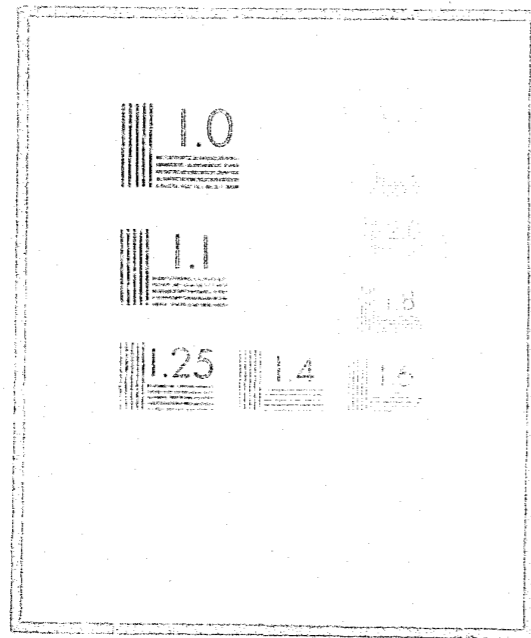


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U.S. DEPARTMENT OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMINISTRATION
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KANSAS STATE COMPREHENSIVE LAW ENFORCEMENT PLAN— TELECOMMUNICATIONS 1977

PROJECT 13A

of the

ASSOCIATED PUBLIC-SAFETY COMMUNICATIONS OFFICERS, INC.

Prepared by

BOOZ, ALLEN & HAMILTON, INC.

LAW ENFORCEMENT ASSISTANCE ADMINISTRATION

Grant No.: 76-SS-99-6022

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ACQUISITIONS

FOREWORD

The Associated Public-Safety Communications Officers, Inc. (APCO) completed a comprehensive law enforcement communications planning project for LEAA, entitled *A Review and Assessment of Telecommunications Planning in the 50 State Planning Agencies*, in November 1975 (APCO Project 13). As part of this project, a detailed survey was conducted of the state planning agencies (SPA) of the 50 states and the District of Columbia along with the law enforcement telecommunications planning activities in the cities of New York, Chicago, and Los Angeles. Divisions of communications (DOC) were also surveyed in those states where such divisions have been established. Approximately 180 questions were asked of each SPA and DOC. All telecommunications grants issued between July 1, 1971 and January 1, 1975 (totaling 7,676) were reviewed for content, scope, objectives, and application. Analysis of the data provided insight into law enforcement telecommunications development and planning trends.

The results of this project indicated that telecommunications considerations in LEAA state comprehensive law enforcement plans vary considerably among the SPAs; at the time of the survey, only 24 states were actually developing state law enforcement telecommunications plans. Therefore, one of the recommendations contained in the report suggested the need for the development of a guide for use by SPAs that would outline a standardized, comprehensive approach to law enforcement telecommunications planning.

In January 1976, LEAA provided APCO with Grant No. 76-SS-99-6022 under which APCO, assisted by its consulting contractor (the Applied Research Division of Booz, Allen & Hamilton, Inc.) would develop a preparation guide outlining the contents of, and the procedures for, the development of Statewide Comprehensive Law Enforcement Plans For Telecommunications, hereafter referred to as "SCLEP-TEL" (APCO Project 13A).

The first edition of the preparation guide was used as the basis for the development of a SCLEP-TEL for Kansas. Accordingly, the Kansas plan presented in this document has served two purposes. First, the experience gained in its preparation was utilized in the development of the final version of the SCLEP-TEL Preparation Guide. Second, the plan represents a basis for implementing future law enforcement communications systems that will satisfy system objectives established for that state.

ACKNOWLEDGEMENT

The Kansas plan was prepared by APCO in response to LEAA Grant No. 76-SS-99-6022. APCO's Board of Officers, constituted as project Task Group I, provided overall policy guidance for the project. Task Group II, comprised of selected APCO members and representatives of the State of Kansas, selected for their particular professional expertise, provided the technical and professional guidance necessary to assure that the plan reflected the particular requirements of Kansas law enforcement agencies.

The Applied Research Division of Booz, Allen & Hamilton provided consulting contractor services to APCO.

The professional competence and dedication to the public's service shown by all of the participants in this project reflect great credit upon the telecommunications profession. APCO wishes to express its appreciation to the following individuals for their contributions to the field of public safety:

William H. Bailey	LEAA Program Monitor
TASK GROUP I	
Alan L. Armitage	President of APCO 1976/1977 Director, Hunterdon County Communications Flemington, New Jersey
Jerry Campbell	President-Elect of APCO Communications Engineer, County Communications Dept. San Bernardino, California
Nathan D. McClure, III	First Vice President of APCO Coordinator, Winnebago County Emergency Services Rockford, Illinois
Sanford H. Smith	Second Vice President of APCO City of Greensboro, North Carolina
TASK GROUP II	
Donald R. Allen	Director, Division of Communications State of Florida
John Carey Brown	Systems Specialist, Kansas Bureau of Investigation
Philip Y. Byrd	Chief, Bureau of Communications Engineering State of Florida

Vance Collins	Law Enforcement Specialist Kansas Governors Committee of Criminal Administration
Frank J. Devine	Communications Specialist New Jersey State Law Enforcement Planning Agency
Floyd Duell	Radio Supervisor Kansas Department of Transportation
Charles English	Radio Engineer North Carolina State Highway Patrol
Major Carl Gray, Jr.	Major/Telecommunications Support Services Kansas Highway Patrol
Bruce M. Karr	Oregon Chapter APCO
William L. Miller	Assistant Deputy Superintendent Chicago Police Department
Allison Talbot	Deputy Director General Services Division Telecommunications State of Illinois
APCO NATIONAL OFFICE	
J. Rhett McMillian, Jr.	Executive Director
Donal D. Kavanagh	Project Director
CONSULTING CONTRACTOR:	
	Booz, Allen Applied Research Division of Booz, Allen & Hamilton, Inc.
Thomas B. Wiggins	Vice President
Gary D. Mather	Vice President and Project Manager

The suggestions and comments provided by the above and other personnel significantly contributed to the development of the Kansas plan. In addition, special gratitude is extended to the staff of law enforcement agencies throughout Kansas, who provided information and useful guidance to the contractor staff.

CONTENTS

	Page
1. INTRODUCTION	1
1.1 Role of the Kansas SCLEP-TEL	1
1.2 Summary of Key Law Enforcement Telecommunications System Objectives Adopted for Kansas	2
1.3 Law Enforcement Telecommunications System Definition	3
1.4 Organization of the Kansas SCLEP-TEL	4
2. LAW ENFORCEMENT TELECOMMUNICATIONS SYSTEM OBJECTIVES	7
2.1 Law Enforcement Goal 1	7
2.1.1 Law Enforcement Telecommunications System Objective -- Public Access	9
2.1.2 Law Enforcement Telecommunications System Objective -- Command and Control Support	11
2.1.3 Law Enforcement Telecommunications System Objective -- Data Systems Access	12
2.1.4 Law Enforcement Telecommunications System Objective -- Interagency Coordination	14
2.2 Law Enforcement Goal 2	16
2.2.1 Law Enforcement Telecommunications System Objective -- Public Access	16
2.2.2 Law Enforcement Telecommunications System Objective -- Command and Control Support	16
2.2.3 Law Enforcement Telecommunications System Objective -- Data Systems Access	16
2.2.4 Law Enforcement Telecommunications System Objective -- Interagency Coordination	16

	Page
3. EXISTING LAW ENFORCEMENT TELECOMMUNICATIONS SYSTEMS AND AVAILABLE TELECOMMUNICATIONS RESOURCES	17
3.1 Interstate Systems	17
3.1.1 NCIC	18
3.1.2 NLETS	18
3.1.3 Kansas City, Missouri ALERT II System	18
3.1.4 Other Missouri Systems	20
3.2 Statewide Systems	20
3.2.1 KHP	20
3.2.2 KBI	22
3.2.3 ASTRA	22
3.3 Systems Serving Major Municipalities and Counties	25
3.4 Individual Systems	31
3.5 General	31
3.5.1 Public Access	40
3.5.2 Command and Control Support	40
3.5.3 Data Systems Access	41
3.5.4 Interagency Coordination	41
3.6 Common Carrier	41
3.6.1 KANS-A-N Switching Network	42
3.6.2 KANS-A-N Telpak Network	42
3.6.3 911 Emergency Service	42
3.6.4 Independent Telephone Companies	46
3.7 Interconnect	46

