The major benefits are as follows:

a. Permits Establishment of Single Emergency Number

The establishment of a single emergency number, over a wide geographic area, whether it be 911, or an easy-to-remember seven digit number has obvious advantages in that it facilitates the citizen's access to police assistance. Studies conducted at the Franklin Institute

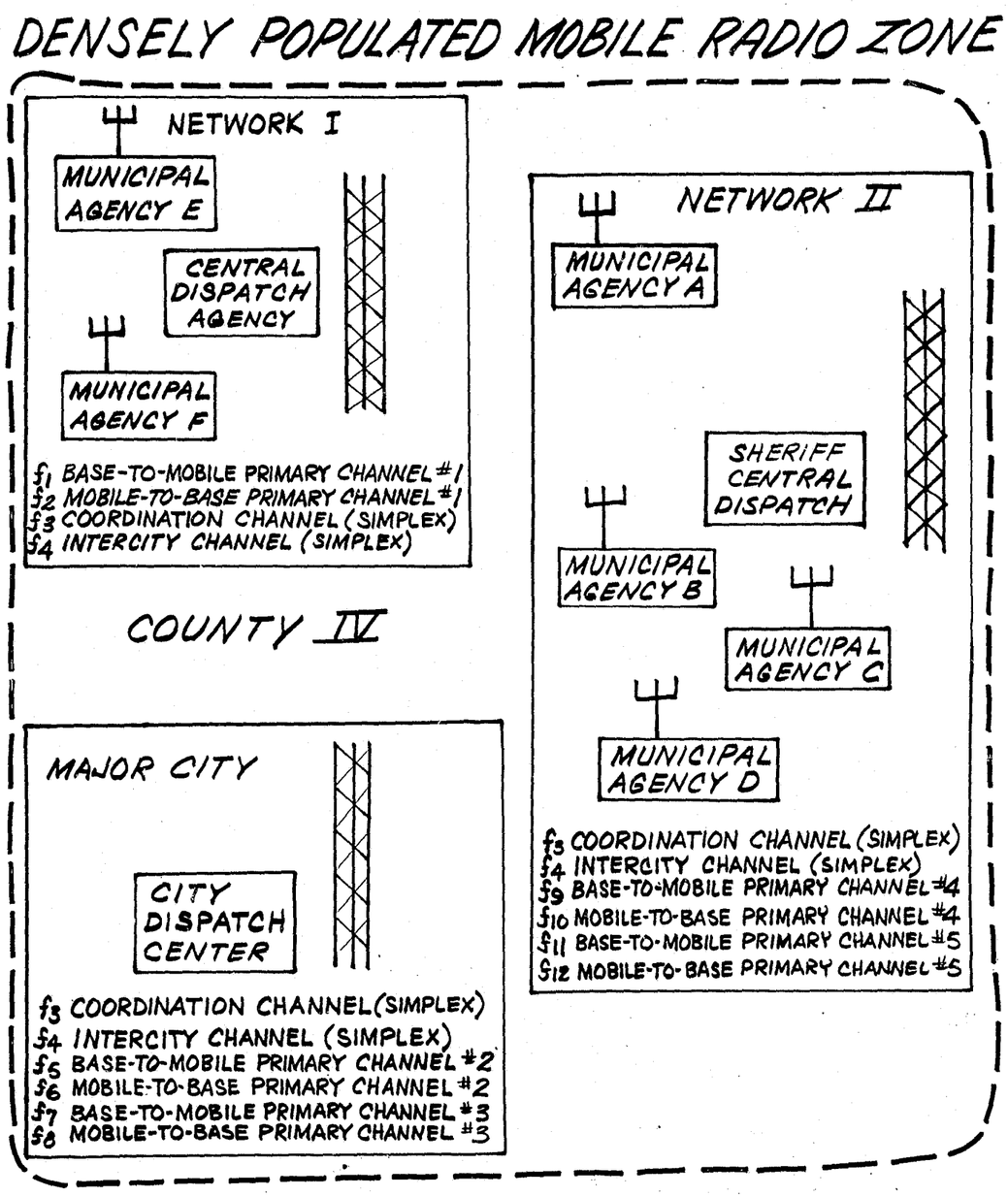


Figure 3.4. Densely Populated Mobile Radio Zone.

Research Laboratories, for example, demonstrated the significant reduction in response time using either 911 or some other single emergency number.[1]

b. Rapid Response to Citizens Calls for Emergency

A cooperative dispatching facility can provide improved response time for several reasons. Already discussed is the reduced response time due to implementation of a single emergency number. In addition, a cooperative dispatching organization can provide a highly qualified professional staff trained in their profession. The degree of professionalism and capability is generally greater than could be afforded by any of the smaller member agencies and this staff by having control of the entire police resources in the area can meet the demands for police service more efficiently. In other words, should a particular jurisdiction at any given time have an excessive number of calls, the central dispatcher can readily and rapidly dispatch units from adjacent jurisdictions.

c. Efficient Utilization of Frequency Channels

The ever increasing congestion of the frequency spectrum has necessitated sharing of police frequencies. The guidelines set forth in this plan are that 30 – 50 vehicles will be assigned to a given channel. Therefore it is mandatory that small agencies share frequencies with other agencies. The most efficient mode of operation given the necessity for channel sharing is cooperative dispatching. The alternative of independent dispatching results in an uncontrolled channel discipline wherein the dispatchers are constantly competing for air time. Cooperative dispatching resolves this problem since the channel is controlled by a single dispatcher.

d. Facilitates Implementation of Advanced Technology

The pooling of available resources allows the use of more sophisticated and advanced technological systems which can improve the efficiency of the police operations. For example, a cooperative dispatching facility could consider the use of computer aided dispatching, the use of direct digital access to computer files such as FCIC from the vehicle, automatic vehicle monitoring and so forth. Such techniques have significant operational advantages, but can rarely be afforded by the member agencies individually.

[1] K. R. Bondner and J. S. Huston, "A Study of the Single Emergency Telephone Number," Franklin Institute Research Laboratories, Philadelphia, Pa., March 1970.

e. **Membership Coordination**

Since cooperative dispatching provides control of all police forces over a large geographic area, coordination in times of special emergencies, as well as in the normal routine operations, is greatly facilitated.

f. **Facilitates Establishment of Central Automated Records**

Consolidation of communications services greatly facilitates establishment of uniform reporting systems and automation of record keeping, thereby relieving member agencies of manual clerical work and providing improved operational data banks at the local level and for input to the uniform crime report.

g. **Possible Economic Savings**

Cost savings are often possible in a cooperative dispatching arrangement due to sharing of equipment space and personnel. The cost of providing communications services varies from agency to agency and therefore it is not possible to make a general statement that cooperative dispatching will save money. However, it is believed that cooperative dispatching provides the most efficient professional operation at the minimum cost.

Evidently, there are a great many local considerations which are involved in any decision to consolidate police dispatching services. There are a variety of approaches to be considered. In some instances it may be appropriate for the sheriff to assume the role of the central dispatcher. In other instances a major city may be the more logical choice. The usual difficulty encountered in either of the two approaches mentioned is that placing control in a single agency has the inherent risk that the dispatcher will give highest priority to its own agency's requirements, thereby providing less than desirable service to the other participating agencies. These risks, of course, can be minimized by proper contractual agreements prior to implementation.

An approach which has met with success in a number of counties and areas within the country is that of establishing an independent communications agency. In this case all member agencies would have representation in the organization and control the policies and operation of the dispatching center. An example for a cooperative dispatching agreement is presented in Appendix B. Other factors which must be considered in establishing cooperative dispatching arrangements include distribution of operating costs, management responsibilities, definition of services to be performed, personnel qualifications, and uniform operating procedures.

There are many arguments and motivations against establishment of such cooperative dispatching arrangements. Such arguments, fears and opposition to central dispatching

should nevertheless be carefully examined to establish their validity in each case before any decisions are reached. Local requirements vary considerably depending upon the geographic population density and types of communities involved. Because of these differences cooperative dispatching may not be appropriate universally, and therefore all agencies must carefully consider the alternatives before a final decision. The usual arguments or reasons, valid and invalid, are as follows:

a. Fear of Losing Control

A municipal police department is concerned with maintaining the character of police services they presently provide and they obviously must be primarily motivated by responsibilities to citizens of their own jurisdiction. There is then the fear that cooperative dispatching will result in loss of control of police forces by the Chief. It must be remembered, however, that cooperative dispatching involves coordination of communications services only. Each member agency would retain its autonomy and independent structure. Further, even with cooperative dispatching all police departments would be provided access to the radio system allowing the police chief or any other police officer access to the radio system in event of emergency.

b. Large Geographic Area to Cover

There are instances wherein because of geographic characteristics central dispatching may not be appropriate. This is particularly true in large rural areas with natural obstacles such as lakes and rivers separating police agencies or where the character of the communities involved varies considerably. Such arguments therefore may well be valid reasons for not entering into a cooperative agreement.

c. Dispatcher Training

Police officials often express the fear in a cooperative dispatching system that the dispatcher will not be familiar with his jurisdiction. Such fears, however, are usually unfounded since the dispatcher can be trained not only in dispatching procedures, but also in the detailed geographic area for which he is responsible, much the same as if he were dispatching in the individual community. In fact, since dispatching is his sole profession, he is not distracted by other duties such as clerical, jail keeping, booking and other duties.

d. Police Agencies Have Different Operating Procedures

Many police officials are hesitant to joint a cooperative system because their operating procedures differ from that of the neighboring departments. This fact in itself constitutes an area for improvement in that uniform operating procedures are more desirable from the overall law enforcement view point. Cooperative dispatching insures establishment of uniform operating procedures for all agencies within the area, thereby minimizing problems and confusion when larger-than-ordinary forces must be coordinated.

e. Higher Costs

In small villages or towns a police dispatcher often has a multitude of other responsibilities including fire dispatching, ambulance dispatching, prisoner booking, clerical, walk-in, interviews, etc. In such a case, a cooperative dispatching arrangement for police-only would not reduce the manpower requirements of the agency. The department therefore would be faced with additional costs. Most police chiefs have adopted the policy of keeping the police department's doors open 24 hours per day. Therefore, a person must be on duty at all times even though police calls for services would be handled by a central dispatching facility. Central dispatching would involve additional expenditures for such a department. However, it is believed that the additional expense is justified in view of improved response time, the improved safety of the patrol officer as well as the other advantages mentioned previously. Consider, for example, the vulnerability of a single man on duty in the late evening hours. An intruder could readily overcome the officer on duty, thereby rendering the communications system ineffective, and jeopardizing the safety of the patrol officers and the citizen. A central facility can provide the security required to prevent such occurrences. Centralization of not only police, but fire and ambulance services as well, should be the ultimate goal except in unusual situations.

f. Different Employee Benefits

The initial establishment of a cooperative dispatching system faces many problems. A significant one, for example, is that if personnel from the various departments are used in the central dispatch, their salaries, fringe benefits and seniority all vary. It is therefore necessary to devise an equitable salary structure and employee benefit program without depriving existing employees of any accrued benefits. Problems such as these, however, can be negotiated successfully.

This discussion has attempted to emphasize both the advantages of central dispatch as well as the many problems which will be encountered in its establishment. While the problems are many, they are not insurmountable and the advantages to be gained are sufficient to encourage all

agencies to carefully consider the possibility of a cooperative dispatching arrangement in their respective counties.

3.4 Command and Control Center Configurations

The command and control center is the hub of the mobile radio zone. It consists of the dispatching facility itself and the radio system equipment. It serves as the focal point between the citizen requiring assistance and the patrolman on duty.

The complexity of a command and control center depends upon the size of the department it serves. A variety of equipment for efficient dispatching is required including dispatching consoles, tape recorders, monitor receivers, intercom, and status displays.

This plan recommends the use of professional dispatch consoles at each of the recommended dispatching locations. Figure 3.5 shows a typical dispatch console. A console should contain as a minimum:

Channel control units

Card status slot panel

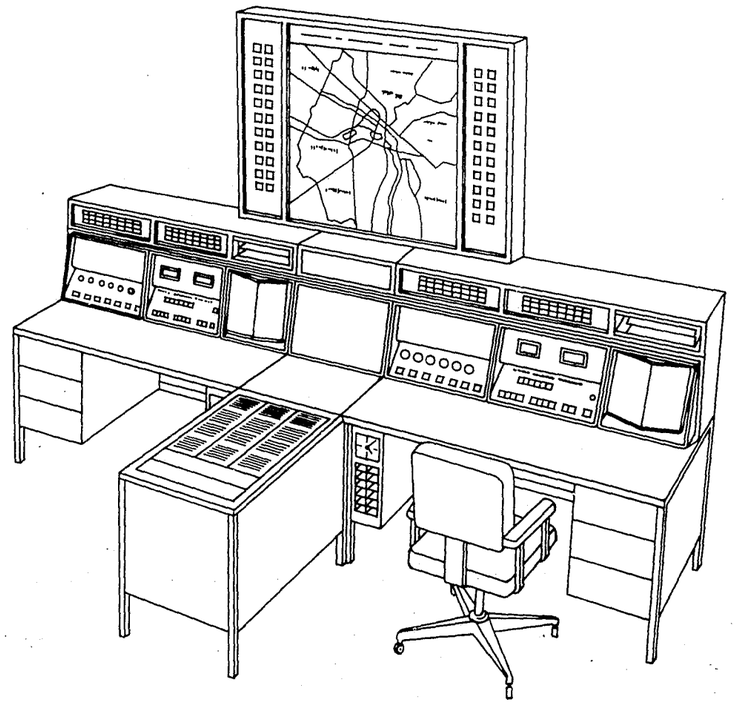
Time date stamp clock

Status display panel

Phone patch

In addition, rear screen projection systems are recommended. With these systems, 80 to 100 slides could be used to display detailed maps of the city or county or a section thereof, emergency procedures, emergency telephone numbers, etc. In addition, these slides are easily changed on a weekly or monthly basis to reflect changing city limits and so forth.

Twenty-four hour logging recorders are recommended for each dispatch center to record all voice communications on the emergency telephone lines and on the radio channels. This equipment reduces the dispatcher work load by avoiding manual logging of dispatch information. It may also be used to play back emergency telephone calls if the citizen's problem or address were not clear. In addition, the logging recorder is invaluable for determining the time sequence of events for later court purposes.



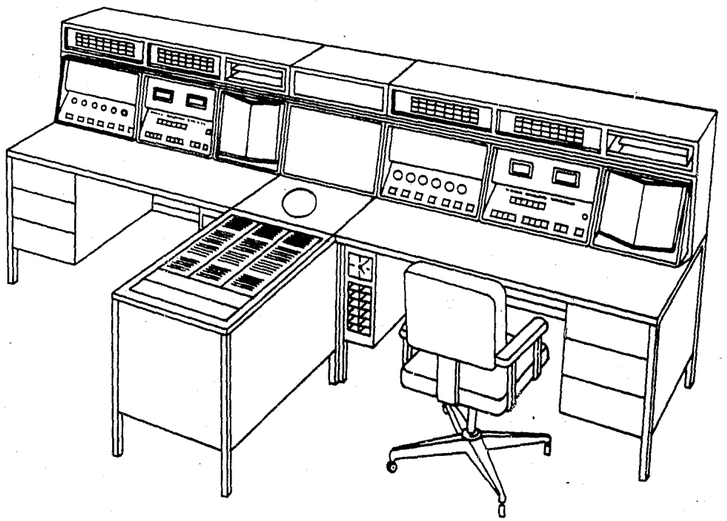


Figure 3.5. Typical Dispatch Consoles.

FCIC terminals are also included as part of the dispatch center design to provide the necessary access to the State data files on vehicle registration, driver licenses, wanted persons, and so forth. In short, the dispatch center is a professional state-of-the-art police dispatch system that will provide a complete service to the member agencies.

The radio equipment associated with the command and control center includes mobile relay base stations for the primary or "working" channels and simplex base stations for the coordination channel and for the intercity channel. The transmitter receiver site may be collocated or remote to the command and control center site.

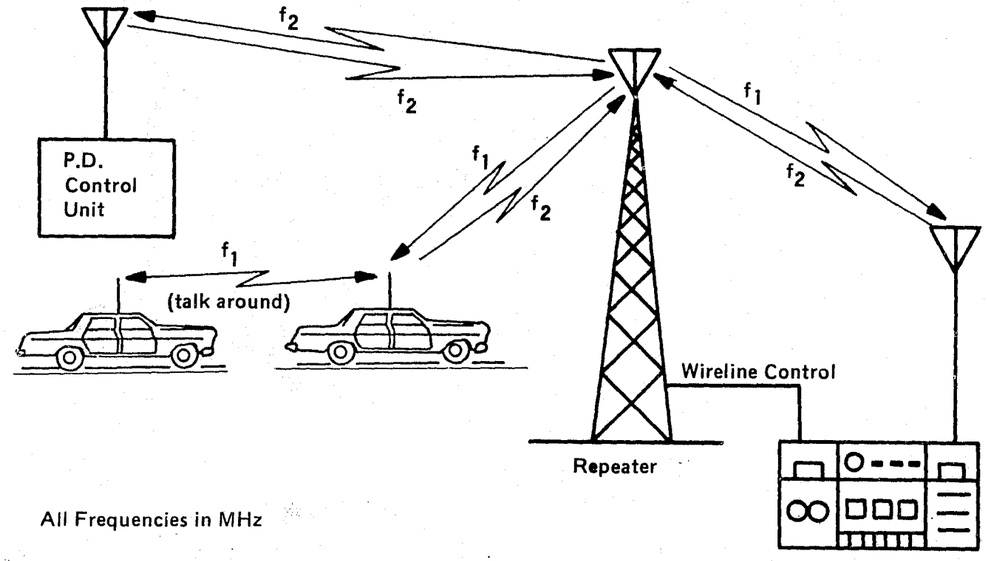
Mobile relay operation is illustrated on Figure 3.6. Two frequencies are used; one for base-to-mobile and the other for mobile-to-base. The relay rebroadcasts the mobile transmissions on the base frequency. The mobile relay has several advantages. First, it permits all vehicles to hear all radio transmissions. This factor reduces the likelihood of one mobile cutting-in on another which can occur on one and two frequency simplex systems. Second, the relay greatly increases the mobile-to-mobile range. Talk-around capability can also be provided and is recommended to allow mobile-to-mobile communications without triggering the relay.

Simplex operation, recommended for use on the coordination channels, is the most commonly found communications system in police operations. A single frequency is used for both the base and mobile transmissions.

To provide a fully coordinated system, it is often necessary to provide a means for two agencies using different frequency bands to communicate. The use of cross-band repeater is one means of accomplishing this link. A cross-band repeater is a system which receives transmissions on a channel in one band and rebroadcasts it on a channel in a second band. For example, if the output of a high-band system is fed to the input of a UHF system and vice versa, mobile-to-mobile communication is possible for the vehicles of both systems (see Figure 3.7). Landline or an RF link may be required to accomplish this interconnect when the systems are not collocated.

A second approach is the use of monitor receivers in the vehicles. As illustrated on Figure 3.8, mobile-to-mobile communications can be accomplished by the addition of monitor receivers only where the receivers are tuned to the coordination channel of the adjacent radio zone. This approach is most applicable when a small number of vehicles is involved.

Because of the critical nature of police communications, backup facilities and modes of operation must be provided to assure 100 percent operation. The recommended command and control configuration has built-in redundancy in the sense that multiple channels are provided in all

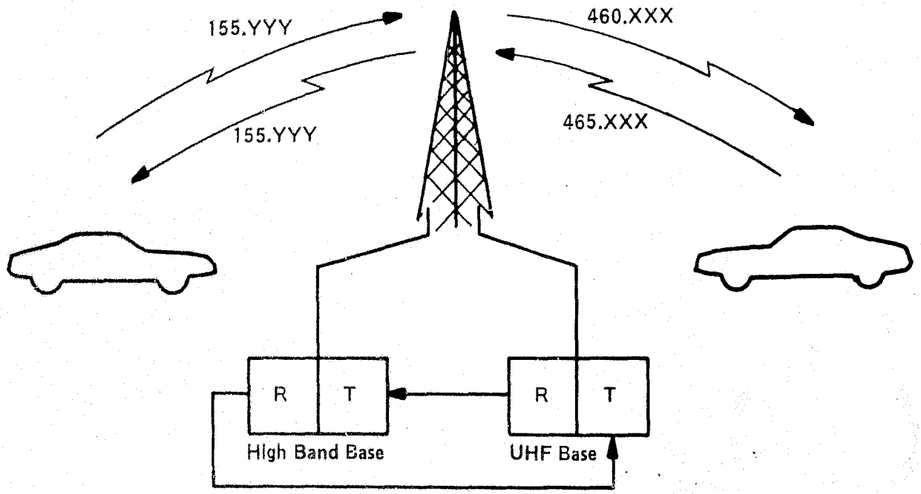


All Frequencies in MHz

VHF Repeater Operation

- Two frequencies per channel
- Generally close-spaced frequencies (400 - 600 kHz separation) to provide talk-around capability (mobile-to-mobile) in event repeater is disabled.
- The use of CTCSS (Continuous Tone Coded Squelch Systems) in such operations precludes nuisance interference problems.
- Employing such close-spaced channel pairs also provides the capability to utilize a "near-frequency" in the simplex mode for mutual aid, coordination and/or emergency purposes among several agencies in a broad geographical area.

Figure 3.6. VHF High Band Mobile Relay Operation.



All Frequencies in MHz.

Figure 3.7. VHF High Band - UHF Cross-Band Repeater.

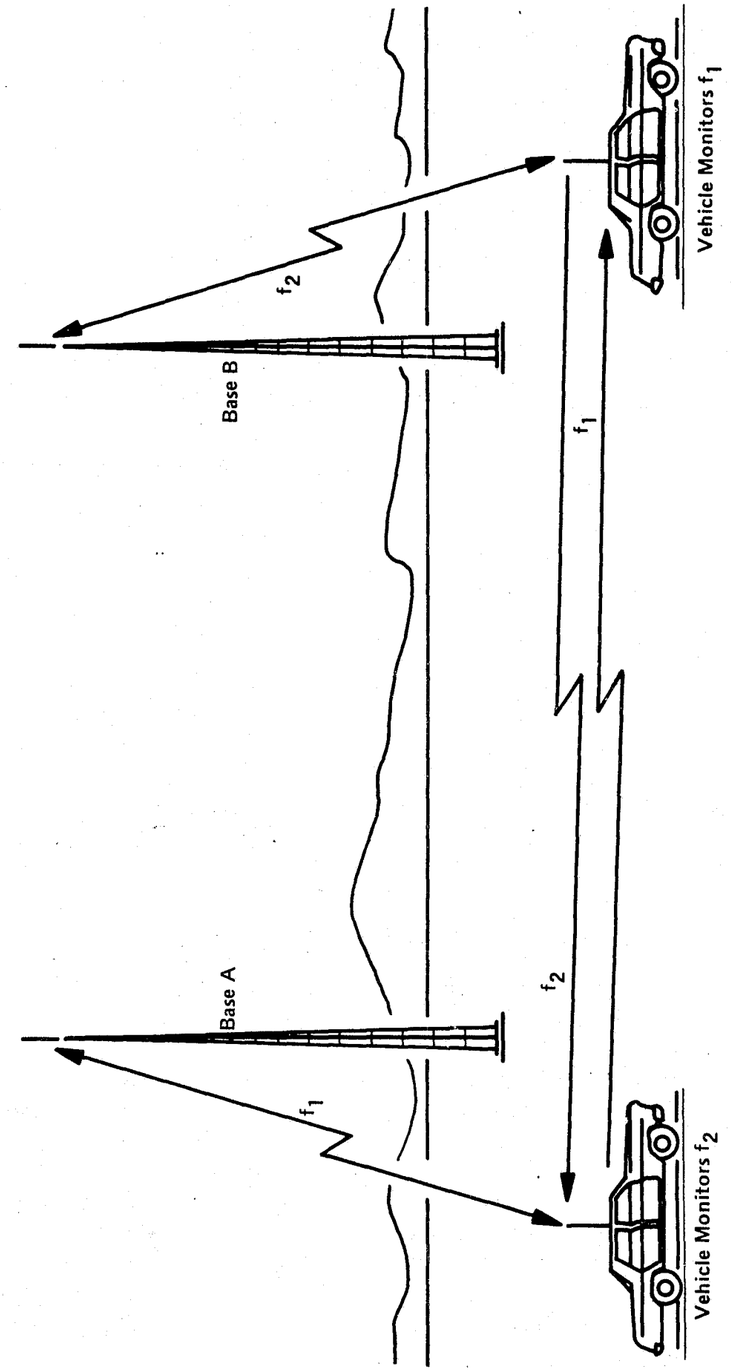


Figure 3.8. Mobile to Mobile Using Monitor Receivers.

cases. Therefore, if a base equipment or control link should fail, operation can shift to the other channel until the difficulty is corrected. Other possible failures are covered as follows:

Emergency power is provided at each dispatch center and each transmitter receiver site in event of power failure.

A backup 25-foot pole tower (roof-mounted) and antenna is provided at each dispatch center in the event the main tower should collapse due to severe storms, etc.

The recommended system, therefore, provides complete backup for all critical components. In some county designs, a backup dispatch center location is provided in the event of physical damage (intentional or unintentional) to the main dispatch center. Where this is desired, means must be provided for switching the incoming telephone calls to the alternate site.

3.5 Dispatching Procedures

A basic requirement to the success of this Plan is the establishment of efficient dispatching procedures in all agencies, particularly in those agencies sharing channels. Channel congestion is sometimes caused by overly complex channel discipline rather than by too many users.

It is recommended, therefore, that police radio procedures be standardized. This standardization will result not only in improved channel efficiency but also increase the efficiency and ease of coordination when several agencies become involved in an incidence.

A simple illustration will serve to demonstrate how improved procedures can reduce channel congestion. The illustration presented below is just one of many different types of radio procedures which, rather than improve communications, actually tends to degrade performance by requiring too many discrete transmissions to communicate a message:

Mobile:	Unit 12 to Control
Base:	Go ahead Unit 12
Mobile:	Control, this is Unit 12, request 10-7
Base:	10-4 Unit 12, 11:45 a.m.

(The unit then drives to vicinity of restaurant)

Mobile:	Unit 12 to Control
Base:	Go ahead Unit 12
Mobile:	Control, this is Unit 12, request 10-7 at Mary's Diner
Control:	10-4 Unit 12, 12:02 p.m.

A more efficient procedure would be:

(Unit drives to vicinity of restaurant)

Mobile:	Unit 12 to Control, request 10-7 at Mary's Diner
Base:	10-4 Unit 12, 12:03 p.m.

This example is not a case of channel abuse, but rather one of poor radio procedures for communicating a simple status report.

Appendix D contains excerpts from a communications handbook published by Associated Public Safety Communications Officers, Inc. (APCO). This handbook describes in detail proper radio procedures and is recommended as a guide to an agency in establishing improved procedures.

3.6 The Frequency Plan

A major problem which was reported by the majority of agencies in the state of Florida is that of interference and overcrowded channel conditions. A major objective, then, in developing this communication plan is that of providing clear communications channels for all law enforcement agencies.

The problem of spectrum congestion has become increasingly severe and the task at hand now is the development of a frequency plan which will provide an equitable distribution of frequencies which will meet the needs of law enforcement agencies over the next ten years. The FCC has allocated some 53 UHF and VHF high band channels reserved for police use. On the other hand, the survey revealed approximately 380 law enforcement agencies in the state of Florida. Even

with geographic reuse of frequencies, it is evident that there are insufficient resources to provide each agency with their own unique channel. Channel sharing is, therefore, a necessity.

The overall philosophy in developing the frequency plan is the use of VHF high band in most countywide systems, and the use of UHF in the large cities and more populated counties. Notable exceptions to this general policy include:

- District I where implementation of an all UHF system is well underway.
- Eight counties in central Florida which will remain in VHF low band because of the unavailability of VHF high band channels. These counties are Citrus, Sumter, Pasco, Hernando, Hardee, Highlands, Glades and DeSoto.
- Continued use of VHF high band in St. Petersburg because of present worth of equipment.

The major technical factors considered in development of the frequency plan included:

- Co-channel interference
- Adjacent channel interference
- Equipment restrictions

Co-channel interference can be minimized by providing sufficient geographic separation between users of a given frequency. To establish the separation requirements, propagation tests[1] were conducted early in the program.

These tests indicate that for VHF High Band Simplex operation, separations in excess of 150 miles would be required between base stations to prevent base station capture. Base station capture refers to the phenomenon where a distant base station by virtue of its greater power and higher antenna can introduce an interfering signal large enough to override the signal from a local mobile unit.

Base station capture can be prevented by use of duplex operation using separate frequencies for base-to-mobile and mobile-to-base transmissions. Using duplex, the mobile unit is not competing with interfering base stations, and channels can be assigned at closer spacings.

[1] Land Mobile Radio Propagation Measurements in the State of Florida, Atlantic Research Corporation, prepared for Department of General Services, Division of Communications, Florida, April 1973.

Because of the fact that signals tend to propagate over long distances in the State of Florida, the frequency plan has been developed using two frequency or duplex channel assignments in VHF high band.

Figure C.2 derived in Appendix C shows the minimum separation required for duplex operation as a function of the required coverage. For example systems requiring 25 mile radius coverage should be separated a minimum of 80 miles.

In VHF high band, channel assignments are separated by only 15 KHz and receiver desensitization can result from an interference signal on an adjacent channel. The FCC, for example, requires a minimum separation of 10 miles between users of adjacent channels with coordination required up to a range of 35 miles.

Equipment limitations place further restrictions on frequency assignments. The specifications for most commercial high band multichannel equipment will permit a frequency spread of 0.4 to 0.6 percent for negligible performance degradation. Spreads in excess of these percentages result in a degradation of transmitter power output and receiver sensitivity. Various equipment options are available, however, at increased cost which will permit operation with wide frequency spreads.

Because of these equipment limitations in high band, close frequency spacing (300 to 900 kHz) is desirable between the transmit and receiver frequencies in order to provide "talk-around" capability in a mobile relay system. Talk-around is a desirable feature to permit direct mobile-to-mobile transmissions over short ranges without triggering the relay for surveillance type operations or in the event of relay failure.

The recommended frequency pairings in VHF high band are listed on Table 3.2. The table lists 27 frequency pairs using police-only frequencies. Channel 15, 154.950 MHz, has been designated as the emergency coordination channel for use by all agencies which will operate in the VHF high band. Channel 29, 155.370 MHz is the existing intercity or point-to-point channel for use by all agencies. Note that all channels (with the exception of Channel 28) have close frequency spacing to permit talk-around capability. Also note that the frequencies are within 900 kHz of the frequency coordination channel for Channels 1 through 18. Therefore standard equipment can be utilized for all systems using the lower 18 channels. Those systems using Channels 19 through 28 will require special wide band equipment or separate mobile monitor receiver units in order to incorporate the coordination channel. These channel pairings and the frequency plan itself have been developed to be consistent and compatible with the Region VII plan for Palm Beach, Broward, Dade and Monroe Counties. It is important to note, for example, that in several instances

Table 3.2. Statewide Law Enforcement Communications VHF High Band Channels.

Channel No.	Frequency Pair	Channel No.	Frequency Pair	Channel No.	Frequency Pair
1	154.650 (B) 155.190 (M)	10	154.830 (B) 155.565 (M)	19	155.640 (B) 155.970 (M)
2	154.710 (B) 155.250 (M)	11	154.845 (B) 155.580 (M)	20	155.730 (B) 156.030 (M)
3	154.725 (B) 155.310 (M)	12	154.860 (B) 155.595 (M)	21	155.790 (B) 156.090 (M)
4	154.740 (B) 155.415 (M)	13	154.875 (B) 155.610 (M)	22	155.850 (B) 156.150 (M)
5	154.755 (B) 155.430 (M)	14	154.890 (B) 155.625 (M)	23	155.910 (B) 156.210 (M)
6	154.770 (B) 155.490 (M)	15	154.950 (simplex)	24	158.730 (B) 159.030 (M)
7	154.785 (B) 155.520 (M)	16	155.010 (B) 155.655 (M)	25	158.790 (B) 159.090 (M)
8	154.800 (B) 155.535 (M)	17	155.070 (B) 155.670 (M)	26	158.850 (B) 159.150 (M)
9	154.815 (B) 155.550 (M)	18	155.130 (B) 155.685 (M)	27	158.910 (B) 159.210 (M)
				28	155.700 (B) 158.970 (M)
				29	155.370

frequencies which are designated by the FCC as mobile-only channels are proposed here as base frequencies. This deviation is nevertheless recommended in order to be compatible with the Region VII plan, and special care has been taken in developing the frequency plan to prevent problems with systems operating on the frequencies in neighboring states.

The recommended frequency assignments for the primary channels are listed on Tables 3.3 and 3.4. Table 3.3 lists the assignments by agency and Table 3.4 by frequency. Also listed on Table 3.4 are the existing licensees within 75 miles of the new user. Where there are no existing users within 75 miles, the frequencies can be implemented at any time. However in those cases where there is an existing system operating within 75 miles, there is a definite phase-over sequence for implementation in order that the new frequencies assignments will be clear at the time of implementation. This sequence of implementation is indicated on Table 3.5.

The emergency coordination frequencies in the three frequency bands are as follows:

VHF low band	45.90 MHz
VHF high band	154.950 MHz
UHF	460.275/465.275 MHz

These coordination channels are available to all agencies for inclusion in both base and mobile equipment. To illustrate a typical mobile installation as recommended in this plan, the mobile configuration using, for example, Channel 6 as the primary channel would be:

Typical Mobile Configuration

Channel Position	Mobile Transmit	Mobile Receive
1 (Primary)	155.490	154.770
2 (Talk-Around)	154.770	154.770
3 (Emergency)	154.950	154.950
4 (Spare)		

Channel Position 1 on the set would be used for normal dispatch operations and all mobile transmission would be repeated by the mobile relay. Position 2 is the talk-around position which permits direct mobile-to-mobile transmission without triggering the relay. Position 3 is the emergency coordination channel operating in the simplex mode.

Table 3.3. Frequency Assignments.

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Bay			
	Sheriff	460.400/465.400	460.400/465.400
		460.450/465.450	460.450/465.450
	Callaway	460.225/465.225	460.225/465.225
	Cedar Grove	460.225/465.225	460.225/465.225
	Lynn Haven	460.225/465.225	460.225/465.225
	Mexico Beach	460.225/465.225	460.225/465.225
	Panama City Beach	460.375/465.375	460.375/465.375
	Parker	460.225/465.225	460.225/465.225
	Springfield	460.400/465.400	460.400/465.400
	Panama City	460.175/465.175	460.175/465.175
Calhoun			
	Sheriff	37.300	460.050/465.050
	Altha	Cit. Band	460.075/465.075
	Blountstown	154.725	460.075/465.075
Escambia			
	Sheriff	159.150/154.830	460.100/465.100
			460.500/465.500
	Pensacola	155.610/158.910	460.025/465.025
			460.175/465.175
			460.425/465.425
	South Flomaton	155.040	460.425/465.425
	Univ. of West Fla.	154.085	460.225/465.225
Franklin			
	Sheriff	31.040	
		31.300	460.475/465.475
	Apalachicola	155.430	
		37.300	460.425/465.425
	Carrabelle	37.300	460.425/465.425
Gadsden			
	Sheriff	37.300	460.450/465.450
	Chattahoochee	154.055	
		37.300	460.375/465.375

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Gadsden (cont'd.)	Havana	37.300	460.450/465.450
	Quincy	154.850	460.375/465.375
Gulf			
	Sheriff	37.300	460.500/465.500
	Port St. Joe	37.300	460.125/465.125
	Wewahitchka	37.300	460.125/465.125
Holmes			
	Sheriff	37.300	460.500/465.500
	Bonifay	37.300	460.125/465.125
Jackson			
	Sheriff	37.300	
		37.420	460.475/465.475
	Cottondale	37.300	460.475/465.475
	Graceville	155.640	
		37.300	460.475/465.475
	Marianna	155.640	460.425/465.425
	Sneads	37.300	460.475/465.475
Jefferson			
	Sheriff	37.300	460.500/465.500
	Monticello	155.145	460.425/465.425
Leon			
	Sheriff	37.080	
		37.120	460.400/465.400
		37.300	
	Tallahassee	155.190/158.970	460.025/465.025
			460.125/465.125
			460.225/465.225
	Florida State Univ.	155.310	154.725/155.310
	Florida A&M Univ.	154.085	154.085

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Liberty			
	Sheriff	37.300	460.050/465.050
			460.175/465.175
Okaloosa			
	Sheriff	37.200	460.475/465.475
		37.300	
	Ft. Walton Beach	460.075	460.075/465.075
	Crestview	460.375	460.375/465.375
	Niceville	460.475/465.475	460.325/465.325
	Valparaiso	460.475/465.475	460.325/465.325
Santa Rosa			
	Sheriff	45.22	460.400/465.400
	Gulf Breeze	155.865	
		158.910	460.400/465.400
	Jay	154.980	460.400/465.400
	Milton	158.760	460.125/465.125
Wakulla			
	Sheriff	37.300	460.100/465.100
	Sopchoppy	37.300	460.175/465.175
Walton			
	Sheriff	37.300	460.050/465.050
	DeFuniak Springs	155.58	460.425/465.425
		37.30	
Washington			
	Sheriff	37.300	460.100/465.100
	Chipley	37.300	460.025/465.025

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Alachua			
	Sheriff	154.830	460.375/465.375
			460.175/465.175
	High Springs	154.980	460.175/465.175
	Newberry	155.415	460.175/465.175
	Waldo	154.830	460.175/465.175
	Gainesville	460.125	460.125/465.125
		460.225	460.225/465.225
	Univ. of Florida	460.025	460.025/465.025
Baker			
	Sheriff	154.950	154.860
	Macclenny	158.760	155.595
Bradford			
	Sheriff	154.950	154.740
	Lawtey	154.950	155.415
	Starke	154.950	155.415
Clay			
	Sheriff	154.950	
		155.700	155.700
	Green Cove Springs	155.895	
		155.190	155.190
	Keystone Heights	154.950	155.700
	Orange Park	154.995	155.535
Columbia			
	Sheriff	154.815	155.010/155.655
	Lake City	155.010	155.010/155.655

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Dixie			
	Sheriff	155.850	155.070/155.670
	Cross City	155.850	155.070/155.670
	Horseshoe Beach	155.850	155.070/155.670
Flagler			
	Sheriff	154.950	158.850/159.150 158.910/159.210
	Bunnell	154.950	158.910/159.210
	Flagler Beach	154.950	158.910/159.210
Gilchrist			
	Sheriff	154.950	154.770/155.490
Hamilton			
	Sheriff	155.580	154.785/155.520
	Jasper	154.040	154.785/155.520
	Jennings	No radio	154.785/155.520
	White Springs	155.580	154.785/155.520
Lafayette			
	Sheriff	155.130	155.070/155.670
Levy			
	Sheriff	154.770	154.770/155.490
	Chiefland	154.950	154.770/155.490
	Williston	154.950	154.770/155.490
Madison			
	Sheriff	155.880	154.785/155.520
	Greenville	No radio	154.785/155.520
	Madison	155.880	154.785/155.520

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Nassau			
	Sheriff	45.700	154.725
	Callahan	45.700	154.725
	Fernandina Beach	155.310	155.310
	Hilliard	45.700	154.725
Putnam			
	Sheriff	155.550	154.755
	Crescent City	155.430	155.430
	Palatka	155.430	155.430
	Interlacken	155.550	154.755
	Welaka	No radio	154.755
St. John's			
	Sheriff	39.500	154.890
	St. Augustine	159.150	155.625
	St. Augustine Beach	39.500	154.890
Suwanee			
	Sheriff	45.220	154.785/155.520
	Branford	45.220	154.785/155.520
	Live Oak	155.070	154.785/155.520
Taylor			
	Sheriff	37.300	155.070/155.670
	Perry	154.660	155.070/155.670
Union			
	Sheriff	154.950	154.800
	Lake Butler	154.950	154.800
Volusia			
	Sheriff	154.860	154.860/155.595 154.725/155.310

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Volusia (continued)	Daytona Beach Shores	155.145	155.790/156.090
	Deland	155.850	154.725/155.310
	Edgewater	154.995	155.640/155.970
	Holly Hill	154.115	155.790/156.090
	Lake Helen	155.940	154.725/155.310
	New Smyrna Beach	154.115	155.640/155.970
	Oak Hill	154.950	155.640/155.970
	Ormond Beach	155.310	155.790/156.090
	Port Orange	155.760	155.640/155.970
	South Daytona	155.940	155.790/156.090
	Daytona Beach	155.250	154.785/155.520
		155.565	155.070/155.670
	Pierson	—	154.725/155.310
Brevard	Sheriff	154.890	154.890/155.625
			154.710/155.250
	Cape Canaveral	155.640	154.875/155.610
	Cocoa	453.250/458.250	453.250/458.250
	Cocoa Beach	155.970	154.875/155.610
	Indialantic	155.775	155.010/155.655
	Indian Harbor Beach	155.865	155.010/155.655
	Melbourne Beach	155.775	155.010/155.655
	Palm Bay	155.805	154.740/155.415
	Rockledge	155.115	453.250/458.250
	Satellite Beach	155.805/154.890	155.010/155.655
	Melbourne	155.415	154.740/155.415
			154.650/155.190
	Titusville	460.225/465.225	460.225/465.225
		460.325/465.325	

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Citrus	Sheriff	45.140	45.86
	Crystal River	45.360	45.86
		45.140	
	Inverness	45.140	45.86
Hernando	Sheriff	45.140	45.50
	Brookville	45.200	45.50
Indian River	Sheriff	155.580	154.860/155.595
	Fellsmere	155.580	154.860/155.595
	Sebastian	155.580	154.860/155.595
	Vero Beach	155.670	155.070/155.670
	Indian River Shores	155.670	155.070/155.670
Lake	Sheriff	39.82	155.850/156.150
		39.86	155.130/155.685
	Clermont	39.82	155.130/155.685
	Eustis	39.82	154.845/155.580
	Fruitland Park	39.82	155.130/155.685
	Groveland	39.82	155.130/155.685
	Howey in the Hills	39.82	155.130/155.685
	Leesburg	155.49	155.850/156.150
	Mascotte	39.82	155.130/155.685
	Minneola	155.865	155.130/155.685
		39.82	
	Montverde	39.82	155.130/155.685
	Mount Dora	39.82	154.845/155.580
	Tavares	39.82	154.845/155.580
	Umatilla	39.82	154.845/155.580

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Marion			
	Sheriff	155.070	154.875/155.610
	Belleview	155.070	154.875/155.610
	Dunnellon	155.070	154.875/155.610
	Ocala	155.610	154.710/155.250
		155.685	
Martin			
	Sheriff	155.685	155.730/156.030
			155.850/156.150
	Jupiter Island	155.535	155.850/156.150
	Stuart	154.980	155.850/156.150
Okeechobee			
	Sheriff	158.730	154.800/155.535
	Okeechobee	460.100/465.100	154.800/155.535
Orange			
	Sheriff	460.025/465.025	460.025/465.025
		460.125/465.125	460.125/465.125
		460.175/465.175	460.175/465.175
		460.275/465.275	460.075/465.075
			460.475/465.475
	Apopka	155.010	155.910/156.210
	Eatonville	155.370	453.550/458.550
	Edgewood	152.020/158.490	155.910/156.210
	Maitland	155.670	453.550/458.550
	Oakland	155.790	158.790/159.090
	Ocoee	154.100	158.790/159.090
	Windermere	154.100	158.790/159.090
	Winter Garden	155.790	158.790/159.090

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Orange (continued)	Orlando		460.425/465.425
		460.050/465.050	460.050/465.050
		460.100/465.100	460.100/465.100
		460.400/465.400	460.400/465.400
		460.450/465.450	460.450/465.450
	Winter Park	453.375/458.375	453.375/458.375
		158.730	453.450/458.450
			453.550/458.550
	Florida Technological Univ.	151.775	155.700/158.970
Osceola			
	Sheriff	460.375	460.375/465.375
		460.325	
	Kissimmee	158.970	154.815/155.550
	St. Cloud	155.655	154.775/155.430
Pasco			
	Sheriff	45.140	45.14
		45.180	45.22
			45.58
			45.18
			45.62
	Dade City	45.22	45.16
			45.66
	New Port Richey	155.750	45.16
			45.66
	Port Richey	45.14	45.16
			45.66
	San Antonio	45.14	45.16
			45.66
	St. Leo	45.16	45.16
			45.66

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Pasco (continued)	Zephyrhills	45.66	45.16 45.66
St. Lucie			
	Sheriff	155.790/158.850	155.790/156.090
	Fort Pierce	159.210 158.910	155.640/155.970
Seminole			
	Sheriff	155.535	154.770/155.490 154.830/155.565
	Altamonte Springs	155.250 155.085	154.800/155.535 155.730/156.030
	Casselberry	460.475/465.475	154.800/155.535 155.730/156.030
	Longwood	154.055	154.800/155.535 155.730/156.030
	Oviedo	154.965	154.800/155.535 155.730/156.030
	Winter Spring	154.055	154.800/155.535 155.730/156.030
	Sanford	460.500/465.500	460.500/465.500
Sumter			
	Sheriff	45.140	45.540
	Bushnell	45.140	45.540
	Coleman	45.140	45.540
	Webster	45.140	45.540
	Wildwood	158.775	45.540
Charlotte			
	Sheriff	155.565/158.970	154.830/155.565
	Punta Gorda	155.880/154.890	155.130/155.685

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Collier			
	Sheriff	155.820/155.880	155.820/155.880
	Naples	155.415	154.740/155.415
DeSoto			
	Sheriff	45.94 46.02	45.94
	Arcadia	155.850 155.880	45.94
Glades			
	Sheriff	46.02	45.86
Hardee			
	Sheriff	45.58	45.98
	Bowling Green	45.58	45.98
	Wauchula	45.64	45.98
	Zolfo Springs	45.58	45.98
Hendry			
	Sheriff	155.595 155.115	155.910/156.210
	Clewiston	154.785	158.790/159.090
Highlands			
	Sheriff		45.70
		46.02	46.02
	Avon Park	155.940	45.70
	Lake Placid	45.52	45.70
	Sebring	154.770	45.70
Lee			
	Sheriff	158.910	154.755/155.430
		155.655	154.845/155.580

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Lee (continued)	Cape Coral	453.975/458.975	460.175/465.175
	Fort Myers	155.535/155.610	154.800/155.535
Manatee			
	Sheriff		154.860/155.595
		155.790/158.730	155.790/156.090
	Anna Maria	155.790/158.730	155.790/156.090
	Bradenton	460.100/465.100	460.100/465.100
	Bradenton Beach	155.790/158.730	155.790/156.090
	Holmes Beach	155.790/158.730	155.790/156.090
	Longboat Key	155.790/158.730	155.790/156.090
	Palmetto	159.150	460.100/465.100
Polk			
	Sheriff	453.050/458.050	453.050/458.050
		453.225/458.225	453.225/458.225
		453.500/458.500	453.500/458.500
		453.950/458.950	453.950/458.950
	Auburndale	155.070	460.400/465.400
	Bartow	155.310	460.500/465.500
	Davenport	156.45	460.450/465.450
	Dundee	453.050/458.050	
		453.225/458.225	
		453.500/458.500	460.450/465.450
	Eagle Lake	155.550	158.910/159.210
	Fort Meade	155.850	154.725/155.310 or
		155.880	158.730/159.030
	Frostproof	158.745	154.725/155.310 or 158.730/159.030
	Haines City	156.450	156.450
	Lake Alfred	155.925	460.450/465.450 154.725/155.310 or 158.730/159.030

Chester F. Blakemore, Executive Director

DEPARTMENT OF
GENERAL SERVICES
Larson Building, Tallahassee 32304

- BOND FINANCE
- COMMUNICATIONS
- CONSTRUCTION AND MAINTENANCE
- DATA PROCESSING
- MOTOR POOL
- PURCHASING
- SURPLUS PROPERTY

Please address reply to: Room 651
Larson Building

August 24, 1973

DISTRIBUTION LIST

Dear Sir:

Enclosed for your information is a copy of the Florida County and Municipal Law Enforcement Communications Plan.