	Page
4. RELATED PLANS, PROGRAMS, AND SYSTEMS	49
4.1 Law Enforcement Communications Plans	49
4.1.1 Adjacent States' Communications Plans	49
4.1.2 Courts, Corrections, and Prosecutors' Offices	50
4.2. Emergency Medical Services	50
4.2.1 Kansas EMS Communications Plan	53
4.2.2 Ambulance Operations	55
4.3 Civil Preparedness and Disaster	55
4.4 Fire Agencies	56
4.5 Other Related Factors	56
4.5.1 KANS-A-N Legislative Ruling	56
4.5.2 Police Training Academies	57
5. LAW ENFORCEMENT TELECOMMUNICATIONS PROBLEM ANALYSIS	59
5.1 Public Access	59
5.1.1 Lack of 24-Hour Access Capability	59
5.1.2 Lack of Public Access Flexibility	60
5.1.3 911 Implementation Obstacles	60
5.2 Command and Control Support	61
5.2.1 Lack of 24-Hour Dispatch Capability	61
5.2.2 Lack of Radio Network Configuration Operational Flexibility	62
5.2.3 Lack of Uniform Dispatch Methods	62
5.3 Data Systems Access	64
5.3.1 Unavailability of 24-Hour Data Systems Access Capability	64

	Page
5.3.2 Inadequate Data Systems Access Capability for High-Volume Users	64
5.4 Interagency Coordination	64
5.4.1 Current Frequency Usage	65
5.4.2 Interstate Coordination Methods	65
5.4.3 Public Safety Coordination	66
6. KANSAS LAW ENFORCEMENT TELECOMMUNICATIONS STATE SYSTEM CONCEPT	67
6.1 Functional System Concepts	68
6.1.1 Public Access	68
6.1.2 Command and Control Support	75
6.1.3 Data Systems Access	76
6.1.4 Interagency Coordination	85
6.2 Minimum Capabilities of Law Enforcement Telecommunications System Elements	88
6.2.1 Radio Networks	94
6.2.2 Dedicated Wire Networks	95
6.2.3 Dispatch Center Information Processing	95
6.2.4 Terminal Equipment	95
6.2.5 Law Enforcement Telecommunications Personnel	96
6.3 Common Requirements Plan	96
6.3.1 Police Academies Curriculum	96
6.3.2 Consideration of "Requirements Analysis and Design of Intrastate Law Enforcement and Criminal Justice Telecommunications Systems" Recommendations	97
6.3.3 CDC Technical Planning Assistance Program	97

	Page
6.3.4 Kansas SCLEP-TEL Distribution	97
6.3.5 Annual Plan Update	98
7. LONG-RANGE PLAN AND FORECAST	99
7.1 Long-Range Plan	99
7.2 Multi-Year Forecast of Results and Accomplishments	105
8. LAW ENFORCEMENT TELECOMMUNICATIONS ANNUAL ACTION PROGRAM	111
8.1 Implementation Strategy and Monitoring Design	111
8.1.1 Program Element 1 – To Provide a Minimum Radio Communications Capability for Those Kansas Law Enforcement Agencies That Currently Have None	111
8.1.2 Program Element 2 – To Implement 24-Hour Cooperative Dispatch Centers That, as a Minimum, Serve All Law Enforcement Agencies in a County	114
8.1.3 Program Element 3 – To Provide a Minimum Level of Training for All Law Enforcement Telecommunicators Consistent with Individual Operational Responsibilities	115
8.1.4 Program Element 4 – To Provide a Data Systems Access Capability to All 24-Hour Dispatch Centers	116
8.1.5 Program Element 5 – To Provide an Interagency Coordination Radio Communications Capability to Metropolitan Areas	117
8.1.6 Program Element 6 – To Provide an Interagency Coordination Radio Communications Capability to Urban Areas	117
8.1.7 Program Element 7 – To Provide an Interagency Coordination Radio Communications Capability to Counties in Southeast Kansas Operating on VHF High Band	117
8.1.8 Program Element 8 – To Provide an Interagency Coordination Radio Communications Capability to KHP/KBI	118
8.1.9 Program Element 9 – To Incorporate Cost-Effective Information Processing Technology in Command and Control Support Systems	118

	Page
8.2 Summary of Projects	119
9. EVALUATION	121
Appendix A – Management Considerations Glossary	123
Glossary	125

CHAPTER 1 INTRODUCTION

In 1975, for purposes of funding communications projects, LEAA's M4100.1 identified communications systems as a separate program descriptor code (2.5.5.2). Communications systems are defined as:

Activities directed toward the design, development, or implementation of a system for communicating information within or among agencies using radio or telecommunications technology.

The primary purpose of the Kansas State Comprehensive Law Enforcement Plan-Telecommunications (SCLEP-TEL) is to define a law enforcement telecommunications state system concept that permits individual law enforcement agencies within the state to design communications systems that both satisfy individual requirements and accomplish system objectives established for the state. In this regard, the state system concept represents the Kansas law enforcement telecommunications system of the future toward which the state should evolve.

1.1 Role of the Kansas SCLEP-TEL

The Kansas SCLEP-TEL will serve as a planning guide to:

- Kansas State Planning Agency
- All Kansas law enforcement agencies
- Other Kansas agencies related to law enforcement
- Interstate agencies related to law enforcement.

LEAA Manual M4100.1 provides guidance to state planning agencies (SPA) for the application, award, and administration of the Part B planning program and defines Part C and E block grant action requirements. Each year, the Kansas SPA must update or submit to LEAA a State Comprehensive Law Enforcement Plan prepared according to M4100.1 guidelines. M4100.1 requires that the plan identify law enforcement goals for the state, and methods to achieve them, including the establishment of priorities and allocation of funds to the most critical projects. The Kansas SCLEP-TEL, prepared as a separate document, complements the State Comprehensive Law Enforcement Plan by defining a plan for LEAA program descriptor code 2.5.5.2 expenditures that best accomplishes the state's telecommunications-related law enforcement goals. Therefore, the Kansas SPA will be able to use the SCLEP-TEL to evaluate grant requests from individual law enforcement agencies to determine those in consonance with both the state system concept and established priorities. Careful management of grant application approval using the SCLEP-TEL will ensure that individual law enforcement agencies implement communications systems that will move the state toward the capability required for future law enforcement operations.

Accordingly, the Kansas SCLEP-TEL should represent a key planning input to individual law enforcement agencies designing communications systems that will be funded through the Kansas SPA. It is important to note that the Kansas SCLEP-TEL is not a state communications design, but merely a system structure that should be considered by law

enforcement agencies while implementing communications systems that satisfy their individual requirements. Adherence to SCLEP-TEL concepts will then allow for the development of law enforcement telecommunications system capabilities that otherwise might be impossible. Finally, since the Kansas SCLEP-TEL was developed to resolve current, as well as future law enforcement telecommunications deficiencies, it should represent a valuable guide to law enforcement telecommunications planning personnel even if contemplated system developments will not involve LEAA funding. To maximize its future utility, the plan will be updated and reviewed annually.

The complexity of law enforcement operations today requires interfaces with criminal justice and public safety agencies, and other Kansas emergency resources. The concepts presented in the Kansas SCLEP-TEL for interfacing with these agencies should provide valuable planning inputs and form a basis for improving interagency communications.

Finally, the Kansas SCLEP-TEL defining the law enforcement telecommunications system concept will provide valuable inputs to law enforcement and other agencies of bordering states in their telecommunications planning activities.

1.2 Summary of Key Law Enforcement Telecommunications System Objectives Adopted for Kansas

Law enforcement telecommunications system objectives are defined in Chapter 2 of the Kansas SCLEP-TEL based upon analysis of law enforcement goals presented in the Kansas 1977 State Comprehensive Law Enforcement Plan submitted to LEAA.

Some of the key law enforcement telecommunications system objectives that resulted from this analysis to be achieved through implementation of the Kansas SCLEP-TEL are to:

- o Provide convenient and effective methods by which all persons in Kansas, regardless of their location, can access a law enforcement complaint operator on a 24-hour basis
- o Provide continuous dispatching service for all Kansas law enforcement personnel on a 24-hour basis
- o Provide command and control support communications capability for Kansas law enforcement agencies consistent with operational requirements
- o Provide data systems access capability for all Kansas law enforcement agencies to state, national, and other data files related to law enforcement
- o Allow any law enforcement officer in the state to communicate with any other law enforcement officer consistent with procedures established
- o Establish a uniform training program for law enforcement telecommunicators. The training program recommended for police training academies will include telecommunicator courses.

If law enforcement agencies organize, design, and staff telecommunications systems in accordance with the state system concept presented in the Kansas SCLEP-TEL, the state will evolve towards achieving the above and other capabilities important for effective law enforcement operations. To assist law enforcement agencies in implementing communications systems in consonance with the state system concept, the Kansas SPA will provide technical planning assistance to individual law enforcement agencies on a priority basis.

1.3 Law Enforcement Telecommunications System Definition

In the past, law enforcement telecommunications systems were often considered to consist only of radio networks with frequency management being the primary planning problem. During the conduct of this project, law enforcement telecommunications systems were carefully defined to ensure consideration of related components. For purposes of developing a SCLEP-TEL, law enforcement telecommunications systems are defined as *equipment, organizations, or procedures associated with the performance of the following four functions:*

- o *Public access* -- the means by which the public reaches a law enforcement agency, including the process of complaint information recording
- o *Command and control support* -- mobile dispatch communications, associated information transfer processing, and point-to-point intra-agency communications
- o *Data systems access* -- the interface with international, national, state, regional, and local information systems facilities
- o *Interagency coordination* -- the communications capability that supports coordination among law enforcement agencies internationally, nationally, statewide, regionally, and locally, including those agencies that interface with law enforcement agencies.

Any law enforcement telecommunications system associated with the performance of the above four functions is composed of one or more of the following law enforcement telecommunications system elements:

- o *Radio networks* -- provide radio communications, including those data processing provisions needed to permit access to criminal justice data files. This element would also include spectrum management activities adopted by a SPA for frequency allocation and utilization
- o *Dedicated wire networks* -- provide dedicated law enforcement point-to-point wire communications
- o *Dispatch center information processing equipment* -- provides information processing capability supporting complaint information recording, dispatch, and information exchanges between a dispatch center and field forces
- o *Terminal equipment* -- provides public access, data systems access, and sensor

capability (video equipment, alarms, etc.) that functions as an integral part of a law enforcement telecommunications system

- o *Law enforcement telecommunications personnel – staff that functions primarily as a part of, or provides services to, a law enforcement telecommunications system.*

The Kansas SCLEP-TEL presents concepts for achieving law enforcement telecommunications system objectives adopted by Kansas in each of the four functional areas previously defined. In addition, the state system concept defines minimum capabilities that should be included in implementing communications systems that involve any of the preceding five elements. The integrated planning approach employed in the development of the Kansas SCLEP-TEL will ensure the adequate treatment of appropriate interfaces in the planning of new law enforcement telecommunications systems.

1.4 Organization of the Kansas SCLEP-TEL

Table 1-1 summarizes key Kansas SCLEP-TEL chapters. Chapter 2 defines law enforcement telecommunications system objectives as:

Desired law enforcement telecommunications accomplishments that can be measured within a given time frame and under specifiable conditions. The attainment of the objective advances the system toward a corresponding law enforcement goal.

Law enforcement telecommunications system objectives presented in Chapter 2 represent the foundation upon which the remainder of the Kansas SCLEP-TEL is developed.

Chapter 3 defines existing law enforcement telecommunications systems in Kansas and other systems that either do, or should, interface with or support law enforcement telecommunications systems.

Chapter 4 defines related plans, programs, and systems in both Kansas and bordering states, considered in the development of the Kansas SCLEP-TEL.

Chapter 5 presents an analysis of deficiencies in existing law enforcement telecommunications capabilities in Kansas, along with potential problems likely to be encountered in achieving the law enforcement telecommunications system objectives defined in Chapter 2.

Chapter 6 presents the law enforcement telecommunications state system concept defined as:

The preferred functional concepts and desired minimum capabilities of the individual law enforcement telecommunications systems within the state necessary to achieve the law enforcement goals adopted for a state; these capabilities must also include those needed to satisfy law enforcement telecommunications requirements common to all law enforcement agencies.

Table 1-1
SCLEP-TEL Chapters

CHAPTER 1 INTRODUCTION
CHAPTER 2 LAW ENFORCEMENT TELECOMMUNICATIONS SYSTEM OBJECTIVES
CHAPTER 3 EXISTING LAW ENFORCEMENT TELECOMMUNICATIONS SYSTEMS AND AVAILABLE TELECOMMUNICATIONS RESOURCES
CHAPTER 4 RELATED PLANS, PROGRAMS, AND SYSTEMS
CHAPTER 5 LAW ENFORCEMENT TELECOMMUNICATIONS PROBLEM ANALYSIS
CHAPTER 6 LAW ENFORCEMENT TELECOMMUNICATIONS STATE SYSTEM CONCEPT
CHAPTER 7 LONG-RANGE PLAN AND FORECAST
CHAPTER 8 LAW ENFORCEMENT TELECOMMUNICATIONS ANNUAL ACTION PROGRAM
CHAPTER 9 EVALUATION
Appendix A Management Considerations

The state system concept presented in Chapter 6 represents the primary basis which will be used by the Kansas SPA in evaluating grant requests from individual law enforcement agencies.

Chapter 7 presents the law enforcement telecommunications long-range plan and forecast projecting anticipated law enforcement telecommunications capabilities that will result from implementation of Kansas SCLEP-TEL concepts.

Chapter 8 defines implementation priorities that have been adopted by the Kansas SPA and projected expenditures of LEAA program descriptor code 2.5.5.2 funds for 1977.

Chapter 9 describes the approach that will be employed for evaluating the impact of LEAA funds on achieving law enforcement telecommunications system objectives and realizing the Kansas state system concept.

Appendix A defines additional criteria to be employed by the Kansas SPA in evaluating individual grant requests to ensure the success of individual projects.

CHAPTER 2 LAW ENFORCEMENT TELECOMMUNICATIONS SYSTEM OBJECTIVES

This chapter of the Kansas SCLEP-TEL defines the law enforcement system objectives developed from law enforcement goals presented in the 1977 Kansas State Comprehensive Law Enforcement Plan, that were judged to have telecommunications implications. If a system objective has telecommunications implications, achievement of the objective will involve at least one of the four law enforcement telecommunications functions defined in Chapter 1:

- o Public access
- o Command and control support
- o Data systems access
- o Interagency coordination.

The law enforcement telecommunications system objectives defined in this chapter, along with deficiencies in existing communications systems summarized in Chapter 5 (Problem Analysis), represent the basis for the definition of the state system concept described in Chapter 6.

Table 2-1 summarizes the law enforcement telecommunications system objectives developed through the analysis presented in this chapter. The identification numbers presented in Table 2-1 represent the sections of Chapter 2 containing the analysis employed to develop the law enforcement telecommunications system objective.

The remainder of this chapter is organized into two major sections: each corresponds to a law enforcement goal presented in the 1976 Kansas State Comprehensive Law Enforcement Plan that was judged to have telecommunications implications. Each section also defines the overall law enforcement system objective necessary to achieve the associated goal. For the first goal, which involves only telecommunications capabilities, a law enforcement system objective is not presented.

The remaining subsections in each of the two sections then define that aspect of the law enforcement goal in each of the four law enforcement telecommunications functional areas that must be accomplished by Kansas telecommunications systems.

2.1 Law Enforcement Goal 1

To provide law enforcement communications and special equipment systems which will allow rapid means for reporting crime and dispatching and coordinating law enforcement units.

The achievement of this goal involves law enforcement telecommunications system objectives in each of the four functional areas, as described in the following subsections.

Table 2-1
Summary of Law Enforcement
Telecommunications System Objectives

	IDENTIFICATION NUMBER	LAW ENFORCEMENT TELECOMMUNICATIONS SYSTEM OBJECTIVE
PUBLIC ACCESS	2.1.1(1)	"To provide convenient and effective methods by which all persons in Kansas, regardless of their location, can access a law enforcement complaint operator on a 24-hour basis."
	2.1.1(2)	"To establish 911 systems where economical and practical."
	2.1.1(3)	"To reduce the time required for a person in Kansas to reach a law enforcement complaint operator to that defined by the National Advisory Commission on Criminal Justice Standards and Goals."
	2.1.1(4)	"To provide methods that ensure the accurate recording of complaint information received."
COMMAND AND CONTROL SUPPORT	2.1.2(1)	"To provide continuous dispatching service for all Kansas law enforcement personnel on a 24-hour basis."
	2.1.2(2)	"To provide and adopt uniform dispatch methods and procedures."
	2.1.2(3)	"To provide a command and control support communications capability for Kansas law enforcement agencies consistent with operational requirements."
	2.1.2(4)	"To minimize the time from complaint reception to dispatch of the appropriate response."
	2.1.2(5)	"To improve the accuracy of command and control support communications."
	2.2.1	"To establish a uniform training program for law enforcement telecommunicators. The training program recommended for police training academies will include telecommunicator courses."

Table 2-1(2)

	IDENTIFICATION NUMBER	LAW ENFORCEMENT TELECOMMUNICATIONS SYSTEM OBJECTIVE
DATA SYSTEMS ACCESS	2.1.3(1)	"To provide data systems access capabilities for all Kansas law enforcement agencies to state, national, and other data files related to law enforcement."
	2.1.3(2)	"To minimize data systems access response time to that required by particular Kansas law enforcement operations."
INTERAGENCY COORDINATION	2.1.4(1)	"To allow any law enforcement officer in the State of Kansas to communicate with any other law enforcement officer consistent with procedures established."
	2.1.4(2)	"To provide communications interfaces among all law enforcement agencies in the state."
	2.1.4(3)	"To develop public safety communications interfaces that allow coordination of law enforcement, emergency medical, fire, and other emergency resources."
	2.1.4(4)	"To provide necessary communications between Kansas law enforcement agencies and those of adjacent states."
	2.1.4(5)	"To adopt uniform dispatch methods and procedures that facilitate cooperation among law enforcement agencies."

2.1.1 Law Enforcement Telecommunications System Objective -- Public Access

(1) Law Enforcement Telecommunications System Objective 2.1.1(1)

Except for the three major cities of Topeka, Wichita, and Kansas City, and Johnson County, Kansas is primarily rural with a population density of 27.4 persons per square mile. Because of this rural nature, telephones are often unavailable to citizens needing access to law enforcement agencies. These factors make the exclusive use of telephones a less than adequate method for providing effective citizen access capability.