This plan was developed under Florida Law 72-296, and completed in July 1973.

If you have any questions or require additional information with regard to this plan, please contact this office.

Sincerely,

Gene Buzzi

Eugene A. Buzzi
Communications Engineer

EAB/11

Enclosure

DISTRICT IV

Table 3.3. Frequency Assignments (continued).

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Polk (continued)	Lake Wales	155.430	154.725/155.310 or 158.730/159.030
	Mulberry	155.760	154.725/155.310 or 158.730/159.030
	Polk City	453.500/458.500	453.500/458.500
		453.950/458.950	453.950/458.950
	Lake Hamilton		460.450/465.450
	Winter Haven	155.550	158.850/159.150
		155.625	158.910/159.210
	Lakeland	460.225/465.225	460.225/465.225
		460.400/465.400	460.400/465.400
		460.450/465.450	
		460.500/465.500	
Sarasota	Sheriff	155.430/159.03	154.770/155.490
			154.875/155.610
	North Port Charlotte	159.03	154.875/155.610
	Venice	154.04	
		154.115	155.850/156.150
	Sarasota	460.075/465.075	460.075/465.075
		460.125/465.125	460.125/465.125
Palm Beach	Florida Atlantic Univ.	153.995	154.995

Table 3.3. (continued)

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Pinellas	Sheriff	154.755/157.210	154.710/155.210
		154.815/158.970	154.755/155.430
		155.250/158.850	154.815/155.550
		154.725/158.910[a]	154.800/155.535
		155.640	
	Belleair	156.000	
		154.755/156.09	155.640/155.970
	Belleair Beach	154.775/156.09	155.640/155.970
	Belleair Bluffs	156.000	155.640/155.970
	Clearwater	460.275/465.275	460.275/465.275
		460.475/465.475	460.475/465.475
		460.425/465.425	460.025/465.025
			460.425/465.425
			460.375/465.375
	Dunedin	155.580	460.475/465.475
	Gulport	153.965	155.700/158.970
	Indian Rocks Beach	155.250	155.640/155.970
	Kenneth City	154.755/156.090	158.790/159.090
	Largo	453.925/458.925	460.425/465.425
	Madeira Beach	159.090	158.790/159.090
	Oldsman	154.755/156.090	155.640/155.970
	Pinellas Park	155.070	155.070/155.670
	Redington Beach	158.790	158.790/159.090
	Safety Harbor	45.24	155.640/155.970
	St. Petersburg	155.730	155.730/156.030
		155.910	155.910/156.210
		154.845	154.845/155.580
		155.415	154.740/155.415
		460.050/465.050	155.070/155.670
			460.050/465.050
			460.325/465.325
			460.175/465.175
	St. Petersburg Beach	460.325/465.325	155.700/158.970
	Shores	154.755/156.09	158.790/159.090
	South Pasadena	155.835	158.790/159.090
	Tarpon Springs	155.590	155.640/155.970

[a]Not yet in use.

Table 3.3. (continued)

County	Agency	Existing Primary Frequency (MHz)	Recommended Primary Frequency (MHz)
Pinellas (continued)	Treasure Island City	158.790	158.790/159.090
Duval	Sheriff	453.050/458.050	453.050/458.050
		453.100/458.100	453.100/458.100
		453.150/458.150	453.150/458.150
		453.200/458.200	453.200/458.200
		453.300/458.300	453.300/458.300
		453.350/458.350	453.350/458.350
		453.400/458.400	453.400/458.400
		453.450/458.450	453.450/458.450
			453.600/458.600
			155.850/156.150
			155.910/156.210
			158.790/159.090
	Altantia Beach	155.100	155.790
	Jacksonville Beach	453.700/458.700	453.700/458.700
		453.900/458.900	
	Neptune Beach	154.100	155.790
	Univ of No. Florida	453.975/458.975	453.975/458.975
Hillsborough	Sheriff	155.190	154.650/155.190
		154.785	154.785/155.520
		154.890	154.890/155.625
			155.010/155.655
	Plant City	155.670	154.890/155.625
	Temple Terrace	155.725	154.890/155.625
	Univ of So. Florida	154.650	155.805 (L.G.)
	Tampa	453.550/458.550	453.550/458.550
		453.700/458.700	453.700/458.700
		453.800/458.800	453.800/458.800
		453.850/458.850	453.850/458.850
			453.100/458.100
			453.750/458.750
			453.625/458.625 (L.G.)

Table 3.4. Frequency Assignments Listed by Frequency.

County	Agency	Present Licencees within 75 miles Base Frequency	Mobile Frequency
Channel No. 1		**Frequencies 154.650/155.190 MHz**	
Clay	Green Cove Springs (M)		Pres. Lic.
Brevard	Melbourne	Orlando Longwood Winter Garden Apopka	Pres. Lic. in Co.
Hillsborough	Sheriff	Univ. of South Florida	Pres. Lic.
Channel No. 2		**Frequencies 154.710/155.250 MHz**	
Brevard	Sheriff	presently lic. in co.	Alachua Daytona Beach Altamonte Springs St. Cloud
Marion	Ocala	none	Daytona Beach Altamonte Springs St. Cloud
Pinellas	Sheriff	none	Pres. Lic. in Co.
Channel No. 3		**Frequencies 154.725/155.310 MHz**	
Nassau	Sheriff (B) Callahan (B) Fernandino Beach (M) Hilliard (B)	Macclenny	Pres. Lic.
Polk	Fort Meade Frostproof Lake Alfred Lake Wales Mulberry	Clearwater	Pres. Lic. in Co.
Volusia	Sheriff Deland Lake Helen Pierson	none	Pres. Lic. in Co.
Leon	Florida State University	none	none

Table 3.4. (continued)

County	Agency	Present Licencees within 75 miles Base Frequency	Mobile Frequency
Channel No. 4		**Frequencies 154.740/155.415 MHz**	
Bradford	Sheriff (B) Lawtey (M) Starke (M)	none	Newberry
Brevard	Melbourne Palm Bay	Orlando	Pres. Lic.
Pinellas	St. Petersburg	none	Pres. Lic.
Collier	Naples	none	Pres. Lic.
Channel No. 5		**Frequencies 154.755/155.430 MHz**	
Putnam	Sheriff (B) Crescent City (M) Palatka (M) Interlacken (B) Welaka (B)	none	Pres. Lic.
Osceola	St. Cloud	none	none
Pinellas	Sheriff	Pres. Lic. in Co.	Sarasota
Lee	Sheriff	none	Sarasota
Channel No. 6		**Frequencies 154.770/155.490 MHz**	
Seminole	Sheriff	Presently lic. in co.	Leesburg
Sarasota	Sheriff	Sebring	Tarpon Springs
Levy	Sheriff Chiefland Williston	Pres. lic. in co.	Leesburg
Gilchrist	Sheriff	none	Leesburg
Channel No. 7		**Frequencies 154.785/155.520 MHz**	
Volusia	Daytona Beach	none	none
Hillsborough	Sheriff	Presently lic. in co.	New Port Richey
Hamilton	Sheriff Jasper Jennings White Springs	none	Lake City
Madison	Sheriff Greenville Madison	none	Lake City
Suwanee	Sheriff Branford Live Oak	none	Lake City

Table 3.4. (continued)

County	Agency	Present Licencees within 75 miles Base Frequency	Mobile Frequency
Channel No. 8		Frequencies 154.800/155.535 MHz	
Union	Sheriff (B) Lake Butler (B)	none	none
Clay	Orange Park (M)	none	none
Seminole	Altamonte Springs Longwood Oviedo Winter Spring Casselberry	Orlando	Pres. Lic.
Okeechobee	Sheriff Okeechobee	none	Jupiter Island
Lee	Fort Myers	none	Pres. Lic.
Pinellas	Sheriff	none	Tampa
Channel No. 9		Frequencies 154.815/155.550 MHz	
Osceola	Kissimmee	none	Winter Haven
Pinellas	Sheriff	Presently lic. in co.	Winter Haven
Channel No. 10		Frequencies 154.830/155.565 MHz	
Seminole	Sheriff	Presently lic. in co.	Daytona Beach
Charlotte	Sheriff	none	Pres. Lic.
Duval	Sheriff	Alachua Co.	none
Channel No. 11		Frequencies 154.845/155.580 MHz	
Lake	Eustis Mount Dora Tavares Umatilla	none	none
Lee	Sheriff	none	none
Pinellas	St. Petersburg	Presently lic. in co.	none
Channel No. 12		Frequencies 154.860/155.595 MHz	
Baker	Sheriff Macclenny	none	none
Volusia	Sheriff	Presently lic. in co.	none
Manatee	Sheriff	Avon Park	Polk Co.
Indian River	Sheriff Fellsmere Sebastian	Avon Park	Clewiston Bartow

Table 3.4. (continued)

County	Agency	Present Licencees within 75 miles Base Frequency	Mobile Frequency
Channel No. 13		Frequencies 154.875/155.610 MHz	
Marion	Sheriff Belleview Dunnellon	Orlando	Pres. Lic. in co.
Brevard	Cape Canaveral Cocoa Beach	Orlando	none
Sarasota	Sheriff	none	Ft. Myers
Channel No. 14		Frequencies 154.890/155.625 MHz	
St. John's	Sheriff (B) St. Augustine (M) St. Augustine Beach (B)	none	none
Hillsborough	Sheriff Plant City Temple Terrace	Presently lic. in co.	Dade City Winter Haven
Brevard	Sheriff	Presently lic. in co.	Maitland Winter Haven
Channel No. 16		Frequencies 155.010/155.655 MHz	
Columbia	Sheriff Lake City	Presently lic. in co.	none
Hillsborough	Sheriff	Clearwater	St. Cloud
Brevard	Indialantic Indian Harbor Beach Melbourne Beach Satellite Beach	Apopka	St. Cloud
Channel No. 17		Frequencies 155.070/155.670 MHz	
Taylor	Sheriff Perry	Live Oak	none
Lafayette	Sheriff	Live Oak	none
Dixie	Sheriff Cross City Horseshoe Beach	Live Oak Marion Co.	none
Pinellas	St. Petersburg	Presently lic. in co.	Plant City
Volusia	Daytona Beach	Ocala	none
Indian River	Vero Beach Indian River Shores	none	Pres. lic.

Table 3.4. (continued)

County	Agency	Present Licencees within 75 miles Base Frequency	Mobile Frequency
Channel No. 18		Frequencies 155.130/155.685 MHz	
Lake	Sheriff Clermont Fruitland Park Groveland Howey in the Hills Mascotte Mineola Montverde	Orlando	Pinellas Co. Ocala
Charlotte	Punta Gorda	none	none
Channel No. 19		Frequencies 155.640/155.970 MHz	
Volusia	Edgewater New Smyrna Beach Oak Hill Port Orange	Cape Canaveral	Cocoa Beach
St. Lucie	Fort Pierce	Cape Canaveral	Cocoa Beach
Pinellas	Belleair Belleair Beach Belleair Bluffs Indian Rocks Beach Oldsman Safety Harbor Tarpon Springs	Presently lic. in co.	Tampa
Channel No. 20		Frequencies 155.730/156/030 MHz	
Pinellas	St. Petersburg	Pres. Lic.	Pres. lic. in co.
Seminole	Altamonte Springs Longwood Oviedo Winter Spring Casselberry	none	none
Martin	Sheriff	none	none
Channel No. 21		Frequencies 155.790/156.090 MHz	
Duval	Atlantic Beach (B) Neptune Beach (B)	none	
Volusia	Daytona Beach Shores Holly Hills Ormond Beach South Daytona	Orange Co.	none

Table 3.4. (continued)

County	Agency	Present Licencees within 75 miles Base Frequency	Mobile Frequency
Channel No. 21 (continued)		Frequencies 155.790/156.090 MHz	
Manatee	Sheriff Anna Maria Brodington Beach Holmes Beach Longboat Key	Pres. lic. in co.	Pinellas Co.
St. Lucie	Sheriff	none	Palm Beach Gardens
Channel No. 22		Frequencies 155.850/156.150 MHz	
Lake	Sheriff Leesburg	Fort Meade	Tampa
Sarasota	Venice North Port Charlotte	Fort Meade	Tampa
Martin	Sheriff Jupiter Island Stuart	Riviera Beach	none
Duval	Sheriff	none	Pres. Lic.
Channel No. 23		Frequencies 155.910/156.210 MHz	
Orange	Edgewood Apopka	none	Casselberry
Pinellas	St. Petersburg	Prec. Lic.	Tampa
Hendry	Sheriff	none	Belle Glade
Duval	Sheriff	Pres. Lic.	none
Channel No. 24		Frequencies 158.730/159.030 MHz	
Polk	Frostproof Fort Meade Lake Alfred Lake Wales Mulberry	Manatee Co. Winter Park Okeechobee	Sarasota Co.

Table 3.4. (continued)

County	Agency	Present Licencees within 75 miles Base Frequency	Mobile Frequency
Channel No. 25		Frequencies 158.790/159.090 MHz	
Pinellas	Kenneth City Madeira Beach Redington Beach Shores South Pasadena Treasure Island City	Pres. Lic. in co.	Pres. lic. in co.
Orange	Oakland Ocoee Winter Garden Windermere	Melbourne	Kissimmee
Hendry	Clewiston	none	Pompano Beach
Channel No. 26		Frequencies 158.850/159.150 MHz	
Flagler	Sheriff	Deland	St. Augustine
Polk	Winter Haven	St. Lucie Co.	none
Channel No. 27		Frequencies 158.910/159.210 MHz	
Polk	Winter Haven Eagle Lake	Clearwater	Pres. lic. in co.
Flagler	Sheriff Bunnell Flagler Beach	Jacksonville	none
Channel No. 28		Frequencies 155.700/158.970 MHz	
Pinellas	Gulfport St. Petersburg Beach	Bartow	Pres. lic. in co.
Orange	Florida Technological University	Bartow	Kissimmee
Clay	Sheriff (B) Keystone Heights (B)	Pres. lic.	Duval Co.

Table 3.4. (continued)

UHF ASSIGNMENTS

Frequency	County	Agency
453.050/458.050	Polk Duval	Sheriff Sheriff
453.100/458.100	Duval Hillsborough	Sheriff Tampa
453.150/458.150	Duval	Sheriff
453.200/458.200	Duval	Sheriff
453.225/458.225	Polk	Sheriff
453.250/458.250	Brevard	Cocoa/Rockledge
453.300/458.300	Duval	Sheriff
453.350/458.350	Duval	Sheriff
453.375/458.375	Orange	Winter Park
453.400/458.400	Duval	Sheriff
453.450/458.450	Orange Duval	Winter Park Sheriff
453.500/458.500	Polk Polk	Sheriff Polk City
453.550/458.550	Orange Hillsborough	Winter Park Maitland Eatonville Tampa
453.600/458.600	Duval	Sheriff
453.700/458.700	Duval Hillsborough	Jacksonville Beach Tampa
453.750/458.750	Hillsborough	Tampa
453.800/458.800	Hillsborough	Tampa
453.850/458.850	Hillsborough	Tampa
453.950/458.950	Polk Polk	Sheriff Polk City

Table 3.4. (continued)

UHF ASSIGNMENTS

Frequency	County	Agency
453.975/458.975	Duval	University of North Florida
460.025/465.025	Escambia	Pensacola
	Washington	Chipley
	Alachua	University of Florida
	Orange	Sheriff
	Pinellas	Clearwater
460.050/465.050	Calhoun	Sheriff
	Liberty	Sheriff
	Walton	Sheriff
	Orange	Orlando
	Pinellas	St. Petersburg
460.075/465.075	Calhoun	Altha
		Blountstown
	Okaloosa	Ft. Walton Beach
	Orange	Sheriff
	Sarasota	Sarasota
460.100/465.100	Escambia	Sheriff
	Wakulla	Sheriff
	Washington	Sheriff
	Orange	Orlando
	Manatee	Bradenton
460.125/465.125	Gulf	Port St. Joe
		Wewahitahka
	Holmes	Bonifay
	Leo	Tallahassee
	Santa Rosa	Milton
	Alachua	Gainesville
	Orange	Sheriff
	Sarasota	Sarasota
460.150/465.150		
460.175/465.175	Bay	Panama City
	Escambia	Pensacola
	Liberty	Sheriff
	Wakulla	Sopchoppy
	Alachua	Sheriff
		High Springs
		Newberry
	Orange	Waldo
	Pinellas	Sheriff
	Lee	St. Petersburg
		Cape Coral

Table 3.4. (continued)

UHF ASSIGNMENTS

Frequency	County	Agency
460.200/465.200		
460.225/465.225	Bay	Callaway
		Cedar Grove
		Lynn Haven
		Mexico Beach
		Parker
	Escambia	University of West Florida
	Alachua	Gainesville
	Brevard	Titusville
	Polk	Lakeland
460.250/465.250		
460.275/465.275	Emergency Coordination Channel	
460.300.465.300		
460.325/465.325	Okaloosa	Niceville
		Valparaiso
	Pinellas	St. Petersburg
460.350.465.350		
460.375/465.375	Bay	Panama City Beach
	Gadsden	Chattahoochee
		Quincy
	Okaloosa	Crestview
	Alachua	Sheriff
	Osceola	Sheriff
	Pinellas	Clearwater
460.400.465.400	Bay	Sheriff
	Bay	Springfield
	Leon	Sheriff
	Santa Rosa	Sheriff
		Gulf Breeze
		Jay
	Orange	Orlando
	Polk	Auburndale
		Lakeland

Table 3.4. (continued)

UHF ASSIGNMENTS

Frequency	County	Agency
460.425/465.425	Escambia	Pensacola
		South Flomation
	Franklin	Apalachicola
		Carrabelle
	Jackson	Marianna
	Jefferson	Monticello
	Walton	DeFuniak Springs
	Orange	Orlando
	Pinellas	Clearwater, Largo
460.450/465.450	Bay	Sheriff
	Gadsden	Sheriff
	Gadsden	Havana
	Orange	Orlando
	Polk	Davenport
		Dundee
		Haines City
		Lake Hamilton
460.475/465.475	Franklin	Sheriff
	Jackson	Sheriff
		Cottondale
		Graceville
		Sneads
	Okaloosa	Sheriff
	Pinellas	Clearwater, Dunedin
	Orange	Sheriff
460.500/465.500	Escambia	Sheriff
	Gulf	Sheriff
	Holmes	Sheriff
	Jefferson	Sheriff
	Seminole	Sanford
	Polk	Bartow

Table 3.4. (continued)

LOW BAND ASSIGNMENTS

Frequency	County	Agency	Present Licencees within 75 miles
45.14	Pasco	Sheriff	Brooksville
			Bushnell
			Crystal River
			Inverness
			Pasco
45.16	Pasco	Dade City	St. Leo (Pasco)
		New Port Richey	
		Port Richey	
		San Antonio	
		St. Leo	St. Leo
		Zepherhills	
45.18	Pasco	Sheriff	Pasco
45.22	Pasco	Sheriff	Pasco
45.50	Hernando	Sheriff	none
		Brooksville	
45.54	Sumpter	Sheriff	none
		Bushnell	
		Coleman	
		Webster	
		Wildwood	
45.58	Pasco	Sheriff	none
45.62	Pasco	Sheriff	none
45.66	Pasco	Dade City	Zepherhills
		New Port Richey	
		Port Richey	
		San Antonio	
		St. Leo	
		Zepherhills	
45.70	Highlands	Sheriff	none
		Avon Park	
		Lake Placid	
		Sebring	
45.86	Citrus	Sheriff	none
		Crystal River	
		Inverness	
	Glades	Sheriff	none
45.94	Desoto	Sheriff	Arcadia
		Arcadia	
45.98	Hardee	Sheriff	Ft. Myers
		Bowling Green	
		Wauchula	
46.02	Highlands	Sheriff	Arcadia
			Hendry S.O.
			Highlands S.O.
			Moore Haven
			Immokalee
			Naples

Table 3.5. Phase Over Plan.

County	Channel	Agencies which must convert prior to those of column 1	Agencies which must convert prior to those of columns 2&1	Agencies which must convert prior to those of columns 3,2&1
Alachua	UHF	none		
Baker	12	none		
Bradford	4M	Alachua (Newberry)		
Clay	1M,28B,8M	none		
Columbia	16	none		
Dixie	17	Suwanee (Live Oak)	Columbia (Lake City)	
	17	Marion	Volusia (Daytona Beach)	
Flagler	26	Volusia (Deland)		
	26	St. John's (St. Augustine)		
	27	Duval (Jacksonville)		
Gilchrist	6	Lake (Leesburg)	Polk (Ft. Meade) Hillsborough (Tampa)	Pinellas (Clearwater)
Hamilton	7	Columbia (Lake City)		
Lafayette	17	Suwanee (Live Oak)	Columbia (Lake City)	
Levy	6	Lake (Leesburg)	Hillsborough (Tampa) Polk (Ft. Meade)	Pinellas (Clearwater)
Madison	7	Columbia (Lake City)		
Nassau	3	Baker (Macclenny)		
Putnam	5	none		
St. John's	14	none		
Suwanee	7	Columbia (Lake City)		
Taylor	17	Suwanee (Live Oak)	Columbia (Lake City)	
Union	8B	none		
Volusia	3	none		
	7	none		
	12	none		
*	17	Marion Sheriff	Volusia (Daytona Beach)	
	19	Brevard (Cape Canaveral Cocoa Beach)	Orange (Orlando)	
	21	Orange		
Brevard	1	Orange Seminole (Longwood)		
	2	Alachua		
	2	Volusia (Daytona Beach)		
	2	Seminole (Altamonte Springs)		
	2	Osceola (St.Cloud)		
	4	Orange (Orlando)		

* Simultaneous change required

Table 3.5. (continued)

County	Channel	Agencies which must convert prior to those of column 1	Agencies which must convert prior to those of columns 2&1	Agencies which must convert prior to those of columns 3,2&1
	13	Orange (Orlando)		
	14	Orange (Maitland)		
	14	Polk (Winter Haven)	Pinellas (Clearwater)	
	16	Orange (Apopka)	Seminole (Casselberry)	
	16	Osceola (St.Cloud)		
Citrus	45.86 MHz	none		
Hernando	45.50 MHz	none		
Indian River	12	Highlands (Avon Park)		
		Hendry (Clewiston)	Broward (Pompano Beach)	
		Polk (Bartow)		
	17	none		
Lake	11	none		
	18	Orange (Orlando)		
	18	Pinellas Co.		
	18	Marion (Ocala)	Orange (Winter Park)	
	22	Polk (Ft. Meade)	Pinellas (Clearwater)	
	22	Hillsborough (Tampa)		
* Marion	2	Volusia (Daytona Beach)	Marion (sheriff)	
		Seminole (Alamonte Springs)		
		Osceola (St.Cloud)		
	13	Orlando (Orange)		
Martin	20	none		
	22	Palm Beach (Riviera Beach)		
Okeechobee	8	Martin (Jupiter Island)	Palm Beach (Riviera Beach)	
Orange	23	Seminole (Casselberry)		
*	25	Brevard (Melbourne)	Orange (Orlando)	
	25	Osceola (Kissimmee)	Polk (Winter Haven)	Pinellas (Clearwater)
	28	Polk (Bartow)		
	28	Osceola (Kissimmee)	Polk (Winter Haven)	Pinellas (Clearwater)
Osceola	5	none		
	9	Polk (Winter Haven)	Pinellas (Clearwater)	

* Simultaneous change required

Table 3.5. (continued)

County	Channel	Agencies which must convert prior to those of column 1	Agencies which must convert prior to those of columns 2&1	Agencies which must convert prior to those of columns 3,2&1
Pasco	45.14 MHz	Hernando Sumpter Citrus		
	45.16 MHz	none		
	45.18 MHz	none		
	45.58 MHz	Hardee	Lee (Fort Myers)	
	45.22 MHz	none		
	45.62 MHz	none		
	45.66 MHz	none		
St.Lucie	19	Brevard(Cape Canaveral Cocoa Beach)	Orange (Orlando)	
	21	Palm Beach (Palm Beach Gardens)		
Seminole	6	Lake (Leesburg)		
	8	Orange (Orlando)		
	10	Volusia(Daytona Beach)	Marion (sheriff)	
	20	none		
Sum ter	45.54	none		
Charlotte	10	none		
	18	none		
Collier	4	none		
Desoto	45.94 MHz	none		
Glades	45.86 MHz	none		
Hardee	45.98 MHz	Lee (Ft. Myers)		
Hendry	23	Palm Beach (Polk Glade)		
	25	Broward (Pompano Beach)		
Highlands	45.70 MHz	none		
	46.02 MHz	Desoto		
	46.02 MHz	Hendry	Palm Beach (Belle Glade)	
	46.02 MHz	Collier		
	46.02 MHz	Glades		
Lee	5	Sarasota		
	8	none		
	11	none		
Manatee	12	Highlands (Avon Park)		
	12	Polk Co.		
	21	Pinellas Co.	Hillsborough (Tampa)	

Table 3.5. (continued)

County	Channel	Agencies which must convert prior to those of column 1	Agencies which must convert prior to those of columns 2&1	Agencies which must convert prior to those of columns 3,2&1
Polk	3	Pinellas (Clearwater)		
	24	Manatee Co. (Longboat Key)	Pinellas Co.	Hillsborough (Tampa)
	24	Orange (Winter Park)		
	24	Okeechobee	Martin (Jupiter Island)	Palm Beach (Riviera (Beach)
	26	St. Lucie Co. (Sheriff)	Palm Beach (Palm Beach Gardens)	
	27	Pinellas (Clearwater)		
Sarasota	6	Highlands (Sebring)		
	6	Pinellas (Tarpon Springs)	Hillsborough (Tampa)	
	13	Lee (Ft. Myers)		
	22	Polk (Ft. Meade)	Pinellas (Clearwater)	
	22	Hillsborough (Tampa)		
Duval	21B	none		
Hillsborough	1	Univ. of S.Florida		
	7	Pasco (New Port Richey)		
	14	Pasco (Dade City)		
	14	Polk (Winter Haven)	Pinellas (Clearwater)	
	16	Pinellas (Clearwater)		
	16	Osceola (St. Cloud)		
Pinellas	2	none		
	5	Sarasota	Lee (Ft. Myers)	
	8	Hillsborough (Tampa)		
	9	Polk (Winter Haven)	Pinellas (Clearwater)	
	19	Hillsborough (Tampa)		
	25	none		
	28	Polk (Bartow)		
	4	none		
	11	none		
	20	none		
	23	Hillsborough (Tampa)		
	17	Hillsborough (Plant City)	Polk (Winter Haven)	Pinellas (Clearwater)

NOTE: All new UHF assignments are available for immediate implementation

In addition to the primary channel and emergency channel, most of the larger agencies also have need for surveillance channels. Since all available police frequencies in high band and in UHF have been utilized in assignment of primary channels, other alternatives must be considered for surveillance channels. The three available alternatives are:

a. Use of Low Band Frequencies

A large number of low band frequencies are available for assignment and in addition the propagation characteristics of low band are favorable for relatively good mobile-to-mobile and portable-to-portable coverage. The principal disadvantage of this alternative is the need for a second radio in some cars, (low band and high band) or additional low band portables that would be for surveillance activities only.

b. Talk-Around Channel on VHF High Band

The recommended mode of operation as previously described included the talk-around feature which can be used for surveillance activities with minimum disruption of the primary channel. This approach requires no additional frequency licensing and uses the same radio in the vehicle but has the disadvantage that the base/repeater transmissions will interrupt the surveillance traffic. This approach is therefore applicable only on the more lightly loaded channels. A further disadvantage is that other field units in proximity can monitor the operation.

c. Low Power (less than 2 watts) in VHF High Band

The FCC permits low power transmission without licensing on a noninterfering basis. This approach can be implemented using existing 2 watt portables and will provide communications completely separate from the dispatch channel operation. The frequencies cannot be used, however, in mobile radios or higher powered portables and therefore the range is limited to 2-5 miles depending upon conditions.

The best alternative for a given agency will depend upon the needs and methods of operation and therefore the choice is left to the discretion of each agency. Smaller agencies may well elect to use the talk-around approach which involves no additional expense or licensing. Larger agencies on the other hand who have greater demands for surveillance and more radio traffic may favor and have greater justification for the use of low band channels or low power portables.

3.7 Telephone Considerations

Ease of access to the Police Command and Control Center for the citizen is a basic requirement. To meet this requirement it is important to: (a) provide separate emergency and administrative telephone numbers, and (b) provide a single easy-to-remember telephone number. In addition, all trunks to a dispatching center should be on a rotary system so that a single number will reach the idle telephone line.

Where the area served is within a single telephone exchange area, the details of providing a single emergency number can usually be accomplished by the franchised operating company with little difficulty. Where the area served includes exchanges outside the extended area service, i.e., where toll calls are involved, the difficulties involved become more complex.

In dealing with these problems, the agencies need to recognize the limitations imposed by telephone equipment and by the franchise area boundaries. Attempting to obtain a common numbering system involving more than one exchange can require extensive equipment modification.

For purposes of developing this plan, the telephone company central office boundaries were examined in relation to the jurisdictional boundaries of the recommended command and control centers. Where the service is not toll-free, foreign exchange lines are recommended in order to allow the citizen to call the police without a toll charge. The recurring monthly costs for these lines are presented for each county in Section 3.7.

When foreign exchange lines are required, it is usually not possible to provide a common single countywide emergency number. In lieu of the single number, it is usually possible to obtain 4 common numbers preceded by the exchange number of the calling party, such as XYZ-1111.

The number of telephone trunks or foreign exchange lines required for an area is determined by the tolerable waiting time and the total time the channels will be in use. By queueing theory, the probability of excessive waiting time or of a busy line can then be determined. As described in Section 2.3 a uniform criteria has been assumed throughout the state and the lines needed by each dispatching center are detailed in the requirements summaries.

Administrative lines must also be provided, of course, and the plan recommends that each agency provide sufficient administrative lines at its own facility while the emergency lines will be at the central command and control center. The required number of lines can best be determined

from traffic data at each agency. As a guide to the agencies, however, an estimate of the number of lines required is given in the County Summaries in Sections 4.0 through 8.0. The estimates are based upon a service probability of 1 percent (P01) and also assuming an average ratio of about 4 administrative calls to one emergency call which is the experience of most agencies.

3.7.1 Comments on the Use of 911

The use of 911 as the common emergency number for police, fire and ambulance, has been implemented in a number of areas throughout the county. The basic advantage of 911 is the reduced time on the part of the citizen in dialing the appropriate number. In considering the use of 911, there are several factors to investigate including:

- The need for consolidating emergency dispatch services, i.e., police, fire and ambulance.
- The jurisdictional boundaries in relation to the central office boundaries of the telephone companies. Where they don't coincide, arrangements with adjacent jurisdictions are often necessary.
- Cost implications.

This plan does not address the implementation of the 911 universal emergency telephone number. However, it is important to understand that if the national trend toward acceptance of this concept continues, and implementation is encouraged, the cost of this capability must be borne by the user.

The cost of 911 systems are proportional to the quantity and type of telephone central office equipment that is required, such as Automatic Number Identification (ANI) equipment, computer-controlled automatic sensing and switching equipment, and so forth. Thus for a county with, for example, ten separate police jurisdictions, with each performing its own dispatching, the 911 telephone equipment would have to be capable of identifying the calling party's telephone number, determining which police jurisdiction is responsible for the calling party's location, and then switching the call to the appropriate police dispatch center. The cost for the telephone equipment to provide this capability will, as previously stated, be borne by the user, i.e., the public citizens and the county or municipal government.

On the other extreme, however, if a countywide cooperative dispatch center is established, such as that being planned or implemented in a number of counties, there would be one unique telephone number for all county citizens to access law enforcement assistance. Under these conditions, the cost and the implementation of a 911 type system would be considerably less.

3.8 Budgetary Cost Estimate

A compilation of the required equipment and cost to implement this communication plan was made for all agencies on a county-by-county basis. The cost information is shown on Table 3.6 for each county by district.

The equipment included in these cost estimates is itemized on Table 3.7 with the unit prices. These prices are based upon list prices, advertised prices, and quoted prices. Since most equipment suppliers offer discount for system installations, these estimates may be slightly conservative in some cases.

In those cases where new systems equipment is on order, no costs have been included.

In many of the mobile radio zones, recurring monthly telephone charges will be incurred for the foreign exchange lines. The estimated monthly costs are listed on Table 3.8.

3.9 The County Plans

Immediate and future communication requirements were developed for all county and municipal law enforcement agencies addressed in this plan. These requirements are listed on the requirements summary forms (Figure 3.9) in Sections 4.0 through 8.0. Although the communication requirements are quantitatively described, comments on specific requirements may help clarify questions the reader may have regarding the format used.

a. The primary working channel requirements were developed from the number of existing and projected mobile and portable radios used by each agency, i.e., one channel per 30 to 50 radio units. The number of mobiles and portables shown are those on the street during the survey in 1972 and those projected for 1982 based upon population projections.

b. Emergency coordination is a channel that is on a common frequency among adjacent networks. This channel would be used when an emergency arises requiring considerable channel time and possibly involving mutual support from two or more agencies.

c. The point-to-point channel is not shown on this form since it applies to all command or control centers that perform 24-hour dispatching.

d. Complaint calls per day were based on reported data and projections based on 10-year population trends.

Table 3.6. Budgetary Equipment Costs to Implement Communications System.

District I		District II		District III		District IV		High Crime Areas	
County	Cost	County	Cost	County	Cost	County	Cost	County	Cost
Bay	On order	Alachua	$ 88,972	Brevard	$ 203,684	Charlotte	$ 48,987	Duval	$ 16,500
Calhoun	$ 1,000	Baker	On order	Citrus	38,196	Collier	74,878	Hillsborough	151,000
Escambia	127,016	Bradford	On order	Hernando	48,916	DeSoto	47,987	Pinellas	245,223
Franklin	On order	Clay	On order	Indian River	66,574	Glades	38,343		
Gadsden	On order	Columbia	47,987	Lake	144,107	Hardee	47,540		
Gulf	On order	Dixie	40,840	Marion	81,616	Hendry	75,593		
Holmes	1,000	Flagler	47,737	Martin	78,233	Highlands	68,357		
Jackson	On order	Gilchrist	37,140	Okeechobee	43,963	Lee	117,305		
Jefferson	45,648	Hamilton	41,796	Orange	173,162	Manatee	118,787		
Leon	93,534	Lafayette	35,146	Osceola	88,002	Polk	87,182		
Liberty	On order	Levy	44,746	Pasco	193,483	Sarasota	130,464		
Okaloosa	69,153	Madison	42,143	St. Lucie	82,356				
Santa Rosa	On order	Nassau	On order	Seminole	On order				
Wakulla	45,401	Putnam	On order	Sumter	49,343				
Walton	On order	St. John's	On order						
Washington	On order	Suwanee	46,713						
		Taylor	43,172						
		Union	On order						
		Volusia	191,259						
TOTAL	$382,752		$707,651		$1,291,635		$855,423		$412,723

GRAND TOTAL $3,650,184

Table 3.7. Communications Equipment Costs.

Equipment	Unit Cost
Mobile Relay (repeater)	
VHF	$ 2,415
UHF	3,085
Control Unit	1,000
New Mobile Radio	700
Modify Mobile (change frequencies)	150
New Portable Radio	647
Modify Portable (change frequencies)	150
Dispatch Console Position	11,350
Status Indicator (30 slots)	2,500
Tape Recorder	10,331
Power Unit	2,500
25-ft Tower	135
Antenna, VHF, High Band	185
Antenna, UHF	260
VHF Base Station	2,165
Add Channel to Mobile Radio	250
VHF Low-band Portable Radio	710
Modify VHF Base Station to operate with UHF Repeater	200

Table 3.8. Foreign Exchange Line Monthly Costs.