Many regions in the state are served by small law enforcement agencies which can provide only limited services. Because of size and funding constraints, agencies usually do not staff complaint operator positions on a 24-hour basis. As a result, the services required by both Kansas citizens and travelers are often unavailable.

Law enforcement telecommunications system objective 2.1.1(1) is, therefore:

To provide convenient and effective methods by which all persons in Kansas, regardless of their location, can access a law enforcement complaint operator on a 24-hour basis.

(2) Law Enforcement Telecommunications System Objective 2.1.1(2)

Currently, telephone is the primary means of law enforcement access in Kansas; a number of different telephone numbers are used to access law enforcement services, even in the three major cities and the larger counties. The cities of Topeka, Wichita, Kansas City, and Leavenworth are served by modern electronic switching system (ESS) telephone equipment, which can accommodate the latest 911 features such as automatic location identification and selective routing. Other areas of Kansas can implement 911 systems as long as direct trunking is used from the switching center to an established regional communications center.

Law enforcement telecommunications system objective 2.1.1(2) is, therefore:

To establish 911 systems where economical and practical.

(3) Law Enforcement Telecommunications System Objective 2.1.1(3)

The time required to reach a law enforcement operator is an important segment of total response time. Some Kansas law enforcement agencies require that a caller go through a third-party operator (typically a City Hall switchboard operator) before reaching a complaint operator. For example, a person trying to reach a complaint operator in one county of Kansas during off-hours, would reach the County Jailer as the only on-duty person. The Jailer would then have to relay the complaint information to the city police department. This procedure both reduces complaint recording accuracy and increases response time.

Law enforcement telecommunications system objective 2.1.1(3) is, therefore:

To reduce the time required for a person in Kansas to reach a law enforcement complaint operator to that defined by the National Advisory Commission on Criminal Justice "Standards and Goals."

(4) Law Enforcement Telecommunications System Objective 2.1.1(4)

Since the advent of the Uniform Crime Reporting System, increased emphasis has been placed on uniform and accurate recording of complaint information. This has been particularly difficult for the many small law enforcement agencies in Kansas. These law enforcement agencies lack uniform and accurate recording methods, procedures, and techniques, even among complaint personnel in the same agency. This impedes the consolidation of Kansas law enforcement agencies and decreases the accuracy of complaint

recording. Magnetic tape voice recorders typically are used only by larger Kansas law enforcement agencies, those who have 911 service, or those agencies concerned with the legal implications of improper complaint transcription.

Law enforcement telecommunications system objective 2.1.1(4) is, therefore:

To provide methods that ensure the accurate recording of complaint information received.

2.1.2 Law Enforcement Telecommunications System Objective – Command and Control Support

(1) Law Enforcement Telecommunications System Objective 2.1.2(1)

The full benefit of achieving law enforcement telecommunications system objective 2.1.1(1) can only be realized by a parallel capability under command and control support. Financial constraints often preclude the provision of 24-hour command and control support service. Thus, many areas of Kansas maintain only 8:00 a.m. to 5:00 p.m. dispatch centers such as those serving Caney, Elk City, Cherrydale, Goddard, Maize, and Colwich. Services required by both Kansas citizens and transients are often needed on a 24-hour basis and cannot be provided without properly staffed and equipped command and control facilities.

Law enforcement telecommunications system objective 2.1.2(1) is, therefore:

To provide continuous dispatching service for all Kansas law enforcement personnel on a 24-hour basis.

(2) Law Enforcement Telecommunications System Objective 2.1.2(2)

Dispatch methods and procedures vary widely in Kansas. Frequently, dispatchers originate their own methods and procedures; therefore, coordination within and among agencies often is difficult or nonexistent. Interagency coordination among law enforcement agencies is based extensively on informal cooperative arrangements. In addition to enhancing the capability for interagency coordination, the adoption of uniform methods and procedures will provide among dispatchers a sense of unity and cooperation necessary for mutual operational support.

Law enforcement telecommunications system objective 2.1.2(2) is, therefore:

To provide and adopt uniform dispatch methods and procedures.

(3) Law Enforcement Telecommunications System Objective 2.1.2(3)

Command and control support communications requirements of Kansas law enforcement agencies vary widely. A minimum command and control support communications capability is required that reflects the varied levels of operational requirements existing in Kansas.

Law enforcement telecommunications system objective 2.1.2(3) is, therefore:

To provide a command and control support communications capability for Kansas law enforcement agencies consistent with operational requirements.

(4) Law Enforcement Telecommunications System Objective 2.1.2(4)

The time required for complaint reception to dispatch of the appropriate response is another critical segment of total response time. The Kansas survey documented three methods for handling information associated with complaint reception and dispatch; they vary considerably in their overall efficiency. The most prevalent method is the IBM-type complaint card. This card is date/time stamped when the complaint is received, the vehicle is dispatched, the vehicle arrives at the scene, and the vehicle returns to service. Sometime during the response, complaint details are written on the back of the card. This method has the benefit of providing visual vehicle status information. The second method of complaint reception is a chronological log sheet which contains complaint information and the response time. The third and least often used method is the simple complaint sheet. In this case, complaint information is typed by the complaint operator, and is, therefore, subject to both time constraints and human error.

Clearly, the time required from complaint reception to dispatch of the appropriate response varies depending upon methods and procedures used. However, in many law enforcement agencies, the time could be significantly decreased, thereby improving the efficiency of law enforcement operations.

Law enforcement telecommunications system objective 2.1.2(4) is, therefore:

To minimize the time from complaint reception to dispatch of the appropriate response.

(5) Law Enforcement Telecommunications System Objective 2.1.2(5)

The complaint operator is also the dispatcher for many of the law enforcement agencies surveyed. For example, several sheriffs' departments divide their county into distinct dispatch regions with a dispatcher assigned to each region. Since dispatchers can also serve as complaint operators, a dispatcher may or may not receive the complaint from the region he serves. Therefore, when the dispatcher receives a call from outside his dispatch region, he must document the complaint information and transfer it to another dispatcher. Uniform methods and procedures are needed to insure that information is accurately transmitted.

Law enforcement telecommunications system objective 2.1.2(5) is, therefore:

To improve the accuracy of command and control support communications.

2.1.3 Law Enforcement Telecommunications System Objective – Data Systems Access

(1) Law Enforcement Telecommunications System Objective 2.1.3(1)

The Automated Statewide Telecommunications and Records Access (ASTRA) system provides data systems access for the 105 counties in Kansas to:

- o National Law Enforcement Telecommunications System (NLETS), Kansas Highway Information System, National Crime Information Center (NCIC), Kansas Division of Motor Vehicle Files (KDMV), Missouri Department of Revenues Motor Vehicle Files
- o ALERT II Data System operated by the Kansas City, Missouri Police Department (see Chapter 3 for description of ALERT II Data System) and Missouri Uniform Law Enforcement System (MULES).

ASTRA does not access criminal justice history files, which are necessary for safe law enforcement operations. The placement of the ASTRA data terminal is determined by the Board of County Commissioners, and usually is located in the sheriff's department. Since the sheriff's department, which has countywide jurisdictional responsibility, frequently closes at 5:00 p.m. and during weekends and holidays, other law enforcement agencies within the county often lack convenient data systems access. Thus, during off-hours, law enforcement agencies that maintain 24-hour operation must contact either adjacent county agencies that are on duty or the Regional Kansas Highway Patrol Headquarters. For example, the state ASTRA data terminal in one county is located in the county sheriff's department which maintains operations only from 8:00 a.m. to 5:00 p.m. However, since the largest city in the county maintains 24-hour police service, during off-hours they must contact Kansas Highway Patrol Headquarters for data systems access. This lack of criminal data access on a 24-hour basis inhibits safe law enforcement operations.

Law enforcement telecommunications system objective 2.1.3(1) is, therefore:

To provide data systems access capabilities for all Kansas law enforcement agencies to state, national, and other data files related to law enforcement.

(2) Law Enforcement Telecommunications System Objective 2.1.3(2)

The time required to obtain a response from the ASTRA system is determined by the sum of three independent time segments:

- o Time required to input data
- o Time required to send data
- o Input/output waiting times (queues) and computer processing time.

The first segment, and sometimes the longest, is the time required to input data. Information is keypunched on tape, offline. The perforated tape is then read by the teletype terminal and sent over dedicated telephone lines to the computer center at the relatively slow rate of ten characters per second. This segment of access time is determined by the message length (constrained by format requirements) and message rate (constrained by terminal read rate).

The second segment is determined by the terminal type. Although it is presently the least significant of the three segments in Kansas, it will be a significant constraint in any improved data access system.

The third, and frequently the largest time segment, is the input/output queue and computer processing time. ASTRA circuits are directly connected to a computer located in the Division of Computer Services (DCS), Department of Administration, located in Topeka. The DCS computer presently is saturated with system users.

Data systems access delay causes several undesirable consequences; it inhibits data operator (frequently a dispatcher) efficiency, reduces patrol personnel safety, and discourages system use during times of high traffic loading.

Law enforcement telecommunications system objective 2.1.3(2) is, therefore:

To minimize data systems access response time to that required by particular Kansas law enforcement operations.

2.1.4 Law Enforcement Telecommunications System Objective – Interagency Coordination

(1) Law Enforcement Telecommunications System Objective 2.1.4(1)

Kansas law enforcement agencies generally are small and operate independently except during emergencies. The majority of law enforcement agencies in Kansas cannot afford to maintain the total spectrum of police services. Efficient interagency coordination is, therefore, a necessity. Law enforcement agencies need to pool their resources during emergencies and at other times. The increasing mobility of today's criminals also necessitates close and efficient interagency coordination. Often, interagency coordination among Kansas law enforcement agencies is based on informal arrangements that do not completely satisfy operational requirements. Law enforcement telecommunications system objective 2.1.4(1) is, therefore:

To allow any law enforcement officer in the State of Kansas to communicate with any other law enforcement officer consistent with procedures established.

(2) Law Enforcement Telecommunications System Objective 2.1.4(2)

Because of the lack of formal, standardized procedures for interagency coordination, some Kansas law enforcement agencies do not maintain a direct communications interface with the Kansas Highway Patrol (KHP). Interagency coordination between KHP and other law enforcement agencies is vital. This coordination between statewide and local agencies is especially important in Kansas, since the KHP provides an emergency mobile communications command post, which can significantly augment local communications resources when needed.

Law enforcement telecommunications system objective 2.1.4(2) is, therefore:

To provide communications interfaces among all law enforcement agencies in the state.

(3) Law Enforcement Telecommunications System Objective 2.1.4(3)

Of immediate importance to Kansas is effective public safety communications interfaces with law enforcement agencies, emergency medical, fire, and other emergency resources that allow for effective coordination.

Local law enforcement agencies in Kansas typically maintain communications with other law enforcement agencies via dedicated telephone circuits, radio, or both. However, communications interfaces with other public safety resources is mainly informal and often inadequate. Proper coordination and control of public services during emergencies cannot be effected.

Law enforcement telecommunications system objective 2.1.4(3) is, therefore:

To develop public safety communications interfaces that allow coordination of law enforcement, emergency medical, fire, and other emergency resources.

(4) Law Enforcement Telecommunications System Objective 2.1.4(4)

Law enforcement interagency coordination between bordering law enforcement agencies of Kansas and adjacent states presently is accomplished on an informal basis by cross-monitoring operational frequencies. As an example, Coffeyville, Kansas, maintains contact with an adjacent sheriff's department in Oklahoma. Therefore, other Kansas agencies near Coffeyville lacking this capability must first communicate with Coffeyville to achieve coordination with Oklahoma. Effective, rapid interstate links are needed to ensure efficient communications with adjacent states.

Law enforcement telecommunications system objective 2.1.4(4) is, therefore:

To provide necessary communications between Kansas law enforcement agencies and those of adjacent states.

(5) Law Enforcement Telecommunications System Objective 2.1.4(5)

In addition to law enforcement telecommunications system objective 2.1.2(3), which will provide for uniform dispatch methods and procedures, the rural nature of Kansas requires that uniform dispatch methods and procedures also be adopted to facilitate cooperation among law enforcement agencies serving different jurisdictions.

Law enforcement telecommunications system objective 2.1.4(5) is, therefore:

To adopt uniform dispatch methods and procedures that facilitate cooperation among law enforcement agencies.

2.2 Law Enforcement Goal 2

To upgrade the training and education of all law enforcement personnel.

Essential to upgrading Kansas law enforcement personnel is a well defined and supported statewide certified law enforcement training program. In addition, a need exists to establish statewide standards for the recruitment, screening, and selection of personnel. Presently, each law enforcement agency in Kansas determines its own standards. This diversity of standards inhibits the implementation of statewide procedures and programs for crime reduction. Thus, a law enforcement system objective is:

To implement and support a statewide certified law enforcement training program. This program includes the support of a state-operated police training academy. The academy has the responsibility to certify law enforcement agency training programs which fulfill state basic training requirements.

2.2.1 Law Enforcement Telecommunications System Objective -- Public Access

See Subsection 2.2.2.

2.2.2 Law Enforcement Telecommunications System Objective -- Command and Control Support

Implicit in a program to upgrade Kansas law enforcement personnel in general is a specific, uniform training program for law enforcement telecommunicators. The lack of basic, uniform dispatcher training is of concern throughout Kansas. Dispatchers sometimes have little or no related training or experience. In such cases they must draw solely upon on-the-job experience which is frequently inadequate to handle the many complex law enforcement activities involved in present day dispatching. Even among experienced dispatchers, dispatch techniques vary widely, which inhibits efficient utilization of manpower and equipment resources. Although the importance of the dispatcher is well recognized in Kansas, assignment to the position of dispatcher or even dispatcher supervisor is frequently viewed by many as undesirable (perhaps because it is sometimes used for internal disciplinary actions). This stigma should be removed to allow the position to maintain its appropriate level of importance. This may be accomplished through the realization of law enforcement telecommunications system objective 2.2.2, which is:

To establish a uniform training program for law enforcement telecommunicators. The training program recommended for police training academies of the state will include telecommunicator courses.

2.2.3 Law Enforcement Telecommunications System Objective -- Data Systems Access

See Subsection 2.2.2.

2.2.4 Law Enforcement Telecommunications System Objective -- Interagency Coordination

See Subsection 2.2.2.

CHAPTER 3 EXISTING LAW ENFORCEMENT TELECOMMUNICATIONS SYSTEMS AND AVAILABLE TELECOMMUNICATIONS RESOURCES

This chapter summarizes existing law enforcement telecommunications systems and available resources in Kansas. Law enforcement telecommunications systems are defined as organizations, hardware, and procedures that provide dedicated law enforcement telecommunications capability. Available telecommunications resources include common carrier (all public utility companies providing data or voice telecommunications services) and interconnect (systems providing an interface between common carrier and law enforcement telecommunications systems).

Information contained in this chapter was obtained from:

- o The Kansas Law Enforcement Telecommunications Coordinating Committee
- o Survey of Kansas law enforcement agencies
- o Documentation review.

Initial meetings with the Kansas Law Enforcement Telecommunications Coordinating Committee provided an overview of existing systems and available resources. In addition, the Committee assisted in the identification of appropriate points of contact for obtaining information describing law enforcement telecommunications systems in the following categories:

- o Interstate systems
- o Statewide systems
- o Systems serving major municipalities and counties
- o Individual systems
- o General
- o Common carrier.

Points of contact identified by the Kansas Law Enforcement Telecommunications Coordinating Committee were interviewed to obtain information necessary for developing the SCLEP-TEL.

Finally, information was obtained through a review of documentation on existing Kansas law enforcement telecommunications systems. The primary source document used was the inventory of law enforcement telecommunications systems, entitled *Law Enforcement Communications and Personnel Survey*.

In the remainder of this chapter, existing law enforcement telecommunications systems and resources defined in terms of the previously listed categories are individually described.

3.1 Interstate Systems

This section describes interstate systems serving Kansas which include:

- o NCIC
- o NLETS

- o Kansas City, Missouri ALERT II
- o Other Missouri systems.

3.1.1 NCIC

NCIC is a computer-based criminal justice system operated by the Federal Bureau of Investigation. Kansas law enforcement agencies can access original NCIC files which provide want/warrant information on persons, license plates, vehicles, articles, guns, securities, and boats. NCIC files on Computerized Criminal Histories (CCH) presently are inaccessible to Kansas agencies. Users may access NCIC through the ASTRA network operated by the Kansas Bureau of Investigation (KBI) or through the KHP Highway Safety Information System (HYSIS) network. All inquiries from Kansas agencies are switched through the Division of Computer Services (DCS) IBM 370-155 over a voice grade leased line operated at a maximum 2400 bits/second to the NCIC computer center. NCIC responses are sent to the DCS for distribution to the requesting agency. KHP has overall responsibility for the Kansas-NCIC interface.

3.1.2 NLETS

NLETS was established in 1966 to provide teletype message switching between law enforcement agencies throughout the United States. NLETS allows users to transmit free-form administrative data from one point to one or more out-of-state agencies and also to query other state data bases containing both vehicle and driver license records.

All NLETS messages from Kansas law enforcement agencies are routed to the DCS IBM 370-155 at Topeka over the ASTRA or HYSIS networks or over the ALERT II data line. The DCS computer transmits the NLETS message over a high-speed leased line to Phoenix for further switching. The ASTRA Board of Directors has overall responsibility for the Kansas-NLETS interface.

3.1.3 Kansas City, Missouri ALERT II System

The Automated Law Enforcement Response Team (ALERT II) System is a computer information and message switching system of the Kansas City, Missouri Police Department which serves participating criminal justice agencies in the regional Kansas City area. ALERT II was designed to field inquiries in 10 seconds or less, 90 percent of the time.

ALERT II is implemented on an IBM 370-158 computer with an IBM 2703 telecommunications unit as a front-end processor. File management is handled by the IBM IMS software package; telecommunications aspects are controlled by IBM's Telecommunications Access Method (TCAM). TCAM is an IBM proprietary software package that has its own control program which schedules the traffic-handling operations, interrupts, and macroinstructions in the application programs. It queries requests for computer/communications facilities and can also handle message switching (store-and-forward) functions without calling on application programs.