District I		District II		District III		District IV		High Crime Areas	
County	Cost	County	Cost	County	Cost	County	Cost	County	Cost
Bay	$ 0	Alachua	$ 0	Brevard	$192	Charlotte	$ 42	Duval	$ 0
Calhoun	0	Baker	108	Citrus	60	Collier	227	Hillsborough	156
Escambia	328	Bradford	102	Hernando	63	DeSoto	105	Pinellas	0
Franklin	78	Clay	272	Indian River	0	Glades	78		
Gadsden	66	Columbia	156	Lake	0	Hardee	72		
Gulf	0	Dixie	0	Marion	84	Hendry	105		
Holmes	0	Flagler	0	Martin	111	Highlands	228		
Jackson	189	Gilchrist	207	Okeechobee	0	Lee	372		
Jefferson	111	Hamilton	0	Orange	0	Manatee	0		
Leon	0	Lafayette	0	Osceola	48	Polk	594		
Liberty	300	Levy	210	Pasco	291	Sarasota	66		
Okaloosa	369	Madison	0	St. Lucie	111				
Santa Rosa	126	Nassau	411	Seminole					
Wakulla	45	Putnam	135	Sumter	135				
Walton	279	St. John's	270						
Washington	288	Suwanee	0						
		Taylor	0						
		Union	75						
		Volusia	174						
TOTAL	$2,179	TOTAL	$2,120	TOTAL	$1,095	TOTAL	$1,869		

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS / County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative

Figure 3.9. Requirement Summary Form.

DISTRICT IV DISTRICT III DISTRICT I

e. Transmissions per day were based on reported data and where this was not available, 6 transmissions for each complaint call were assumed.

f. Complaint operator positions were computed based on peak periods as described in Section 2.3. Obviously, much of the time all of these positions do not have to be manned.

g. One dispatch position was provided for each primary channel. As with the complaint positions, during nonpeak periods all of these positions may not have to be manned. In some cases where the traffic is very light, such as District I, one person could be expected to handle both the complaint and dispatch position.

h. The control units are either radio or wire control depending upon the system design.

i. The number of mobiles and portables for 1972 were based on those reported in the survey. The numbers for 1982 were projected based on population trends.

j. Although it is recognized a mobile relay is a base station, the terms used here are defined as follows:

- Mobile relay is a half duplex system that retransmits the mobile (or control unit) transmission.
- Base equipment is a base station operating in simplex mode.

The number shown for each is based on the number of channels allocated plus a point-to-point base station.

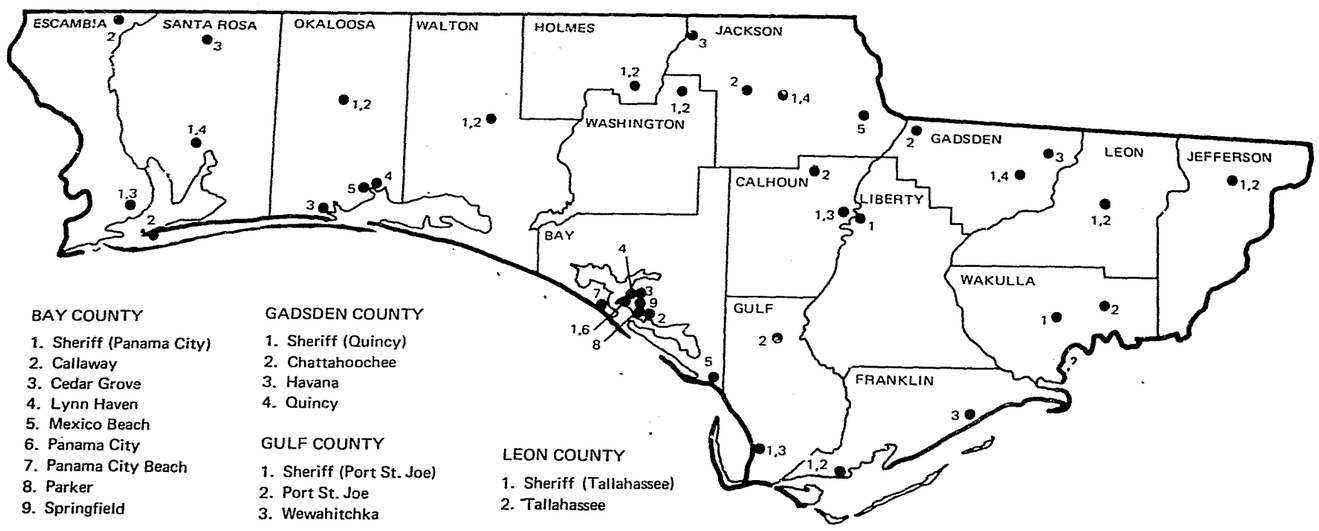
k. Emergency telephone lines are based on the number of complaint calls reported or projected.

l. Dedicated lines are control or hot lines. Since the plan for each agency does not involve any hard design, this could be completed only where specifics were known such as in District I.

m. Foreign exchange lines are those required to provide toll-free access usually to the sheriff's control center from exchanges in the county that are not toll free.

CONTINUED

1 OF 5



BAY COUNTY
1. Sheriff (Panama City)
2. Callaway
3. Cedar Grove
4. Lynn Haven
5. Mexico Beach
6. Panama City
7. Panama City Beach
8. Parker
9. Springfield

CALHOUN COUNTY
1. Sheriff (Blountstown)
2. Altha
3. Blountstown

ESCAMBIA COUNTY
1. Sheriff (Pensacola)
2. South Flomaton
3. Pensacola

FRANKLIN COUNTY
1. Sheriff (Apalachicola)
2. Apalachicola
3. Carrabelle

GADSDEN COUNTY
1. Sheriff (Quincy)
2. Chattahoochee
3. Havana
4. Quincy

GULF COUNTY
1. Sheriff (Port St. Joe)
2. Port St. Joe
3. Wewahitchka

HOLMES COUNTY
1. Sheriff (Bonifay)
2. Bonifay

JACKSON COUNTY
1. Sheriff (Marianna)
2. Cottondale
3. Graceville
4. Marianna
5. Sneads

JEFFERSON COUNTY
1. Sheriff (Monticello)
2. Monticello

LEON COUNTY
1. Sheriff (Tallahassee)
2. Tallahassee

LIBERTY COUNTY
1. Sheriff (Bristol)

OKALOOSA COUNTY
1. Sheriff (Crestview)
2. Crestview
3. Fort Walton Beach
4. Niceville
5. Valparaiso

SANTA ROSA COUNTY
1. Sheriff (Milton)
2. Gulf Breeze
3. Jay
4. Milton

WAKULLA COUNTY
1. Sheriff (Crawfordville)
2. Sopchoppy

WALTON COUNTY
1. Sheriff (DeFuniak Springs)
2. DeFuniak Springs

WASHINGTON COUNTY
1. Sheriff (Chipley)
2. Chipley

District I

4.0 DISTRICT I

A comprehensive law enforcement communications plan called the District I Criminal Justice Radio System has been developed and approved for implementation in all agencies in 11 counties and part of another. Those included in this plan and their status are:

Bay County	—	Complete
Calhoun County	—	On Order
Escambia	—	On Order for Pensacola only
Franklin County	—	On Order
Gadsden County	—	On Order
Gulf County	—	On Order
Holmes County	—	On Order
Jackson County	—	On Order
Leon County	—	Complete for Tallahassee only
Liberty County	—	On Order
Okaloosa County	—	All Municipal Police Departments have been implemented
Santa Rosa County	—	On Order
Walton County	—	On Order
Washington County	—	On Order

Counties which have not yet implemented or ordered equipment in District I are:

Escambia (Sheriff)
Jefferson
Leon (Sheriff)
Okaloosa (Sheriff)
Wakulla

The District I Criminal Justice Radio System Plan calls for exclusive use of UHF band for both primary dispatching and for emergency coordination. The emergency coordination channel (460.275) is common among all users of this system. Separate primary channels are usually provided for municipal and county law enforcement agencies, whereby the Sheriff has exclusive use of one channel and the smaller departments share the use of one or more other channels. In Bay

County for example, the Sheriff has four mobile relay base stations. All of the Sheriff's mobiles are capable of communication on each of four channels. The remaining departments (except Panama City and Panama City Beach which have their own base) are capable of communication on three of the four channels. Each of the municipal departments have control stations to provide the capability of controlling one or more channels for emergency coordination and dispatching or contacting their own vehicles. For two of the smaller departments, the Sheriff provides full time dispatching. For three other departments, the Sheriff provides part-time dispatching. Obviously the option is available to each agency as to whether they perform their own dispatching.

Several benefits accrue from this type of operation. An important benefit is that all agencies are provided full time dispatching. A second is that coordination between agencies of different jurisdictions is greatly improved. A third benefit is that agencies that had no need to use signaling codes such as 10 codes now become more aware of their use which in time of peak traffic load or emergencies can greatly shorten message time, reduce channel occupancy and therefore result in greater efficiency of the communications system. This type of operation also provides the opportunity to convert to fully centralized dispatching as described in Section 3.2 and for which significant cost savings can be shown.

The detailed Communications Requirements summaries that follow indicate the 1972 and 1982 communication needs for each agency by county in District I. Following each county requirements summary is a Communication Plan for that District. For counties that are participating in the District I Criminal Justice Radio System Plan, only comments regarding possible deficiencies or options are discussed. For those counties not participating in the District I plan, a communications plan is proposed. The philosophy of the District I plan was followed in developing each proposed plan.

On the summary tables, the number of indicated channels refers to the number of channels which each agency has access. Many of these channels are shared among several agencies.

Bay County	Communications Plan
Sheriff Callaway Cedar Grove Lynn Haven Mexico Beach Panama City Beach Parker Springfield Panama City	The District I Criminal Justice Radio System that has been implemented in Bay County appears to meet all county and municipal agencies communication requirements through 1982. Adequate backup capability has been provided for emergencies through the use of 3 common channels at both the Sheriff's base stations and the Panama City base stations. At the present time, the Sheriff's Office dispatches the police vehicles for a number of Bay County cities after 5 p.m. It is recommended that these agencies investigate the operational and economic benefits of a full 24 hour cooperative dispatch system. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Bay / County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	3	1	66	396	2	2	4	27		4 MR 1 BA	3			3
	82	3	1	73	440	2	2	4	30		4 MR 1 BA	3			3
Callaway	72	2	1	3	18	1	1	3	2			2			2
	82	2	1	3	20	1	1	3	3			2			2
Cedar Grove	72	2	1	1	6	1	1	3	2			2			1
	82	2	1	1	7	1	1	3	3			2			1
Lynn Haven	72	2	1	4	24	1	1	3	3	2		2			2
	82	2	1	4	27	1	1	3	4	2		2			2
Mexico Beach	72	2	1	1	6	1	1	3	1			2			1
	82	2	1	1	7	1	1	3	1			2			1
Panama City Beach	72	2	1	3	18	1	1	3	12		1 MR	2			2
	82	2	1	3	20	1	1	3	13		1 MR	2			2
Parker	72	1	1	4	24	1	1	2	2			2			2
	82	1	1	3	27	1	1	2	2			2			2
Springfield	72	2	1	18	108	2	1	3	3			3			2
	82	2	1	20	120	2	1	3	4			3			2
Panama City	72	1	1	32	192	2	1	2	18	8	1 MR 1 BA	3			3
	82	1	1	36	214	2	1	2	20	9	1 MR 1 BA	3			3

Calhoun County	Communications Plan
Sheriff Blountstown Altha	The District I Criminal Justice Radio System Plan for Calhoun County appears to satisfy the communications needs of all agencies through 1982. The only recommendation concerns communication backup capability for the Calhoun County Sheriff. The Sheriff does all his dispatching by radio control of the Liberty County Sheriff's mobile relay base station. If the Liberty County relay became inoperative, Calhoun County Sheriff would lose all communication capability. It is therefore recommended as an option that Calhoun County Sheriff be provided control of Blountstown's mobile relay base station for emergency backup and add this channel to his mobiles and portables.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Calhoun County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	8	48	2	1	2	3	1	1B*	2			2
	82	1	1	8	48	2	1	2	3	1	1B	2			2
Blountstown	72	1	1	7	42	2	1	3	2		1MR	2	2C		2
	82	1	1	7	42	2	1	3	2		1MR	2	2C		2
Altha	72			2			**		1						2
	82			2			**		1						2

* Dispatching and Emergency Coordination is performed by radio control of the Liberty County's Sheriff's mobile relay base station.

** Altha has one mobile with both the Sheriff primary and emergency coordination channel and Blountstown primary channel. Since Altha is not being provided with a control station, dispatching will be performed by the Sheriff.

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Escambia County	Communications Plan
Sheriff	(1) The Sheriff in Escambia County presently dispatches 64 mobiles and three portables on one channel through his new high band VHF mobile relay base station. It is projected based on population growth that the Sheriff's mobiles will increase to 74 by 1982. This figure may be conservative since Escambia is approaching the criteria for a high crime area. Since additional communication capability is indicated, it is proposed that the Sheriff follow the District I Criminal Justice Communication Plan and convert the primary and emergency coordination channels to UHF operation and convert his new VHF high band base station to 155.370 for point-to-point communication. (2) To obtain countywide operation, two mobile relay base station sites are recommended, one at Pensacola and one at Walnut Hill. Two primary and one emergency coordination channels are recommended for the Pensacola site. One primary and one emergency coordination channel are recommended for the Walnut Hill site. Dispatching would be performed at the Command and Control Center at Pensacola. It is additionally recommended that all patrol cars be re-equipped with four-channel UHF mobile radios; however, this could be a gradual changeover during which time dispatching would be performed on both VHF high band and on UHF simultaneously. (3) Foreign exchange lines are also required if not already implemented to provide toll-free emergency calling from three (3) telephone exchanges in the northern half of the county, i.e., Century, Walnut Hill and Molino.

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DISTRICT III

DISTRICT IV

Escambia County	Communications Plan
South Flomaton	South Flomaton is a small town near the Alabama border. They have a citizen band base and both citizen band and one VHF high band, single-channel equipment in their mobiles (2). Dispatching is currently performed by Flomaton, Alabama on 155.04 MHz, and on their own CB equipment. To provide this department primary and emergency coordination capability with the Sheriff, it is recommended that they obtain a two-channel control station to provide control of the Sheriff's mobile relay at Walnut Hill. In addition, the CB equipment in two patrol cars should be replaced with four-channel UHF equipment.
Pensacola	Pensacola is currently dispatching 49 patrol cars and two portables on one VHF high band channel. Although the channel load is presently not a problem, some interference has been reported. At the present time, Pensacola plans to convert their operation to the UHF band utilizing portable radios. This proposed system should satisfy their present and future requirements. A control station on one of the Sheriff's primary frequencies may be desirable for backup in the event the Pensacola base equipment is disabled. A similar arrangement whereby the Sheriff has a standby control station on one of Pensacola's primary channels could also prove valuable in the event the Sheriff's base equipment is disabled. Once the changeover is complete, the existing VHF base station can be converted to 155.370 for point-to-point coordination with agencies outside the primary communication network.

Escambia County	Communications Plan
University of West Florida Pensacola Junior College	A new UHF system for the campus police of these two colleges is recommended. A single mobile relay will suffice because of their close proximity. Access to the coordination channel can be accomplished by a control unit to the Sheriff's base on this frequency.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Escambia County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	2	1	145	870	3	2	3	64	3	5 MR 1 BA	4		3	4
	82	2	1	168	1008	3	2	3	74	4	5 MR 1 BA	4		3	5
South Flomaton	72	1	1	1	6	1	1	2	2	0		2			1
	82	1	1	2	12	1	1	2	2	0		2			2
Pensacola	72	2	1	60	360	2	2	5	49	2	2 MR 1 BA	3		0	3
	82	2	1	70	420	2	2	5	57	3	2 MR 1 BA	3		0	3
University of West Florida & Pensacola Junior College	72	1	1	-	-	1	1	1	3	18	1 MR	2		0	1
	82	1	1	-	-	1	1	1	4	21	1 MR	2		0	1

Franklin County	Communications Plan
Sheriff Apalachicola Carrabelle	The new District I Criminal Justice Radio System for Franklin County appears to satisfy the communication needs for all municipal and county agencies through 1982 and beyond. If not already implemented it is recommended that one foreign exchange line be provided by the Sheriff to the Carrabelle exchange to provide toll-free calling from areas of that exchange served by the Sheriff.

DISTRICT III

DISTRICT IV

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Franklin County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	7	42	2	1	2	4	2	3MR 1BA	2	2C		2
	82	1	1	8	46	2	1	2	5	2	3MR 1BA	2	2C		2
Apalachicola	72	1	1	3	18	1	1	2	2	2	1MR	2	1C		2
	82	1	1	3	20	1	1	2	2	2	1MR	2	1C		2
Carrabelle	72	1	1	1	6	1	1	2	1	2	1MR	2	1C		1
	82	1	1	1	7	1	1	2	1	2	1MR	2	1C		1

Gadsden County	Communications Plan
Sheriff Chattahoochee Havana Quincy	The District I Criminal Justice Radio System plan for this County appears to satisfy the communication requirements for all county and municipal agencies through 1982. Unless already implemented, a foreign exchange line from the Chattahoochee exchange to the Sheriff's office is recommended to provide toll-free access by citizens in this exchange area.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Gadsden County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	23	138	2	1	3	10	1	2MR 1BA	3	2C	1	2
	82	1	1	23	138	2	1	3	10	1	2MR 1BA	3	2C	1	2
Chattahoochee	72	1	1	8	48	2	1	2	2	2	1MR	2			2
	82	1	1	8	48	2	1	2	2	2	1MR	2			2
Havana	72	1	1	2	12	1	1	2	2	0		2			2
	82	1	1	2	12	1	1	2	2	0		2			2
Quincy	72	1	1	8	48	2	1	2	4	6	1MR	2	1C		2
	82	1	1	8	48	2	1	2	4	6	1MR	2	1C		2

Gulf County	Communications Plan
Sheriff Port St. Joe Wewachitchka	The District I Criminal Justice Radio System plan for Gulf County satisfies communication requirements for all county and municipal agencies through 1982 and beyond.

DISTRICT IV

DISTRICT III

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Gulf County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	5	30	1	1	3	6	1	3MR 1BA	2	2C		2
	82	1	1	5	30	1	1	3	6	1	3MR 1BA	2	2C		2
Port St. Joe	72	1	1	4	24	1	1	2	3	1	1MR	2	1C		2
	82	1	1	4	24	1	1	2	3	1	1MR	2	1C		2
Wewahitchka	72	1	1	1	6	1	1	2	2	0		2			1
	82	1	1	1	6	1	1	2	2	0		2			1

Holmes County	Communications Plan
Sheriff Bonifay	The District I Criminal Justice Radio System Plan for Holmes County satisfies the basic communication requirements for the Bonifay Police Department and the Sheriff's Office through 1982. It is noted, however, that no backup capability is provided in the event the southeast tower is disabled. It is therefore recommended that a standby control unit be added to the Sheriff's Office to provide control of the Washington County Sheriff's mobile relay at Chipley on the emergency coordination frequency. No change to the mobiles are required since all participants in this plan are on the same emergency coordination channel.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Holmes County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	9	54	2	1	2	5	2	2MR 1BA	2	2C		2
	82	1	1	9	54	2	1	2	5	2	2MR 1BA	2	2C		2
Bonifay	72	1	1	3	18	1	1	2	1	9		2	2C		2
	82	1	1	3	18	1	1	2	1	9		2	2C		2

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Jackson County	Communications Plan
Sheriff Cottondale Graceville Marianna Sneads	The District I Criminal Justice Radio System plan for Jackson County satisfies the basic communication requirements for all municipal and county agencies through 1982. If not already implemented, it is recommended that three foreign exchanges be provided to the Sneads, Alford and Graceville exchanges to provide toll-free calling from areas of these exchanges (and their extended area coverage) served by the Sheriff.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Jackson County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	23	138	2	1	2	8	2	2MR 1BA	3	2C	3	2
	82	1	1	24	140	2	1	2	8	1	2MR 1BA	3	2C	3	2
Cottondale	72	1	1	1	6	1	1	2	1	0		2			1
	82	1	1	1	6	1	1	2	1	0		2			1
Graceville	72	1	1	2	12	1	1	2	1	0		2			2
	82	1	1	2	12	1	1	2	1	0		2			2
Marianna	72	1	1	6	36	2	1	2	4	1	1MR	2	1C		2
	82	1	1	6	37	2	1	2	4	1	1MR	2	1C		2
Sneads	72	1	1	3	18	1	1	2	1	0		2			2
	82	1	1	3	18	1	1	2	1	0		2			2

Jefferson County	Communications Plan
Sheriff Monticello	Jefferson County is one of five counties in District I that is not participating in the District I Criminal Justice Radio System Plan. There is one municipal agency (Monticello) and the Sheriff's Office which combined have five mobiles and one portable. One dispatching channel can more than handle the communication traffic for both of these agencies through 1982. It is, therefore, recommended that these agencies convert to UHF and operate on one primary channel and District I emergency coordination channel. The following plan is proposed: (1) Locate two UHF mobile relays at Monticello to provide countywide coverage, one on a primary channel and the second on the emergency coordination channel. Two control stations are recommended for both the Sheriff and Monticello. The high band VHF base station should be retained for point-to-point communications. Centralized dispatching is recommended for both agencies since this would permit publishing only one emergency telephone number; however, this is optional since both agencies would have their own control stations. (2) To implement the system, first the mobile relays and control stations would be installed. The mobiles would then be replaced with 4 channel UHF equipment. During the changeover period, dispatching could be performed on both VHF and UHF simultaneously. (3) If not already implemented, a foreign exchange line is recommended from the St. Marks exchange to provide toll-free access to the Sheriff's dispatching center. (4) A multi-channel tape recorder is also recommended for logging transmissions and complaint calls.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Jefferson County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	9	54	2	1	2	4	1	2MR 1BA	2			2
	82	1	1	9	54	2	1	2	4	1	2MR 1BA	2			2

Leon County	Communications Plan
Sheriff	(1) It is recommended that the Sheriff's Office convert to UHF, in keeping with the District I Criminal Justice Radio Plan. This would require the implementation of 3 UHF mobile relays and 3 control units located in Tallahassee. This would provide two primary and one emergency coordination channel. (2) All mobiles and portables should be replaced with 4 channel UHF equipment. (3) The high band VHF base should be retained for point-to-point communications. (4) Initially, the control units and relays should be installed. Second, the mobile units and portables should be replaced. Upon completion of the mobile conversion to UHF, the low band VHF equipment should be discarded.
Tallahassee	Tallahassee Police Department has converted to UHF PREP system. This new system will have two primary and one emergency coordination channels and appears to satisfy their communication requirements through 1982. Unless the Sheriff's Office also converts to the District I UHF Criminal Justice Radio System Plan, Tallahassee will not have any backup for emergency coordination except by telephone to the Sheriff's Department.
Florida State University	A cross band repeater is recommended to provide access to the regional coordination channel. The repeater can be implemented using the Tallahassee UHF mobile relay and a new high band base.
Florida A&M University	The cross band repeater mentioned above can also provide the Florida A&M campus police with access to the coordination channel.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Leon County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	2	1	100	600	3	1	3	42	7	3 MR 1 BA	4		0	4
	82	2	1	124	744	3	2	3	52	9	3 MR 1 BA	4		0	4
Tallahassee	72	2	1	82	492	3	2	3	46	16	2 MR	4		0	4
	82	2	1	102	610	3	2	3	57	20	2 MR	4		0	4
Florida State University	72	1	1	-	-	1	1	2	15	12	1 MR 1 BA	2		0	1
	82	1	1	-	-	1	1	2	18	14	1 MR 1 BA	2		0	1
Florida A & M University	72	1	1	-	-	1	1	2	2	11	1 MR	2		0	1
	82	1	1	-	-	1	1	2	2	13	1 MR	2		0	1

Liberty County	Communications Plan
Sheriff	(1) The new UHF equipment being procured under the District I Criminal Justice Radio System Plan appears to satisfy the communications needs of this county through 1982. (2) It is recommended that all new UHF mobiles have both the Liberty County's primary and emergency channel and also one primary channel used by the Calhoun Command and Control Center for backup. (3) This system should be implemented in phase with the Calhoun County system because of their mutual use of mobile relays. (4) A countywide common telephone number should also be implemented as well as foreign exchange lines from Apalachicola and Carrabelle exchange areas to provide direct access to the Sheriff's Office from all sections of the county, toll free.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Liberty County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	3	18	2	1	2	2	1	2MR 1BA	2	2C	2	2
	82	1	1	3	18	2	1	2	2	1	2MR 1BA	2	2C	2	2

Okaloosa County	Communications Plan
Ft. Walton Beach Crestview Niceville Valparaiso	Ft. Walton Beach, Crestview, Niceville and Valparaiso have converted to UHF, in keeping with the District I Criminal Justice Radio System Plan. Ft. Walton Beach, Crestview and Niceville each have a UHF mobile relay base station for primary channel dispatching. In addition to its primary channel, Ft. Walton Beach also has a mobile relay base on the District I emergency coordination frequency. All mobiles and portables have the emergency coordination channel as well as a primary channel. Niceville provides dispatching service full time to Valparaiso. Backup capability is provided to all agencies through the Ft. Walton Beach emergency coordination channel. The only agency that appears to be lacking a backup capability is Ft. Walton Beach. This problem may be solved if the Sheriff converts to UHF.
Sheriff	The Sheriff is the only agency in Okaloosa County that has not participated in the District I Radio System Plan. He is presently operating in VHF low band. Since all agencies in Okaloosa County as well as surrounding counties are now on UHF, the Sheriff has no capability for coordination with adjacent networks except on his point-to-point channel 155.370 MHz. It is, therefore, recommended that the Sheriff consider converting to the District I UHF Criminal Justice Radio System Plan. The following approach is suggested: (1) Four UHF mobile relay base stations are recommended, two at Crestview and two at Shalimar, each providing a primary and an emergency coordination channel. Control stations would be required at the Sheriff's Office in Crestview for each channel. All mobiles should be replaced with 4 channel UHF equipment to provide a channel on Ft. Walton Beach frequency for backup during an emergency. During the changeover period, dispatching on both the low band and UHF channels could be performed simultaneously.

Okaloosa (continued) County	Communications Plan
	(2) To provide toll-free access to the Sheriff's Office from the entire county, foreign exchange lines are required to five exchange areas: Laurel Hill, Ft. Walton Beach, Valparaiso/Niceville, Desten and Shalimar.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Okaloosa County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	50	300	2	1	3	18	6	4MR 1BA	3		5	3
	82	1	1	63	380	2	1	3	23	8	4MR 1BA	3		5	3
Ft. Walton Beach	72	1	1	20	120	2	1	1	11	2	2MR 1BA	3			2
	82	1	1	25	150	2	1	1	14	6	2MR 1BA	3			2
Crestview	72	1	1	8	48	2	1	1	5	1	1MR 1BA	2			2
	82	1	1	10	60	2	1	1	6	2	1MR 1BA	2			2
Niceville	72	1	1	10	60	2	1	1	6	2	1MR 1BA	2			2
	82	1	1	13	78	2	1	1	4	2	1MR 1BA	2			2
Valparaiso	72	1	1	2	12	1	*	1	2	1		2			2
	82	1	1	3	18	1	*	1	3	2		2			2
Niceville provides full time dispatching for Valparaiso															

Santa Rosa County	Communications Plan
Sheriff Milton Gulf Breeze Jay	The planned District I Criminal Justice UHF Communications System for this county satisfies all law enforcement requirements through 1982. It is recommended that two foreign exchange lines be implemented from the Holley and Gulf Breeze exchange areas to provide countywide toll-free access to the Sheriff's Office.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Santa Rosa County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	28	168	2	1	2	9	1	3MR 1BA	3		2	3
	82	1	1	35	210	2	1	2	12	1	3MR 1BA	3		2	3
Milton	72	1	1	17	102	2	1	2	3	1	1MR	2			2
	82	1	1	21	128	2	1	2	6	1	1MR	3			2
Gulf Breeze	72	1	1	13	78	2	1	2	6			2			2
	82	1	1	16	98	2	1	2	8			2			2
Jay	72	1	1	1	6	1	1	2	2			2			1
	82	1	1	1	8	1	1	2	2			2			1

Wakulla County	Communications Plan
Sheriff Sopchoppy	There are only two agencies in Wakulla County, the Sheriff and Sopchoppy with a total of 6 mobiles. The Sheriff presently dispatches for Sopchoppy on VHF low band. Occasionally the Sheriff in Leon County provides dispatching backup for the Wakulla County Sheriff. It is recommended that both agencies in Wakulla convert to UHF in accordance with the District I Criminal Justice Radio System Plan. This conversion should be in phase with the recommended system for the Leon County Sheriff due to the mutual support between these counties. The following system is recommended: (1) It is recommended that the Sheriff continue to dispatch for Sopchoppy at his Command and Control Center at Crawfordville on the UHF band in accordance with the District I Criminal Justice Radio System Plan. (2) This will require 2 UHF mobile relays. A control unit at Sopchoppy will permit communication with his mobile. The mobile relay should be located at Crawfordville to provide countywide communications. (3) A countywide common emergency telephone number should be implemented along with one foreign exchange line to permit toll-free access to this control center from the St. Marks exchange area. (4) All mobiles in the county should be replaced with 4 channel UHF equipment. (5) The VHF high band base station should be retained to provide point-to-point communications.

Wakulla (continued) County	Communications Plan
	(6) Initially the 2 mobile relays and control units should be installed. Once they are operating all mobiles should be replaced with UHF mobile radios.

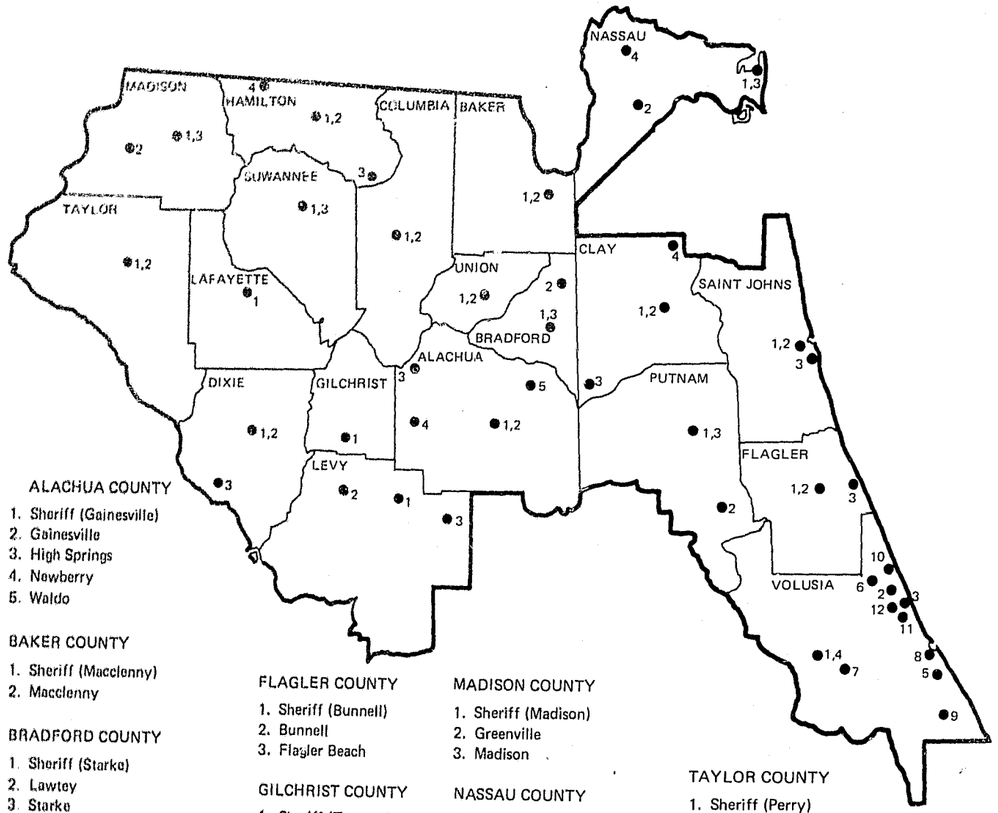
IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Wakulla County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			6	36				5	0					2
	82			8	48				6	0					2
Sopchoppy	72			1	6			1	1	0					1
	82			1	6			1	1	0					1
Centralized Dispatching Requirements	72	1	1	7	42	2	1		6	0	2MR 1BA	2		1	
	82	1	1	9	54	2	1		7	0	2MR 1BA	2		1	

Walton County	Communications Plan
Sheriff DeFuniak Springs	The District I Criminal Justice Radio System Plan for the agencies in this county will satisfy their communications requirements through 1982 and beyond. Adequate backup is provided by the two towers planned. It is recommended that foreign exchange lines be implemented to provide toll-free access from the Paxton, Destin and Sea Grove Beach exchanges.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Walton County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	15	90	2	1	2	7	2	3MR 1BA	3	2C	3	2
	82	1	1	16	96	2	1	2	8	2	3MR 1BA	3	2C	3	2
DeFuniak Springs	72	1	1	5	30	1	1	1	3			2	2C		2
	82	1	1	5	30	1	1	1	3			2	2C		2

Washington County	Communications Plan
Sheriff Chipley	The District I Criminal Justice Radio System Plan for this county satisfies the communications requirements for both agencies through 1982. Adequate backup is provided through a second tower in the southwestern part of the county. Unless already provided, it is recommended that foreign exchange lines be implemented from Crystal Lake, Red Head, Green Head and Bonifay exchange areas to provide toll-free access to the Sheriff.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Washington County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Comp a nt Calls/Day	Transm ssions Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	10	60	2	1	2	5	3	3 MR 1 BA	2	2C	4	2
	82	1	1	15	90	2	1	2	8	5	3 MR 1 BA	2	2C		2
Chipley	72	1	1	3	18	1	1	2	2	1	1 MR	2	1C	4	2
	82	1	1	5	30	1	1	2	3	2	1 MR	2	1C		2



ALACHUA COUNTY
1. Sheriff (Gainesville)
2. Gainesville
3. High Springs
4. Newberry
5. Waldo

BAKER COUNTY
1. Sheriff (Macclenny)
2. Macclenny

BRADFORD COUNTY
1. Sheriff (Starke)
2. Lawtey
3. Starke

CLAY COUNTY
1. Sheriff (Green Cove Springs)
2. Green Cove Springs
3. Keystone Heights
4. Orange Park

COLUMBIA COUNTY
1. Sheriff (Lake City)
2. Lake City

DIXIE COUNTY
1. Sheriff (Cross City)
2. Cross City
3. Horseshoe Beach

FLAGLER COUNTY
1. Sheriff (Bunnell)
2. Bunnell
3. Flagler Beach

GILCHRIST COUNTY
1. Sheriff (Trenton)

HAMILTON COUNTY
1. Sheriff (Jasper)
2. Jasper
3. White Springs
4. Jennings

LAFAYETTE COUNTY
1. Sheriff (Mayo)

LEVY COUNTY
1. Sheriff (Bronson)
2. Chiefland
3. Williston

MADISON COUNTY
1. Sheriff (Madison)
2. Greenville
3. Madison

NASSAU COUNTY
1. Sheriff (Fernandina Beach)
2. Callahan
3. Fernandina Beach
4. Hillard

PUTNAM COUNTY
1. Sheriff (Palatka)
2. Crescent City
3. Palatka

ST. JOHNS COUNTY
1. Sheriff (St. Augustine)
2. St. Augustine
3. St. Augustine Beach

SUWANEE COUNTY
1. Sheriff (Live Oak)
2. Branford
3. Live Oak

TAYLOR COUNTY
1. Sheriff (Perry)
2. Perry

UNION COUNTY
1. Sheriff (Lake Butler)
2. Lake Butler

VOLUSIA COUNTY
1. Sheriff (Deland)
2. Daytona Beach
3. Daytona Beach Shores
4. Deland
5. Edgewater
6. Holly Hill
7. Lake Helen
8. New Smyrna Beach
9. Oak Hill
10. Ormand Beach
11. Port Orange
12. South Daytona

District II

5.0 DISTRICT II

District II is composed of 19 counties in northern Florida. Seven of these counties are participating in a comprehensive communications plan and are referred to in this section as the Region III Communications System Group. The counties involved in this plan are Baker, Bradford, Clay, Nassau, Putnam, St. John's and Union. Duval, a high crime area, is also participating in this plan.

Of the other 12 counties, several either have planned for new equipment or have recently upgraded their systems. These include Alachua Sheriff's Department, Gainesville Police Department, University of Florida, Daytona Beach Police Department, Taylor County Sheriff's Department, Perry Police Department and Levy County Sheriff's Department.

This report follows the general approach of cooperative dispatching for the smaller departments with a goal of approximately 30 to 50 mobile units (and portables) to each allocated primary radio channel. Because of the sparce population in the northwestern part of District II, there are not sufficient radio units or radio traffic within a county to justify a separate channel. Consequently, it is proposed to group several counties in one radio zone, each county operating their own dispatching center. This has resulted in 6 radio zones for the 12 counties. The Region III Communication System Plan for the other 7 counties provides for separate channels for each county and in some cases additional channels for the larger police departments.

Approximately 65 percent of the agencies in District II reported interference problems and approximately 30 percent reported overcrowded channels. These problems emphasize the importance of establishing radio zones and consolidating dispatching centers to reduce channel requirements and of designing systems to minimize co-channel interference. The latter goal is reflected in the recommendation that all agencies plan for eventual conversion to mobile relay operation with one frequency restricted to mobile use only for their primary channels. This will reduce the possibility of a base station transmission capturing another base station receiver and overriding the signals from competing mobile units.

Region III – Communications Systems Group

Twenty-two municipal and county law enforcement agencies in 7 counties of District II are participating in the Region III Communications System and Equipment Plan. This plan calls for an upgrading of mobile, base station and antenna equipment to VHF high band simplex operation. Although the system is not yet operational, much of the equipment has either been purchased or in on order.

The Region III plan calls for 25 new three-channel VHF high band base stations, 18 of which will operate on a 24-hour basis. It also calls for 154 new four-channel mobile and 20 portable radios. Adequate backup is provided to each Sheriff's office through a second three-channel base station. The general approach in developing the District II communication plan is to provide a district wide emergency coordination channel so that adjacent agencies in different communication networks can provide mutual support. Since this plan recommends the use of simplex emergency coordination channels throughout the State, the Region III plan is compatible with the plan for the balance of District II.

The Region III plan calls for use of 155.370 MHz in mobile units. Since this frequency is the point-to-point intersystem channel, it is recommended that this frequency be included only in those special vehicles involved in prisoner transfer or other activities which would involve frequent long distance assignments.

The frequency assignments proposed by the Region III Plan are shown on Table 5.1. Fifteen frequencies are used. Comparing these frequencies with the frequency pairs used in developing the overall state plan, it will be noted that these 15 frequencies are one side of 13 of the frequency pairs. Effectively then 26 frequencies are tied up in this area since these 13 pairs cannot be reassigned within 75 miles of Region III.

To conserve frequency spectrum, a modified frequency plan is recommended for Region III as shown on Table 5.1. The modified frequency plan uses both frequencies of 9 pairs. The base frequency of each pair is used for the sheriff's systems where countywide coverage is required. The mobile frequencies are assigned to the small cities where limited coverage is required.

Since the agencies within Region III have elected to operate in the simplex modes, this modified plan will minimize the number of frequency pairs required or alternately will maximize the number of frequency pairs available for assignment to adjacent counties.

Since the small cities in the Region III area will be operating on frequencies used as mobile-only in the remainder of the state, it is imperative that the transmitter power and antenna height be the minimum required to achieve the required coverage. As an absolute maximum, no antenna using these mobile frequencies should exceed 40 feet nor should any transmitter exceed 90 watts and in all cases the height and power should be adjusted downward to provide just adequate coverage.

Since the Region III plan is presently being implemented, this State Plan has attempted to minimize changes so as not to delay implementation or introduce unnecessary

Table 5.1. Comparison of Region III and Recommended Frequency Plan.

Agency	Region III Frequency Plan	Recommended Frequency Plan
Nassau S.O.	155.625	154.725
Fernandina Beach	155.310	155.310
Baker S.O.	154.725	154.860
McClenny	155.655	155.595
Bradford S.O.	155.640	154.740
Starke	155.730	155.415
Union S.O.	154.860	154.800
Saint Johns S.O.	154.875	154.890
Saint Augustine	154.815	155.625
Putnam S.O.	155.550	154.755
Crescent and Palatka	155.430	155.430
Clay S.O.	155.580	155.700
Green Cove Springs	155.190	155.190
Orange Park	155.070	155.535
Atlantic Beach	155.790	155.790
Neptune Beach	155.790	155.790
Jacksonville Beach	453.700/458.700	453.700/458.700

additional cost. Therefore, the only modifications recommended at this time are the modified frequency plan and the minimizing of antenna height and power for the smaller city agencies. It is urged, however, that agencies within each county consider the possibility of ultimately forming cooperative dispatching arrangements as discussed in Section 3.3 of this report

The detailed communications requirements summaries that follow describe the requirements and system modifications as set forth in the Region III plan.

Baker County	Communications Plan
	The Region III plan allocates two channels in this county for 11 radio units. This channel loading is very light and therefore will adequately meet the requirements. Unless already implemented, a foreign exchange line is required from the Lake City exchange to provide countywide toll-free access to the Sheriff's Office. The Region III plan calls for two base stations at Macclenny to serve the Sheriff's Office and the City of Macclenny. The base power and antenna height of the Macclenny City system should be the minimum required to obtain the required coverage. The eight mobile units and 3 portable units which are all single channel will require replacement with 4-channel units.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Baker County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	20	120	2	1		6	1	2BA	3		1	2
	82	1	1	25	150	2	1		8	1	2BA	3		1	2
Macclenny	72	1	1	8	48	2	1		2	2	2BA	2			2
	82	1	1	10	60	2	1		3	3	2BA	2			2

5-6

Bradford County	Communications Plan
	The Region III plan allocates two channels in this county for a total of 17 radio units. This channel loading is very light and therefore will adequately meet their requirements. Two foreign exchange telephone lines are recommended from the Waldo and Brooker exchanges to provide county-wide toll-free access to the Sheriff's Office. Two base stations are required - one with countywide coverage to serve the Sheriff's Office and the second to serve the City of Starke P.D. The Starke P.D. base power and antenna height should be the minimum required to provide their required coverage.

5-7

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Bradford County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	9	54	2	1		8	4	2BA	2			2
	82	1	1	10	58	2	1		9	4	2BA	2			2
Lawtey *	72	**	**	2	12	1	*		1	0					2
	82	**	**	2	13	1	*		1	0					2
Starke	72	1	1	3	18	1	1		4	0	2BA	2			2
	82	1	1	3	19	1	1		4	0	2BA	2			2

* Dispatched by the Sheriff

** Mobiles only - no base equipment

5-8

Clay County	Communications Plan
	The Region III plan allocates 3 channels in Clay County. The Sheriff's channel will have a total of 46 radio units while the other two will have 5 and 6 units respectively. The number of channels is adequate to meet their requirements. Three base stations are required, one for the Sheriff's Office, one for Green Cove Springs and one for Orange Park. The Keystone Heights P.D. will continue to be dispatched by the Sheriff's Office. The two base stations at Green Cove Springs and Orange Park should have the minimum power and antenna height required to achieve the required coverage.

5-9

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Clay County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	50	300	2	1		41	3	2BA	3		5	3
	82	1	1	62	372	2	1		51	4	2BA	3		5	3
Green Cove Springs	72	1	1	4	24	1	1		3	2	2BA	2			2
	82	1	1	5	30	1	1		4	2	2BA	2			2
Keystone Heights *	72	**	**	5	30	1	*		2	0		2			2
	82	**	**	6	37	1	*		2	0		2			2
Orange Park	72	1	1	15	90	2	1		4	2	2BA	2			2
	82	1	1	19	112	2	1		5	2	2BA	3			2

* Dispatched by the Sheriff

** Mobiles only - no base equipment

5-10

Nassau County	Communications Plan
	Unless already implemented, four foreign exchange lines are recommended from Baldwin, Callahan, Hilliard and Boulogne exchanges to provide countywide toll-free access to the Sheriff's Office. The Region III plan allocates two primary channels to Nassau County. One channel is used by the Sheriff's Office with presently dispatches for both Callahan and Hilliard. The other channel is allocated to Fernandina Beach with 8 radio units. The two channels will meet their requirements. Two bases, one at Callahan and one at Fernandina Beach are required to provide the Sheriff with countywide coverage. An additional base station is required at Fernandina Beach to serve the City P.D. This base should have the minimum power and antenna height required to meet their coverage requirements. The Sheriff will continue dispatching for the Callahan and Hilliard P.D.'s under the Region III plan.

5-11

DISTRICT IV

DISTRICT III

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Nassau County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	12	72	2	1		11	2	2BA	2		4	2
	82	1	1	14	86	2	1		13	2	2BA	2		4	2
Callahan *	72	**	**	1	6	1	*		1	0					1
	82	**	**	1	7	1	*		1	0					1
Fernandina Beach	72	1	1	5	30	1	1		7	1	2BA	2			2
	82	1	1	6	36	1	1		8	1	2BA	2			2
Hilliard *	72	**	**	1	6	*	*		1	0					1
	82	**	**	1	7	*	*		1	0					1

* Dispatched by the Sheriff

** Mobiles only - no base equipment

Putnam County	Communications Plan
	The Region III plan allocates 2 channels to Putnam County for a total of 32 radio units. Channel loading will be light and therefore meet their requirements. Unless already implemented, foreign exchange lines are recommended from Orange Spring and Crescent City exchanges to provide countywide toll-free access to the Sheriff's Office. The Region III plan calls for three base stations. The Sheriff's base station at Crescent City will provide county-wide coverage. The base stations at Orange Spring and Crescent City serving the local P.D.'s should have minimum power and antenna height to meet their coverage requirements. The two municipal departments will share a channel.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Putnam County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	77	464	2	1		18	4	2BA	3		2	3
	82	1	1	87	520	3	1		20	4	2BA	4		2	4
Crescent City	72	1	1	2	12	1	1		3	0	2BA	2			2
	82	1	1	2	13	1	1		3	0	2BA	2			2
Palatka	72	1	1	10	60	2	1		4	3	2BA	2			2
	82	1	1	11	67	2	1		4	3	2BA	2			2
Interlacken *	72	**	**			*	*		2	0					
	82	**	**			*	*		2	0					
Welaka *	72	**	**			*	*		1	0					
	82	**	**			*	*		1	0					

* Dispatched by Sheriff

** Mobiles only - no base equipment

St. John's County	Communications Plan
	The Region III plan allocates 2 primary channels to St. John's County for a total of 47 radio units. This allocation is sufficient to meet their requirements. Unless already implemented, foreign exchange lines are recommended from the Jacksonville, Mandarin and Hastings exchanges to provide countywide toll-free access to the Sheriff's Office. The Region III Plan calls for two base stations, one for the Sheriff's Office and one for the St. Augustine P.D. The St. Augustine P.D. base should have the minimum power and antenna height required to meet their coverage requirement. St. Augustine Beach will continue to be dispatched by the Sheriff's Office.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS St. John's County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	50	300	2	2		33	2	2BA	3		3	3
	82	1	1	63	378	2	2		42	3	2BA	3		3	3
St. Augustine	72	1	1	22	132	2	1		8	3	2BA	3			2
	82	1	1	28	167	2	1		10	4	2BA	3			3
St. Augustine Beach *	72	**	**	2	12	1	*		1	0		2			2
	82	**	**	3	15	1	*		1	0		2			2

* Dispatched by the Sheriff

** Mobiles only - no base equipment

5-16

Union County	Communications Plan
	The Region III plan allocates one primary channel for Union County. This channel would have a total loading of 8 radio units, which is more than adequate to meet their requirements. Unless already implemented, a foreign exchange line is recommended from Lake City exchange to provide countywide toll-free access to the Sheriff's Office. A single base station is required in Union County for the Sheriff's Office at Lake Butler. The Sheriff's Office will continue to provide dispatching service to the Lake Butler P.D.

5-17

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Union / County

			Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff			72	1	1	20	120	2	1		5	2	2BA	3		1	2
			82	1	1	20	120	2	1		5	2	2BA	3		1	2
Lake Butler *			72	**	**	2	12	1	*		1	0		2			2
			82	**	**	2	12	1	*		1	0		2			2

* Dispatching by the Sheriff

** Mobiles only - no base equipment

Alachua Land Mobile Radio Zone

The Alachua County mobile radio zone includes all the law enforcement agencies of Alachua County. Alachua County has 5 law enforcement agencies, 3 departments handling their own dispatching 24 hours a day. One department has part time dispatching and is assisted by the Sheriff's office. The remaining department is dispatched entirely by the Sheriff.

At the present time, the Sheriff and the smaller departments are operating on VHF channels with approximately 42 mobiles and 11 portables. The Gainesville Police Department is in the process of changing its 52-car, VHF high band system into a 20-car, 44-portable UHF system. The University of Florida is operating in the UHF band with 20 portables. After the complete change to the UHF range, the mobile units and portables at Gainesville and the University of Florida will have a common coordination channel in addition to their regular working channels. Since Alachua County is seriously considering the 911 emergency telephone number implementation, it is recommended that the Sheriff, High Springs, Newberry and Waldo change to a UHF system, integrating the dispatching of High Springs, Newberry and Waldo into the Sheriff:s Department. These three major groupings of the Sheriff's Department, Gainesville Police Department and University of Florida may remain as separate dispatch agencies. However, at the time of the 911 implementation, these groupings will be in a position to combine into one dispatch center.

The immediate and future communications requirements and the communications plans are as follows:

Alachua County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff High Springs Newberry Waldo	The Command and Control Center will be located at Gainesville and provide centralized dispatching to all law enforcement agencies throughout the county except Gainesville and the University of Florida. Two UHF mobile relays are recommended for the primary channels, one each for the northern and southern sectors of the county. In addition, a control station is recommended for access to the Gainesville mobile relay on the county-wide coordination channel of 460.275/465.275 MHz. The 155.370 MHz base station should be retained for point-to-point communications. All future mobile units should be four-channel equipment. Initially install the recommended two (2) mobile relays and the control station at the Command and Control Center, providing two primary channels and one emergency coordination channel. Simultaneous operation on both the new UHF system and the old VHF high band system will be required during the phase over period. Forty-two new UHF mobiles and 11 new portables are required. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

Alachua (continued) County	Communications Plan
Gainesville P.D.	This department's planned UHF communications system will meet all agency requirements through 1982. Three UHF channels are recommended for the system. Three UHF mobile relays are recommended, two (2) for the primary channels, and one (1) for the county-wide coordination channel of 460.275/465.275 MHz which is to be shared by all Alachua County Law Enforcement Agencies. The 155.370 MHz base station should be retained for point-to-point communications. All mobile and portable units should be four-channel equipment. Since the new UHF equipment is already on order or in inventory, no additional equipment is required.
University of Florida	The University of Florida is presently operating on a new UHF system. Two-channel equipment is used throughout. Therefore, the second channel can be used for coordination with the Gainesville P.D. and the Sheriff's Department on the county-wide coordination channel.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Alachua County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions Day	No. Portables	No. Mobiles	No. Control Units	Dispatcher Positions	Complaint Operator Positions	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative	Mobile Relay or Base Equipment
Sheriff	72			38	228	8	36								
	82			48	289	10	46	1						3	
High Springs	72			3	18	3	2	1						2	
	82			4	23	4	3	1						2	
Newberry	72			2	12	0	2	1						2	
	82			3	15	0	3	1						2	
Waldo	72			2	12	0	2	1						2	
	82			3	15	0	3	1						2	
Centralized Dispatching Requirements	72	2	1	45	270	11	42		2	2	3				2MR 2BA
	82	2	1	57	342	14	53		2	2	3				2MR 2BA
Gainesville	72	2	1	94	564	8	55		2	3	4				3MR 2BA
	82	2	1	119	715	10	70		2	3	4				3MR 2BA
University of Florida	72	1	1			20	0	1	1						1MR 1MR
	82	1	1			25	0	1	1						1MR 1MR

Columbia Land Mobile Radio Zone

This mobile radio zone is confined to Columbia County and is comprised of 2 law enforcement agencies, the Sheriff and the Lake City Police Department. The recommended system for this zone provides a primary channel and a coordination channel. Both channels are recommended to operate in the VHF high band range. The Sheriff and Lake City are operating in the VHF high band range, thus a replacement of mobile installations will not be required. It is recommended that the Sheriff handle the dispatching service for the entire county but Lake City will still retain control of one or more channels for contact with their vehicles or portable units at all times.

The immediate and future communications requirements, the centralized dispatching requirements and the communications plan for Columbia County are outlined as follows.

Columbia County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Lake City	The Sheriff's Command and Control Center will be located at Lake City and provide centralized dispatching service to all law enforcement agencies in the county. One VHF high band mobile relay and one simplex base station are recommended, one for the primary channel and one for the emergency coordination channel. Retain the Sheriff's new base transceiver to continue using the point-to-point channel 155.370 MHz. All future mobile installations will be four (4)-channel equipment. Initially install one VHF high band mobile relay and one simplex base station, one primary channel, one emergency coordination channel as recommended. All mobile units will be phased out and replaced as they outlive their useful life. Crystal changes in the mobile units will be required. Ten old mobile units and 3 single channel portables should be replaced. Two (2) foreign exchange telephone lines are needed to obtain toll-free calls to the Lake City Command Center. The exchanges are High Springs and Fort White. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Columbia County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			15	90				17	2					2
	82			20	119				22	3					2
Lake City	72			15	90			1	5	1					2
	82			20	119			1	7	1					2
Centralized Dispatching Requirements	72	1	1	30	180	2	1		22	3	1MR 2BA	3		2	
	82	1	1	40	237	2	1		29	4	1MR 2BA	3		2	

This land mobile radio zone includes 6 law enforcement agencies in 3 lightly populated counties. Cooperative dispatching at the Sheriff's office is recommended for each county. A single primary channel for all 3 counties will suffice since the total number of radio units is presently 23. While 3 dispatch centers must share the channel, the overall channel loading is light and through proper channel discipline, no overload conditions should result.

Each county will operate separate mobile relays for the primary channel and 1 base station for the coordination channel and the intersystem channel.

Dixie County	Communications Plan
Sheriff Cross City Horseshoe Beach	The Command and Control Center should be located in Cross City. The Sheriff's Department now provides county-wide dispatching service and will logically continue this arrangement. One primary and one emergency coordination channel base station are provided. The Sheriff's existing base transceiver on 155.370 MHz should be retained. Implementation of the Dixie County System will require installation of the one mobile relay and one simplex base station, with control units at each of the agencies. Mobile units must be converted to the new frequency. The 5 single channel mobile units and 2 portables require replacement with 4-channel units. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Dixie County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Comp a n: Calls/Day	Logging: Transmissions Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: cated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			10	60				5	2					2
	82			12	69				6	2					2
Cross City	72			3	18			1	1	0					2
	82			3	18			1	1	0					2
Horseshoe Beach	72			1	6			1	1	0					1
	82			1	6			1	1	0					1
Centralized Dispatching Requirements	72	1	1	14	84	2	1		7	2	1MR 2BA	2		0	
	82	1	1	16	96	2	1		8	2	1MR 2BA	2		0	

Lafayette County	Communications Plan
Sheriff	The Sheriff's Department is the only local law enforcement agency in the county. Dispatching service is provided from Mayo. Two channels are provided for primary and coordination channels. The Sheriff's existing station on 155.370 MHz should be retained for coordination on the point-to-point circuit. The existing equipment is old and it is recommended that the changeover be made by initial installation of the one mobile relay and one simplex base station followed by replacement of the two existing mobiles.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Lafayette County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	9	54	2	1		2	0	1MR 2BA	2		0	2
	82	1	1	9	54	2	1		2	0	1MR 2BA	2		0	2

Taylor County	Communications Plan
Sheriff Perry	The Command and Control Center should be located at Perry and provide dispatching service to both agencies. A 155.370 MHz base station should be retained at Perry. One mobile relay and one simplex base are recommended for installation at Perry. The existing base equipment is old and it is recommended that one new mobile relay base, one simplex base and control stations at Perry be installed as the initial implementation phase. Once operational base equipment is installed, all 9 mobile units and 3 portables must be replaced with 4-channel units since some are low band and others are single channel. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Taylor County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Telephone Lines: Complaint Operator Positions	Telephone Lines: Dispatcher Positions	Telephone Lines: No. Control Units	Telephone Lines: No. Mobiles	Telephone Lines: No. Portables	Telephone Lines: Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			18	108				9	3					2
	82			20	120				10	3					2
Perry	72			15	90			1	3	1					2
	82			17	100			1	3	1					2
Centralized Dispatching Requirements	72	1	1	33	198	2	1		12	4	1MR 2BA	3		0	
	82	1	1	37	220	2	1		13	4	1MR 2BA	3		0	

Gilchrist and Levy Counties Land Mobile Radio Zone

This land mobile radio zone includes the 4 law enforcement agencies in Gilcrist and Levy Counties. A single primary channel to serve both counties will suffice since the total number of radio units is presently 21. While 2 dispatch centers must share the channel, the overall channel loading is light and through proper channel discipline, no overload conditions should result.

Each county will operate separate mobile relays for the primary channel and 1 base station for the coordination channel and intersystem channel.

Gilchrist County	Communications Plan
Sheriff	The Sheriff's Department is the only local law enforcement office in the county. The dispatching center is at Trenton. Two channels are provided, one primary channel and one coordination channel. One mobile relay and one simplex base station are required at the Sheriff's Office. The three single channel mobile units and 2 portables require replacement with new four channel units. Three foreign exchange telephone lines are needed from the Newberry, High Springs and Branford Exchanges to make all calls toll free to the Sheriff's Office.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Gilchrist County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	10	60	2	1		3	2	1MR 2BA	2		3	2
	82	1	1	13	78	2	1		4	3	1MR 2BA	2		3	2

Levy County	Communications Plan
Sheriff Chiefland Williston	The Command and Control Center should be located at Bronson and provide dispatcing service to all law enforcement agencies in the county. One primary channel and one coordination channel are provided. A base station on 155.370 MHz should be retained. Initially the primary channel mobile relay, the coordination base stations, and the control units should be installed and made operational. The mobile units may then be changed to the new frequencies. Twelve mobile units should be replaced with 4-channel units since 10 are old and 2 others are single channel. Two foreign exchange lines are needed. One from Cedar Key exchange and one from Yankeetown. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Levy County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			19	114				12	0					2
	82			23	135				14	0					2
Chiefland	72			2	12			1	2	0					2
	82			2	14			1	2	0					2
Williston	72			2	12			1	2	0					2
	82			2	14			1	2	0					2
Centralized Dispatching Requirements	72	1	1	23	138	2	1		16	0	1MR 2BA	3	0	2	
	82	1	1	27	164	2	1		19	0	1MR 2BA	3	0	2	

Flagler Mobile Radio Zone

There are 3 law enforcement agencies in Flagler County with a combined force of 8 mobiles and 3 portables. Both municipal departments are dispatched by the Sheriff. A large city called Palm Coast is being built north of Flagler Beach which is expected to increase the population of that area to 40,000 within the next 10 years. Assuming the new area is under the Sheriff's jurisdiction the load on his office will increase 10 times. A significant increase is also expected at Flagler Beach due to the close proximity of this new development.

The requirements summaries that follow reflect the expected increase in population. The number of Sheriff mobiles is increased based on the District II average of approximately 1 mobile per 900 population.

Flagler County	Communications Plan
Sheriff Bunnell Flagler Beach	It is recommended that the Sheriff continue to dispatch for both Flagler Beach and Bunnell Police Departments. Since the entire county is toll free, one emergency number can be used county wide. To meet the increased communication traffic resulting from the new Palm Coast development, the following plan is proposed: It is recommended that the Sheriff convert to VHF high band mobile relay primary channel operation to improve mobile-to-mobile communication range and decrease base station capture and interference. A simplex base station should be added for the coordination channel. The existing two channel base station should be retained to provide point-to-point communication. All new mobiles (44 are projected) should have 4-channel capability. A second mobile relay primary channel should be added when the communications traffic exceeds the capability of one channel. The seven single channel mobile units and 3 portable units used in the county should be replaced immediately with 4-channel units. Remote control units will be provided to Bunnell and Flagler Beach to provide them with direct communication to their respective patrol cars. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

DISTRICT III

DISTRICT IV

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Flagler County

Agency	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			6	36				6	3					2
	82			60	360				44	22					3
Bunnell	72			5	30			1	1	0					2
	82			6	38			1	2	0					2
Flagler Beach	72			1	6			1	1	0					1
	82			10	60			1	5	0					2
Centralized Dispatching Requirements	72	1	1	12	72	2	1		8	3	1MR 2BA	2		0	
	82	2	1	76	458	2	2		51	22	1MR 2BA	3		0	

Hamilton, Madison, Suwannee Land Mobile Radio Zone

This land mobile zone is comprised of a total of 11 law enforcement agencies in the lightly populated 3-county area. The recommended system for this zone provides 1 primary channel and 1 channel for emergency coordination. Both channels will operate in the VHF high band range. As in the other multicounty zones, to prevent base station capture it is recommended that the primary channel base stations operate as a mobile relay; one base of this type to be located at Jasper, Live Oak and Madison. These stations will operate on the same channel assignment. The emergency coordination channel will be operated with simplex base stations on a common frequency at the same locations.

At the present time all the agencies in the 3 counties operate on high band with the exception of the Sheriff and the Branford Departments in Suwannee County which are operating in low band. It is recommended the Sheriff's office provide the dispatching service in each of the 3 counties for all of the associated law enforcement agencies. The plan provides for each agency to maintain control of 1 channel for contact with their vehicles or portables.

Hamilton County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Jasper Jennings White Springs	The Command and Control Center should be located at Jasper and provide centralized dispatching service to all law enforcement agencies in the county. One new mobile relay and one simplex base station are required. Retain Jasper's base station to continue using the point-to-point channel 155.370 MHz. All future mobile installations should be four (4)-channel. Initially install the VHF high band mobile relay and the simplex station. Seven new four-channel mobile units are required to replace the single channel units and provide a radio to the Jennings department presently without radio. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Hamilton County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			10	60				6	1					2
	82			10	60				6	1					2
Jasper	72			2	12			1	2	0					2
	82			2	12			1	2	0					2
Jennings	72			1	6			1	1	0					1
	82			1	6			1	1	0					1
White Springs	72			1	6			1	1	0					1
	82			1	6			1	1	0					1
Centralized Dispatching Requirements	72	1	1	14	84	2	1		10	1	1MR 2BA	2		0	
	82	1	1	14	84	2	1		10	1	1MR 2BA	2		0	

Madison County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Greenville Madison	The Command and Control Center should be located at Madison and provide centralized dispatching service to all law enforcement agencies throughout the county. Two VHF high band base stations are recommended - one mobile relay for the primary and one other base for the emergency coordination channel. Retain the Sheriff's new existing base transceiver to continue using the point-to-point 155.370 MHz channel. Retain Madison's new existing base transceiver for the emergency coordination channel. All future mobile installation should be four-channel. Initially install one (1) VHF high band mobile relay base station for the primary channel. Install the base station from Madison in the Command and Control Center to handle the emergency coordination channel. Eight new 4-channel mobile units are required to replace the seven single channel units and to provide a unit to Greenville presently without radio. One new 4-channel portable is also required. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Madison County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			20	120				4	1					2
	82			20	120				4	1					2
Greenville	72			1	6			1	1	0					1
	82			1	6			1	1	0					1
Madison	72			10	60			1	3	1					2
	82			10	60			1	3	1					2
Centralized Dispatching Requirements	72	1	1	31	186	2	1		8	2	1MR 2BA	3		0	
	82	1	1	31	186	2	1		8	2	1MR 2BA	3		0	

Suwannee County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Branford Live Oak	The Command and Control Center should be located at Live Oak and provide centralized dispatching to all law enforcement agencies in the county. Two (2) VHF high band base stations are recommended, one mobile relay base for the primary channel and one simplex base for the emergency coordination channel. The existing high band base station channel should be retained for point-to-point communication on 155.370 MHz. All future mobile installations should be four (4)-channel equipment. At the present time, the Sheriff and Branford operate on low band channels. Initially install two VHF high band base stations as described for the primary and emergency coordination channels. Once the VHF high band base stations have been installed, convert the existing high band mobile equipment to operate with the new base stations and replace low band mobile equipment with four (4)-channel VHF high band equipment. During the conversion period, a dual base station dispatch operation can be provided using separate high band and low band base stations operating simultaneously until the low band mobile equipment has been replaced with four-channel VHF high band equipment. Also since the 155.37 MHz base station is overage, it should be replaced with new equipment. Fourteen new high band mobile units are required to replace 9 low band units and 5 single channel high band units. One portable is also required. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Suwannee County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			10	60				8	1					2
	82			11	64				9	1					2
Branford	72			1	6			1	1	0					1
	82			1	6			1	1	0					1
Live Oak	72			7	42			1	5	1					2
	82			8	45			1	5	1					2
Centralized Dispatching Requirements	72	1	1	18	108	2	1		14	2	1MR 2BA	3		0	
	82	1	1	19	116	2	1		15	2	1MR 2BA	3		0	

Volusia County Mobile Zone

Volusia County consists of 14 separate law enforcement agencies with 10 handling their own dispatching on a 24-hour basis. One department dispatches part time with the sheriff handling their dispatching. It is believed that the smaller departments can benefit both economically and with improved coordination by grouping the sheriff and/or other smaller departments into separate networks in the VHF high band range. This should lead to better coordination of effort, improved response time, full time dispatching service for all departments and conservation of available high band frequencies. It should be noted that all agencies participating in a common dispatching center would still retain control of one or more channels for contact with their own vehicles and for use during emergency situations. This would be accomplished by a control station at each agency's headquarters station.

This plan proposes that four Command and Control Centers provide dispatching service for all departments in the county. One control center at each of the following suggested locations would provide service for the indicated departments.

1. Sheriff's Office at Deland would provide service for the Deland, Pierson, Orange City and Lake Helen Departments in addition to his own countywide operation.

2. New Smyrna Beach would provide service for the Edgewater, Oak Hill, Port Orange Departments in addition to their own local operation. (New Smyrna Beach appeared to be the largest and most centrally located agency; however, the location is optional).

3. Ormond Beach would provide service for the Holly Hill, Daytona Beach Shores, and South Daytona Departments in addition to their own local operation. Ormond Beach appeared to be the largest department, and all agencies are located near to each other so the central location is not essential; however, the location is optional.

4. Daytona Beach would retain their separate dispatching facility continuing their operation on high band.

Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

Volusia County	Communications Plan
Proposed plan for: Sheriff Deland Lake Helen Pierson Orange City	One VHF high band mobile relay and one simplex base station are recommended, one primary and one emergency coordination channel, at the Command and Control Center at Deland. One of the existing VHF high band base stations should also be retained at the control center to continue using the point-to-point channel 155.370 MHz. All future mobile radio installations should be equipped with four (4)-channel capability. Initially install one VHF high band mobile repeater and one simplex base station to provide one primary channel and one emergency coordination channel at Deland. Since only a crystal change is required to make the mobiles operate with the proposed system, these radios would only have to be replaced when they have outlived their useful life. New mobile installations, however, should be four-channel equipment to take advantage of access to the primary, emergency coordination and backup channels. Fourteen mobile units and 6 portables should be purchased immediately to replace old and single channel units. Three foreign exchange lines will be needed from the Daytona Beach, Geneva and New Smyrna Beach exchanges to make calls toll free from anywhere in the county to Deland.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Volusia County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			204	1230				32	4					5
	82			260	1557				60	20					6
DeLand	72			12	72			1	11	2					2
	82			15	91			1	14	3					2
Lake Helen	72			4	24			1	1	0					2
	82			5	30			1	1	0					2
Orange City	72								2	0					
	82								2	0					
Pierson	72								1	0					
	82								1	0					
Centralized Dispatching Requirements	72	1	1	220	1320	3	1		47	6	1MR 2BA	5		3	
	82	2	1	279	1671	4	2		78	23	2MR 2BA	5		3	

Volusia County	Communications Plan
Centralized Dispatching Command and Control Center for: New Smyrna Beach Edgewater Oak Hill Port Orange	Although the location is optional, it appears that New Smyrna Beach would be the logical site for the dispatching center due to its central location among the agencies participating. The design of the system involves the use of one VHF high band mobile relay and one simplex base station for the primary and emergency coordination channels and retention of an existing base station for point-to-point communication on 155.370 MHz. A capability for each agency to communicate directly with his own mobiles would be provided by control stations at each agency's headquarters. One VHF high band mobile relay and one simplex base stations are recommended, one for the primary channel and one for the emergency coordination channel, at a Command and Control Center to be located at New Smyrna Beach. It is also recommended that one of the existing VHF high band base stations be retained for the point-to-point channel 155.370 MHz. All future mobile radio installations should be four (4)-channel equipment. Initially install the recommended two base stations at the proposed Command and Control Center at New Smyrna Beach. Eleven mobiles and 5 portables are required at present to replace the old and the single channel units. The remaining units will require crystal change.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Volusia County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
New Smyrna Beach	72			33	198				14	3					3
	82			42	250				21	7					3
Edgewater	72			4	24			1	4	0					2
	82			5	30			1	10	2					2
Oak Hill	72			1	6			1	2	0					1
	82			1	8			1	5	2					1
Port Orange	72			12	72			1	7	2					2
	82			15	91			1	9	3					2
Centralized Dispatching Requirements	72	1	1	50	300	2	1		27	5	1MR 2BA	5		0	
	82	1	1	63	379	2	1		45	14	1MR 2BA	6		0	

Volusia County	Communications Plan
Centralized Dispatching Command and Control Center for: Ormond Beach Daytona Beach Shore Holly Hill South Daytona	Although the location is optional, it appears that Ormond Beach would be the logical site for the dispatching center due to its central location among the agencies participating. The design of the system will involve the use of one VHF high band mobile relay and one simplex base station for the primary and emergency coordination channels and retention of existing base station for point-to-point communication on 155.370 MHz. One VHF high band mobile relay and one simplex base station are recommended, one for the primary channel and one for the emergency coordination channel, at a Command and Control Center to be located in Ormond Beach. It is also recommended to retain one of the existing VHF high band base stations to continue using the point-to-point channel 155.370 MHz. All future mobile radio installations should be four (4)-channel equipment. Initially install the recommended two base stations at the proposed Command and Control Center at Ormond Beach. Ten new 4-channel mobiles, and 4 portable units are required immediately to replace existing single channel units. The remaining units will require a crystal change.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Volusia County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Ormond Beach	72			14	84				19	3					2
	82			18	106				28	4					2
Holly Hill	72			26	156			1	7	3					2
	82			33	197			1	10	4					3
Daytona Beach Shores & Ponce Inlet	72			4	24			1	10	0					2
	82			5	30			1	13	0					2
South Daytona	72			16	96			1	6	3					2
	82			20	121			1	9	4					2
Centralized Dispatching Requirements	72	1	1	60	360	2	1		42	9	1MR 2BA	3		0	
	82	1	1	76	454	2	1		60	12	1MR 2BA	3		0	

Volusia County	Communications Plan
Daytona Beach	Daytona Beach with a population of over 45,000 persons is sufficiently large to operate an independent police communications system. The present system with a total of 61 radio units requires two primary channels in addition to the coordination channel. The two options considered were conversions to UHF frequencies and remaining in VHF high band, where the present system operates. While the base equipment is old, the present worth of the mobile and portable equipment is such that continued operation in VHF high band would be desirable. Two new mobile relays and one simplex base station are required for the two primary channels and the coordination channel. Once these are installed, the mobile units will require crystal changes. The five old single channel mobiles and 7 single channel portables should be replaced.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Volusia County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Daytona Beach Dispatching Requirements	72	2	1	45	270	2	2		48	13	2MR 2BA	3		0	3
	82	2	1	57	342	2	2		61	16	2MR 2BA	3		0	3

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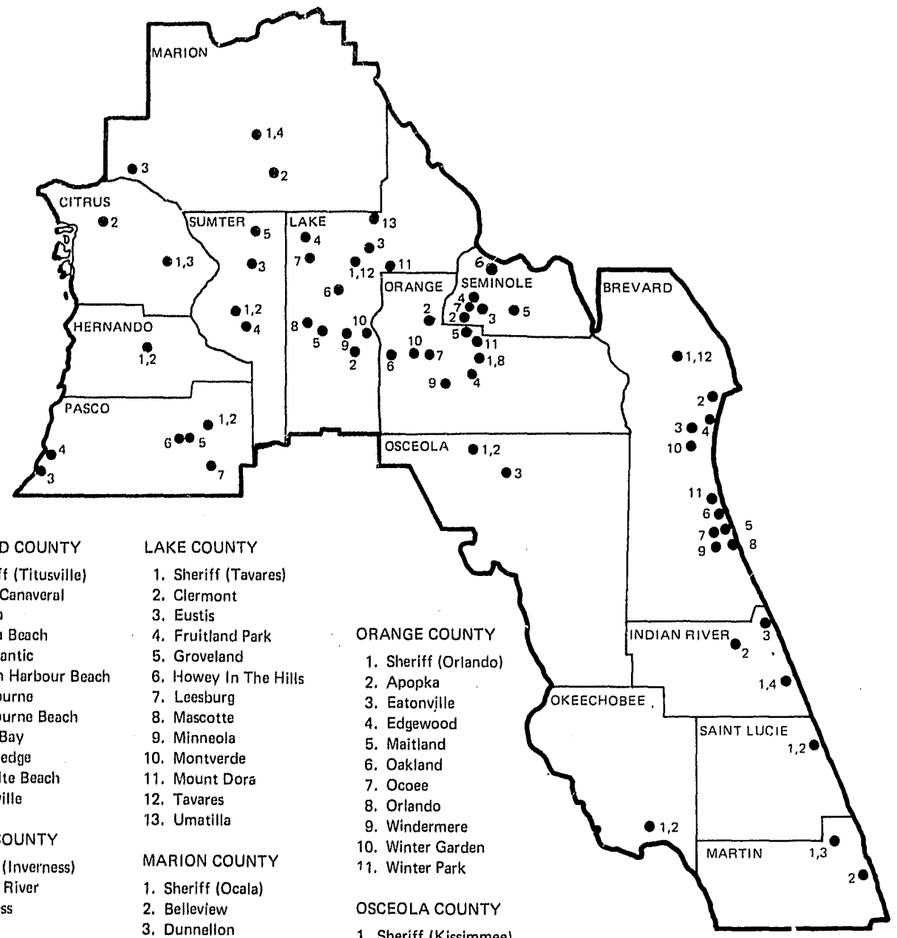


BREVARD COUNTY
1. Sheriff (Titusville)
2. Cape Canaveral
3. Cocoa
4. Cocoa Beach
5. Indialantic
6. Indian Harbour Beach
7. Melbourne
8. Melbourne Beach
9. Palm Bay
10. Rockledge
11. Satellite Beach
12. Titusville

CITRUS COUNTY
1. Sheriff (Inverness)
2. Crystal River
3. Inverness

HERNANCO COUNTY
1. Sheriff (Brooksville)
2. Brooksville

INDIAN RIVER COUNTY
1. Sheriff (Vero Beach)
2. Fellsmere
3. Sebastian
4. Vero Beach

LAKE COUNTY
1. Sheriff (Tavares)
2. Clermont
3. Eustis
4. Fruitland Park
5. Groveland
6. Howey In The Hills
7. Leesburg
8. Mascotte
9. Minneola
10. Montverde
11. Mount Dora
12. Tavares
13. Umatilla

MARION COUNTY
1. Sheriff (Ocala)
2. Belleview
3. Dunnellon
4. Ocala

MARTIN COUNTY
1. Sheriff (Stuart)
2. Jupiter Island
3. Stuart

OKEECHOBEE COUNTY
1. Sheriff (Okeechobee)
2. Okeechobee

ORANGE COUNTY
1. Sheriff (Orlando)
2. Apopka
3. Eatonville
4. Edgewood
5. Maitland
6. Oakland
7. Ocoee
8. Orlando
9. Windermere
10. Winter Garden
11. Winter Park

OSCEOLA COUNTY
1. Sheriff (Kissimmee)
2. Kissimmee
3. Saint Cloud

PASCO COUNTY
1. Sheriff (Dade City)
2. Dade City
3. New Port Richey
4. Port Richey
5. Saint Leo
6. San Antonio
7. Zephyrhills

SAINT LUCIE COUNTY
1. Sheriff (Fort Pierce)
2. Fort Pierce

SEMINOLE COUNTY
1. Sheriff (Sanford)
2. Altamonte Springs
3. Casselberry
4. Longwood
5. Oviedo
6. Sanford
7. Winter Springs

SUMTER COUNTY
1. Sheriff (Bushnell)
2. Bushnell
3. Coleman
4. Webster
5. Wildwood

District III

6.0 DISTRICT III

District III is composed of 14 counties in central Florida. There are 78 law enforcement agencies included in this area. Population centers are located in the Orange, Lake, and Seminole areas and in Brevard County. With Osceola County, these areas are reflecting the large buildup in services required by the Disney World development together with other existing and planned recreational areas. The included agencies now operate 64 dispatch centers using 13 low band, 46 high band and 14 UHF channels.

The planned system follows the general approach of consolidated dispatching for the smaller communities with a goal of about 30 to 50 mobile units to each allocated radio channel. VHF low band operation is not recommended because of the existing interference problem. On VHF high band a particular note is made of co-channel interference at unusual range. Of particular concern is the reported interference throughout the eastern part of the district from base stations located in the Miami-Fort Lauderdale metropolitan area. This is reported at ranges not normally considered as within the interference range of these stations.

This interference problem emphasizes the importance of consolidating dispatch centers to reduce channel requirements and of designing systems to provide maximum immunity to co-channel interference. The latter goal is reflected in the recommendation that all agencies plan ultimate conversion to a 2-frequency operation with one frequency restricted to mobile only use. This will eliminate the possibility of a base station transmission capturing another base station receiver and effectively overriding the signals from the mobile units.

In this district, there are four contiguous counties recommended for operation in the VHF low band. These counties are Citrus, Hernando, Pasco and Sumter.

As explained in this section, the agencies in this group of counties will utilize a common police emergency frequency in the VHF low band. However, a problem exists in that the Sheriff's mobile units in these four counties are not capable of direct mobile-to-mobile radio contact with mobile units in the adjacent counties on the VHF high band and UHF. These adjacent counties are Levy, Marion, Lake, Polk, Hillsborough and Pinellas. These counties are all on the VHF high band with the exception of Polk County which is on the UHF band. In order to alleviate this situation and enable "cross-band" communications between these counties, it is recommended that monitor receivers be installed in the Sheriff's mobile units for all 10 counties mentioned above. As a minimum, these monitor receivers should be installed in those units that "work" the border between the 4 low band counties and the 6 high band and UHF counties.

In actual operation, the 4 (low band) county Sheriff's vehicles would be equipped with a monitor receiver tuned to the VHF high band police emergency frequency, and the eight high band county Sheriff's vehicles would be equipped with a monitor receiver tuned to the VHF low band police emergency frequency. Thus, for example a Pasco County Sheriff's vehicle in a hot pursuit South on Route 19 could contact a Pinellas County Sheriff's vehicle directly by broadcasting on his low band police emergency channel. This message would be received by the Pinellas County unit on his monitor receiver, and vice-versa.

Brevard Land Mobile Radio Zone

Brevard County mobile radio zone has 12 law enforcement agencies in it. The Sheriff's Department and the city of Titusville have mobile operations which can efficiently occupy 1 or more dispatching channels.

The county presently has ll VHF high band channels and 4 UHF band channels. Dispatch facilities are now operated in the larger systems and in 8 of the 9 smaller communities. This plan proposes a central dispatch center in each of 6 total facilities. The objective of this consolidation is to provide a full-period communication service at reasonable user cost.

Both Cocoa and Rockledge are currently planning UHF systems with equipment on order. These 2 agencies are therefore combined to share a channel with a cooperative dispatch center at Cocoa.

Cocoa Beach and Cape Canaveral form a second logical grouping because of their close proximity. The central dispatch facility recommended in this case is at Cocoa Beach.

A cooperative dispatching system for Melbourne and Palm Bay is recommended. Two primary channels and the emergency coordination channel are required for this network.

Finally, a cooperative dispatch system for the four South Beach communities is recommended. This system will utilize one primary dispatch channel and the emergency coordination channel to provide communications for the Cities of Indialantic, Indian Harbor Beach, Melbourne Beach and Satellite Beach.

All agencies will continue operation in VHF high band with the exception of Cocoa, Titusville and Rockledge. Cross-banding will provide the necessary coordination between these cities and the Sheriff's Department and the remaining cities in the county.

	Communications Plan
Brevard County Sheriff	The Command and Control Center for the Brevard Sheriff's Department is located in Titusville. Radio transmitters are located in Titusville and Rockledge; the present simplex mobile channel, 154.710 MHz, experiences interference from Fort Lauderdale. The recommended plan is to provide two-frequency mobile relay base stations for the primary channels at Titusville and Rockledge, and one simplex base station for the emergency coordination channel at each location. Foreign exchange telephone lines are needed for toll-free access to the Titusville center from the Cocoa area and the Melbourne area. This plan may be implemented by first making operational the mobile relay base, the simplex base and control equipment. The next step will be to phase over the coordination channel of all two-channel equipment to the new emergency coordination channel and implement this channel in the unused channel of the four channel sets. This will provide a common channel to all components of the system. The final step is accomplished by simultaneous dispatching on the new and old frequencies as the working channels of each mobile are phased over. The forty old mobile units and 8 portables should be replaced with 4-channel equipment.
Cape Canaveral Cocoa Beach	The Command and Control Center should be located at Cocoa Beach. This system should include the 155.370 MHz point-to-point base station, one mobile relay and one simplex base station on the VHF high band for the primary channel and the emergency coordination channel. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Brevard County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	2	1	160	725	3	2		82	14	4MR 2BA	4		2	5
	82	2	1	173	785	3	2		89	15	4MR 2BA	4		2	5
Cape Canaveral	72			3	18			1	5	2					2
	82			3	19			1	8	3					3
Cocoa Beach	72			30	180			1	14	3					3
	82			34	195			1	20	6					3
Centralized Dispatching Requirements	72	1	1	33	198	2	1		19	5	1MR 2BA	3		0	
	82	1	1	37	214	2	1		28	9	1MR 2BA	3		0	

Brevard County	Communications Plan
Proposed Plan for Cocoa Rockledge	The Command and Control Center should be situated at Cocoa with UHF mobile relay stations, one on a primary channel and one on the emergency coordination channel. A 155.370 MHz base station should be retained for point-to-point communication. The new radio equipment required includes 17 mobile units, 2 portables and 2 mobile relays. A cross-band repeater is recommended for interagency coordination. This will require a VHF high-band base station used in conjunction with the UHF relay. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Brevard County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Cocoa	72			16	96			1	10	2					2
	82			19	104			1	18	4					2
Rockledge	72			11	66			1	7	0					2
	82			12	71			1	10	2					2
Centralized Dispatching Requirements	72	1	1	27	162	2	1		17	2	1XBR 2MR	3		0	
	82	1	1	31	175	2	1		28	6	2BA	3		0	

Brevard (continued) County	Communications Plan
Titusville	The UHF mobile relays and two control units are located in Titusville. A base station for point-to-point coordination on 155.370 MHz is operational. One primary channel and one emergency coordination channel are provided. A cross-band repeater will be necessary for emergency coordination with the Sheriff and other agencies in the county. The existing UHF equipment is new and no replacement is necessary. A high band base is required to use in conjunction with the UHF relay to provide a cross-band capability.
Melbourne Palm Bay	The Melbourne P.D. will continue operation on VHF high band frequencies and provide dispatching service to Palm Bay. Two primary channels are required. Nine new mobile units are required to replace old equipment. Independent dispatching sharing the primary channels is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Brevard County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Titusville	72	1	1	93	279	3	1		19	8	1XBR 2MR 2BA	4		0	4
	82	1	1	101	302	3	1		21	9	1XBR 2MR 2BA	4		0	4
Melbourne	72			56	336				30	20	1MR	3			3
	82			61	364				45	30	2BA	3			3
Palm Bay	72			7	42			1	13	4					2
	82			8	46			1	30	10					2
Centralized Dispatching Requirements	72	2	1	63	378	2	2		43	24	1MR 2BA	3			
	82	2	1	69	410	2	2		75	40	2MR 2BA	3			

Brevard (continued) County	Communications Plan
Centralized Dispatching Command and Control Center for: Indialantic Indian Harbour Beach Melbourne Beach Satellite Beach	A centralized command and control center is recommended for these agencies. However, independent dispatching is an acceptable alternative. The new VHF high band base equipment at Satellite Beach can be converted to mobile relay operation. One mobile relay is needed to provide a primary working channel and a simplex base station for the emergency coordination channel. These four agency jurisdictions are all in the Melbourne and Eau Gallie telephone exchanges and can have a single toll-free emergency telephone number. As each agency can control the mobile repeater primary channels through a low power control station, local emergency dispatching or other communication to the individual agency mobile are available if needed. The consolidated system can be implemented in several phases. The first should be the installation of the mobile relay and the simplex base, and the preparation of the new dispatching facilities. Each of the agencies may then convert to the new frequencies. One mobile unit and 2 portables are required to replace single channel equipment. Independent dispatching sharing the primary channels is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Brevard County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Indialantic	72			9	54			1	5	3					2
	82			10	57			1	15	9					2
Indian Harbour Beach	72			9	54			1	6	4					2
	82			10	57			1	18	12					2
Melbourne Beach	72			9	54			1	4	2					2
	82			10	57			1	12	6					2
Satellite Beach	72			21	126			1	6	7					2
	82			23	136			1	13	14					2
Centralized Dispatching Requirements	72	1	1	48	288	2	1		21	16	1MR 2BA	3		0	
	82	1	1	53	307	2	1		58	41	1MR 2BA	3		0	

Citrus and Sumter Land Mobile Radio Zone

This land mobile radio zone includes Citrus and Sumter Counties. The 2 counties contain 8 law enforcement agencies. All except Wildwood in Sumter County are operating in VHF low band. Wildwood operates a simplex system on 158.775 MHz and experiences severe interference.