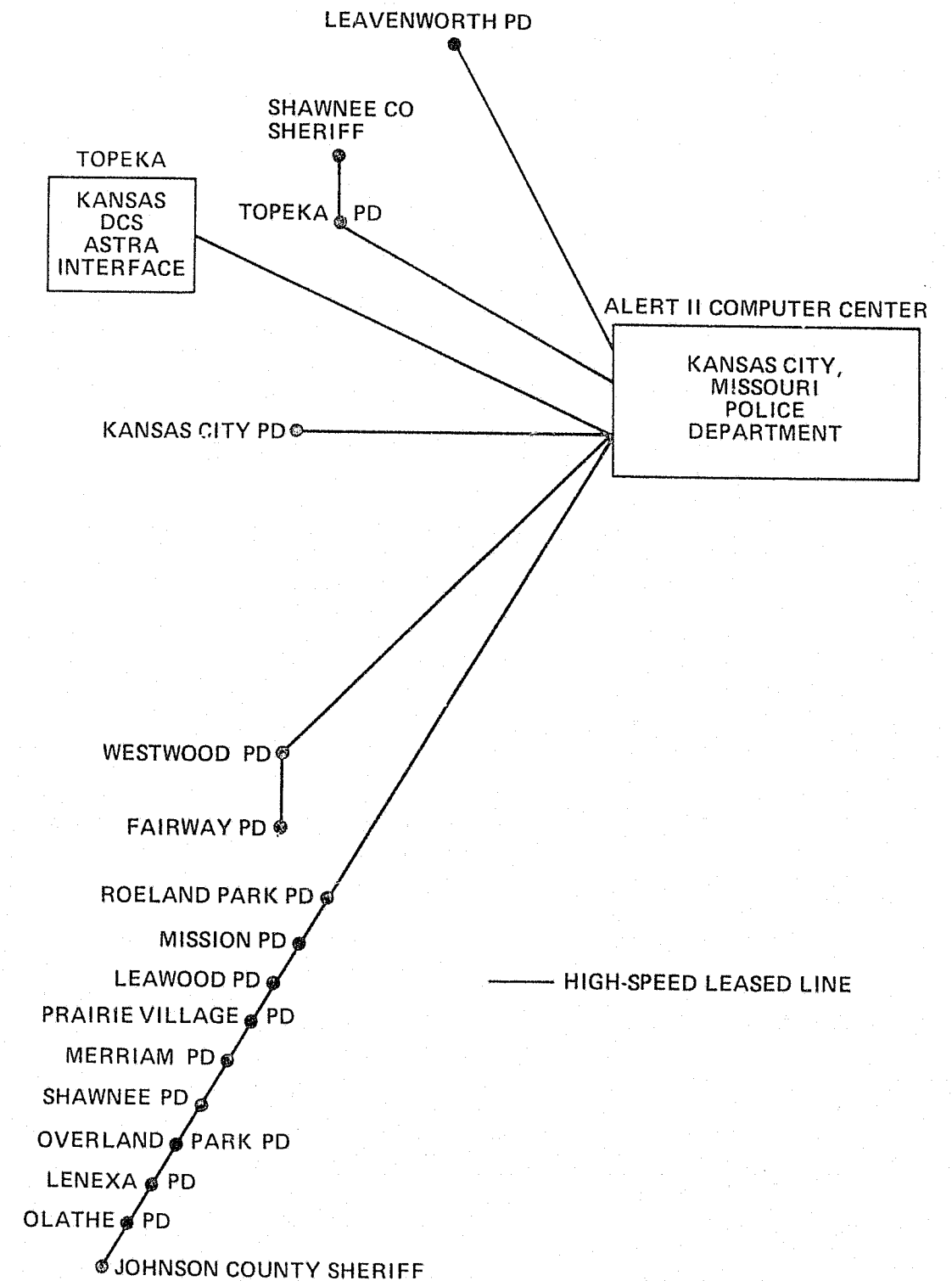


Figure 3-1
Kansas Law Enforcement Users of the ALERT II System

Several Kansas communities utilize ALERT II for their criminal justice requirements, as depicted in Figure 3-1. Five unconditioned voice grade leased lines are provided for the communications links. All requests for ALERT II services are handled through the Kansas City, Missouri Police Department. IBM 3270 and 3767 communications terminals are used by participating agencies. Binary synchronous communications (BSC) protocol is used for line control. International Communications Corporation Model 4600/48 modems are supplied for each terminal. Terminals on multi-drop lines are queried using the AUTOPOLL technique. A service charge is collected for each inquiry to ALERT II files.

ALERT II allows Kansas agencies directly connected to the system to query NCIC files without first being switched through the Kansas DCS computer center. A 4800-baud line provides two-way access between Kansas law enforcement agencies from the DCS center to ALERT II, the Missouri Department of Revenue (DOR) files, the Missouri Criminal Justice Information System (MCJIS), and the St. Louis Regional Justice Information System (REJIS). Kansas agencies, tied to ALERT II, requiring NLETS services, are routed to the DCS center at Topeka.

Kansas communities subscribing to the ALERT II system transmit over half of their data messages to Missouri agencies. Very little traffic is sent to Missouri from other Kansas users. Table 3-1 indicates the ALERT II activity for Kansas agencies for the year 1975.

3.1.4 Other Missouri Systems

In addition to the Kansas City, Missouri ALERT II system, Kansas law enforcement agencies can also access the State of Missouri Department of Revenue files (motor vehicle and driver license data), the Missouri Uniformed Law Enforcement System (recently incorporated into MCJIS) and St. Louis's REJIS. Kansas agencies directly tied into ALERT II are switched to MULES and then to DOR or REJIS if necessary. Other Kansas users access ASTRA or HYSIS and are then transferred to the Kansas DCS which in turn relays the message to ALERT II and MULES.

3.2 Statewide Systems

This section describes Kansas statewide systems which include:

- o KHP
- o KBI
- o ASTRA data systems access data network.

3.2.1 KHP

The KHP primarily provides traffic law enforcement services on all state and Federal highways, and motor vehicle inspection and police services for the Kansas Turnpike Authority. Figure 3-2 indicates headquarter locations and associated divisional boundaries. Divisional headquarters are accessed by individual telephone numbers that are also used for emergency and administrative purposes.

	ALERT II INQUIRIES	ALERT II DATA ENTRY	NCIC ACTIVITY	MO. DOR	KS. DOR	MESSAGES SENT/RECEIVED	TOTAL ACTIVITY
KANSAS LAW ENFORCEMENT AGENCIES TIED DIRECTLY TO ALERT II	1,640,588	1,118,681	514,355	59,034	270,467	96,399	3,699,524
OTHER KANSAS AGENCIES	104,641	0	0	0	0	2,901	107,542

Table 3-1
1975 ALERT II Annual Network Activity for Kansas Users

The KHP radio network utilizes microwave and radio links for base station and alarm control as shown in Figure 3-2. Primary operating frequencies alternate in a checkerboard fashion across the state to minimize frequency beating as shown in Figure 3-3.

Interagency coordination with these agencies is usually accomplished over the statewide point-to-point frequency, 39.46 MHz.

3.2.2 KBI

KBI provides investigation and forensic laboratory services for all law enforcement agencies in Kansas. Field force coordination is accomplished through the telephone system, the KHP radio network, or the sheriff's statewide frequencies of 39.58 and 39.70 MHz.

The statewide ASTRA data system is under the authority of the KBI telecommunications center in Topeka. These facilities, staffed by eight fulltime data operators, provide data switching and manual records retrieval on a 24-hour basis. Furthermore, all state, county, and local law enforcement agencies must coordinate their data needs with the KBI Control Center. Network policy and procedure are established by a statutory board composed of the Secretary of Administration, Director of KBI, and Supervisor of KHP.

3.2.3 ASTRA

ASTRA is a statewide teletype network providing: (1) communications between Kansas counties and major cities; (2) access to Kansas law enforcement and motor vehicle data files; (3) access to KHP or HYSIS terminals; (4) access between Kansas and Kansas City, Missouri ALERT system or Missouri Highway Patrol MULES system; (5) access to other states through NLETS; (6) inquiry into NCIC data files; (7) emergency preparedness (civil defense); (8) weather information; and (9) corrections information services.

ASTRA is comprised of model 35 ASR teletype terminals located in each county, directly connected to the Kansas DCS. All traffic (with the exception of nationwide all-points bulletin (APB) requests) that is properly coded and formatted is handled automatically by the DCS equipment. The KBI Control Center provides assistance as necessary, monitors the network, oversees security, and resolves routing and delivery problems for improperly coded messages.

About 120 terminals are employed on a 24-hour basis. Six circuits are organized by geographic area employing from 14 to 26 polled multidrop terminals operating over 110-baud lines.

Presently, the law requires a terminal in every county, but plans are being made to amend the law because of the low population and usage rates in some of the western counties.