The shortage of VHF high band frequencies in this part of Florida necessitates continued operation in the VHF low band in both counties.

A cooperative dispatch system is recommended for each county. Two primary channels will be utilized, one for each of the two counties.

In addition, a low band emergency coordination channel will be made available for use in Citrus, Hernando, Pasco and Sumter counties.

Citrus County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Crystal River Inverness	The command and control center should be located at Inverness and will dispatch all agencies in the county. Existing low band base stations are fairly new and should be retained,one for the low band primary dispatch channel and one for the emergency coordination channel. The existing 155.370 MHz base station at Inverness will be retained for point-to-point coordination. One foreign exchange line to Dunnellon is required to cover the northern portion of the county. The 13 low band mobile units in the sheriff's department and the Inverness P.D. should be modified for 2 channel operation to incorporate the emergency coordination channel. The 2 low band mobile units in the Crystal River P.D. have sufficient channel capacity and will require only a frequency change. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Citrus / County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			20	120				11	3					2
	82			30	178				16	4					3
Crystal River	72			2	12			1	2						2
	82			3	18			1	3						2
Inverness	72			2	12			1	2						2
	82			3	18			1	3						2
Centralized Dispatching Requirements	72	1	1	24	144	2	1		15	3	3BA	3		1	
	82	1	1	36	214	2	1		22	4	3BA	3		1	

Sumter County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Bushnell Coleman Webster Wildwood	The Command and Control Center should be located in Bushnell and provide dispatching service for all agencies in the county. Existing low band base stations are fairly new and should be retained, one for the low band and primary dispatch channel and one for the emergency coordination channel. The existing base stations on 155.370 MHz should be retained for point-to-point communications. Multi-channel tape recording should be used to record all emergency telephone calls and radio transmissions. A foreign exchange line from Dade City and one from Groveland are needed to provide toll-free calling from the southern extremities of the county. One low band mobile unit each at the sheriff's department and at the Coleman P.D. should be modified for 2-channel operation to incorporate the emergency coordination channel. The remaining low band mobile units for these agencies have sufficient channel capacity and will require only a frequency change. The 4 high band mobile units at the Wildwood P.D. should be replaced with low band 2-channel units. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Sumter County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			11	66	2	1		9	1					2
	82			14	82				11	1					2
Bushnell	72			3	18			1	1	0					2
	82			4	22			1	1	0					2
Coleman	72			3	18			1	1	0					2
	82			4	22			1	1	0					2
Webster	72			1	6			1	1	0					1
	82			1	7			1	1	0					1
Wildwood	72			9	54			1	4	0					2
	82			11	66			1	5	0					2
Centralized Dispatching Requirements	72	1	1	27	162	2	1		16	1	3BA	4			2
	82	1	1	34	199	2	1		19	1	3BA	5			2

Hernando County Mobile Radio Zone

The Hernando County land mobile radio zone includes only the Sheriff's Department and the Brooksville Police Department. Both currently operate in VHF low band and are recommended to continue operation in this band, based primarily on the shortage of VHF high band channels in this area.

As both operation centers are in Brooksville, consolidation is recommended.

Hernando County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Brooksville	The Command and Control Center should be located at Brooksville. One existing VHF low band base station in the Sheriff's Department is over 15 years of age and should be replaced with a new station for the emergency coordination channel. The base station for 155.370 MHz should be retained at Brooksville for point-to-point coordination. The existing new base station should be retained for the primary dispatch channel. The 14 low band mobile units in the Sheriff's Department over 10 years of age should be replaced with 4-channel units in order to incorporate as a minimum the addition of the emergency coordination channel. The existing Brooksville mobile units have sufficient channel capacity and will require only a frequency change. One foreign exchange telephone line will be needed from the Dade City exchange to make all of the county toll free to the Sheriff's Office. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Hernando County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			13	78				19	3					
	82			19	112				27	4					
Brooksville	72			8	48			1	2	2					
	82			11	69			1	3	3					
Centralized Dispatching Requirements	72	1	1	21	126	2	1		21	5	3BA	3		1	
	82	1	1	30	181	2	1		30	7	3BA	3		1	

Indian River County Mobile Radio Zone

Indian River County contains 5 law enforcement agencies. All are now operating in VHF high band. Two of these agencies report 1 or 2 mobile units and no base stations. The Sheriff's Department and the Vero Beach Department are the 2 dispatching agencies and both are located in Vero Beach. The Indian River Shores Department is also reported to have a base on the Vero Beach frequency.

The recommended approach is to provide two dispatching centers in the county, one at the Sheriff's office and one at the Vero Beach Police Department. Continued use of VHF high band is recommended.

Indian River County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Fellsmere Sebastian	The Command and Control Center should be located at the Sheriff's office. One mobile relay and a simplex base station are needed for the primary channel and the emergency coordination channel. The existing base on 155.370 MHz should be retained for point-to-point communications. All channels are planned for VHF high band. The Sheriff's existing simplex base station should be modified for mobile relay operation. 17 new mobile units are required to replace the old and the single channel equipment. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.
Centralized Dispatching Command and Control Center for: Vero Beach Indian River Shores	The Command and Control Center should be located at Vero Beach. One mobile relay and a simplex base are required for the primary channel and the emergency coordination channel. The existing base on 155.370 MHz should be retained for point-to-point communications. Two single channel mobile units require replacement. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Indian River County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			45	270	2	1		33	4	1MR 2BA	3			3
	82			56	340				42	5	1MR 2BA				3
Fellsmere	72			1	6			1	1	0					1
	82			1	7			1	1	0					1
Sebastian	72			1	6			1	2	0					1
	82			1	7			1	3	0					1
Centralized Dispatching Requirements	72	1	1	47	282	2	1		36	4	1MR 2BA	3			2
	82	1	1	58	354	2	1		46	5	1MR 2BA	3			2
Vero Beach	72			17	102	2	1		17	10	1MR 2BA	2			2
	82			21	129	2	1		21	13	1MR 2BA	3			2
Indian River Shores	72							1	1	0					1
	82							1	1	0					1
Centralized Dispatching Requirements	72	1	1	17	102	2	1		18	10	1MR 2BA	2			2
	82	1	1	21	129	2	1		22	13	1MR 2BA	3			2

Lake County Mobile Radio Zone

The Lake County land mobile radio zone includes 12 law enforcement agencies. All except Leesburg currently operate on the Sheriff's 39.820 MHz low band channel. Clermont and Minneola also operate on VHF high band. Typical of low band operation, all agencies report interference.

A change to VHF high band with mobile relay operation is planned for Lake County. This not only provides interference immunity but allows multiple agency emergency access to channel control by a low power control station.

Two centralized Command and Control Centers are recommended. Since the Sheriff's Department is the largest agency and now dispatches approximately 50 percent of the county's mobiles, this department is a logical candidate for operation of one of the centralized dispatching agency. The second center serving Eustis, Tavares, Mount Dora and Umatilla should be located at Eustis.

Lake County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Clermont Fruitland Park Groveland Howey in the Hills Mascotte Minneola Monteverde	This Command and Control Center would be under the Sheriff's direction and should be located at Tavares providing dispatch service for the indicated agencies in the county. Two mobile relays are recommended, one at Clermont and one in northeast Lake County with each providing a primary channel. In addition, two simplex base stations for the emergency coordination channel and the point-to-point channel are required. The existing mobile units and portable units are low band or single channel high band units and should be replaced. All new mobile equipment should be four-channel VHF high band. Continuity of operation can be assured by first implementing the planned mobile relays, the simplex base and control stations to provide simultaneous dispatching on low band and high band while the mobile units are phased over. Low band may be discontinued when all low band mobiles are replaced. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.
Leesburg	The Leesburg Police Department will continue independent dispatch operation for the present, by utilizing a VHF high band control station to operate through the mobile relay recommended above for location in northeast Lake County. The existing 155.370 base station should be retained for point-to-point communications. The existing 155.490 MHz base station should be reconfigured for operation on the emergency coordination channel. In addition, a control station should be added to control the northeast mobile relay. Existing single channel mobile and portable radios should be reconfigured for a minimum capability of 3 channel operation, or should be replaced with 4-channel units.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Lake County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			99	594				32	0					4
	82			116	697				50	0					4
Clermont	72			3	18			1	4	0					2
	82			4	21			1	10	0					2
Fruitland Park	72			3	18			1	2	0					2
	82			4	21			1	6	0					2
Groveland	72			6	36			1	2	1					2
	82			7	42			1	3	1					2
Howey in the Hills	72			1	6			1	3	2					1
	82			1	7			1	5	2					1
Mascotte	72			3	18			1	2	0					2
	82			4	21			1	3	0					2
Minneola	72			2	12			1	3	0					2
	82			2	14			1	3	0					2
Montverde	72			1	6			1	1	0					1
	82			1	7			1	1	0					1
Centralized Dispatching Requirements	72	2	1	118	708	3	2		49	3	2MR 2BA	4		0	
	82	2	1	139	830	3	2		81	3	2MR 2BA	4		0	
Leesburg	72	1	1	21	126	1	1	1	12	3	3BA	1			2
	82	1	1	25	148	1	1	1	20	5	3BA	2			2

Lake (continued) County	Communications Plan
Centralized Dispatching and Control Center for: Eustis Tavares Mount Dora Umatilla	This Command and Control Center should be located at Eustis providing dispatching service for the indicated agencies in the county. One mobile relay base station and a simplex base station are recommended to be located at Eustis, providing one primary channel and one emergency coordination channel in high band. The existing Eustis 155.370 MHz base station should be retained for point-to-point coordination. The existing 22 mobile units and 7 portables are low band or single channel high band and should be replaced. Continuity of operation can be assured by first implementing the planned mobile relays, the simplex base and control stations to provide simultaneous dispatching on low band and high band while the mobile units are phased over. Low band may be discontinued when all low band mobiles are replaced. All new mobile equipment should be four channel VHF high band. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Lake County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Eustis	72			12	72			1	9	3					2
	82			14	84			1	15	5					2
Tavares	72			4	24			2	3	0					2
	82			5	28			2	4	0					2
Mount Dora	72			15	90			1	6	0					2
	82			18	106			1	9	3					2
Umatilla	72			5	30			1	3	2					2
	82			6	35			1	5	2					2
Centralized Dispatching Requirements	72	1	1	36	216	2	1		21	5	1MR 2BA	3		0	
	82	1	1	43	253	2	1		33	10	1MR 2BA	3		0	

Marion County Mobile Radio Zone

The Marion County Land Mobile Radio Zone contains 4 law enforcement agencies. The Sheriff's Department dispatches for the two smaller communities; Ocala is self-dispatched.

The existing systems have adequate capacity for present and future needs. Conversion of the simplex transmission system to a mobile relay system for the primary channels will aid in reducing interference to the local operation and will assist in the statewide frequency allocation problem by permitting closer noninterfering co-channel assignment.

It is recommended that the two dispatch centers, one at the Sheriff's office serving Belleview and Dunnellon and one at Ocala, continue operation.

Marion County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Belleview Dunnellon	The Marion County Sheriff's Department now provides dispatching service for Belleview and Dunnellon. The system operates on a VHF high band channel with coordination channels on 155.370 MHz and 154.950 MHz. The channel utility is good and appears adequate for the planned future. This plan recommends that the system operation be converted to mobile relay operation for the primary channels and continue with the simplex operation for the emergency coordination channel. This will reduce the present interference problem and is consistent with the statewide plan for more equitable distribution of frequency assignments. Mobile relay operation can probably be accomplished by converting the Sheriff's base stations for the primary channels and the mobiles one channel at a time. One simplex base station will be needed for emergency coordination. Only one mobile is a single channel unit so that continuous operation is possible. Thirty-five mobile units and 4 portables will require crystal changes and the one single channel mobile unit should be replaced. One foreign exchange telephone line will be needed from the Orange Springs Section. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Marion County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			141	846				31	4					4
	82			174	1043				52	5					5
Belleview	72			1	6			1	2	0					1
	82			1	7			1	2	0					1
Dunnellon	72			1	6			1	3	0					1
	82			1	7			1	4	0					1
Centralized Dispatching Requirements	72	1	1	143	858	3	1		36	4	1MR 2BA	4		1	
	82	1	1	176	1057	3	1		58	5	1MR 2BA	4		1	

Marion (continued) County	Communications Plan
Centralized Dispatching Command and Control Center for: Ocala	Ocala Police Department operates on a single simplex VHF high band channel. The service is adequate; however, the system operation should be converted to mobile relay operation for its primary channel and a simplex base operation for emergency coordination. By converting one channel in each mobile to the new frequencies, then the base station, operation can be continuous. Cooperative use of the Sheriff's emergency coordination simplex base station is recommended. Nine old mobile units should be replaced.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Marion County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Ocala	72	1	1	45	270	2	1		37	4	1MR 2BA	3		0	3
	82	1	1	55	332	2	1		45	5	1MR 2BA	3		0	3

Martin County Mobile Radio Zone

Martin County Land Mobile Radio Zone contains 3 law enforcement agencies. All operate base stations in the VHF high band. Of the 47 mobiles in the county, the Sheriff's Department has 38. Jupiter Island has 4 and Stuart 5. Stuart reports interference and is on a well populated frequency, 154.98 MHz.

A centralized command and control center for all 3 agencies is recommended. This operation could be implemented using the existing Sheriff's Department radio system. Serving Jupiter Island and Stuart will not significantly increase the Sheriff's Department dispatching work load. Mobile relay operation is recommended for the primary channels and simplex operation for the emergency coordination channel.

Martin County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Jupiter Island Stuart	(1) The Command and Control Center should be located at Stuart. Mobile relays at Stuart provide two primary channels and one emergency coordination channel. The Sheriff's substation at Indian Town can operate as a control station and may require a satellite receiver for some boat operations. All current and planned channels are VHF high band. (2) Two foreign exchange lines from Hobe Sound and Indian Town to Stuart are needed to provide toll-free calling. (3) The recommended system includes two mobile relay stations for the primary channels and two simplex base stations providing the emergency coordination channel and the intercity operation. Replacement mobile units should be four channel high band to provide the primary channel, emergency coordination channels and a talk-around capability on the mobile relay transmit frequency. Twenty-seven new mobile units and 6 portables are required to replace single channel equipment. (4) The Sheriff's Department has relatively new mobile relay base station equipment which can be utilized for this plan. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Martin County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			75	450				38	9					3
	82			105	631				53	13					4
Jupiter Island	72			3	18			1	4	0					2
	82			4	25			1	6	0					2
Stuart	72			8	48			1	7	3					2
	82			11	67			1	10	4					2
Centralized Dispatching Requirements	72	2	1	86	516	3	2		49	12	2MR 2BA	4		2	
	82	2	1	120	723	3	2		69	17	2MR 2BA	4		2	

Okeechobee and St. Lucie Counties Mobile Radio Zone

The land mobile radio zone for Okeechobee and St. Lucie Counties contains 4 law enforcement agencies. These are the 2 Sheriff's Departments and Fort Pierce and Okeechobee municipal agencies. Okeechobee County would best be served by a cooperative dispatching service as both agencies in the county are small.

A cooperative dispatching center is currently being planned in St. Lucie County for the Sheriff's Office and the Fort Pierce Police Department.

Conversion of existing VHF equipment to mobile relay 2-frequency operation is recommended for the primary channels.

Okeechobee County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Okeechobee	The Command and Control Center should be located at Okeechobee and dispatch for all agencies in the county. One high band mobile relay for the primary channel and one simplex base station at Okeechobee are needed to provide one primary channel and one emergency coordination channel. Continued operation of the 155.370 MHz base for point-to-point coordination is recommended. The entire county is within the Okeechobee telephone exchange. Therefore, no foreign exchange lines are required. Planned mobile units should be four channel high band equipment. The mobile frequency change-over, including conversion of the two Okeechobee units from UHF to high band, should be accomplished after the mobile relay, the simplex base and the control units for the Command and Control are operational. Ten new 4-channel mobile units and 1 portable are required. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Okeechobee County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			24	144				8	1					2
	82			29	173				10	1					3
Okeechobee	72			10	60			1	2	0					2
	82			12	72			1	2	0					2
Centralized Dispatching Requirements	72	1	1	34	244	2	1		10	1	1MR 2BA	3		0	
	82	1	1	41	245	2	1		12	1	1MR 2BA	3		0	

St. Lucie County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Ft. Pierce	A cooperative dispatching center for the Sheriff's Office and the Fort Pierce P.D. is presently being planned. The Command and Control Center will be located in Fort Pierce. Two primary channels and the emergency coordination channel operating in the VHF high band are required. One foreign exchange telephone line is needed to Okeechobee. One mobile relay is currently operational and simplex base stations are available for the coordination channel and the point-to-point channel. One additional new mobile relay will be required. Thirty-six new mobile units and 10 new portables are required to replace the single channel equipment.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS St. Lucie County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			66	396				27	10				1	3
	82			79	476			1	32	12				1	4
Ft. Pierce	72			67	402				22	11				0	3
	82			81	484			1	26	13				0	4
Centralized Dispatching Requirements	72	2	1	133	798	3	2		49	21	2MR 2BA	4		1	
	82	2	1	160	960	3	2		58	25	2MR 2BA	4		1	

Orange County Land Mobile Radio Zone

The Orange County land mobile radio zone contains 11 law enforcement agencies.

The Sheriff's Department, the Orlando Police Department and the Winter Park Police Department have recently initiated operation in the UHF frequency band. These three agencies have retained their previous VHF high band operating frequencies, and it is essential that these frequencies be relinquished for use by other police agencies in Central Florida.

Orange County and Central Florida in general are experiencing a large and rapid population growth. Recent investments in new systems and additional mobile and portable equipment reflect this condition. For this reason, the Sheriff's Department is planned as a lightly loaded channel system. The majority of the smaller communities are also in the western portion of the county and will directly reflect the explosive population growth surrounding the Disney World development. As these agencies will face common problems requiring proportionately large investment expansion, the planning recommends that they be included in a centralized dispatching service.

Orange County	Communications Plan
Sheriff	The Orange County Sheriff presently operates a relatively new UHF system with 4-channel capability. Because of the rapid growth in this area, it is anticipated that one additional channel will be required in the future with a total of five channels required by 1982. It is recommended that a cross-band repeater be implemented to provide coordination with other county and municipal law enforcement agencies, by cross-banding a UHF channel with the VHF emergency coordination channel. It is also recommended that the existing 15 high-band mobile units be replaced with UHF equipment in order that the two high-band channels can be released for assignment to other agencies.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Orange County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	4	1	144	865	3	4		105	21	5MR 1BA	4		0	4
	82	5	1	366	2200	4	5		160	32	5MR 1BA	5		0	7

Orange County	Communications Plan
Orlando	The Orlando Department currently uses a new four-channel UHF portable system and a coordination base station on 155.370 MHz. Three high band channels also serve special purpose units. The system is adequate for the 1972-1983 period. It is recommended that VHF high band operation be discontinued and that all police activities be conducted on the UHF band to release the lightly loaded VHF high band channels for reassignment. It is recommended that a cross-band repeater base station be implemented to provide coordination with other county municipal law enforcement agencies by cross-banding a UHF channel with the VHF emergency coordination channel.
Centralized Command and Control Center for: Apopka Edgewood	The control center will be located at Apopka. This system will operate on VHF high band with one mobile relay on the primary channel, and two simplex base stations on the emergency coordination channel and the point-to-point (155.370) channel. Both cities should retain their 155.370 base stations. Apopka should reconfigure the existing 155.010 MHz base station for operation on the emergency coordination channel. One new mobile repeater will be required at Apopka for the primary channel operation. One control station will be required at Edgewood to enable direct communications via the repeater to P.D. units in emergency situations. All new mobile and portable units should have 4 channel capacity. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Orange County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Orlando	72	4	1	208	4000	3	4		1	136	5MR 1BA	5		0	5
	82	5	1	593	11400	5	4		2	207	5MR 1BA	6		0	9
Apopka	72			47	226			1	15	12					3
	82			100	450			1	40	15					3
Edgewood	72			3	12			1	5	2					2
	82			10	35			1	15	3					2
Centralized Dispatching Requirements	72	1	1	50	238	2	1		20	14	1MR 2BA	3			3
	82	1	1	110	485	2	1		45	18	1MR 2BA	3			3

Orange County	Communications Plan
Centralized Dispatching Command and Control Center for: Winter Park Maitland Eatonville	The Command and Control Center will be located at Winter Park, and will provide dispatch services for the police departments of Maitland and Eatonville. Winter Park is currently operating a single channel UHF system. Purchase of five new UHF mobile units to replace the VHF high band mobile units is recommended to release the VHF channel for reassignment. A second UHF channel is required for this system immediately, and an additional UHF channel will be required by 1982. The 155.370 MHz base stations in all three cities should be retained for point-to-point communications. The existing 158.730 base station at Winter Park should be reconfigured for operation on the VHF emergency coordination channel if this unit is in good condition. Provisions should be made at Winter Park to cross-band one of the UHF channels with the VHF emergency coordination channel to provide coordination with other law enforcement agencies. All VHF high band mobile and portable equipment at Maitland and Eatonville should be replaced with 4-channel UHF equipment. Both Maitland and Eatonville should add a UHF control unit to enable direct communications via the repeater to police department units in emergency situations. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Orange County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Winter Park	72			33	198				12	25					3
	82			85	375				35	50					3
Eatonville	72			9	54			1	2	2					2
	82			14	82			1	6	6					2
Maitland	72			20	120			1	7	11					2
	82			31	184			1	11	17					3
Centralized Dispatching Requirements	72	2	1	62	372	2	2		21	38	2MR 2BA	3			
	82	3	1	96	569	3	3		52	73	3MR 2BA	4			

Orange County	Communications Plan
Centralized Dispatching Command and Control Center for: Winter Garden Ocoee Windermere Oakland	The Command and Control Center will be located at Winter Garden. This network will operate on VHF high band with one mobile relay on the primary channel and 2 simplex base stations on the coordination channel and the intercity channel. Each agency will have a control unit on the primary channel. Implementation of the system will require 1 new mobile relay and sufficient mobile and portable units to replace old and/or single channel equipment. Four-channel equipment is recommended. The existing base on 155.370 MHz should be retained. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Orange County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Oakland	72			2	12			1	1	0					2
	82			3	18			1	3	0					2
Ocoee	72			15	90			1	6	1					2
	82			23	138			1	10	2					2
Windermere	72			3	18			1	3	0					2
	82			5	28			1	7	0					2
Winter Garden	72			28	241			1	10	2					3
	82			43	366			1	27	3					3
Centralized Dispatching Requirements	72	1	1	48	361	2	1		20	3	1MR 2BA	3		0	3
	82	1	1	74	550	2	1		47	5	1MR 2BA	3		0	3

Osceola County Mobile Radio Zone

Osceola County contains 3 law enforcement agencies. The Sheriff's Department is on UHF and the 2 municipal departments, St. Cloud and Kissimmee, are VHF high band. Both municipal agencies report interference.

The explosive population growth of this area is considered justification for providing initially lightly loaded channels. While a consolidated command and control center is a reasonable option for St. Cloud and Kissimmee, the uncertain growth factor and recent investments are the reason for planning cooperative adjacent systems rather than the centralized service.

Osceola County	Communications Plan
Sheriff	The Osceola Sheriff's Department has a new UHF system. The present system is sufficient for the present and future needs. Two mobile relays are located at Kissimmee and St. Cloud. Both are on the 460.375 MHz channel. As the stations are approximately 15 miles apart, the emergency coordination channel could be activated using the Kissimmee site. The unused 460.325 MHz channel is recommended to be used for coordination and cross-banded with the regional high band coordination channel. The purchase of a cross-band mobile relay base station is recommended. Fourteen of the new mobile units require modification to add a second channel.
St. Cloud	St. Cloud has recently acquired new equipment and a new channel assignment which should provide base station equipment for the simplex base station for the coordination and the point-to-point channel. However, it is recommended a new mobile relay base station be installed for their primary channel. Tone controlled squelch should be considered. Three existing new mobile units require modification to add a second channel.
Kissimmee	The present Kissimmee radio communications system is VHF high band simplex. Interference is reported on the existing channel and new frequency assignments may be required. The planned system recommends using the existing base station equipment for the emergency coordination channel and the point-to-point channel. A new mobile relay base should be installed for the primary channel. The eighteen new mobiles require modification to add a second channel and one new mobile is required to replace the old mobile.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Osceola County			Channel Allocation		Logging		Telephone Lines									
	Year		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff		72	1	1	13	78	2	1		19	3	1XBR 1MR 2BA	2		1	2
		82	1	1	20	122	2	1		30	5	1MR 2BA 1XBR	3		1	2
St. Cloud		72	1	1	18	108	2	1		5	2	1MR 1BA	3		0	2
		82	1	1	28	169	2	1		8	3	1MR 2BA	3		0	3
Kissimmee		72	1	1	24	144	2	1		23	11	1MR 2BA	3		0	2
		82	1	1	38	225	2	1		36	17	1MR 2BA	3		0	3

Seminole County Mobile Radio Zone

The Seminole County Land Mobile Radio Zone contains 7 law enforcement agencies. Recent investments in new equipment are indicative of the rapid growth. This is particularly so in the western section which in fact is a portion of the developing metropolitan area including Orlando and other portions of Orange and adjacent counties. Sanford has recently installed a new UHF system. The Sheriff's Department is rapidly outgrowing the present single-channel system and the smaller communities are demonstrating proportionate growth.

All agencies in Seminole County have recently joined together in a cooperative dispatch center located in Sanford, from which all city police and sheriff's deputies are dispatched.

This countywide law enforcement communications system utilizes a modern control center for cooperative dispatch, and a single countywide telephone number for citizen access to public safety assistance.

This system is highly efficient as it is now organized and represents the type of operation that is recommended statewide with minor exceptions. These exceptions involve changing from simplex operation to half duplex operation utilizing mobile relays.

In addition this plan recommends that the City of Casselberry change their operation from the UHF band to the VHF high band or share with Sanford on the Sanford P.D. UHF frequency.

Seminole County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Altamonte Springs Casselberry Longwood Oviedo Winter Spring Sanford	The present cooperative dispatch system now utilizes two simplex primary channels (one is mobile only) for the Sheriff's Department. These channels are VHF high band. This plan recommends conversion of the existing primary channels to mobile relay operation. These base/repeater stations will be located at the existing tower site, 5 miles south of Sanford. The existing base stations can be converted to mobile relay operation. System conversion can be accomplished by first installing a new mobile repeater and activating one channel in each mobile radio. When this channel is operational, the existing primary base station may be converted to base/repeater operation, followed by activating a second channel in each mobile radio. The existing coordination channel and the 155.370 MHz channel will remain as simplex. The present cooperative dispatch system now utilizes one VHF high band simplex primary channel for Altamonte Springs, Winter Spring, Longwood and Oviedo. This plan recommends conversion of the existing channel to mobile relay operation. The existing base station can be converted to mobile relay operation by temporarily dispatching on the existing coordination channel (154.950 MHz) via the base station at Five Points. An additional channel is planned for these cities as population growth increases. The Sanford Police Department is presently operating a UHF portable radio system and is planned to be dispatched from the cooperative dispatch center. This plan is adequate for present and future needs. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

Seminole County	Communications Plan
	The Casselberry Police Department is presently operating a UHF portable radio system; however small quantity of radios utilized by this agency does not represent efficient channel utilization. It is therefore recommended that Casselberry transfer operation to the VHF high band (utilizing portable radios, if desired) with Altamonte Springs, Winter Springs, Longwood and Oviedo. Conversion to this band would be based upon the VHF high-band mobile radios presently planned for Casselberry police vehicles. An alternative recommendation would be that of converting the Casselberry portable radios to the Sanford UHF frequency and sharing the existing Sanford channel. This would require a UHF repeater in Casselberry.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Seminole County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			57	312	3			53	4					3
	82			79	475				81	6					4
Altamonte Springs	72			10	60			1	9	4					2
	82			15	91			1	14	6					2
Casselberry	72			19	230			1	6	4					2
	82			29	348			1	10	6					3
Longwood	72			4	24			1	10	1					2
	82			6	37			1	15	2					2
Oviedo	72			7	46			1	4	0					2
	82			11	64			1	6	0					2
Sanford	72			60	360			1	18	18					3
	82			91	548			1	27	27					4
Winter Springs	72			6	36			1	5	2					2
	82			30	180			1	15	15					3
Centralized Dispatching Requirements	72	4	1	163	1068	3	3		105	31	4MR 2BA	4			5
	82	5	1	261	1563	4	3		168	62	5MR 2BA	5			5

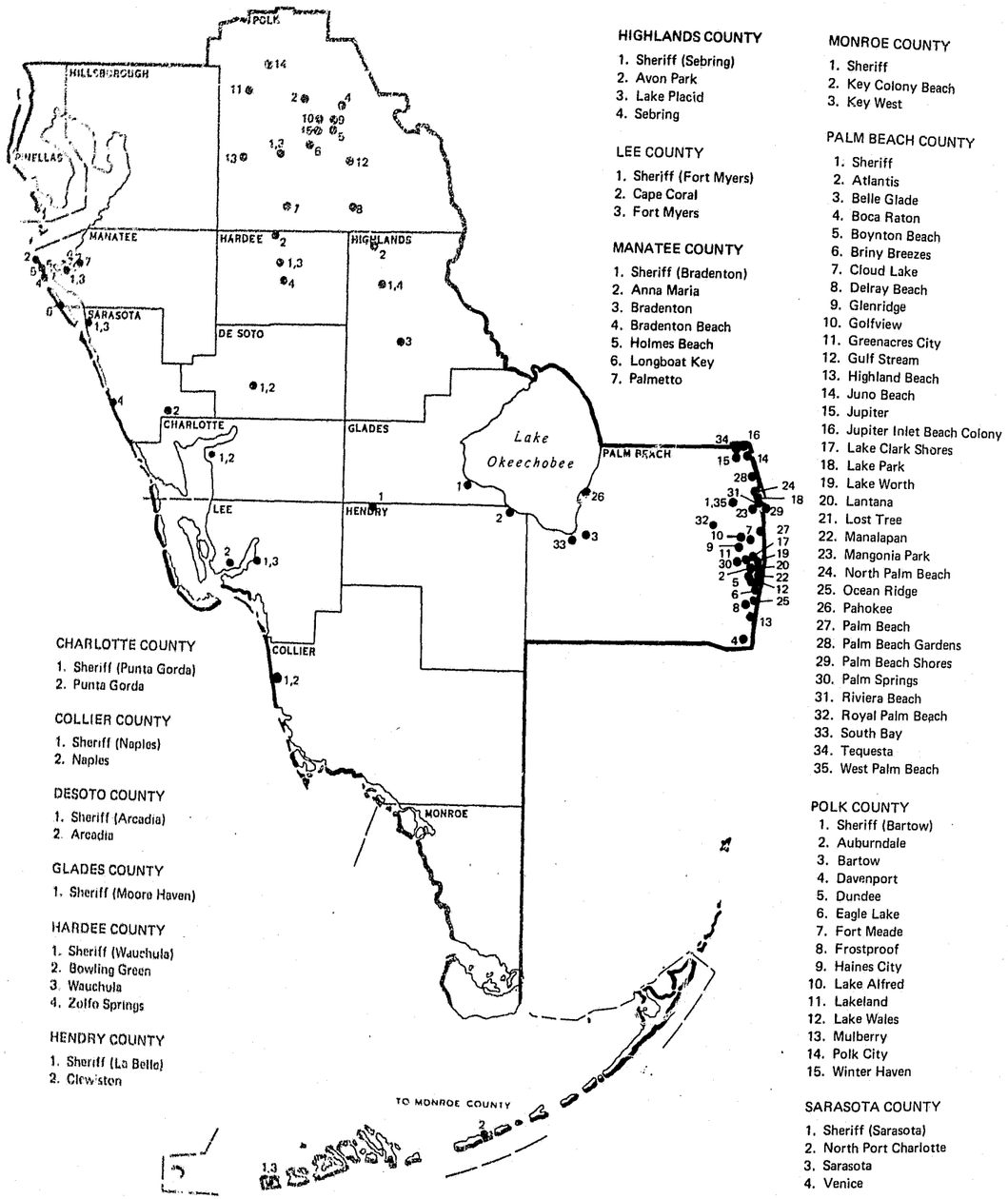
Pasco County Mobile Radio Zone

The Pasco County land mobile zone contains 7 law enforcement agencies and a new agency (Hudson) will be established in the near future. All except New Port Richey are now operating in VHF low band. Continued use of VHF low band is recommended.

The Sheriff's Department is the largest agency and a logical candidate for the operation of a central system serving all agencies in the county. County officials predict very large population increases. Because of this anticipated growth and because of the large geographic area, it is recommended that the Sheriff operate two Command and Control Centers, one at Dade City and one at New Port Richey.

Pasco County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Dade City New Port Richey Port Richey St. Leo San Antonio Zephyrhills	Command and Control Centers should be located at Dade City and New Port Richey. The Dade City center will serve Dade City, St. Leo, San Antonio and Zephryhills. The New Port Richey Center will serve the remaining agencies. It is recommended that 4 primary channels be used at each center, 3 for the sheriff's operation and 1 for the municipal departments. This will require a total of 8 base stations. Each center should also have base equipment on 155.370 MHz and on the emergency coordination channel. One of the sheriff's primary channels will be common to both centers. Therefore five primary channels will be used for the sheriff's operation and two for the remaining agencies. Foreign exchange lines are needed from the Tampa and Brooksville exchanges to allow toll free calls from any part of the county. Nine mobile units and 3 portables are required to replace old equipment and the high band equipment. All new mobile units should be 4-channel units. Independent dispatching sharing the primary channels is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Pasco County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff	72			60	650				75	4					3
	82			180	1500				200	20					5
Dade City	72			20	196			1	5	3					2
	82			80	450			1	12	10					4
Hudson	72			0	0			1	0	0					0
	82			80	450			1	6	2					4
New Port Richey	72			31	213			1	7	3					3
	82			62	425			1	18	10					3
Port Richey	72			6	36			1	3	2					2
	82			36	72			1	6	4					3
St. Leo	72			15	40			1	4	2					2
	82			30	100			1	8	6					3
San Antonio	72			8	50			1	3	0					2
	82			40	200			1	4	2					3
Zephyrhills	72			10	204			1	4	2					2
	82			30	408			1	6	4					3
Centralized Dispatching Requirements (2 locations)	72	3	1	150	1389	3	5		101	16	5BA	4		3	
	82	7	1	538	3605	5	7		260	58	9BA	6		3	



HIGHLANDS COUNTY
1. Sheriff (Sebring)
2. Avon Park
3. Lake Placid
4. Sebring

LEE COUNTY
1. Sheriff (Fort Myers)
2. Cape Coral
3. Fort Myers

MANATEE COUNTY
1. Sheriff (Bradenton)
2. Anna Maria
3. Bradenton
4. Bradenton Beach
5. Holmes Beach
6. Longboat Key
7. Palmetto

CHARLOTTE COUNTY
1. Sheriff (Punta Gorda)
2. Punta Gorda

COLLIER COUNTY
1. Sheriff (Naples)
2. Naples

DESOTO COUNTY
1. Sheriff (Arcadia)
2. Arcadia

GLADES COUNTY
1. Sheriff (Moore Haven)

HARDEE COUNTY
1. Sheriff (Wauchula)
2. Bowling Green
3. Wauchula
4. Zolfo Springs

HENDRY COUNTY
1. Sheriff (La Belle)
2. Clewiston

MONROE COUNTY
1. Sheriff
2. Key Colony Beach
3. Key West

PALM BEACH COUNTY
1. Sheriff
2. Atlantis
3. Belle Glade
4. Boca Raton
5. Boynton Beach
6. Briny Breezes
7. Cloud Lake
8. Delray Beach
9. Glenridge
10. Golfview
11. Greenacres City
12. Gulf Stream
13. Highland Beach
14. Juno Beach
15. Jupiter
16. Jupiter Inlet Beach Colony
17. Lake Clark Shores
18. Lake Park
19. Lake Worth
20. Lantana
21. Lost Tree
22. Manalapan
23. Mangonia Park
24. North Palm Beach
25. Ocean Ridge
26. Pahokee
27. Palm Beach
28. Palm Beach Gardens
29. Palm Beach Shores
30. Palm Springs
31. Riviera Beach
32. Royal Palm Beach
33. South Bay
34. Tequesta
35. West Palm Beach

POLK COUNTY
1. Sheriff (Bartow)
2. Auburndale
3. Bartow
4. Davenport
5. Dundee
6. Eagle Lake
7. Fort Meade
8. Frostproof
9. Haines City
10. Lake Alfred
11. Lakeland
12. Lake Wales
13. Mulberry
14. Polk City
15. Winter Haven

SARASOTA COUNTY
1. Sheriff (Sarasota)
2. North Port Charlotte
3. Sarasota
4. Venice

District IV

7.0 DISTRICT IV

District IV in this plan includes 11 counties with 46 law enforcement agencies. The included area is thinly populated with the major portion of the population in Polk County and a narrow strip along the Gulf Coast.

These counties use 46 radio channels and have 37 dispatching centers. The recommended plan is to consolidate the smaller agencies. In some cases the minimum communications required for countywide Sheriff's service are more than adequate for all county law enforcement needs. Consolidation into a central dispatch service can result in more efficient radio channel usage and more economical operation of dispatch centers. Toward this end, this plan proposes 20 dispatch centers. Eleven are countywide and include the respective Sheriff's system. The remainder involve groups of smaller agencies in a cooperative dispatching system and individual municipal agencies having their own systems.

In this district, there are four contiguous counties recommended for operation in the VHF low band. These counties are DeSoto, Hardee, Highlands and Glades.

As explained in this section, the agencies in this group of counties will utilize a common police emergency frequency in the VHF low band. However, a problem exists in that the Sheriff's mobile units in these four counties are not capable of direct mobile-to-mobile radio contact with mobile units in the adjacent counties on the VHF high band and UHF. These adjacent counties are Hendry, Lee, Charlotte, Sarasota, Manatee, Polk, Osceola and Okeechobee. These counties are all on the VHF high band with the exception of Polk County which is on the UHF band. In order to alleviate this situation and enable "cross-band" communications between these counties, it is recommended that monitor receivers be installed in the Sheriff's mobile units for all twelve counties mentioned above. As a minimum, these monitor receivers should be installed in those units that "work" the border between the 4 low band counties and the 8 high band and UHF counties.

In actual operation, the 4 (low band) county Sheriff's vehicles would be equipped with a monitor receiver tuned to the VHF high band police emergency frequency, and the 8 high band county Sheriff's vehicles would be equipped with a monitor receiver tuned to the VHF low band police emergency frequency. Thus, for example a DeSoto County Sheriff's vehicle in a hot pursuit South on Route 17 could contact a Charlotte County Sheriff's vehicle directly by broadcasting on his low band police emergency channel. This message would be received by the Charlotte County unit on his monitor receiver, and vice-versa.

Charlotte County Mobile Radio Zone

The Charlotte County land mobile radio zone contains 2 law enforcement agencies. The Sheriff's Department dispatch center is located in Punta Gorda, along with the Punta Gorda Police Department dispatch center. One primary channel will serve the present needs of both agencies. Based upon growth projections, an additional primary channel will be required by 1977.

The Punta Gorda Police Department will continue performing its own dispatching via a control unit through the primary mobile relay at the Sheriff's Department until this agency is large enough to financially implement a cooperative dispatch system with the Sheriff's Department.