Several of the larger users are experiencing inadequate transmission speed and noise problems. To alleviate this problem, the use of a 1200-baud tieline for large-volume users is currently being studied.

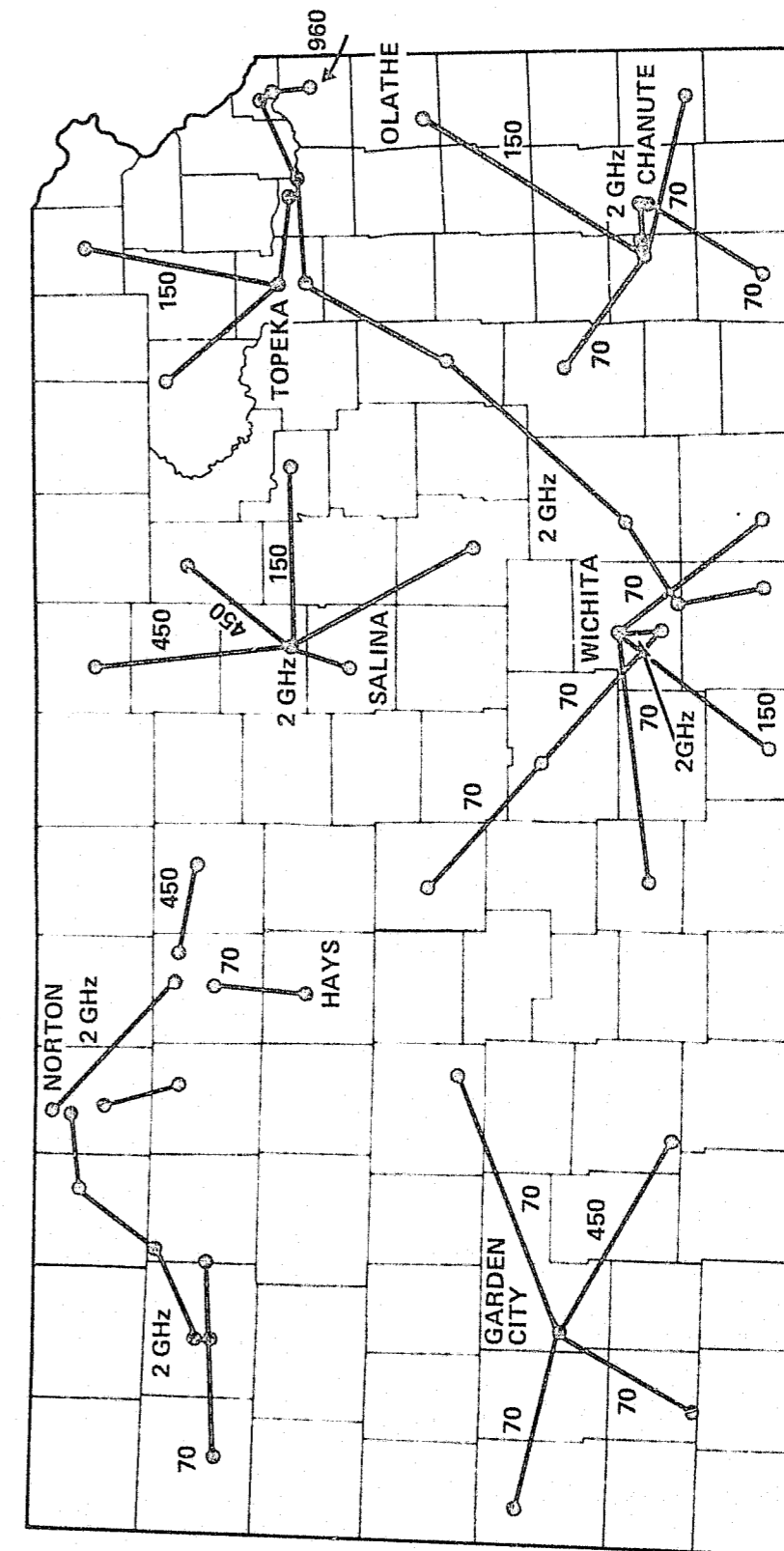
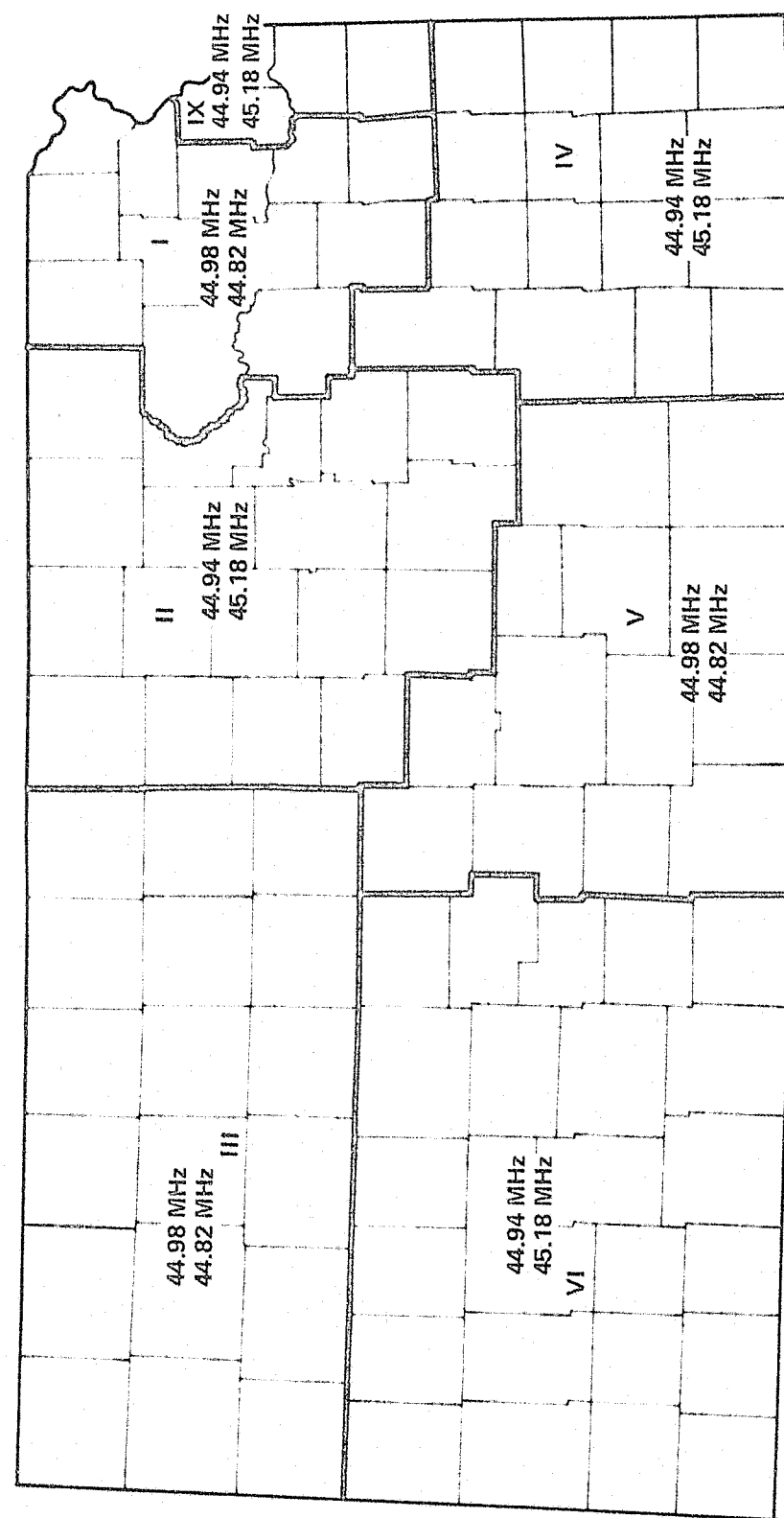


Figure 3-2
KHP Radio Control Links



DIVISION VII—TURNPIKE RESPONSIBILITY ONLY

MOBILE 44.82—45.18 MHz

BASE 44.98—44.94 MHz

Figure 3-3
KHP Radio Frequency Plan

The typical response time for an inquiry is two minutes or less. Approximately 200,000 inquiries occur per month. Fifty percent reference the motor vehicle data base; 30 percent NCIC files; 10 percent NLETS; and 10 percent ALERT message switching. No precautions are taken for data transmission security except to secure terminal locations.

3.3 Systems Serving Major Municipalities and Counties

Major municipalities and counties in Kansas are defined to be:

- o Topeka
- o Kansas City
- o Wichita
- o Johnson County
- o Sedgwick County.

Table 3-2 summarizes key aspects of how law enforcement agencies serving these communities perform each of the four law enforcement telecommunications system functions. Populations served vary from 85,000 for Sedgwick County to 270,000 for the City of Wichita. Major municipalities primarily provide 24-hour public access and dispatching service only for themselves. However, in Johnson County, a cooperative arrangement has been implemented to provide this service to all law enforcement agencies in the county. All law enforcement agencies serving the municipalities listed above record complaint telephone traffic and radio messages. Most agencies monitor the emergency CB radio channel on either a full- or part-time basis. Currently, no 911 systems have been implemented.