County	Communications Plan
Charlotte Centralized Dispatching Command and Control Center for: Sheriff Punta Gorda	The Command and Control Center should be located at Punta Gorda and provide dispatching service for the Sheriff and the Punta Gorda Departments. Initially, two VHF high band base stations are recommended, one as a mobile relay for the primary channel and one as a simplex base station for the emergency coordination channel. Retain the Sheriff's base station to continue using the point-to-point channel 155.370 MHz. All future mobile installations should be four (4)-channel high band equipment. Based on projected growth, an additional mobile relay station will be required by 1977. One (1) foreign exchange telephone line is needed from Charlotte Beach to afford countywide toll-free calls to Punta Gorda. The new base station can be used in the recommended system for the primary channel. Since 24 of the new mobile units are single channel, it is recommended that they be modified to incorporate a second channel. The three portables should also be replaced with 4-channel equipment. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, each agency should operate on separate primary channels.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Charlotte County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			78	468				27	2					3
	82			160	936				54	6					4
Punta Gorda	72			8	613			1	5	1			H		2
	82			16	892			1	10	5					2
Centralized Dispatching Requirements	72	1	1	82	1081	3	1		32	3	1MR 2BA	4		1	
	82	2	1	176	1828	3	2		64	11	2MR 2BA	4		1	

Collier County Mobile Radio Zone

The Collier County land mobile radio zone includes 2 law enforcement agencies. These are the Sheriff's Department and the Naples Police Department. Both dispatching centers are located in Naples and operate on VHF high band.

A single Command and Control Center is recommended to provide dispatch service to both agencies.

However, an acceptable alternative would be for the Sheriff's Department to remain on the existing Local Government duplex channel with a separate police duplex channel for the Naples Police Department.

Collier County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Naples	The Command and Control Center should be located at Naples and provide centralized dispatching service for the Sheriff and the Naples Police Department. Two new VHF, high band mobile relay base stations are recommended for the primary channels and a simplex base station for the emergency coordination channel. The mobile relays should be located at the existing tower site near the intersection of Route 84 and Route 29 at Miles City. Retain the Naples VHF high band base station to continue the use of the point-to-point channel 155.370 MHz. All future mobile radio installations should be four (4)-channel VHF high band equipment. Two foreign exchange telephone lines are needed for Immokalee and Everglades City exchanges to make calls from anywhere within the county toll free to Naples. Initially install two (2) VHF high band mobile relay base stations as recommended for the primary channels. Since many of the existing mobiles are single channel, the coordination channel cannot be added. Therefore, replacement of the 38 mobile units and 11 portables is recommended. Independent dispatching is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the sheriff and the Naples P.D. would operate on separate primary channels, one channel for each agency.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Collier County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			75	450				26	9					3
	82			150	900				52	18					5
Naples	72			20	120			1	12	2					2
	82			40	240			1	24	4					3
Centralized Dispatching Requirements	72	2	1	95	570	3	1		38	11	2MR 2BA	4		2	
	82	2	1	190	1140	3	1		76	22	2MR 2BA	5		2	

DeSoto and Hardee Counties Mobile Radio Zone

This land mobile radio zone includes 2 law enforcement agencies in DeSoto County and 4 in Hardee County. The DeSoto Sheriff's Department and all 4 agencies of Hardee County are now on VHF low band. Every agency reports interference. While VHF high band is the preferred band, the shortage of high band frequencies in this part of Florida necessitates continued operation on VHF low band in both counties.

A centralized dispatching service is recommended for each county. Two primary channels will be utilized, one for each of the 2 counties.

In addition, a low band emergency coordination channel, 45.90 MHz, will be made available for use in DeSoto, Hardee, Highlands and Glades Counties.

DeSoto County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Arcadia	The Command and Control Center should be located at Arcadia and provide central dispatching service for the Sheriff and Arcadia. Two VHF low band base stations are recommended, one for the primary channel and one for the emergency coordination channel. Retain Arcadia's existing high band base station to continue the point-to-point channel 155.370 MHz. All future mobile installations should be four (4)-channel low band equipment. Three (3) foreign exchange telephone lines are needed, one at Hull, one at Fort Ogden and one at Nocatee to afford toll-free to Arcadia. Since the existing base equipment is old, two new low band base stations are recommended, one for the primary channel and one for the coordination channel. Eleven mobile units and 5 portables should be purchased to replace the Sheriff's old equipment. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which would result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS DeSoto County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			22	133				11	5					2
	82			25	150				13	6					2
Arcadia	72			18	108			1	3	4					2
	82			21	123			1	3	5					2
Centralized Dispatching Requirements	72	1	1	40	241	2	1		14	9	3BA	3		3	
	82	1	1	46	273	2	1		16	11	3BA	3		3	

Hardee County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Bowling Green Wauchula Zolfo Springs	The Command and Control Center should be located at Wauchula and provide central dispatching service to all law enforcement agencies in the county. Two VHF low band base stations are recommended, one for the primary channel and one for the emergency coordination channel. The 155.370 MHz base station at Wauchula should be retained for point-to-point communication. All future mobile installation should be four (4)-channel low band equipment. Foreign exchange telephone service will be needed from the Avon Park exchange to make all calls in the county toll free to Wauchula. At the present time, all the law enforcement agencies operate on low band. However, the base equipment is old and 2 new VHF low band base stations are recommended. Five new mobile units and 3 new portables are required to replace old equipment. Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Hardee County

	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			10	60		12	11					2
	82			12	72		14	13					2
Bowling Green	72			5	30	1	2	1					2
	82			6	35	1	2	1					2
Wauchula	72			9	54	1	2	1					2
	82			11	66	1	2	1					2
Zolfo Springs	72			4	24	1	4	1					2
	82			5	28	1	5	1					2
Centralized Dispatching Requirements	72	1	1	28	168		18		3BA	3		1	
	82	1	1	33	201		21		3BA	3		1	

Hendry County Mobile Radio Zone

The Hendry County land mobile radio zone includes the Hendry County Sheriff's Department and the Clewiston Police Department. The two agencies now operate separate radio communications. They are both VHF high band simplex systems.

While both agencies are relatively small, the large geographic separation dictates separate dispatching centers. Mobile relay operation on their primary channel is recommended for both agencies. Because of the projected rapid growth in Hendry County, a separate channel for each agency is recommended.

Hendry County	Communications Plan
Sheriff	The Sheriff's Command and Control Center will provide dispatching service to his own units only and operate from LaBelle. A VHF high band mobile relay base station is recommended for the primary channel and a simplex base for the emergency coordination channel. One of the existing VHF high band base stations should be retained at the control center to continue using the point-to-point channel 155.370 MHz. Initially install two (2) VHF high band base stations as recommended to provide one primary channel and one emergency coordination channel. Since only a crystal change is required to make the mobiles operate with the proposed system, these radios would only have to be replaced when they have outlived their useful life. New mobile installations, however, should be four-channel equipment. Seven new portables are required to replace the existing single channel units. One Foreign Exchange telephone line from Clewiston will be required to make all calls toll free to the Sheriff's Office at LaBelle.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Hendry County

	Year	Channel Allocation		Logging								Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	1	1	15	90	2	1		25	6	1 MR 2 BA	3		1	2
	82	1	1	19	114	2	2		32	8	1 MR 2 BA	3		1	2

Hendry County	Communications Plan
Clewiston	Clewiston will operate its dispatching center separately and provide local service only. A VHF high band mobile relay base station is recommended for the primary channel and a simplex base station for the emergency coordination channel, at the Command and Control Center. One of the existing VHF high band base stations should also be retained at the control center to continue using the point-to-point channel 155.370 MHz. Initially install two (2) VHF high band base stations, as recommended to provide one primary channel and one emergency coordination channel. Since only a crystal change is required to make the mobiles operate with the proposed system, these radios would only have to be replaced when they have outlived their useful life. New mobile installations, however, should be four-channel equipment to take advantage of access to the primary, emergency coordination. This will also allow for the incorporation of the tactical channel (154.815/155.550 MHz) which is presently planned for use in Palm Beach County. Since the Clewiston Police Department presently coordinates with several agencies in Palm Beach County, incorporation of this channel with concurrence from Palm Beach County officials is recommended. One old single channel portable should be replaced.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Hendry County

Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
	Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Clewiston														
72	1	1	4	138	1	1		5	5	1MR 2BA	2		0	2
82	1	1	10	345	2	1		13	12	1MR 2BA	2		0	2

This land mobile radio zone includes a single agency – the Glades Sheriff's Office. While VHF high band is the preferred band, the shortage of high band channels in this part of Florida necessitates continued operation in low band. A single primary channel will be required for dispatching, and a low band emergency coordination channel will be made available for direct contact with DeSoto, Hardee and Highlands Counties.

Glades County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff	The Sheriff is the only law enforcement agency in the county and will perform the dispatching service at Moore Haven. Base stations are required for both the primary channel and the emergency coordination channel. To provide countywide coverage to all mobiles, it is recommended that the base stations be centrally located. Their recommended location is five miles east of the intersection of Routes 27 and 29, on Route 27. The 155.370 MHz base station at Moore Haven should be retained for point-to-point communication. All future mobile installations should be four (4)-channel low band equipment. One foreign exchange telephone line is needed from the LaBelle exchange to make all calls in the county toll free to Moore Haven. Since the Sheriff's base equipment is old, two new VHF low band bases should be installed, one for the primary channel and one for the emergency coordination channel. In addition six old mobile units should be replaced.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Glades County

Sheriff

	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
	72	1	1	5	30	1	1		10	1	3BA	2		1	2
	82	1	1	6	33	2	1		11	1	3BA	2		1	2

Highlands County Mobile Radio Zone

This mobile radio zone includes the Sheriff's office and three municipal departments. The Sheriff presently operates on VHF low band and provides dispatching for Lake Placid. Both Avon Park and Sebring operate on VHF high band.

While VHF high band is the preferred frequency band, the shortage of high band channels in this part of Florida necessitates operation in VHF low band. Two primary channels will be required for dispatching, with the additional low band emergency coordination channel, 45.90 MHz, for direct contact with DeSoto, Hardee and Glades Counties.

Highlands County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Avon Park Lake Placid Sebring	The Command and Control Center should be located at Sebring and provide dispatching service for all law enforcement agencies in the county. Three VHF low band base stations are recommended for two primary channels and one emergency coordination channel. To provide countywide coverage to all mobiles, it is recommended that these base stations be centrally located. Their recommended location is approximately five (5) miles east of Lake Placid on Route 621 at a suitable location. The base stations would be controlled from the Command and Control Center at Sebring. The 155.370 MHz base station at Sebring should be retained for point-to-point communications. All future mobile installations should be four (4)-channel high band equipment. Three (3) foreign exchange telephone lines are needed from the Avon Park, Lake Placid and Okeechobee exchanges to make all calls in the county toll free to Sebring. At the present time the Sheriff and the Lake Placid Police Department operate on low band channels while Avon Park and Sebring operate on high band channels. The Sheriff presently dispatches Lake Placid. Initially install three VHF low band base stations at the recommended centrally located county site. Nine new low band mobile units and 9 portables will be required to replace high band equipment. Independent dispatching sharing the primary channels is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Highlands County

Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Sheriff														
72			45	243				22	11					3
82			73	396				35	18					3
Avon Park														
72			15	103			1	2	4					2
82			24	168			1	3	7					2
Lake Placid														
72			1	6			1	1	0					1
82			2	10			1	2	0					2
Sebring														
72			30	235			1	7	5					3
82			49	383			1	11	8					3
Centralized Dispatching Requirements														
72	2	1	91	587	3	2		32	20	4BA	4		3	
82	2	1	148	957	3	2		51	33	4BA	5		3	

Lee County Mobile Radio Zone

The Lee County land mobile radio zone includes 3 law enforcement agencies. The Sheriff's Office and Fort Myers operate on VHF high band, and the Cape Coral Police Department has a relatively new UHF radio system.

The Sheriff's Office and Fort Myers are both sufficiently large to justify exclusive channels and independent operation. While the Cape Coral Police Department is presently small, the city is projected to grow to a population of over 35,000 persons by 1982. In addition, the city is geographically separated from Fort Myers and the Sheriff's Office by the Caloosahatchee River. For these reasons, continued independent radio operation by Cape Coral is recommended. Their projected size will justify the use of an exclusive channel.

VHF high band is recommended for the Sheriff's Office and Fort Myers. UHF is recommended for Cape Coral because of present equipment worth.

Lee County	Communications Plan
Sheriff	The Sheriff's Office at Fort Myers will require two mobile relays for the primary channels and one simplex base station for the emergency coordination channel. The 155.370 MHz base should be retained for point-to-point communications. Foreign exchange telephone lines are needed from the Lehigh Acres, Bonita Springs, Punta Gorda, Boca Grande, and Samlee-Captiva exchanges for toll-free county wide telephone service. The single channel mobile and portable equipment should eventually be replaced with 4-channel equipment.
Cape Coral	The present UHF radio system meets the needs of this department. A cross band repeater is recommended to provide coordination with other law enforcement agencies in the area.

Lee County	Communications Plan
Fort Myers	The Fort Myers police department will require one mobile relay for their primary channel. A control unit can be used to control the Sheriff's base station on the coordination channel. The 3 old mobile units should be replaced with new 4-channel equipment.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Lee County

	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	2	1	76	456	3	2		57	2	2MR 2BA	3			3
	82	2	1	118	707	3	2		88	3	2MR 2BA	4			4
Cape Coral	72	1	1	20	413	2	1		9	0	1MR 2BA	3			3
	82	1	1	69	1418	2	1		21	12	1MR 2BA	3			3
Fort Myers	72	1	1	45	235	2	1		18	7	1MR 2BA	3		0	3
	82	1	1	70	366	2	1		28	11	1MR 2BA	3		0	3

Manatee County Mobile Radio Zone

The Manatee County land mobile radio zone includes 7 law enforcement agencies. Of the 59 mobile units in the county, 29 are in the Sheriff's Department. The next largest is Bradenton with 13 units. The remaining 5 smaller agencies are concentrated in the Bradenton area and 3 of these are dispatched by the Sheriff's Department.

The recommended system involves two dispatching centers. The Sheriff's Command and Control Center will operate on VHF high band and provide dispatch service to the Sheriff, Anna Maria, Bradenton Beach, Holmes Beach and Longboat Key. The second center will be at the Bradenton Department which has recently installed a new UHF system and will also serve the Palmetto Department.

Manatee County	Communications Plan
Sheriff Anna Maria Bradenton Beach Holmes Beach Longboat Key	The Sheriff's Command and Control Center should be located at Bradenton, initially with one VHF High Band mobile relay and one base station for the emergency coordination channel. The existing 155.370 MHz base station should be retained for point-to-point communication. An additional mobile relay is recommended for the second primary channel within 1 to 2 years. In addition, 29 mobile units and 8 portable units are required to replace the old and the single channel equipment. All new mobile and portable units should be equipped for 4 channel operation. Since the City of Longboat Key is geographically in both Manatee and Sarasota Counties, it is recommended that the Longboat Key mobile and portable units be equipped for operation also on the Sarasota Sheriff's channel. Independent dispatching sharing the primary channels is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which would result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Manatee / County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			64	384				29	4				0	3
	82			81	485				37	5				0	4
Anna Maria	72			3	18			1	3	1					2
	82			4	23			1	4	1					2
Bradenton Beach	72			4	24			1	2	2					2
	82			5	30			1	3	3					2
Holmes Beach	72			5	30			1	3	1					2
	82			6	38			1	4	1					2
Longboat Key	72			10	60			1	4	2					2
	82			30	180			1	8	3					2
Centralized Dispatching Requirements	72	1	1	86	516	3	1		41	10	1MR 2BA	4			
	82	2	1	126	756	3	2		56	13	2MR 2BA	4			

Manatee / County	Communications Plan
Centralized Command and Control Center for: Bradenton Palmetto	The Command and Control Center should be located at Bradenton, utilizing the existing UHF system, and provide dispatch services to both the Bradenton Police Department and the Palmetto Police Department. The Control Center should also include two VHF high band base stations for the point-to-point and the emergency coordination channels. Provisions should also be made to "cross-band" the UHF dispatch channel and the emergency coordination channel at the audio level to enable car-to-car communications with Sheriff's Department units in the event of an emergency. All Palmetto VHF units should be replaced with 4-channel UHF units. Independent dispatching sharing the primary channel is an acceptable alternative to the cooperative dispatch approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which would result in uncontrollable interference.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
Manatee County		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Bradenton	72			43	467				14	7				0	3
	82			54	590				26	10				0	3
Palmetto	72			22	134			1	8	4					2
	82			28	169			1	12	5					3
Centralized Dispatching Requirements	72	1	1	65	601	2	1		26	11	1MR 2BA	3			
	82	1	1	82	759	2	1		38	15	1MR 2BA	3			

Polk County Mobile Radio Zone

Polk County mobile radio zone includes 16 law enforcement agencies including the Sheriff's Office. The majority of the agencies at present are relatively small with 10 or fewer radios.

Polk County, because of its proximity to Disney World and because of several large developments which are planned, has projected very rapid population growth. Projections indicate the population will double within the next 10 years. Certain parts of the county, therefore, can expect a threefold increase in population.

Further complicating the law enforcement communications planning are the 12 telephone exchanges. Four of these have no extended area coverage and serve extended coverage only to the adjacent exchange or to the larger towns.

At the present time both VHF high band and UHF systems are used within the county. The UHF systems include the Sheriff's Office, Lakeland, Polk City and Dundee.

A channel sharing plan has been developed and tentatively approved by the majority of the police agencies subject to the availability of financial assistance. The plan will utilize 8 UHF channels and 4 high band channels. The proposed channel sharing is as follows:

Haines City Davenport Lake Hamilton Dundee	1 UHF channel
Lakeland Auburndale	2 UHF channels
Winter Haven Eagle Lake	2 VHF high band channels
Lake Alfred Lake Wales Frostproof Fort Meade Mulberry	2 VHF high band channels

Bartow	1 UHF channel
Sheriff Polk City	4 UHF channels

Independent operation has been selected by the agencies in Polk City with the following exceptions. Haines City will provide dispatch service for Davenport, Lake Hamilton and Dundee, and the Sheriff's Office will dispatch for Polk City.

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Polk County	Communications Plan
Sheriff Polk City	The Polk County Sheriff's Department has a new UHF radio system. The four mobile relays are controlled from Bartow. Two are located at Lake Wales and two at Winter Haven. Poor coverage at South Mulberry and North Lakeland will be corrected by the projected move of the Winter Haven mobile relays to a Lakeland or Highland site. The department also has a 155.370 MHz coordination channel base station. Foreign exchange telephone lines are needed from Fort Meade, Lake Wales, Frostproof, Auburndale, Haines City and Bowling Green to provide countywide toll-free service. The existing 4-channel UHF system is adequate for the present and future needs of the Sheriff's Department. All mobile and portable equipment is 4 channel in the Sheriff's system and 2 channel at Polk City. Therefore, no replacement or modification is necessary. To permit countywide emergency coordination, a cross-band repeater is recommended between the UHF and VHF coordination channels. This will require addition of two high-band bases to operate with one of the UHF relays at each site. The Sheriff will continue dispatching for Polk City.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Polk County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles/ Portables *	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			371	2228				55						7
	82			1113	6684				165						14
Polk City	72			1	6			1	1						1
	82			3	18			1	3						2
Central Dispatching Requirements	72	2	1	372	2234	4	2		56		2MR 2BA	6			
	82	4	1	1116	6702	8	4		168		4MR 2BA	8			

* This column gives the estimates provided by each agency for the total number of radios which will be in service during the peak hour.

Polk County	Communications Plan
Lakeland Auburndale	The Lakeland Police Department is presently operating on a UHF communications system using 4 channels. Officials from the department have agreed to permit channel sharing on 3 of these channels. One UHF channel will be used exclusively for Lakeland's operations; a second channel will be used by Lakeland and shared with Auburndale; a third channel will be shared with Haines City, Davenport, Lake Hamilton and Dundee; and finally the fourth channel will be used by Bartow. The present base equipment and mobile and portable equipment is relatively new and meets the requirements. No replacements will be required. Auburndale, which presently operates on high band, will require eight new mobiles and three new portables and a control unit.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Polk County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles/ Portables *	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Lakeland	72			77	462	2	1		15			3			3
	82			231	1386	3	1		45			5			6
Auburndale	72			74	290	2	1		8			3			3
	82			222	870	3	1		24			5			5
Centralized Dispatching Requirements	72	1	1	151	752				23		1MR 2BA				
	82	2	1	453	2256				69		2MR 2BA				

* This column gives the estimates provided by each agency for the total number of radios which will be in service during the peak hour.

Polk County	Communications Plan
Winter Haven Eagle Lake	The Winter Haven Police Department currently operates a VHF high band system and provides dispatching services to Eagle Lake. This arrangement will continue under the plan. Because of the projected growth in this area it is anticipated that two channels will be required to meet the requirements of these two departments. Two new VHF high band mobile relays will be required at Winter Haven. Since the mobile and portable requirements presently used by these departments is all multi-channel equipment, no replacement is necessary. Emergency coordination channel should be added to each of these equipments. No foreign exchange lines are required.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Polk County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles / Portables *	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Winter Haven	72			35	210	2	1		30			3			3
	82			105	630	3	1		90			4			4
Eagle Lake	72			2	12	1	1		2			2			2
	82			6	36	2	1		6			2			2
Centralized Dispatching Requirements	72	1	1	37	222				32		1MR 2BA				
	82	2	1	111	666				96		2MR 2BA				

* This column gives the estimates provided by each agency for the total number of radios which will be in service during the peak hour.

Polk County	Communications Plan
Lake Alfred Frostproof Fort Meade Mulberry Lake Wales	These five agencies have elected to continue independent operation and will share two primary channels in the VHF high band. To minimize interference it is recommended that each agency operate at the minimum power level sufficient to provide the required coverage. In addition, simplex operation should be used to prevent a mobile from triggering several mobile relays. While simplex operation will result in greater interference levels from distant bases, it is the lesser of two evils when each agency operates its own base in close proximity. It is suggested that this group of agencies consider the use of a common mobile relay with control units at each agency. In addition, it is recommended that the single channel equipment at Lake Alfred and Mulberry be replaced in order that the emergency coordination channel can be added. Therefore, a total of 7 mobiles and 4 portables are required in addition to a VHF high band base at Frostproof.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Polk County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles/ Portables *	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Fort Meade	72			5	30	1	1		3			2			2
	82			15	90	2	1		9			2			2
Frostproof	72			3	18	1	1		2			2			2
	82			9	54	2	1		6			2			2
Lake Alfred	72			4	24	1	1		4			2			2
	82			12	72	2	1		12			2			2
Lake Wales	72			10	60	2	1		6			3			2
	82			30	180	2	1		18			3			3
Mulberry	72			3	18	1	1		3			2			2
	82			9	54	2	1		9			2			2
Centralized Dispatching Requirements	72	1	1	25	150				18		1MR 2BA				
	82	2	1	75	450				54		2MR 2BA				

* This column gives the estimates provided by each agency for the total number of radios which will be in service during the peak hour.

Polk County	Communications Plan
Bartow	The projection growth for Bartow is such that within the next ten years this agency can justify operation on an exclusive channel. Because of the shortage of VHF high band channels in Central Florida, conversion to UHF is recommended for this agency's communications. One of the UHF channels presently used by Lakeland will be used in the system. The base station on 155.370 MHz should be retained for point-to-point communications, and the 155.310 MHz base station should be re-configured for operation on the emergency coordination channel. To implement the new system, one UHF mobile relay is required for the primary working channel. To provide for coordination with other agencies in high band, audio level cross band capacity is recommended. Ten new mobile units and 4 new portables are required to replace the VHF high band equipment. Simultaneous operation on both high band and UHF will be required until the new UHF system is completely phased in.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Polk County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles/ Portables *	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Bartow	72	1	1	13	78	2	1		10		1MR 2BA	2			2
	82	1	1	39	234	2	1		30		1MR 2BA	3			2

* This column gives the estimates provided by each agency for the total number of radios which will be in service during the peak hour.

Polk County	Communications Plan
Haines City Davenport Lake Hamilton Dundee	The Command and Control center will be located at Haines City who has agreed to provide dispatching services for Davenport, Lake Hamilton and Dundee. Davenport, Lake Hamilton and Dundee will operate on a UHF channel. Haines City has elected to continue its operations on its existing frequency 156.450 MHz with the option to convert to the UHF channel at a future date. Conversion of the Davenport system will require a UHF control unit, 2 mobile units and 1 portable. Conversion of the Lake Hamilton system will require 1 mobile unit. Conversion of the Dundee system will require 3 mobile units.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Polk County

	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles/Portables *	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Davenport	72			2	12			1	2						2
	82			6	36			1	6						2
Dundee	72			2	12			1	2						2
	82			6	36			1	6						2
Haines City	72			27	162				8						4
	82			81	486				24						4
Lake Hamilton	72			-	-			1	1						1
	82			-	-			1	3						1
Centralized Dispatching Requirements	72	1	1	31	186	2	1		13		1MR 2BA	3			
	82	1	1	93	558	3	1		39		1MR 2BA	4			

* This column gives the estimates provided by each agency for the total number of radios which will be in service during the peak hour.

Sarasota Mobile Radio Zone

The Sarasota land mobile radio zone includes 4 law enforcement agencies. The City of Sarasota has a new UHF radio communication system. The Sheriff's Department now dispatches the North Port Charlotte units and it is recommended that he also dispatch for Venice. These 3 agencies are on VHF high band channels. New equipment is recommended to replace the Sheriff's old base equipment.

Thirty-six of the 52 mobile units and 17 portables in this VHF system are now single channel. Additional channel capability is needed for emergency coordination. The old units should be replaced with new 4-channel equipment. Modification of some units for additional channel capability may be possible. All new mobile equipment should be equipped for two primary channels, an emergency coordination channel, and a talk-around capability on the mobile relay transmit frequency.

Sarasota County	Communications Plan
Centralized Dispatching Command and Control Center for Sheriff North Port Charlotte Venice	The Command and Control Center should be located at Sarasota and provide dispatching service for all law enforcement agencies in the county with the exception of the Sarasota Police Department. Two VHF high-band mobile relay base stations are recommended for the primary channels and a simplex base station for the coordination channel. The 155.370 MHz base station at Sarasota should be retained for point-to-point communications. All future mobile radio installations should be four (4)-channel VHF high-band equipment. One foreign exchange telephone line is needed at Venice to provide toll-free calls to Sarasota from the North Port Charlotte and Engelwood areas. Initially install the two VHF high-band mobile relay base stations for the primary channels and a simplex base station for the emergency coordination channel at the centrally located county site. Except for crystal replacements, there is no problem to change the mobile radio equipment as the existing equipment and the recommended equipment are both in the high-band range. Thirty-six 4-channel mobiles and 17 portables are required to replace single-channel equipment.

Sarasota County	Preliminary Communications Plan
	Independent dispatching sharing the primary channel is an acceptable alternative to the recommended cooperative dispatching approach. Should independent operation be selected, the use of common base equipment with remote control units at each agency is the preferred equipment configuration rather than separate individual base stations which could result in uncontrollable interference. One of the three allotted channels, however, should be assigned for the exclusive use of the City of Venice which is predicting large growth.
Sarasota	This department's existing UHF communications system will meet all requirements through 1982. All equipment in their present system is new to one year old. It is recommended that a dual-channel VHF high band base station be installed for point-to-point communications and for the police coordination channel. Provisions should also be made to "cross-band" one of the UHF dispatch channels with the VHF emergency coordination channel at the audio level to enable car-to-car communications with Sheriff's Department units in the event of an emergency.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Sarasota County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			353	1667				42	11					6
	82			470	2217				56	15					6
North Port Charlotte	72			2	12			1	2	0					2
	82			3	16			1	3	0					2
Venice	72			60	187			1	10	12					
	82			120	374			1	20	24					
Centralized Dispatching Requirements	72	2	1	415	1866	4	2		52	23	2MR 2BA	5		1	
	82	3	1	593	2067	4	2		79	39	3MR 2BA	6		1	
Sarasota	72	1	1	93	1440	3	1		37	10	2MR 2BA 1XBR	4		0	4
	82	2	1	221	3427	4	2		88	24	2MR 2BA 1XBR	5		0	6

8.0 METROPOLITAN PLANNING UNITS

The Metropolitan Planning Units for Duval, Hillsborough, and Pinellas Counties are included in this communications plan. These are 3 of the 5 separate planning units designated by the Governor's Council on Criminal Justice.

Duval County is spearheading a comprehensive 8-county communication upgrading plan called the Region III Communications Systems and Equipment Study.

Implementation of this plan is in process and includes an 8-county microwave network and computerized dispatching for the Duval Sheriff's Office.

Hillsborough County is participating in the Computerized Metropolitan Criminal Justice System tieing in with Tampa, Pinellas and St. Petersburg. Tampa, in this county, has recently implemented a UHF radio communications system.

Pinellas County with 21 law enforcement agencies is representative of a metropolitan center with numerous suburban communities. The coordination and liaison problems between the agencies can be significantly eased by consolidation of services common to them all. By grouping the agencies in their natural coordination areas, this plan provides economies of dispatching service, access for each to the Computerized Metropolitan Criminal Justice System, and increased service to the public by a full time dispatcher for all agencies.

Each of these counties has a population of approximately 500,000 persons and requires correspondingly large law enforcement communications system. Complex telephone arrangements and multiple radio channels are typical of this size community. It is in these areas that the present shortage of frequency allocation becomes critical. Several of the more sophisticated communications techniques now being introduced are attempts to expand the existing capability and to more efficiently use the state of the art to better serve the criminal justice community. Personal communications for individual patrolmen and the use of digital communications techniques are representative of these efforts.

Duval County Land Mobile Radio Zone

Duval County is one of 8 counties participating in the Region III Communications Systems Plan. The other 7 are now part of District II and are discussed in Section 5 of this report. The Sheriff's Office which includes the City of Jacksonville is the largest county law enforcement agency in North Florida with over 700 mobiles and approximately 150 portables. The other 3 departments in Duval County, Atlantic Beach, Jacksonville Beach and Neptune Beach have a combined total of 14 mobiles and 16 portables. The Sheriff's Office operates all primary channels on UHF using mobile relay operation. They also have several VHF base stations, 5 on high band and 2 on low band. Four VHF high-band mobile relays are also in operation serving 90 mobiles and 80 portables on 2 channels. The balance of the Sheriff's mobiles and portables are on UHF.

Under the Region III Communications System Plan, Jacksonville Beach will continue operation on UHF and Atlantic Beach will continue to provide dispatching service to Neptune Beach on a VHF high band system.

Duval County	Communications Plan
Sheriff	The sheriff's system serving both the county and the City of Jacksonville has recently been converted to computer aided dispatching. The system appears to meet present requirements. However, it is anticipated that at least one additional UHF channel will be required to meet future needs. In addition to the 8 channel UHF system, the sheriff also operates on 3 VHF high band channels. The following modifications are recommended in order that these systems be compatible with the overall frequency plan: Existing channel / Modified channel 155.910/158.230 / 155.910/158.230 (no change) 155.670/156.150 / 155.850/156.150 158.910 / 154.830/155.565
Centralized Dispatching Requirements for: Atlantic Beach Neptune Beach	Atlantic Beach presently dispatches for Neptune Beach and under the Region III plan will continue in the mode. The system operates on VHF high band.
University of North Florida	This university has a new UHF mobile relay system on order. This system will meet their requirements. It is recommended that the Sheriff's coordination channel be incorporated in their mobile and portable equipment.

Duval County	Communications Plan
Jacksonville Beach	Jacksonville Beach is presently operating on a UHF system and will continue under the Region III Plan. The present system meets their requirements.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Duval County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72	8	2	956	4488	7	8		707	145	7BA 20MR	7			13
	82	9	2	1100	5145	8	9		811	166	7BA 20MR	8			14

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS

Duval County	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Atlantic Beach	72			14	84	2	1		3	2	3BA	3		0	2
	82			16	96	2	1	1	3	2	3BA	3		0	2
Neptune Beach	72			6	36				11	0					
	82			7	41			1	13	0					
Central Dispatching Requirements	72	1	1	20	120	2	1		14	2	3BA	3		0	2
	82	1	1	23	137	2	1		16	2	3BA	3		0	2
University of North Florida	72	1	1	--	--	1	1		0	5	1MR	2			
	82	1	1	--	--	1	1		0	5	1MR				
Jacksonville Beach	72	1	1	13	78	2	1		0	14		2			2
	82	1	1	15	89	2	1		0	16		2			2

Hillsborough Land Mobile Radio Zone

The Hillsborough County land mobile radio zone includes 4 law enforcement agencies; Tampa and the Sheriff's Department being the two largest, with 334 mobiles and 225 mobiles, respectively. The 2 smaller agencies, Plant City and Temple Terrace, have a combined total of 12 mobiles and 8 portables. All agencies are presently self-dispatched.

Tampa's existing UHF system is new and can be expanded to adequately meet the department's needs through 1982. This would free 4 VHF high band channels in this congested area.

Since the Hillsborough Sheriff's Department is participating in the computerized criminal justice system with Pinellas Sheriff's Department and Tampa (and probably St. Petersburg), it is recommended that Plant City and Temple Terrace consider consolidating dispatching from the Sheriff's Command and Control Center. This would make available to all agencies involved, immediate access to the criminal justice system on a 24-hour basis.

Hillsborough County	Communications Plan
Tampa	It is recommended that Tampa Police Department add three additional UHF mobile relays and discontinue dispatching on VHF high band completely. This will provide 7 UHF primary channels. The cross-band mobile relay at the Centralized Command and Control Center will provide the emergency coordination channel. The 155.370 MHz VHF base should be retained for point-to-point coordination. One hundred fifteen mobiles and 18 portables now operating on 2-channel VHF high band should be replaced with 4-channel UHF equipment. During the conversion period a dual base station dispatch operation can be provided using separate high-band and UHF base stations simultaneously until all the mobiles are converted to UHF.
University of South Florida	The only suggested modification to this system is a change of frequency to be compatible with the frequency plan and inclusion of the emergency coordination channel in the portable equipment. Because of the severe shortage of VHF high band police frequencies, a local government channel has been assigned.

Hillsborough County	Communications Plan
Centralized Command and Control Center for: Sheriff Plant City Temple Terrace	Three channels for the Sheriff and one for the Plant City and Temple Terrace mobiles have been assigned. The latter channel can also serve for severe peak overloads of the Sheriff's channels. The Centralized Command and Control Center should be located at Tampa and provide centralized dispatching service to all law enforcement agencies in the county except the Tampa Police Department. Four VHF high-band mobile relay base stations are recommended to provide four primary channels. It is recommended that a cross-band repeater be employed by the Command and Control Center to provide coordinated emergency communications capability with Tampa. A 155.370 MHz base station should be retained for point-to-point communications. All future mobile installations should be four (4)-channel high-band VHF equipment. Two foreign exchange lines are required between the Plant City exchange and the Command and Control Center due to the frequency of calls expected from that area. Four VHF high-band mobile relays should be installed at Tampa, providing four primary dispatch channels. Following the base station installations, all existing mobiles should be converted for mobile relay operation. During the conversion period, a dual base station dispatch can be provided using separate high-band simplex base operation and the high-band half duplex mobile relays until all the mobiles are converted. Four new mobile relays, 8 new mobiles and 8 portables are required.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS	Year	Channel Allocation: Primary	Channel Allocation: Emergency Coordination	Logging: Complaint Calls/Day	Logging: Transmissions/ Day	Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines: Emergency	Telephone Lines: Dedicated (C) Control (H) Hot Line	Telephone Lines: Foreign Exchange	Telephone Lines: Administrative
Hillsborough County															
Sheriff	72			216	6511				237	32					5
	82			248	7468				271	37					6
Plant City	72			15	90			1	6	6					2
	82			17	102			1	7	7					2
Temple Terrace	72			15	90			1	6	2					2
	82			17	102			1	7	2					2
Central Dispatching Requirements	72	4	1	246	6691	4	2		249	40	4MR 2BA	5		2	
	82	4	1	282	7672	4	2		285	46	4MR 2BA	5		2	
Tampa	72	7	1	600	3600	5	7	8	334	84	7MR 2BA	6		0	9
	82	8	1	690	4140	6	8	9	384	97	3MR 2BA	7		0	10
University of South Florida	72	1	1	--	--	1	1	1		13	2BA	2		0	
	82	1	1	--	--	1	1	1			2BA	2		0	

Pinellas County Mobile Radio Zone

The Pinellas land mobile radio zone includes 21 law enforcement agencies. The Pinellas Sheriff's Department is the largest single agency. Existing arrangements provide that the Sheriff's Department dispatch 5 of the smaller communities and in addition is the law enforcement agency for some other towns.

A computerized criminal justice system for cooperative use of the Hillsborough County Sheriff, Tampa, the Pinellas County Sheriff, and probably St. Petersburg is being implemented at this time.

The highly developed urban areas group is divided geographically into 2 centers. Clearwater, Largo, and Dunedin are one. St. Petersburg and Pinellas Park are the other.

Three central dispatching systems are recommended. Two of these are for the highly developed urban areas. The third includes the Sheriff and remaining 15 towns. While the Sheriff's system will involve a large number of departments, there is the significant advantage that a single emergency telephone number can be used if they are centrally dispatched. Seven primary channels are allocated for this system. Four are required for the Sheriff's operation and three for the remaining agencies.

Pinellas County	Communications Plan
Centralized Dispatching Command and Control Center for: Sheriff Belleair Belleair Beach Belleair Bluffs Gulfport Indiana Rocks Beach Kennedy City Madeira Beach Oldsmar Redington Beach Safety Harbour St. Petersburg Beach Shores South Pasadena Tarpon Springs Treasure Island City	The Command Control Center for the centralized dispatching should be located at Clearwater. Seven primary channels are required, four for the Sheriff's operation and three for the 15 remaining agencies. A base station on 155.370 MHz should also be at this location. All channels are VHF high band. With the exception of Safety Harbour's two mobile units, all departments included in the centralized plan are currently on VHF high band. A simple crystal change and alignment procedure will effect the change for these mobile units. This should be accomplished after the central base stations and associated control units are operational. Because of the number of equipments involved, the Sheriff's Department may require simultaneous dispatching on both systems as the frequency change is implemented in the Department's mobile unit. All future replacement mobile equipment should be 4-channel high-band units. The existing mobile relays are 10 to 14 years old and should be replaced. Twenty-three new mobile units and 13 portables are required to replace the old equipment and single-channel equipment. It is recommended that the Sheriff's surveillance activities be operated on low band.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Pinellas County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Sheriff	72			300	3779				125	15	-				6
	82			453	5706				189	23					8
Belleair	72			9	400			1	4	1					2
	82			14	604			1	6	2					2
Belleair Beach	72			2	27			1	2	1					2
	82			3	41			1	3	2					2
Belleair Bluffs	72			4	213			1	2	0					2
	82			6	322			1	3	0					2
Gulfport	72			48	1673			1	21	7					3
	82			72	2526			1	32	11					3
Indian Rocks Beach	72			9	63			1	5	4					3
	82			14	95			1	8	6					4
Kenneth City	72			8	48			1	3						2
	82			12	72			1	5						2
Madeira Beac	72			11	66			1	4	4					2
	82			17	100			1	6	6					2
Oldsmar	72			3	31			1	2	1					2
	82			5	47			1	3	2					2
Redington Beach	72			1	50			1	6	1					1
	82			2	76			1	9	2					2

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Pinellas County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Safety Harbour	72			10	595			1	6	1					2
	82			15	898			1	9	2					2
St. Petersburg Beach	72			18	1855			1	0	13					2
	82			27	2801			1	0	20					2
Shores	72			10	11			1	1	1					2
	82			15	17			1	2	2					2
South Pasadena	72			2	157			1	3	1					2
	82			3	237			1	5	2					2
Tarpon Springs	72			14	1434			1	6	6					2
	82			21	2165			1	9	9					2
Treasure Island City	72			11	219			1	5	5					2
	82			17	331			1	8	8					2
Centralized Dispatching Requirements	72	5	1	460	10621	5	5		195	61	5MR 2BA	6		0	
	82	7	1	696	16038	6	7		297	97	7MR 2BA	7		0	

Pinellas County	Communications Plan
Centralized Dispatching Command and Control Center for: Clearwater Dunedin Largo	The Command and Control Center should be located in Clearwater. Four UHF primary channels and one UHF emergency coordination are planned. The existing Clearwater mobile relays plus 2 additional can provide these channels. Dunedin and Largo will require conversion to the 460 MHz band. This should be accomplished after the centralized system and control units are operational. Simultaneous dispatch on the high-band system and the UHF will be required during the changeover. When the changeover is complete, dispatching may be centralized and high-band operation discontinued. Fifteen new UHF mobiles and 33 portables are required. A cross-band repeater (using existing equipment) will provide coordination capability.
St. Petersburg Pinellas Park	A Command and Control Center for Pinellas Park and St. Petersburg should be located in St. Petersburg. This will permit use of the St. Petersburg centralized communications facility including the proposed tie-in on the Model Computerized Metropolitan Criminal Justice System. Six primary channels are required initially. Five VHF high-band channels will meet the present day requirements. Future expansion must be made in the UHF band since there are no other high band channels available. The base station on 155.370 MHz for point-to-point coordination should be retained. To implement this system, plans are to use the new St. Petersburg dispatching center and to convert the existing simplex channels to mobile relay. Conversion of one channel at a time can be accomplished without disrupting operations. Pinellas Park may simultaneously dispatch on the existing system and the new system as the mobile units are being converted.

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Pinellas County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Clearwater	72			70	8323				7	58					3
	82			106	12567				11	88					4
Dunedin	72			35	2053			1	14	11					3
	82			53	3100			1	21	17					3
Largo	72			44	4898			1	1	22					3
	82			66	7396			1	2	33					3
Centralized Dispatching Requirements	72	2	1	149	15274	3	2		22	91	3MR 2BA	4		0	
	82	4	1	225	23063	3	4		34	138	5MR 2BA	5		0	

IMMEDIATE AND FUTURE COMMUNICATION REQUIREMENTS Pinellas County	Year	Channel Allocation		Logging		Complaint Operator Positions	Dispatcher Positions	No. Control Units	No. Mobiles	No. Portables	Mobile Relay or Base Equipment	Telephone Lines			
		Primary	Emergency Coordination	Complaint Calls/Day	Transmissions/ Day							Emergency	Dedicated (C) Control (H) Hot Line	Foreign Exchange	Administrative
Pinellas Park	72			36	1289			1	13	5					3
	82			54	1946			1	20	8					3
St. Petersburg	72			270	11518				156	135					6
	82			408	17392				236	204					7
Centralized Dispatching Requirements	72	6	1	306	12807	4	6		169	140	6MR 2BA	5			0
	82	9	1	462	19338	5	9		256	212	9MR 2BA	6			0

APPENDIX A

CHANNEL LOADING AS DETERMINED BY QUEUING THEORY

CHANNEL LOADING AS DETERMINED BY QUEUING THEORY

Queuing theory has been used for years as the standard engineering approach for developing the relationship between the number of people or things to be serviced per unit time, the number of things or people required to perform the service and the time one must wait for the service. This approach has been used to design various systems ranging from complex switching networks to supermarkets. The success of this approach is primarily dependent on the validity of the assumptions that are made regarding the number of requests for service, the distribution of these requests and the time required to satisfy each request.

Queuing theory is based on Poisson's Law which states that if requests for service arrive at a mean rate of n per unit time and are expected to occur individually at random, then the probability P of q requests occurring in unit time is:

$$P = \frac{n^q \cdot e^{-n}}{q!}$$

This law considers that the situation is in statistical equilibrium over a specific period of time, normally taken as 1 hour. The application of the statistical method takes full account of the fact that there will be bursts of activities as well as bursts of inactivities during the hour and the assumption that conditions do not broadly change throughout the hour does not cause significant error.

Where only one service is available, and there are a number of users requesting service at random, Poison's Law can be expressed in terms of the average time one must wait for service (t):

$$t = \frac{w}{1 - w} \cdot T \cdot D$$

where

w = fraction of time services are being performed

T = average time it takes to perform the service

D = 0.5 to 1 depending on the degree of variations in the time it takes to perform the service.

In applying this approach to communications and specifically for determining single-channel loading, the above parameters would be defined as:

t = waiting time for an operator to gain access to a clear channel

w = fraction of the time the channel is occupied

T = average message length

D = factor indicating degree in variation of T, for this application 0.75 was selected as a mean value.

In routine police work message length (T) can be kept relatively short. The use of 10 codes greatly reduces message lengths with many messages such as acknowledgments (10-4) taking only a second. It has been reported that based on actual measurements the average message in police communication takes approximately 10 seconds to transmit.[1] Since time is one of the most important considerations in police work when an emergency occurs, the average waiting or delay time in placing a message on the air during a normal busy period has been judged to be reasonable if it does not exceed 5 seconds.[2]

The rate at which assignments are made to the uniform patrol force varies with the time of day and the type of area the patrol force is operating in. An assignment rate of 1 per hour appears to be reasonable during the busy periods. Since an average of 4 messages (where acknowledgments are considered part of a message) are required for each assignment, a message rate of 4 per hour for each mobile appears reasonable during the busy hour.

To solve for the number of mobiles per channel for the above example, Equation (1) is rewritten to solve for W (fraction of the time the channel is occupied).

[1] Initial Development of Implementation Plans, Volume 2, of Final Report of Phase 2 Illinois Police Communications Study, Project 3 of the APCO Project Series Foundation, ITT Research Institute, December 1969, Appendix D, page D-49.

[2] Volume 1 and Volume 2, Phase 1, Illinois Police Communications Study Final Report of Phase 1 of Project 3 of the APCO Series Foundation ITT Research Institute, July 1968, pages 83-88.

$$w = \frac{t}{t + DT}$$

from the values developed in the above example

$$w = \frac{5}{5 + (0.75)\ (10)}$$

$$= 0.4$$

Since

$$w = \frac{\text{number of messages (N) X message length (T)}}{\text{unit time (3600 seconds)}}$$

Solving for

$$N = w \cdot 3600/T$$

$$= 0.4\ .3600/10$$

$$= 144 \text{ messages per hour}$$

Assuming 4 messages per hour per patrol vehicle

$$\text{Number of patrol vehicles per channel} = \frac{144}{4} = 36$$

From the above example it can be seen that up to 36 mobiles can operate on 1 channel assuming an average waiting time of up to 5 seconds is tolerable. From empirical data, however, this figure appears to be conservative since many large departments operate as many as 60 mobiles per channel effectively. It was therefore judged that a design criteria of 30 to 40 mobiles per channel was reasonable for this plan and would allow a reasonable latitude for growth.

APPENDIX B

CONSIDERATIONS REGARDING THE FORMATION

OF A COOPERATIVE DISPATCH CENTER

In undertaking to form a cooperative dispatch center as recommended throughout this plan, it is important to understand the nature of the factors that are involved.

Only when these factors have been reviewed, discussed and mutually agreed to by the participating agencies, should such a cooperative arrangement be implemented. The following is a general list of these major points of consideration:

A. Formation of a Cooperative Police Association

Legal form of the Association; corporate entity or inter-local agreements or contracts executed by the participating agencies.

B. Distribution of Operating Costs

Terms and Methods of payment

Based upon quantity of radios receiving dispatch service.

C. Management Responsibilities

Uniform Operating Procedures

Responsibility for equipment and facility maintenance

Maintenance and disposition of records

Training responsibilities

D. Definition of Services to be Performed by the Cooperative Dispatch Center

Dispatching

Training

Records keeping

E. Organizational Criteria

Election of Officers

Functions, duties, responsibilities and tenure of officers

Operational manpower requirements, including Communications Officer/Dispatch Supervisor and dispatch personnel.

Operational control and cost sharing agreements as required by Part 89.13 and 89.14 of the FCC Rules and Regulations.

With regard to Item A, the legal form of the organization, it is felt that the formation of a corporation would be too unwieldy, due primarily to the necessity of filing amendments, financial reports and so forth with the State Department. The use of Inter-Local Agreements appears to allow more flexibility in that amendments to the rules and procedures would simply require the positive approval of the participating agencies.

Such an agreement is presented as an example below.

NOTE: The following agreement is an example, and should be used for information only.

AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 1973, by and between the City of _____, an incorporated municipality, located in _____ County, Florida, hereinafter referred to as the CITY, and the Cities of _____, _____ incorporated municipalities, located in _____ County, Florida, hereinafter referred to as the MUNICIPALITIES, pursuant to the Florida Inter Local Corporation Act of 1969, Section 163.01, et seg., Florida Statutes.

WITNESSETH

WHEREAS, THE PARTIES hereto are desirous of implementing Chapter 72-296 of the Florida Statutes, relating to regional law enforcement communications and,

WHEREAS, THE PARTIES hereto, are desirous to interface law enforcement communication between the parties hereto and the legal entities which operate within the region, and

WHEREAS, THE PARTIES hereto desire to form a regional law enforcement co-operative dispatch center, for the purpose of interagency dispatching

NOW, THEREFORE, in consideration of the mutual promises made and hereinafter set forth, the parties hereto agree as follows:

1. To form an association known as "The _____ County Co-operative Dispatch Center," whose purpose is to provide law enforcement communication dispatching for the parties herein, and who is referred to as the "Dispatch Center."

2. The CITY shall provide all police radio dispatch services to parties herein, 24 hours a day, 7 days a week, 365 days per year.

3. FCC licenses held by the parties herein shall be in the name of the CITY, in accordance with F.C.C. Rules and Regulations.

4. The CITY shall hold the title, and have care, custody and control of base stations, repeater stations, and of the co-operative Dispatch Center. The CITY shall further be responsible for planning, acquiring, installing, and maintaining the common communications equipment of the _____County Co-operative Dispatch Center.

5. The CITY shall be in charge of hiring, training, and discipling of employees working on the premises of, or in conjunction with the operation of the Dispatch Center.

6. Each party shall be responsible for the custody and maintenance of all mobile, portable, and remote control equipment used by its officers.

7. The parties herein agree to form the _____ County Co-operative Dispatch Center Board of Governors, herein referred to as the "Board of Governors." The Board of Governors shall consist of the Police Chiefs, or his designates, of each of the parties herein. The Board of Governors shall have the power to promolgate rules and by-laws necessary for the operation of the Dispatch Center.

8. The Board of Governors shall agree on the manner of employing, engaging, compensating, transferring, or discharging necessary personnel subject to the provisions of the applicable civil service and merit systems of the respective municipalities.

9. All costs of operating and maintaining the communication center shall be paid initially by the CITY, and all purchases and contracts for the purpose of operating the Dispatch Center shall be in the name of the CITY, provided:

(a) The the Dispatch Center costs shall consist of the following items: dispatch center, base and repeater station, antenna tower and antenna maintenance, phone lines and service, dispatcher and benefits salaries, dispatch center supplies and materials, depreciation of dispatch center equipment, employee training and related expense, and expenses agreed on by a majority of the Board of Governors.

(b) The costs shall be pro-rated between the parties based on the percentage of the population each individual city bears in proportion to the population of all the parties herein. Population will be based on the population records of the _____ .

(c) The CITY shall maintain financial records relating to the costs of operating and maintaining the Dispatch Center, and said records shall be available to the parties herein or their representative upon request, pursuant to Section 119.01 of the Florida Statutes.

(d) Dispatch service payment to the CITY from the MUNICIPALITIES shall be due the first day of each month.

10. All parties herein will use APCO codes in transmitting and receiving messages to and from the communication center, or any code designated by the Florida Division of Communications.

11. All parties shall be responsible for the maintenance of radio discipline within their individual cities.

12. The period of the contract shall be sixty (60) months, or until such times as all parties mutually agree to termination.

13. All gifts or grants in furtherance of the purpose of the communications center shall be in the name of the CITY, and shall be used for the purpose of reducing the overall operating costs of the communication center.

14. All claims for federal or state aid for the operation of the communication center shall be made by the CITY.

15. Any liabilities incurred by the parties hereto as a result of the operation of the communication center will be paid initially by the CITY, with each of the other parties subsequently paying their pro-rata shares as a cost of operating the center; except, that any disciplinary action by any agency of the State or Federal government arising out of individual action of an employee or employees of one of the parties hereto, and not in furtherance of the purposes herein states, shall be borne individually by that party, including, but not limited to fines and legal expenses.

16. Any disputes arising between the parties hereto, including, but not limited to, questions relating to the propriety of costs assessed to the parties herein, shall be decided by a majority vote of the Board of Governors. In the event that the controversy or dispute cannot be settled by the Board of Governors, then the Director of the State Division of Communications shall serve as an arbitrator, whose decision shall be binding on all parties.

17. In the event that any party does not pay his pro-rata share of the costs of operating the communication center for a period in excess of sixty (60) days, then the CITY may terminate all services of the communication center to that party.

18. All funds, payments and disbursements on behalf of the communication center, shall be strictly accountable by the Finance Department of the CITY, who shall conduct an annual audit of the communication center, the cost of which shall be considered a cost of operation of the center. A copy of this audit shall be available to the representatives of any party hereto, upon request.

19. By a unanimous vote of the Board of Governors or their designates, this contract may be wholly or partically amended.

20. The terms of this agreement shall become effective immediately upon the approval by the respective parties to the agreement.

IN WITNESS WHEREOF, the respective parties have caused this Agreement to be duly executed by the proper officials this _____ day of _____ , 1973.

CITY OF _____

By _____
City Manager

Attest _____ (seal)
City Clerk

CITY OF _____

By _____
City Manager

Attest _____ (seal)
City Clerk

CITY OF _____

By _____
City Manager

Attest _____ (seal)
City Clerk

CITY OF _____

By _____
City Manager

Attest _____ (seal)
City Clerk

CITY OF _____

By _____
City Manager

Attest _____ (seal)
City Clerk

APPENDIX C

AN ANALYSIS OF THE GEOGRAPHIC SEPARATION REQUIRED

FOR DUPLEX SYSTEMS

An important factor in design of mobile radio systems is the geographic separation required between two base stations operating on the same channel. This appendix derives the separation required for duplex operation.

Consider the duplex mode. Figure C.1 below shows the potential interference.

S = signal

I = interference

M = mobile unit

B = base

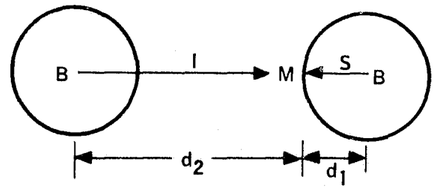


Figure C.1. Interference at Mobile from Distant Base.

Referring to the figure, the mean signal strength at the mobile unit is given by

$$S_m = \frac{0.345}{L_{D_1}\, L_S} \left(\frac{h_b\, h_m}{d_1{}^2} \right)^2 g_m\, P_B \times 10^{-14} \qquad (1)$$

Where

LB = base antenna height

h_m = mobile antenna height

P_B = base ERP

L_{D_1} = diffraction loss

L_S = shadow loss

g_m = gain of the mobile antenna

Likewise the received interference power is

$$I_m = \frac{0.345}{L_{D_2} L_S} \left[\frac{h_B h_m}{(d_2)^2} \right]^2 g_m P_B \times 10^{-14} \qquad (2)$$

The signal to interference ratio is therefore

$$\frac{S_m}{I_m} = \frac{L_{D_2}}{L_{D_1}} \left(\frac{d_2}{d_1} \right)^4 \qquad (3)$$

The shadow losses on each path are assumed to be identical. In addition, the two systems are assumed to have identical system parameters; i.e., ERP and antenna heights.

The question now is what mean signal to mean interference ratio is required to assure that the desired signal captures the interference in at least 90 percent of the locations. To achieve signal capture, the signal must exceed the interference by 12 dB.[1] However, both the desired signal level and the interference level are random variables having a log-normal distribution with means of S_m and I_m, respectively, and standard deviations of σ.

It is desired to compute the probability that the signal level exceeds the interference level by 12 dB. In other words, we wish to compute the probability of one random variable exceeding another random variable by a factor of K_1. These two random variables have unequal means and equal variances.

[1] Report of the Advisory Committee for the Land Mobile Radio Service, Vol. 2, Part 2. Federal Communications Commission.

The probability density function for the two variables are

$$f_1(\chi) = \frac{1}{\sqrt{2\pi}\,\sigma} \exp\left[-\frac{(\chi - I_m)^2}{2\sigma^2} \right] \qquad (4)$$

$$f_2(\chi) = \frac{1}{\sqrt{2\pi}\,\sigma} \exp\left[-\frac{\chi - S_m{}^2}{2\sigma^2} \right] \qquad (5)$$

Where S_m and I_m are the received mean signal and mean interference level in dBw.

Let $m_s = S_m/\sigma$ and $m_I = I_m/\sigma$

$$f_1(\chi) = \frac{1}{\sqrt{2\pi}} \exp\left[-\frac{(\chi - m_I)^2}{2} \right] \qquad (6)$$

$$f_2(\chi) = \frac{1}{\sqrt{2\pi}} \exp\left[-\frac{(\chi - m_S)^2}{2} \right] \qquad (7)$$

The probability that the signal power is greater than the interference by K dB is:

$$P(S > I + K) = \int_{-\infty}^{+\infty} P(I < a\text{-}K)\, P(a < S < a + da)\, da$$

$$= \int_{-\infty}^{\infty} P(I < a - k)\, f_2(a) da \qquad (8)$$

$$= \int_{-\infty}^{\infty} f_2(a) \int_{-\infty}^{a-K} f_1(\chi)\, d_\chi\, da$$

Substituting

$$P(S > I + K) = \frac{1}{2\pi}\int_{-\infty}^{\infty} \exp\left[\frac{-(a - m_s)^2}{2}\right]\int_{-\infty}^{a-K} \exp\left[\frac{-(\chi - m_I)^2}{2}\right] d\chi \; da$$

Let $y = \chi - a + K$

$$P(S > I + K) = \frac{1}{2\pi}\int_{-\infty}^{\infty} \exp\left[-\frac{(a - m_s)^2}{2}\right]\int_{-\infty}^{0} \exp\left[-\frac{(y + a - K - m_I)^2}{2}\right] dy\, da \qquad (9)$$

$$= \frac{1}{2\pi}\int_{-\infty}^{\infty}\int_{-\infty}^{0} \exp\left[-\left\{(a + b)^2 + c^2\right\}\right] dy\, da$$

Where

$$b = \frac{1}{2}(y - m_s - m_I - K) \qquad (10)$$

$$c = \frac{1}{2}(y + m_s - m_I - K)$$

Since c is not a function of a, the order of integration may be changed.

$$P(S > I + K) = \frac{1}{2\pi}\int_{-\infty}^{0} \exp(-c^2)\int_{-\infty}^{0} \exp\left[-(a + b)^2\right] da\, dy \qquad (11)$$

Since

$$\int_{-\infty}^{\infty} \exp\left[-(a + b)^2\right] da = \sqrt{\pi} \qquad (12)$$

Therefore

$$P(S > I + K) = \frac{1}{2\sqrt{\pi}}\int_{-\infty}^{0} \exp\left[-\frac{(y + m_S - m_I - K)^2}{4}\right] dy \qquad (13)$$

Let $Z = \dfrac{y + m_S + m_I - K}{\sqrt{2}}$

$$P(S > I + K) = \frac{1}{\sqrt{2\pi}}\int_{-\infty}^{m_S - m_I - K/\sqrt{2}} \exp\left[-\frac{Z^2}{2}\right] dZ \qquad (14)$$

If we let $P(S > I + K) = 0.90$

then

$$\frac{m_S - m_I - K}{\sqrt{2}} = 1.3 \qquad (15)$$

or

$$m_S = 1.3\sqrt{2} - m_I - K \qquad (16)$$

since $m_S = S_{m/\sigma}$, $m_I = I_{m/\sigma}$, and $K = K_{1/\sigma}$

$$S_m - I_m - K_1 = 1.3\sqrt{2}\,\sigma \qquad (17)$$

or

$$S_m = I_m + K_1 + 1.3\sqrt{2}\,\sigma \qquad (18)$$

In other words, the mean signal strength must exceed the mean interference level by $(K_1 + 1.3\sqrt{2}\ \sigma)$ dB. For K_1 = 12 dB and σ = 8dB,[1] the required S_m/I_m is 26.7 dB for satisfactory performance in 90 percent of the locations.

Referring back to Equation (3), and rearranging:

$$\frac{d_2}{d_1} = \left[\frac{S_m}{I_m} \cdot \frac{L_{D_1}}{L_{D_2}}\right]^{1/4} \qquad (19)$$

or $40 \log d_2 = 26.7 + 40 \log d_1 + \log L_{D_1} - \log L_{D_2}$

From this expression, the curve on Figure C.2 was computed showing the required separation as a function of the coverage provided by each base.

[1] Egli, John J., "Radio Propagation Above 40 μc Over Irregular Terrain," Proc. IRE, Oct. 1957, page 1385.

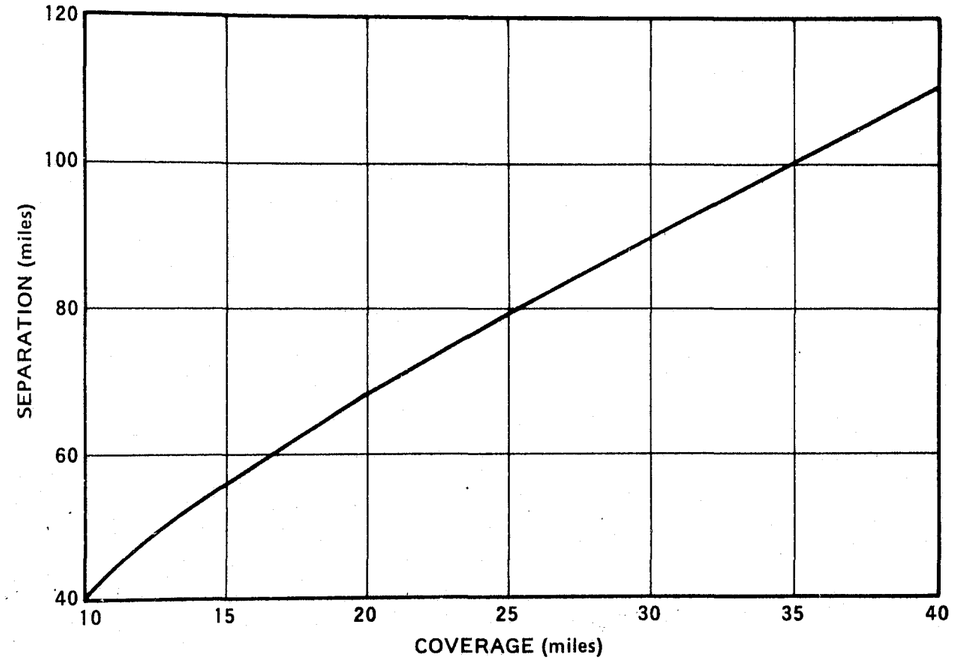


Figure C.2. Separation Requirements for Duplex Operation.

APPENDIX D

TYPICAL OPERATIONAL PROCEDURES HANDBOOK

The enclosed represents portions of a Communications Handbook utilized in Law Enforcement Communications Systems.[1]

NOTE: Copies of the complete manual are available from the publisher at $1.25 pre-paid.

[1]The Public Safety Communications Standard Operating Procedure Manual, Associated Public Safety Communication Officers, Inc., New Smyrna Beach, Florida, Seventh Edition, October 1971.

Section I The Operator

SECTION 1.0
THE OPERATOR

Heritage and Responsibility:

1.1 The terms dispatcher, operator, and communicator are synonymous and normally refer to persons operating base or fixed communications equipment.

1.2 There are few positions in the Public-Safety Services which are subject to more continuous scrutiny than is that of a dispatcher, or where a higher standard of performance must be the rule rather than the exception.

1.3 Superior performance arises from devotion to duty and the determination to fulfill assigned responsibility. The spirit of "the Message to Garcia" still lives in public safety communications.

1.4 A good dispatcher must accept the responsibility to fulfill the requirements of his position. This includes the prompt, accurate, and courteous handling of message traffic in a professional manner so as to be of utmost assistance to the police officer, fireman, ranger, highway or public works officer or whomever the communication system was designed to serve.

1.5 The dispatcher will be only as effective as his own initiative and sense of responsibility may dictate, and neither the material in this manual nor that in any other will compensate for carelessness, lack of sincere effort, dishonesty, or disregard of established regulation.

He can be, by his own choice and action, an example of all that is good in public safety communications, admired and respected throughout the service, or he can be, again only by his own choice, a discredit to his service and to his superiors through disregard of his responsibilities. But in the latter instance, not for long.

1.6 Whichever he is, he *will* be an example, either good or bad, because of his position. Mobile unit operators, however poor their procedure, are rarely heard by anyone other than their own dispatchers or a limited number of their own mobile stations. The base station operator, on the other hand, is heard by all of his own mobile stations and he is in frequent contact with other base or fixed stations and services, often through several different communications media. He is the point of contact through which most information is received or disseminated and to all with whom he is in contact he represents his department.

1.7 He can do more by example in training mobile operators than any classroom session. His procedure, good or bad, will be emulated unconsciously. His position is one of control and he is expected to promote an orderly and legal operating procedure.

1.8 In extreme emergencies or disaster, when traffic mushrooms due to auxiliary personnel and the requirements of interservice coordination, when emotion mounts high, and when success seems impossible, the cases are legion where a calm, courteous and alert dispatcher has brought order out of chaos simply by analyzing the message traffic he hears and suggesting the best application of the resources which he knows to be available.

1.9 The dispatcher must know the capabilities and limitations of the communication systems that he is authorized to operate. He must be familiar with the administrative organization of his department so as to be able to route traffic properly, and be knowledgeable of the equipment and resources available to his department for the process of their duties, both regular and emergency. He must be familiar with the organization and communications capabilities of cooperating agencies and with the rules and regulations of the Federal Communications Commission which are applicable.

1.10 Basic Qualifications Summary:

a. Ability to speak clearly and distinctly at all times.

b. Ability to reduce rambling and disconnected material into concise and *accurate* messages.

c. Ability to think and act promptly in emergencies.

d. Ability to analyze a situation accurately and to take or suggest an effective course of action.

e. Thorough understanding of the capabilities of his own communications system and a working knowledge of cooperators' systems.

f. Adequate understanding of the technical operation of his own system to allow intelligent reporting of equipment failures.

g. Physical and mental ability to work effectively under all conditions encountered.

h. Knowledge of the FCC Rules and Regulations applying to operator's responsibilities.

1.11 Radio Operator License Requirements:

It is the responsibility of the state, county, or municipal agen-

cy holding the radio station license to assure that the system is operated in accordance with Federal Communications Commission Rules and Regulations. While no operator's license is required for most dispatching duties, the FCC nevertheless requires that any person operating a radio transmitter be familiar with its Rules. A copy of the FCC Rules should be on file at each operating position.

1.12 The Mobile Unit Operator:

This manual has the base station operator as its primary concern. However, there is a separate Section on mobile unit techniques (Section B3). It is recommended that the mobile unit operator become familiar with all Sections of this manual since it is not uncommon for the mobile unit operator to occasionally fill in at the base station operating position. Of more importance is the fact that, when the mobile unit operator is more aware of the problems of a base station operator, a mobile unit operator becomes a more intelligent user of the system channel and is thereby capable of making a major contribution to the operating efficiency of the system.

Section 2 Telephone Techniques

SECTION 2.0

TELEPHONE TECHNIQUES

2.1 It may seem strange to the uninitiated to find a section on telephone technique in the forefront of a manual on public safety communications. If so, it serves to indicate how much a part of our everyday lives the commonplace telephone has become. It is because of this public dependance on a household instrument that the public safety operator must be more aware of the telephone's importance.

2.2 The telephone is the most available and, therefore, the most important means of access the citizen has of obtaining the services of a public safety department. It is the primary LINK between professional and nonprofessional communications.

2.3 The telephone is the fundamental method of communications within a department and is the chief means of informal or unformed messages between departments.

2.4 When you lift the receiver of your telephone you are about to meet someone, to engage in a conversation as important as a face-to-face visit, and YOU are the department.

2.5 ANSWER PROMPTLY. Treat each call as an emergency. Place yourself in the place of one who may be ill or suffering from fear or panic. Every ring for that person is an eternity. Try to answer within three rings.

2.6 IDENTIFY YOURSELF AND YOUR DEPARTMENT. This insures the caller he has placed his call properly and calms the party who may require assistance.

2.7 SPEAK DIRECTLY INTO THE MOUTHPIECE. This insures that you will be properly understood and will not waste time repeating information. Speak UP! Don't swallow your words.

2.8 OBSERVE TELEPHONE COURTESY. A calm, competent, decisive voice that is courteous will never antagonize the caller.

2.9 TAKE CHARGE of the conversation. After the initial exchange, and you sense the need of the calling party, cut off superfluous wordage by leading the call into meaningful context by asking questions as to who, what, where, when. Be courteous but firm.

2.10 TAKE ALL INFORMATION. *Write it down.* Never leave anything to memory.

2.11 EXPLAIN WAITS. Explain why it will take time to check for information and that you will call back. A party waiting on a "dead phone" may become irritable and uncooperative.

2.12 AVOID JARGON or slang. Use good English.

2.13 SHOW INTEREST in the person's call. The person calling has or needs information and to him it is important.

2.14 USE CALLER'S NAME when possible; it makes him feel you have a personal interest in his call.

2.15 Try to visualize the caller. The telephone is an impersonal thing and we may tend to be curt, less courteous or lose our temper easier than if we were meeting the party in person.

2.16 Make sure the information gets to the proper person; never give the caller misinformation, never guess, but refer them to the proper party if it means transferring the call. If requested information is not immediately available, obtain name and number and return call.

2.17 Advise when you leave your telephone. Let your co-workers know of your whereabouts when leaving your position.

2.18 Place and receive your own calls, this provides far better harmony with the citizen than letting someone else do the calling.

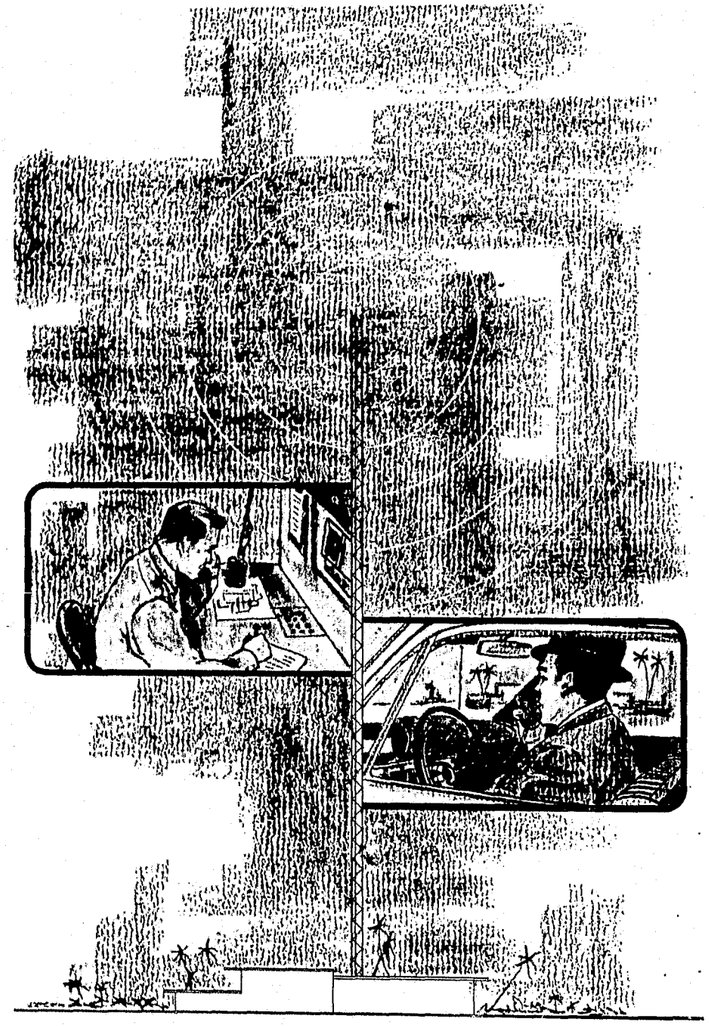
2.19 List frequently called numbers. Place such numbers as well as all other important numbers within view of the operating position.

2.20 DO NOT SAY "Who's calling?" You will receive a better response, without a feeling of "It's none of your business," if you simply say "May I tell Mr. ---- who called?"

2.21 Transfer calls only when necessary, and when necessary tell the caller what you are going to do.

2.22 Terminate calls positively and courteously.

Section 3 Radiotelephone — Voice — Techniques



SECTION A3.0

BASE STATION TECHNIQUES

A3.1 The Public Safety voice (radiotelephone) radio base station is licensed primarily to intercommunicate with its mobile radio units and is secondarily licensed to intercommunicate with other public safety base stations.

A3.2 The purpose of a public safety radio system is to dispatch messages and related information pertaining *only* to the official business of its licensed public safety organization (known to the Federal Communications Commission as the "user" or licensee), to and between its mobile units.

A3.3 The mobile units (stations) of a licensee, whether or not licensed separately from a base station, are under the control of its related manned base station.

A3.4 The statements in the above items should cause the base station operator to be urgently aware of the basic importance of his position, and to know that the proper discharge of his duties can only be accomplished by monitoring his position. An operator must operate, no more no less.

A3.5 The foundation of a good operator rests upon reliability and promptness. The simplicity of this statement is disarming; when put into practice only an experienced operator can meet the rigid demands of "reliability and promptness."

A3.6 Reliability should never be sacrificed for speed, yet speed is of equal importance. Learning and applying the techniques in this manual will help to equalize speed and reliability.

A3.7 An operator is governed by the rules of his department as well as by the rules of the Federal Communications Commission. A public safety employed operator is not normally required (above 25Mh/z) to be licensed by the FCC, and if not licensed, he must understand that his department is responsible to the FCC for his communications activities. If a restricted operator permit is desired, an FCC Form No. 753 must be filled out and sent to the Federal Communications Commission in Gettysburg, Pa. 17327. Application forms are available from the same address and from the FCC Field Office in your area. A two dollar fee must accompany the application.

A3.8 An operator, whether or not licensed, has the right to protect himself concerning his communications activities. In so doing he has the duty to advise his supervisor of any message he has been requested to dispatch or of any act he has been requested to perform, which, in his considered opinion, may *reasonably*

cause a violation of the Rules and Regulations of the Federal Communications Commission. Such advice should be preoffered with the tact and respect due a supervisor.

A3.9 If, in such an instance as that noted in (3.8) above, the operator is again requested to perform the reported upon act by his so advised supervisor then the operator should immediately perform that act, and, should enter his pertinent and relative comments in the station log.

A3.10 The licensee is required to have full and exclusive control at all times of the system equipment for which he is licensed. The licensee has the right to govern who may or may not open cabinets or equipment rooms.

A3.11 An inspector of the FCC has the right to inspect the licensee's equipment and the station logs and records *at any reasonable hour.* You should request any person representing himself as an FCC Inspector to show his credentials before making your records and premises available.

A3.12 The operating position should be the depository of the keys to all transmitter cabinets and rooms, including those at remote sites. The keys should be tagged or otherwise identified.

A3.13 Do not accept any statement or report as necessarily true. Various persons usually will submit different versions of the same complaint or happening.

A3.14 Do not jump to conclusions with the information given. Stick to the facts. Do everything possible to obtain and furnish information which will assist someone else to solve a matter or cause an appropriate act.

A3.15 Operators should be familiar with the Rules and Regulations of the FCC which govern the operation of a radio station in the public safety radio services. (See Sec. 5)

A3.16 A LOG is the station record required by the FCC. The log is kept in written form. (See Sec. 4) Use pen and ink or typewriter. A department may require certain entries in addition to those required by the FCC. (See Section 5)

A3.17 The operator must sign on the station log when reporting for duty, and sign off when relieved. NAME AND INITIALS must be shown, not just initials.

A3.18 In signing on and off duty, the operator going off duty should sign on one line, giving time and full name. The relief operator should sign on the next lower line in like manner. Time of these actions must be placed in the columns provided on the log form.

A3.19 It should be the duty of each operator reporting for duty to read the log and familiarize himself with any activity called to his attention by the operator going off duty.

A3.20 If the station is not operated twenty-four hours a day, it is suggested that the station be verbally signed on the air at the beginning of each day of activity, and be verbally signed off at the end of each day of operation. Example: "This is the Public Works radio station of the City of Jonesville, Florida, now in service at 0800, operator *(name)* on duty, KIE ---." At the end of the day: "This is the Public Works radio station of the City of Jonesville, Florida, now out of service at 1700, operator *(name)* off duty, KIE ---."

A3.21 Log sheets should be numbered consecutively, sheet number one (1) starting just after midnight (2400) on the first day of each month and continuing until midnight of the last day of the month.

A3.22 A completely new log sheet should be started at the beginning of each day. If the operator's duty runs from night of one day until morning of the next, upon the first minute of the morning of the next day, 0001, the next log sheet should be numbered and dated. However, if the operator signs off his tour of duty during the early morning hours and his relief comes on several hours later, the same log sheet will be used as if no break had occured, except, of course, in the matter of the time of entries.

A3.23 If corrections are made in the log, the original entry MUST NOT BE DEFACED OR RUBBED OUT IN ANY MANNER. Simply draw a line through the entry, in such a manner that the entry can still be read, and enter your initials after the original entry and on the same line, THE DATE ALSO. Make correct entry on the following line in the usual manner.

A3.24 Operators must be familiar with all stations to be monitored. The call letters and locations of such stations should be known by all operators.

A3.25 Operators should not make adjustments to the radio equipment except as provided in the nature of control knobs, etc.

A3.26 Operators must listen to the circuit before keying the transmitter in order to not cause interference. NEVER CALL A STATION WHILE ANOTHER STATION OR CAR IS WORKING. BE COURTEOUS.

A3.27 Operators must familiarize themselves with the counties, cities, and important areas the station serves. Proper pronunciation must be used.

A3.28 The operator must not leave the operating position at the control desk unless absolutely necessary and then only by means of a relief operator or by temporarily signing the station off the air. He must return immediately upon fulfillment of any other requirements. THE OPERATOR'S DUTY IS ONE OF OPERATING, AND MONITORING OTHER STATIONS IS OF VITAL IMPORTANCE. STAY ON THE JOB!

A3.29 Courtesy can be more aptly expressed by the tone of voice and manner of presentation then by words. Eliminate all unnecessary talking. Never say "thank you" or "please."

A3.30 Study the construction of a message before transmitting it. If necessary, write it out on scratch paper and then cut it down to telegram brevity. Don't be brusque, just be direct.

A3.31 Time on the air is your priceless commodity. Never forget that your department radio station license is not a bill of sale for the frequency on which your station operates. It is, rather, public notification that a federal regulatory body has allowed or "permitted" your department to use a frequency for a period of five years. Continued and knowledgeable rules violations will result in that privilege being revoked. Unnecessary time on the air is a senseless waste of a valuable public resource.

A3.32 Words or voice inflections which when broadcast reflect or indicate irritation, disgust or sarcasm, must not be used. Relations with other operators must remain cordial at all times.

A3.33 Be absolutely impersonal while on the air. Avoid the egotistical "I," and concentrate on third person language.

A3.34 Avoid familiarity. Use proper names and titles or unit identifiers (see Sec. B3.14).

A3.35 NEVER CHANGE A SINGLE WORD IN A FORMAL MESSAGE WHICH IS RECEIVED FOR RELAY PURPOSES. RECORD AND RETRANSMIT IT EXACTLY AS GIVEN.

A3.36 A station originating a formal message which is to be relayed on the air by the receiving station should monitor the receiving station so as to certify that the message is retransmitted correctly.

A3.37 Long messages should be broken into phrases and each phrase repeated once before going to next phrase of the message.

A3.38 At the end of two or three phrases of a long message the operator should inquire "So Far?" of the station or car to which he is transmitting. This is done in order to reduce the number of repeats, because if the receiving operator misses any part of a message he has missed all the meaning of the message.

A3.39 An operator should not receipt for traffic until he is sure he has it correctly. If fill-ins are required the following form should be used: "Go ahead (from the last word received) to (the first word received after the blank)." Or, if completed except for the beginning or ending, say "Repeat up to" (the first word received), or, "Repeat all after" (the last word received).

A3.40 If, after calling a station or car twice, no reply is received, sign off the air. Then call again in about a minute. Do not fill the air with incessant and useless calls.

A3.41 At the end of a transmission when a reply is expected, the words "Go ahead" should be used. Do not use the term "Over" or "Come In."

A3.42 When a station calls another station for information, and the receiving station does not have the information directly at hand, the receiving station should request a Standby (10-6) and sign its call letters; in this way the air is clear for other traffic while the desired information is being obtained.

A3.43 Any station calling must be answered promptly. If it is impossible to take a message at the time, the station must still be answered immediately and advised 10-6. If a message can be taken, the operator will say "Go Ahead, (city or station or car.)" UNDER NO CIRCUMSTANCE ALLOW A CALLING STATION TO GO UNHEEDED. GIVE A STANDBY IF NECESSARY, BUT AT LEAST ANSWER THE CALL.

A3.44 NEVER FORGET A STANDBY! If you have asked a station or car to standby, don't forget to call him back as soon as possible. To do otherwise is not only breach of operating techniques; it is, in fact, an insult.

*A3.45 Use the name of your geographical location in calling up or in answering calls, "Ocala - - (this is) - - Lake City (go ahead)." "Lake City - - (this is) - - Ocala (go ahead)." "21 (mobile unit) - - (this is) - - Richmond - - (go ahead)." "Richmond - - (this is) - - 21 (gives location) (go ahead)."

*A3.46 It *had* long been traditional in the public safety radio services to give the name of the calling station first - then the name of the station being called. This practice started in the early days of public safety radio when static and noise on the extremely low frequencies made such procedure mandatory. In this modern age, however, in connection with the more sophisticated systems now in use, this procedure has been reversed,

i.e., as in A3.45 above. Also, modern world-wide communications has brought public safety radio into more intimate contact with international procedure, which has always been the reverse of that used by the public safety services. And, the growing use of aircraft in public safety operations has made it mandatory that public safety operating procedure be in agreement with that of the FAA. The growing liaison between public safety and military forces has also made the change necessary.

A3.47 Use the call sign of your station at the end of each message (not necessarily at the end of each *transmission* as there may be several transmissions in one message). This not only helps in complying with an FCC regulation but it also will indicate to other waiting stations that you have completed this particular bit of your business and that you have signed your station off the air so those other stations waiting may use the channel.

*A3.48 Example: (3.46 - 47): "Brownsville (station called) - - Jonesville (station calling.)" "Jonesville - - Brownsville (go ahead)." "Car 14, 10-23, KIE ---." "10-4, Jonesville, KIE ---."

A3.49 Signing of a station's call sign is one of the most important functions of the operator, both because it is necessary by Federal Rules and because it is the mark of distinction of that particular station. It must be done in a manner which clearly indicates that the operator is proud of the service his station offers, and this is accomplished by putting the accent on the next to last number in the call sign. KIE 886 is KIE 886. The voice is raised a complete octave on the 8. KIF 763 is KIF 763. KJG 29 is KJG 29. Let your system know that *your* station is awake, listening, ready.

A3.50 An operator's voice should give the distinct impression that he is on his toes, alert, ready for any contingency. His reply to a call must be immediate and decisive. Nothing imparts confidence as does an operator whose voice is impersonal, clear, instant, completely ready to serve. Nothing destroys confidence as does a voice which conveys the weary impression of: "what the h--- do *you* want?", or that it took all of its strength to push the mike button, or, that signs off in a garble that threads away into oblivion.

A3.51 Definite time should be specified instead of indefinite; for example; "September 10" instead of "Today, date, yesterday, or tomorrow." Definite hour and minute time should be used, and not, "a few minutes ago," etc.

A3.52 Numbers should be repeated first individually as integers, and then as the whole number. Example, 1,527,617, is transmitted; 1,5,2,7,6,1,7 (pause), one million, five hundred twenty-seven thousand, six hundred seventeen."

A3.53 The number "0" is normally pronounced as "zero."

A3.54 Numbers are an important part of your message reading. Their confusion and mis-copying can lead to much trouble, both for your department and the others to whom your messages are addressed. Following is the correct pronunciation of numbers:

1-"WUN" . . . with a strong W and N

2-"TOO" . . . . . with a strong and long OO

3-"TH-R-EE" . with a slightly rolling R and long EE

4-"FO-WER" . with a long O and strong W and final R

5-"FIE-YIV" . with a long I changing to short and strong Y and V

6-"SIKS" . . . . with a strong S and KS

7-"SEV-VEN" . with a strong S and V and well-sounded VEN

8-"ATE" . . . . with a long A and strong T

9-"NI-YEN" . . with a strong N at the beginning, a long I and a well sounded YEN

0-"ZERO" . . . with a strong Z and a short RO

A3.55 Do not use superfluous words. Never ask "what is your 10-20," Instead, ask "10-20?" Don't say "10-6 just a minute." say "10-6."

A3.56 Don't take time to explain why a 10-6 is necessary. The receiving station should honor a 10-6 without question. Any long drawn out explanation only causes useless traffic and delay in the system.

A3.57 FORGET HUMOR! Your radio system suffers enough without it.

A3.58 Twenty-four hundred hour time is preferred over common 12 hour time. If a person receives a message which has been relayed through several stations advising him to meet someone at a certain place at "3 o'clock" the following date there is a distinct possibility the person will wonder if the time given is morning or afternoon time. Also, the letters AM and PM are often misunderstood over the air. The use of 2400 time will eliminate the necessity of entering AM or PM at noon and midnight on the log forms. (See Sec. 4)

A3.59 Be familiar with the areas serviced by your organization. Learn the location of highways and other important geographic

points. Seek to improve your knowledge of other cooperating organizations and know:

A. How to contact the organizations.

B. Who to contact within the organizations.

C. Service they render, what equipment and forces they have available.

D. Location of their facilities and distances to your area or station.

Most Public-Safety organizations have coordinated emergency plans for times of emergency or disaster. Familiarize yourself with these plans and with your designated role under such conditions.

A3.60 Do not guess! Check all doubtful words. Never acknowledge a transmission unless you are sure that you have it correct and understand it. If the terminology used in the system you are operating on is unfamiliar to you, learn its meaning.

A3.61 Caution should be exercised in attempting to explain or amplify a message given to you to transmit. If the person receiving the message indicates doubt as to the meaning of a message repeat the message verbatim. If the person receiving the message is still unable to understand the meaning of the message, refer the message to the originator for clarification.

A3.62 Avoid phrases and words that are difficult to copy. Some examples of poor and preferred words are listed:

Poor	Preferred
Want	Desire
Can't	Unable
Buy	Purchase
Get	Obtain
Send	Forward
Do you want	Advise if
Find out	Advise if
Call and see	Check

A3.63 Dispatching names can be accomplished accurately by first pronouncing the complete name; then spelling the first name, giving the first letter of the name phonetically; then pronouncing the last name and then spelling it phonetically (see Sec.4):

Example:

"John Phares"

"J-John-O-H-N"

"Phares"

"P-Paul"

"H-Henry"

"A-Adam"

"R-Robert"

"E-Edward"

"S-Sam"

Then pronounce the whole name -

"John Phares"

It is better to spend the extra time required in spelling names clearly, since, for example, this name could easily have been copied "Fares", "Farres", or Ferris", depending upon local pronunciation.

A3.64 Remember the word "CYMBALS" when describing motor vehicles. Start at the top and move down according to the following:

Color

Year

Make

Body style

And

License

Serial (Vehicle Identification Number)

A3.65 A station operator should ask a telephone caller to wait until it can be determined if an incoming radio call is urgent. Only a few seconds will be required to copy a short message and resume the telephone call, or, advise 10-6 if the telephone call proves more urgent.

*A3.66 If a station operator has a message of any length which must be copied by a mobile operator, the sending station should so indicate a message to be copied. This will allow the mobile operator time to move out of traffic if necessary (alone in car, etc.) and prepare to copy the message. This may avoid having to repeat or will give the mobile operator an opportunity to advise his status. He might be on the way in to headquarters, making transmission of the message unnecessary. Message could be handled as follows:

Example:

Base: "210 - - (this is) - - Charleston, 10-63."

Car: "Charleston - - 210, Adams and Monroe; 10-6."

Then: "Charleston - - 210. Go ahead with 10-43."

A3.67 The international distress signal is the spoken word "MAY-DAY" from the French term "M'aidez" which is a request for help. This signal is in regular use, particularly in the aeronautical and maritime fields, and should be immediately recognized by any operator as an urgent call for aid. Its reception and all pertinent traffic and/or action should be logged. This signal should not be used for any other than a situation of extreme gravity and its false or fraudulent use is prohibited.

A3.68 There are other signals which indicate emergency. Operators should be instantly familiar with these; among which are "10-33", "10-34", the spoken word "urgent" repeated several times, or simply the word "help." When assistance is needed in minor emergencies such a word as "assistance" will indicate the degree of urgency.

A3.69 Some form of an "in service" and "out of service" mobile unit log (10-7 and 10-8) should be carefully maintained. This record is used constantly in dispatch operations and it is all important when an emergency situation demands the need for all mobile units with a minimum delay. Also, it is of great importance to a person who is on an investigation or to the mobile operator who must leave his radio equipped vehicle and go into some area on foot or alone. Should either encounter trouble, the fact that the dispatcher knows his last location and his logical time of return to service may then mean the difference between life and death.

The status control method may be a written log, a map with indicators, a sophisticated status board, or other means.

A3.70 The TEN SIGNALS are listed in Section 4. They were originally formulated by Illinois APCO members in 1935 and they were registered and officially adopted by National APCO in 1940. They have been universally used since that time by all types of two-way radio users.

The purpose of the TEN SIGNALS is two-fold: to achieve *reliability* and *speed.*

Reliability is achieved by the TEN (10-) portion of the signal wherein the "10-" is an euphonic "alert" attesting to the fact that information is about to follow. (See Sec. A3.46).

The SIGNAL portion (number following the 10-) is the information content. It is the condensation of several words and it therefore achieves *Speed* by the use of brevity. It also achieves speed due to the fact that numbers, because of inflection, are not as easily confused as words, and, because numbers are more easily read through the noise that is ever present in a two-way radio system.

A TEN SIGNAL is complete in itself. If it is not correctly used it would be better not to use it at all, since the meaning is not clear and the transmission ungrammatical.

Examples:

Correct - "10-4, Rockford."

Incorrect - "I am 10-4 on that information, Rockford."

Correct - "Car 5, 10-20."

Incorrect - "Car 5, what is your 10-20."

Correct - "Car 5, Main and Adams."

Incorrect - "Car 5, my 10-20 is Main and Adams."

Correct - "Jackson, car 9, 10-1."

Incorrect - "Jackson, car 9, your signal is 10-1."

A3.71 Reliability is improved in radiotelephone transmissions by the best qualities of dialect, euphony and enunciation. Pronounce words clearly and somewhat slowly; a rate of about 60 words per minute is proper.

A3.72 A standard message form is recommended to be used by non-operating personnel when they wish a mesage to be handed to

the dispatcher for transmission. This should be used whenever it is important that the exact text be accurately received. The form should also be used by the dispatcher to copy incoming messages and to deliver them to the addressee. (See Sec. 4).

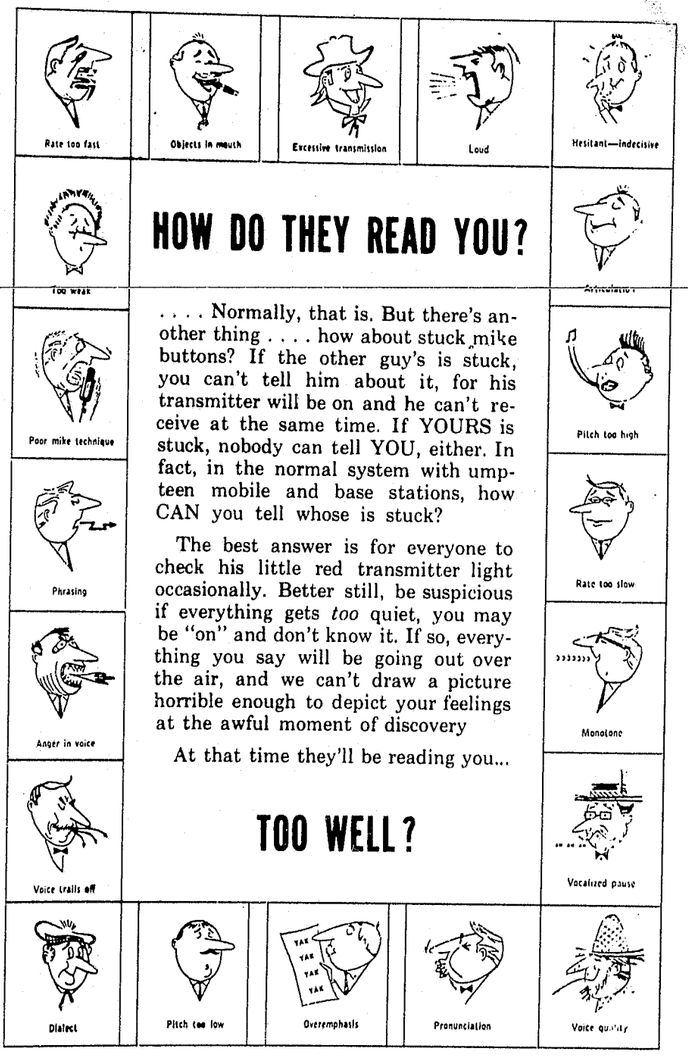
A careful operator will insist on the use of such a form as it is his protection from criticism by either sender or receiver in case of misunderstanding or related problems. It will eliminate misdirected messages and insure the accuracy of messages sent. It will establish time and responsibility. Messages on the standard form are readily adaptable for transmission by any normal medium such as radiotelephone, teletype, telephone, mail, or by runner. A copy retained by both operator and sender or addressee will verify accuracy. Importance of the form increases with the volume of interagency or interdepartment traffic.

The minimum required information that such a form should contain is indicated on a sample made part of this manual.

A3.73 COMMON ERRORS WITH CORRECTIONS

INCORRECT	CORRECT
"Trailer hitch on rear" "Trunk on rear" "Fog light on front bumper"	Where else would they normally be? "Trailer hitch; trunk; fog light"
* * * * * *	
"'66 Ford sedan color black"	"Black '66 Ford sedan"
* * * * * *	
"Be on the lookout for . . ."	"Attempt to locate . . ."
* * * * * *	
"Pick up and hold"	For what? By what authority? State definite charges or acts.
* * * * * *	
"Golden-voice Philco radio"	Don't put out commercial plugs.
* * * * * *	
"Stolen car with Motor Club sticker on rear window and Junior Commando sticker on windshield, etc."	Information unimportant
* * * * * *	
"Maryland GE-19-32"	"GE-19-32" . . . if your location is Maryland assume the current year and Maryland plate when broadcasting; indicate only if other state or year, and, if the message is intended for out of state inquiry.
* * * * * *	
"Stolen between 9:57 and 10:10 p.m.	"About 2200" . . . if not an inprogress criminal act.
* * * * * *	
"Height 5-7½"	"Height 5-7" . . . fractional description not vital.
* * * * * *	
"Wanted for passing fraudulent checks"	"Wanted for BAD checks" or "Wanted on warrant for bad . . ." Use phrasing easy to copy.
* * * * * *	
"Bad interference. I am having noise from an electric motor. I will have to call later."	Who cares? . . . "10-1, will call."
* * * * * *	
"I didn't get the part about calling for the car . . . what's the address?"	Don't ramble. Never use "I." Be impersonal. Ask for fills "10-9 all after . ."
* * * * * *	

INCORRECT	CORRECT
"Easton-Waterloo, come in."	"Easton-Waterloo, 10-63."
* * * * * *	
"Randallstown answering Frederick."	"Randallstown, go ahead, Frederick."
* * * * * *	
*Washington, (this is) KGA-915."	"Washington - - Waterloo."



. . . . Normally, that is. But there's another thing . . . . how about stuck mike buttons? If the other guy's is stuck, you can't tell him about it, for his transmitter will be on and he can't receive at the same time. If YOURS is stuck, nobody can tell YOU, either. In fact, in the normal system with umpteen mobile and base stations, how CAN you tell whose is stuck?

The best answer is for everyone to check his little red transmitter light occasionally. Better still, be suspicious if everything gets *too* quiet, you may be "on" and don't know it. If so, everything you say will be going out over the air, and we can't draw a picture horrible enough to depict your feelings at the awful moment of discovery

At that time they'll be reading you...

TOO WELL?

SECTION B3.0

MOBILE UNIT TECHNIQUES

B3.1 "CAR 54 WHERE ARE YOU?" is, of course, a foolish and inane question, yet it is the basis for a majority of questions asked in normal mobile unit intercommunications. Because of the waste of airtime in this senseless type of questioning, this Section begins with perhaps the most important statement in mobile unit techniques: "ALWAYS GIVE YOUR 10-20 WHEN CALLED!" Don't make the calling station ask for it.

B3.2 The waste of airtime in (Sec. B3.1) is not the only waste concerned. Your location immediately tells if you are in an area that is suddenly under scrutiny, or that you are close enough to be of assistance in another such area, that you are in position to pick up a relay, why your signal may be weak, and a dozen other things. It speeds up overall system efficiency. Don't be a Car 54. Always let your department know where you are; this is one of the main reasons for the expenditure of tax-supported funds for the purchase of your radio. GIVE YOUR 10-20 WHEN CALLED!

*B3.3 When called, the mobile unit operator should answer as, example:

Base: "99 - Jonesville, 10-12."

Mobile: "Jonesville - 99, Live Oak and Canal, 10-4, 99."

Or,

Base: "201 - Smithville, 10-77."

Mobile: "Smithville - 201, 5 miles out on road 500. 10-77 1430. Go ahead."

When calling:

Mobile: "Brownsville - 5. 10-7, Mercy Hospital. 5."

Base: "10-7, Mercy Hospital, 5. KIE ---."

Repeated (confirmed) signals, call numbers, and location may seem to be cumbersome and may be considered too complex a procedure for a small system, but, reliability ingrained in one sphere of activity reflects in others. In the large system, or in one subject to interference from other systems, it is difficult for a unit otherwise to be certain that the base station is answering *him* and has received his information correctly.

B3.4 Two other most important requirements for a mobile unit are the advisements to the base station of the unit's 10-7's and 10-8's. Nothing is so revealing of a system's efficency as a station log that on one line indicates a mobile out of service and on the next line exhibits a message from that unit without benefit of a 10-8. Of more importance is the damage done by relying on the emergency assistance of a mobile unit whose status board light is on but who has arbitrarily gone 10-7 and then is silent during a crisis. ALWAYS GIVE 10-7 and 10-8!

*B3.5 If for any reason it is necessary for a mobile unit to call a station not associated with its own system, the mobile station should identify itself by using the name of its governmental entity and its mobile designator.

Example:

"Sangamon County - Lee County Car 73, 10-43." (See Sec. B3.9)

B3.6 Because of the complexity of operation in a communications center, base station operators can give attention only to signals which are readable. Units calling in and receiving 10-1 without further explanation should realize the operator can hear the call but cannot read, and cannot afford to clutter the air with repeated 10-9's.

B3.7 It is not necessary for a mobile unit operator to have an FCC license. He is, however, required to know the applicable Rules and Regulations of the FCC and is therefore responsible and accountable for his communications activities (See Sec. 5).

B3.8 Every mobile radio station is required to exhibit (post) an executed FCC form 452-C at its control point (on or near the control head). A sticker or plate may be substituted for the form but the substitute must bear the same information as the form. The mobile unit operator should always advise his supervisor, or his technical maintenance division, if the form is mutilated or missing.

*B3.9 Regardless of examples before mentioned, IF THE MOBILE STATIONS IN A SYSTEM ARE LICENSED SEPARATELY FROM THEIR ASSOCIATED BASE STATION then such mobile units are required to use that call sign at the end of each transmission (or series of related transmissions). The mobile unit designator may also be used. Example:

Base: "22 - Jonesville. 10-43."

Mobile: "Jonesville - 22, county courthouse. Go ahead."

Base: (gives message).

Mobile: "10-4, Jonesville - 22. KA ---."

This procedure is also required, whether or not seperately licensed, in direct car-to-car intercommunications. Remember that the reason for all this is to allow FCC monitors to easily identify any licensee heard on the air.

This procedure is also required when the units of one licensee intercommunicates with the stations of another licensee (see Sec. B3.5).

B3.10 A given system should consider whether or not it will permit freewheeling mobile unit intercommunications or whether mobile-to-mobile communications must first be cleared with the associated base station. A system of any size generally cannot stand free car-to-car communications since the mobile units have no way of knowing when the base station is monitoring a distant station. It is normally desirable for the base station to require the mobile units to request direct car-to-car radio contact.

B3.11 When using a mobile station, hold the microphone approximately one inch from lips, press the microphone button down firmly, and then speak slowly and clearly across the mouthpiece in a normal to loud voice. Do not hold the microphone directly in front of your mouth, but slightly to the side, and at an angle of about 45°, so that you talk across the face of the microphone instead of "blowing" into it.

Shouting or yelling into the microphone will cause an extremely distorted signal and must be avoided even though there is a great amount of noise from the engine or nearby activities. It is also essential that your voice maintain a constant volume which does not trail off.

B3.12 Think before you transmit. Know what you want to say. Press button. Hesitate an instant. Speak. Speak distinctly. Be brief. Be concise. Be impersonal. Do not mumble. Do not shout. Do not talk too fast. Do not become excited. Do not try to transmit while someone else is transmitting.

B3.13 Do not transmit:

1. During a Civil Defense test, or during an actual enemy attack except as directed.
2. Within 200 yards of blasting operations, or where blasting caps are stored. (These areas are usually posted).
3. When advised by a base station to stand-by due to interference with other communication which you may not be hearing.
4. When your transmission will obviously interfere with communications in progress, or such communication will obviously make your transmission unintelligible.
5. Lengthy messages when your engine is not running unless, of course, you are reporting engine faliure. Keep your transmissions short and as infrequent as possible.

B3.14 The use of unit designators is allowed by the Federal Communications Commission in recognition of the normal difficulty of calling or identifying mobile stations. The specific system of unit designation must be worked out by each department to fit its particular communication system and organizational plan.

B3.15 Small departments may use consecutive numbers to identify the mobile stations. Large departments may use various series of numbering to designate different divisions or tasks within the department, such as Nos. 1-99 to indicate supervisory personnel and 100-899 to indicate patrol officers or field personnel and 900-999 to indicate technical services. Other departments use combinations of letters and numbers.

*B3.16 In any event, it should be borne in mind that unit designators refer only to the mobile radiotelephone station and not to the man operating it, although the man may become so identified with the designator that the two are synonomous. The Federal Communications Commission licenses are for *station-to-station* operation, not *person-to-person*. If it is required to address a mesage to a specific officer he should be referred to by badge number, employee number, or by name. This could occur when a person normally associated with another mobile station is riding in another radio-equipped vehicle and a message is directed to him.

Example:

Base: "22 - Georgeton. 10-43."

Mobile: (answers).

Base: "Advise Officer Jones his car is ready at garage. KIE ---."

Remember, the FCC does not authorize unit designators for people to be used in lieu of unit designators for radiotelephones. However, some systems have the badge or employee number and the mobile unit designation as the same. Some systems have special auto license plates and use this as the unit number.

B3.17 Remember, the call sign of a mobile unit is the tag by which the FCC identifies your licensee. When necessary to say the call sign - say it! Don't garble - speak! KA2486 is *not* Katy Foo Is Sick!!

EXHIBITS (Section 4)

REVISED OFFICIAL APCO TEN SIGNALS

Radio users are urged to incorporate the use of the APCO TEN SIGNALS in their radio operating procedure. They are short, easily understood and convey maximum meaningful intelligence in minimum time.

The proper use of these signals contributes significantly to the conservation of air-time by restricting free choice of words to prescribed forms when transmitting that information which constitutes the major portion of daily radio traffic. Those signals marked by asterisk are those most in use.

These signals serve a dual purpose inasmuch as they can be used to make a statement, or ask a question, simply by voice inflection.

In order to provide a degree of security to their transmissions many departments assign "Post Numbers" to key locations. The use of these post numbers modified with distance and direction, permits them to pinpoint a specific location without giving it in plain language.

*Indicates most used signals

10-0	Caution
*10-1	Unable to copy - change location
*10-2	Signals good
*10-3	Stop transmitting
*10-4	Acknowledgement
*10-5	Relay
*10-6	Busy - Stand by unless urgent
*10-7	Out of service (Give location and/or telephone number)
*10-8	In service
*10-9	Repeat
10-10	Fight in progress
10-11	Dog Case
*10-12	Stand by (stop)
*10-13	Weather and road report
*10-14	Report of prowler
10-15	Civil disturbance
10-16	Domestic trouble

10-17 Meet complainant
*10-18 Complete assignment quickly
*10-19 Return to _____
*10-20 Location
*10-21 Call _____ by telephone
*10-22 Disregard
*10-23 Arrived at scene
*10-24 Assignment completed
*10-25 Report in person to (meet) _____
10-26 Detaining subject, expedite
10-27 Drivers license information
*10-28 Vehicle registration information
*10-29 Check records for wanted.
*10-30 Illegal use of radio
10-31 Crime in progress
10-32 Man with gun
*10-33 EMERGENCY
10-34 Riot
10-35 Major crime alert
*10-36 Correct time
10-37 Investigate suspicious vehicle
10-38 Stopping suspicious vehicle (Give station complete description before stopping).
10-39 Urgent-Use light and siren
10-40 Silent run - No light or siren
*10-41 Beginning tour of duty
*10-42 Ending tour of duty
*10-43 Information
10-44 Request permission to leave patrol for _____
10-45 Animal carcass in _____ lane at _____
10-46 Assist motorist
10-47 Emergency road repairs needed

CONTINUED

4 OF 5

10-48 Traffic standard needs repairs
10-49 Traffic light out
*10-50 Accident -- F, PI, PD
*10-51 Wrecker needed
*10-52 Ambulance needed
10-53 Road blocked
10-54 Livestock on highway
*10-55 Intoxicated driver
10-56 Intoxicated pedestrian
10-57 Hit and run -- F, PI, PD
10-58 Direct traffic
*10-59 Convoy or escort
10-60 Squad in vicinity
10-61 Personnel in area.
*10-62 Reply to message
*10-63 Prepare to make written copy
*10-64 Message for local delivery
*10-65 Net message assignment
*10-66 Message cancellation
*10-67 Clear to read net message
*10-68 Dispatch information
*10-69 Message received
*10-70 Fire alarm
10-71 Advise nature of fire (size, type, and contents of building)
10-72 Report progress on fire
10-73 Smoke report
*10-74 Negative
*10-75 In contact with
*10-76 En Route
*10-77 ETA (Estimated Time of Arrival)
10-78 Need assistance
10-79 Notify coroner

10-80 Chase in progress
10-81 Breatherlizer report
*10-82 Reserve lodging
10-83 Work school xing at_____
10-84 If meeting _____ advise ETA
10-85 Delayed due to_____
10-86 Officer/operator on duty
*10-87 Pick up checks for distribution
*10-88 Advise present telephone number of_____
10-89 Bomb threat
10-90 Bank alarm at _____
10-91 Pick up prisoner/subject
10-92 Improperly parked vehicle
10-93 Blockade
10-94 Drag racing
10-95 Prisoner/subject in custody
10-96 Mental subject
10-97 Check (test) signal
10-98 Prison or jail break
10-99 Records indicate wanted or stolen

APCO TEN SIGNALS
INTERPRETATION

10-3 To be used when other vehicles or stations are interfering with emergency traffic. (i.e., 10-37, 10-33 in progress)

10-5 Can be used to indicate the relay of a person, property or a message. If for the relay of a message, indicate destination "10-5 to ---"

10-6 If urgent traffic, it should be indicated on first call-up.

10-11 Qualify by indicating the nature of the case - as dog bite, rabid, injured, etc.

10-12 Physical stand by, remain alert. *Not* a stand by (10-6) on the radio.

10-14 Give location.

10-15 This can be applied to a disturbance with racial overtones, rowdy group of teenagers, etc. - give location.

10-16 Give location.

10-17 Give location.

10-24 Indicates personnel is back in service and available for assignment.

10-26 Indicates that this traffic should take precedence over routine traffic.

10-31 Can be used when specific details are not available - give location.

10-32 Can be used in conjunction with other signals, i.e., 10-10, 10-31, - give location.

10-33 Maximum priority. Should be used on the initial call to indicate traffic pertaining to danger to life or property. All stations or vehicles not involved in the emergency should maintain radio silence until the emergency is over or under control.

10-34 Give location.

10-35 Used to alert all stations or vehicles on the frequency to make themselves available to assist where needed - always followed with maxi-

mum information as to the nature of the crime and assistance needed.

10-38 The officer *MUST* furnish maximum information *BEFORE* stopping suspicious vehicle. (Color, make, model and license of vehicle. Number of occupants, direction of travel, etc.) Each department should establish a time limit for the officer to indicate an "all clear" before all available assistance is sent.

10-39 Can be used to give any other signal an emergency status.

10-40 To be used to indicate haste, while observing all safety precautions and not attract attention.

10-43 Use when asking if any, or supplying information.

10-45 Give location.

10-46 Give location.

10-47 Indicate nature of repairs needed and location.

10-48 Give location.

10-49 Give location.

10-50 F - Fatal — PI - Personal Injuries — PD Property Damage.

10-53 Give location.

10-54 Give location.

10-55 Give location.

10-56 Give location.

10-57 Give location.

10-58 Can be used to assist funeral procession, highway repairs, etc.

10-60 Give location or area.

10-62 Use when inquiring for, or furnishing, reply to a previous message. Refer to previous number, if any.

10-63 Used to inform a vehicle to park and write down the forthcoming radio message - the officer will not advise the station to "go-ahead" until he is ready to copy.

10-64 Used when the message is not to be relayed by radio but must be delivered to someone in person or by telephone - may require a message in duplicate.

10-65 Used by state nets to obtain the next message number to be assigned.

10-67 Used to capture the circuit and to indicate all units and stations are to copy.

10-68 Used for "attempt-to-locate" messages, etc.

10-69 To inquire if, or state that, a message has been received.

10-70 Give location.

10-73 Used in Forestry Service when smoke has been observed. Give location or coordinates.

10-75 "10-75, 11?" "10-4, 10-75, #11."

10-76 "99 10-76 Jonesville 10-25 #2. 10-77 1600."

10-77 See 10-76 above.

10-82 Used by traveling personnel to request a station to obtain lodging reservations. The station should confirm after reservations have been made.

10-84 To request general information on an intention, or as a specific inquiry regarding a previous request. ("Get with it if you're going to do it.")

10-85 "#2 10-85. 10-77 1630."

10-88 Used to make certain a person is available for a station to station call, *where he is at the moment.*

10-90 Give location.

10-93 To set up blockade in connection with a crime - to execute an existing blockade plan, or set up a blockade as the situation may require.

10-96 To alert an officer he is dealing with a mental case.

10-98 Follow by detailed information as soon as it becomes available.

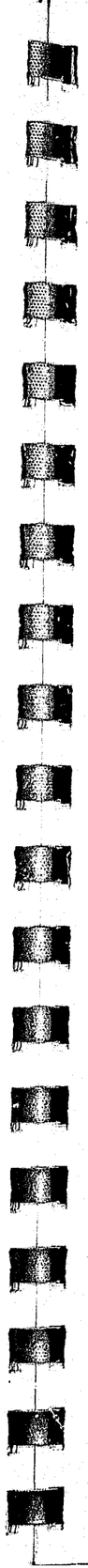
10-99 To alert an officer he is dealing with a person who is wanted or who may be driving a stolen vehicle without alarming the suspect.

PHONETIC ALPHABET

The phonetic alphabet should be used for spelling out unusual names of persons and locations. The names used after each letter have been found to be the most understandable over the air. They should always be given as: "A" - Adam, "B" - Boy . . . . never "A" as in Adam or "B" as for boy, etc. The alphabet is easily memorized.

Standard Alphabet

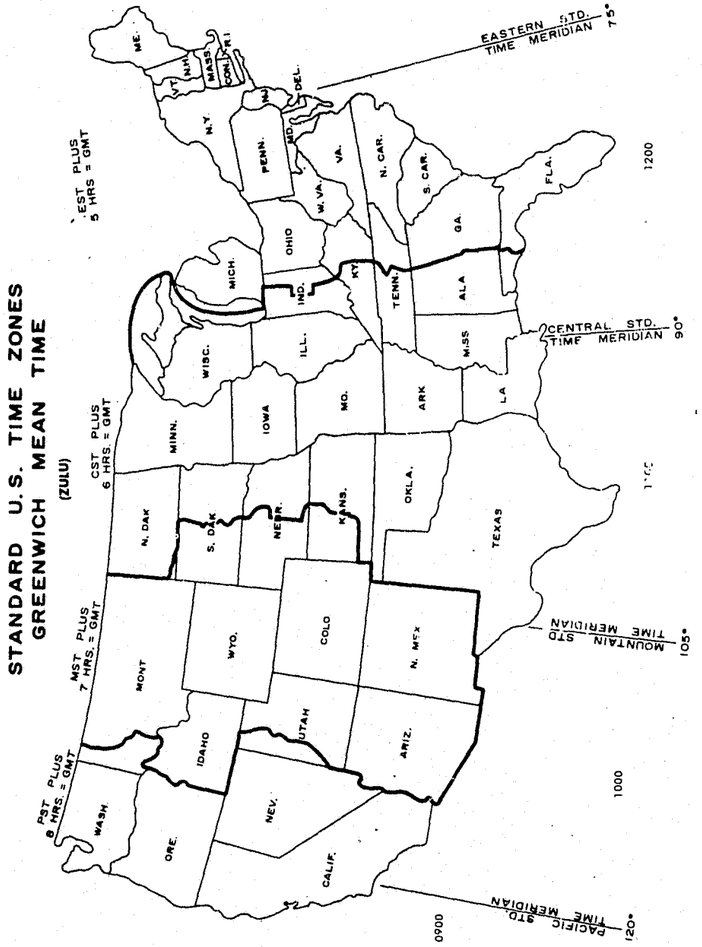
A ..... Adam	N ..... Nora
B ..... Boy	O ..... Ocean
C ..... Charles	P ..... Paul
D ..... David	Q ..... Queen
E ..... Edward	R ..... Robert
F ..... Frank	S ..... Sam
G ..... George	T ..... Tom
H ..... Henry	U ..... Union
I ..... Ida	V ..... Victor
J ..... John	W ..... William
K ..... King	X ..... X-ray
L ..... Lincoln	Y ..... Young
M ..... Mary	Z ..... Zebra



2400 HOUR TIME

2400 HOUR TIME	12 HOUR TIME
2400	Midnight (twenty-four hundred)
0001	One minute after midnight. (zero zero zero one)
0015	Quarter past midnight. (zero zero one five)
0045	45 minutes past midnight. (zero zero four five)
0100	One o'clock in the morning. (zero one hundred)
0130	One thirty AM. (zero one three zero)
0200	2 AM (zero two hundred)
0300	3 AM
0400	4 AM
0500	5 AM
0600	6 AM
0700	7 AM
0800	8 AM
0900	9 AM
1000	10 AM (ten hundred)
1100	11 AM (eleven hundred)
1200	NOON
1201	One minute after noon (Twelve zero one)
1215	Quarter past noon (Twelve fifteen)
1300 (add 100 to 1200)	1 PM (Thirteen hundred)
1345 (add 0045 to 1300)	1:45 PM (Thirteen forty-five)
1400 (add 200 to 1200)	2 PM
1500 (add 300 to 1200)	3 PM
1600 (add 400 to 1200)	4 PM
1700 (add 500 to 1200)	5 PM
1800 (add 600 to 1200)	6 PM
1900 (add 700 to 1200)	7 PM
2000 (add 800 to 1200)	8 PM (Twenty hundred)
2100 (add 900 to 1200)	9 PM (Twenty one hundred)
2200 (add 1000 to 1200)	10 PM
2300 (add 1100 to 1200)	11 PM

STANDARD U.S. TIME ZONES
GREENWICH MEAN TIME
(ZULU)



STANDARD DESCRIPTIONS OF PERSONS

ALWAYS GET IN THIS ORDER
OMIT ANY ITEM YOU DO NOT HAVE

START

1. NAME
2. SEX
3. RACE
4. AGE
5. HEIGHT
6. WEIGHT
7. HAIR
8. EYES
9. COMPLEXION
10. PHYSICAL MARKS, SCARS, LIMP, ETC.

FINISH

11. CLOTHING HEAD TO FOOT
   - A. HAT
   - B. SHIRT OR TIE
   - C. COAT
   - D. TROUSERS
   - E. SOCKS
   - F. SHOES

MEMORIZE THE SEQUENCE!

USE IT ON THE AIR, ON THE TELEPHONE, AND IN TAKING DESCRIPTIONS.

GET IT ON THE AIR! SECONDS COUNT

DONT TALK TOO FAST! THE OTHER MAN HAS TO COPY IT

BREAK FREQUENTLY! ON LONG DESCRIPTIONS

JOHN DOE

RADIO AND COMMUNICATIONS DIVISION

LOG OF

RADIO STATION

DATE:_____ CALL SIGN:_____ SHEET NO:_____

FREQUENCY(s): _____

(NAME OF AGENCY)

TIME	CALLED	CALLED BY	SIGNAL NO.	GENERAL INFORMATION
0800	all		10-8	Stn In Service Ofc. A.B. Smith, On Duty
0810		99	10-8	Court House
0830	Jonesville		10-20	Of 123 is headquarters
0900	all		10-43	AP1309-9 Message re: meeting
1200			10-7	Ofc. A.B. Smith, Off Duty
1200			10-8	Ofc. C.D. Jones, On Duty
1800	all		10-7	Stn Out of Service Ofc. C.D. Jones, Off Duty

*MESSAGE FORM #1

(Inter or Intrasystem)

EXAMPLE:

(NCIC #_____)

15 SHRF LEE COUNTY ILL NCIC #12-20-66 (A. Preamble)

PD CARBONDALE ILL (B. Address)

DATA AND DISPOSITION RED 62 CHEVROLET (C. Text)

4 DOOR ILL LL1948 VIN 21723T58723

ABANDONED DIXON ILLINOIS THREE DAYS

HELD ANDREWS GARAGE FRONT END DAMAGED

NOT DRIVEABLE NO APPREHENSIONS WILL

BE RELEASED TO OWNER ON PROOF OF

OWNERSHIP

SHERIFF LEE COUNTY

ILLINOIS JRM (NCIC #_____) 1530 CST (D. Signature)

The preamble contains the message number, point of origin and the date transmitted.

The address is the name of the department to which the message is directed.

The text contains the intelligence to be transmitted. Note the concise wording of the text. No unnecessary words, but still very understandable. If the message contained information that a person was being detained, the message should indicate the charge or how long the suspect will be detained.

The signature contains the source of authority, the initials of the operator and the time transmitted.

Note omission of punctuation marks. (See A6.29).

MESSAGE FORM #2

(Intrasystem)

For originating stations, the form is an aid in composition; for the relaying station the form is an aid for speedier copying and retransmission; for the receiving station the form, dangling from the staple, is a visual reminder it is yet to be delivered to the addressee. For all stations, the form is a record for the files, except, when delivered to the addressee personally; in this instance, the station Log Sheet must bear the complete message. Other station Logs show only the message number, with message attached.

At the bottom of the form, if "Station" abbreviation is same as abbreviation in the message number then that particular station is the originating station; if different from destination station then that particular station is a relaying station, if same as suffix then that particular station is the destination station. All blank spaces at bottom must be filled: "Operator" will be person originating, relaying or receiving, "Time" will be time (r)eceived and (t)ransmitted. Word count (W.C.) is the number of words in the *body* of the message and it is used for the purpose of reliability. Number combinations, abbreviated caps, hyphenated words, etc., are counted as one word.

R-A-D-I-O-G-R-A-M

(Agency Name)

MESSAGE NUMBER: AP 1309-8-LL

FROM: #99 W.C.: 51

TO: #101 TIME: 1416

This message number indicates message originated at Avon Park on thirteenth of September and is the eighth message of that station on that day and that it is directed to Lakeland. Message originated at AP at 16 minutes after 2 P.M. and is from mobile unit 99 to mobile unit 101.

Station: LL Operator: 912 Time(R): 1422 (T): 1424 Date: 9/13/67

MESSAGE FORM #3

(GENERAL)

(Agency name) (Agency address)	MESSAGE FORM	(FORM NO.)
To:	Dated at (Location) 196 Time Regular message ☐ Urgent ☐	

TO AVOID ERRORS PLEASE TYPE OR PRINT IN CAPTIAL LETTERS

Sender's name Badge No.

To be completed by operator:

Received for tramission ☐ Received for delivery ☐ (Time) (Date) 196

Sent ☐ Delivered ☐ (Time) (Date), 196 by (Phone, runner)

INFORMATION FORM

Date _____ Time _____ Received from _____

Stolen car
Lost plate

Criminal act
Stolen plates

Missing person
Identification

Stolen property
Miscellaneous

Complaint _____
Place _____
Time _____
Color _____
Year _____
Make _____
Body Style _____
License _____
VIN _____
Other information _____

Name _____
Alias _____
Sex _____
Race _____
Age _____
Height _____
Weight _____
Hair _____
Eyes _____
Complexion _____
Physical - scars, limp, etc. _____
Hat _____
Shirt, tie _____
Coat _____
Trousers _____

WARRANT AND EXTRADITION INFORMATION

Comments, or stolen property list _____

Received by _____

RADIO ADMINISTRATIVE FORM 1.1

UNIT NO.	LOCATION	TIME
TELEPHONE NO.	PERSON NOTIFIED OR TO BE CONTACTED	OUT OF SERVICE OR NOTIFIED
EXTERNAL	INTERNAL	
CONDITION: ☐ STREET DEFECT ☐ STREET LIGHT OUT ☐ TRAFFIC LIGHT OUT OTHER:	☐ BREAK ☐ REPAIRS ☐ SERVICE ☐ FOLLOW-UP ☐ RADIO SERVICE ☐ TRAFFIC CITATION ☐ RETURN TO STATION ☐ TRANSPORTING ☐ PATROLLING ON FOOT ☐ COURT ☐ MEET UNIT _____ ☐ OTHER _____ ☐ CALL STATION ☐ CALL NO. ABOVE	☐ SUBJECT TO CALL IN SERVICE
NOTIFIED: ☐ PERSON ABOVE ☐ STREET DEPT. ☐ TRAFFIC DEPT. OTHER:		
REMARKS		REVERSE USED ☐ DISPATCHER

FRONT

FILE CHECKS	SEARCHED BY:								SERIAL
VEHICLE					PERSON				PROPERTY
☐ WANTED ONLY ☐ REGISTRATION AND WANTED					☐ WANTED ONLY ☐ OPR'S LICENSE				SERIAL NO.
LIC. NO.	STATE	YEAR	TYPE		NAME (LAST, FIRST, MIDDLE)				DESCRIPTION:
COLOR	YEAR	MAKE	STYLE		ADDRESS				
BODY	IDENT. NO.				DOB	OPR'S LIC. NO.			
LISTED TO:					SEX	RACE	HGT	WGT	HAIR	EYES
ADDRESS:					OTHER				
VEHICLE IF DIFFERENT FROM ABOVE:									
☐ NOT WANTED ☐ NOT IN FILE ☐ NO RECORD					☐ STOLEN OR WANTED FOR _____ COMPLAINT NO. OR AUTHORITY _____				

BACK

RADIO ADMINISTRATIVE FORM 1.1

COMPLAINT REPORT 1.2

NATURE OF INCIDENT ☐ BELOW ☐ IN PROGRESS | COMPLAINT NO. | TIME

LOCATION OF INCIDENT | CORNER ☐ NW ☐ NE ☐ SW ☐ SE | BEAT | REVERSED USED ☐ | REC'D.

COMPLAINANT'S NAME ☐ REFUSED | ADDRESS ☐ SAME AS LOC. | TELEPHONE NO. | DISP.

CHECK BOX IF APPLICABLE. IF CONDITIONS ARE NOT LISTED, DESCRIBE ABOVE.

ALARM..... ☐ FIRE	☐ SILENT	☐ AUDIBLE	☐ HOLDUP	ARR.
ACCIDENT..... ☐ PERS. INJ.	☐ PROP. DAM.	☐ HIT & RUN	☐ PRIVATE PROPERTY	
DISTURBANCE.. ☐ FAMILY	☐ JUVENILES	☐ VEHICLES	☐ ANIMALS	
PERSON..... ☐ INJURED	☐ MISSING	☐ SUSPICIOUS	☐ NEEDS ASSISTANCE	
THEFT..... ☐ VEHICLE	☐ BICYCLE	☐ FROM AUTO	☐ AUTO ACCESSORIES	

REMARKS | CODE

UNIT ASSGND. | UNITS ASSISTING | REPORT SUBMITTED ☐ M. I. ☐ CASE ☐ ACC. ☐ ARREST | RECEIVED BY | DISPATCHER

JACK TAR-1-2

FRONT

VEHICLE				PERSONS							TIME
COLOR	YEAR	MAKE	NO. 1	SEX	RACE	AGE	HGT	WGT	HAIR	EYES	DISPATCH. & CALL
STYLE	BODY			COMP.	GLASSES	CLOTHING					
LIC. NO.	LIC. YR.		NO. 2	SEX	RACE	AGE	HGT	WGT	HAIR	EYES	
STATE	LIC. TYPE			COMP.	GLASSES	CLOTHING					
OTHER IDENTIFYING INFORMATION				DIRECTION OF FLIGHT ON							NOTIFICATIONS MADE
NOTIFICATIONS ☐ AMBULANCE ☐ FIRE DEPT. ☐ WRECKER											
NAME				TELEPHONE NO.		BASIS ☐ OWNER'S REQUEST ☐ ROTATION ☐ NEAREST AVAIL.					
DEPT. MEMBERS NOTIFIED: TITLE & NAME											
ADDITIONAL INFORMATION											NOTIFIED BY ☐ DISPATCHER

BACK

COMPLAINT REPORT FORM 1.2

END