All law enforcement agencies subscribe either to the ASTRA or ALERT II data system with heavy to moderate usage. Table 3-3 summarizes frequency usage for command and control support and interagency coordination. As indicated in the table, major municipalities and counties employ high-band systems except for Topeka, which operates on UHF. All agencies utilize a dispatch, tactical, and special-purpose frequency; only the agencies in Wichita employ a dedicated data transmission channel.

AGENCY	PUBLIC ACCESS			COMMAND AND CONTROL SUPPORT					DATA SYSTEMS ACCESS				INTERAGENCY COORDINATION					
	Population Served (Thousands)	Number of Sworn Officers	24-Hour Capability	Other Agencies Served	911	Monitor CB Radio	Record Telephone	24-Hour Capability	Function Performed For Other Agencies Served	Sworn Dispatchers	Number of Dispatchers	Record Radio Traffic	ASTRA	ALERT II	Usage	Other Data System Interfaces	Radio (Transmit/Receive Capability)	Telephone Hotline
Topeka Police Dept	144	219	Yes	Park Police	No	No	Yes	Yes	Disp.	No	18	Yes	Yes	Yes	Heavy**	Municipal Computer-Report Processing	KHP** Topeka Fire* Shawnee Co. Sheriff*	Weather Bureau CD
Kansas City Police Dept.	169	368	Yes	None	No	Yes	Yes	Yes	None	No	26	Yes	No	Yes	Heavy	None	Leavenworth Co. Sheriff* Kansas City, Mo.* Wyandotte County Sheriff* County Fire*	CD
Wichita Police Dept.	270	407	Yes	Eastboro Police Dept.	No	PT	Yes	Yes	Disp.	Yes	20	Yes	No	No	Moderate	Municipal Computer Local Records NCIC via TTY KHP direct	Wichita Fire Dept. CD Eastboro Police Dept.	Sedgwick Co. Sheriff Boeing Security CD Hospitals Wichita Fire Dept. Wichita State University

P = Planned * = Cross Monitoring Only
PT = Part-time ** = ALERT II Only

Traffic Definition	
Usage	Terminal Utilization
Heavy	greater than 50%
Moderate	10 to 50%
Light	less than 10%

Table 3-2
Key Aspects of Law Enforcement Agencies' Services (as of Dec. 1976)

AGENCY	PUBLIC ACCESS			COMMAND AND CONTROL SUPPORT					DATA SYSTEMS ACCESS				INTERAGENCY COORDINATION					
	Population Served (Thousands)	Number of Sworn Officers	24-Hour Capability	Other Agencies Served	911	Monitor CB Radio	Record Telephone	24-Hour Capability	Function Performed For Other Agencies Served	Sworn Dispatchers	Number of Dispatchers	Record Radio Traffic	ASTRA	ALERT II	Usage	Other Data System Interfaces	Radio (Transmit/Receive Capability)	Telephone Hotline
Johnson County Sheriff	220	91	Yes	Edgerton Police Dept. Fairway Police Dept. Gardner Police Dept. Lake Quirira Police Dept. Leawood Police Dept. Lenexa Police Dept. Merriam Police Dept. Mission Police Dept. Olathe Police Dept. Overland Park Police Dept. Prairie Village Police Dept. Roeland Park Police Dept. Shawnee Sheriff Spring Hill Police Dept. Westwood	No	Yes	Yes	Yes	Disp. Disp. Disp. Disp. Disp. Alert Disp. Disp. Alert Alert Alert Disp. Alert Disp.	Yes	11	Yes	Yes	Yes	Heavy**	None	Olathe Police Dept. Lenexa Police Dept. Prairie Village Police Dept. Overland Park Police Dept. Shawnee Police Dept.	Olathe Police Dept. Leawood Police Dept. Olathe Fire Lenexa Police Dept. CD circuit Prairie Village Police Dept. EOC Overland Park Police Dept.
Sedgwick County Sheriff	85	150	Yes	County Ambulance County Fire Goddard Fire Dept. Maize Police Dept. Colwich Police Dept.	No	Yes	Yes	Yes	Disp. Disp. Disp. Disp.	No	13	Yes	Yes	No	Heavy	City of Wichita Computer-Local Records	Sedgwick Ambulance Sedgwick Fire Goddard Police Dept. Maize Police Dept. Colwich Police Dept.	Four Hospitals Wichita Fire Dept. Wichita Police Dept.

P = Planned * = Cross Monitoring Only
PT = Part-time ** = ALERT II Only

Table 3-2(2)

AGENCY	COMMAND AND CONTROL SUPPORT				INTERAGENCY COORDINATION			
	<i>Dispatch</i>	<i>Tactical</i>	<i>Special Purpose</i>	<i>Data Transmission</i>	<i>39.46 - R1²</i>	<i>39.58/39.70 - R2</i>	<i>Other</i>	<i>Monitor</i>
Topeka Police Department	460.475 ¹ / 465.475 460.400/ 465.400 460.350/ 465.350	460.250/ 465.250	None	None	No	No	158.835, Municipal	39.58 44.98 154.430
Kansas City Police Department	155.190 155.430 155.610	None	Yes	None	No	No		39.45 155.370 155.520 155.770
Wichita Police Department	156.150/ 155.130 155.910/ 154.725	156.090	155.970/ 155.430	156.210/ 154.785	No	No	154.190 158.955/ 155.775 156.240/ 159.180 155.880/ 158.760	39.46 39.58 158.180 158.760

NOTE: All frequencies in MHz

¹Frequency presentation format = transmit/receive frequencies at base.

²See Table 6-5 for definition of interagency coordination channels.

Table 3-3
Summary of Frequency Usage for Command and Control Support and Interagency Coordination

AGENCY	COMMAND AND CONTROL SUPPORT				INTERAGENCY COORDINATION			
	<i>Dispatch</i>	<i>Tactical</i>	<i>Special Purpose</i>	<i>Data Transmission</i>	<i>39.46 - R1²</i>	<i>39.58/39.70 - R2</i>	<i>Other</i>	<i>Monitor</i>
Wichita Police Department	156.150/ 155.130 155.910/ 154.725	156.090	155.970/ 155.430	156.210/ 154.785	No	No	154.190 158.955/ 155.775 156.240/ 159.180 155.880/ 158.760	39.46 39.58 159.180 158.760

NOTE: All frequencies in MHz

¹Frequency presentation format = transmit/receive frequencies at base.

²See Table 6-5 for definition of interagency coordination channels.

Table 3-3(2)

AGENCY	COMMAND AND CONTROL SUPPORT				INTERAGENCY COORDINATION			
	Dispatch	Tactical	Special Purpose	Data Transmission	39.46 - R1 ²	39.58/39.70 - R2	Other	Monitor
Johnson County Sheriff	158.730/ 159.150	158.730 158.775	158.775 159.030	None	Yes	No	None	None
Sedgwick County Sheriff	155.190/ 156.030	155.535	154.875/ 155.850	None	Yes	Yes	153.890/ 154.385, fire 154.385, fire	None

NOTE: All frequencies in MHz

¹ Frequency presentation format = transmit/receive frequencies at base.

² See Table 6-5 for definition of interagency coordination channels.

Table 3-3(3)

3.4 Individual Systems

Kansas law enforcement agency telecommunications systems described individually because of their special characteristics, or because they represent significant trends in the state, include:

- Police departments
 - Atchison
 - Dodge City
 - Emporia
 - Independence
 - Leavenworth
 - Lenexa
 - Lawrence
 - Olathe
 - Overland Park
 - Riley County Consolidated
 - Saline County
- Sheriffs' departments
 - Shawnee County
 - Wyandotte County.

Table 3-4 summarizes key aspects of how law enforcement agencies serving these communities perform each of the four law enforcement telecommunications system functions. Cooperative arrangements are used extensively to provide 24-hour public access and dispatch capability for the above and nearby law enforcement agencies. Several agencies monitor the CB channel on a full- or part-time basis. Approximately half of the agencies record citizen complaint calls with a smaller fraction recording radio traffic. Six agencies have implemented some form of 911 public access interface system.

Most agencies either have direct access to ASTRA or ALERT II or obtain access through a nearby law enforcement agency.

Table 3-5 summarizes command and control support and interagency frequency usage. As indicated in this table, a mix of VHF high and low band, and UHF systems are employed. Most agency radio systems only include frequencies for dispatching. However, a few agencies do employ tactical and special-purpose channels. None of the preceding agencies employs a dedicated data channel for information queries. Cross-monitoring is extensively used, especially between sheriffs and municipal law enforcement agencies.

3.5 General

The previous sections of Chapter 3 described major law enforcement telecommunications systems serving Kansas and other systems that, based upon recommendations

AGENCY	PUBLIC ACCESS			COMMAND AND CONTROL SUPPORT				DATA SYSTEMS ACCESS				INTERAGENCY COORDINATION						
	Population Served (Thousands)	Number of Sworn Officers	24-Hour Capability	Other Agencies Served	911	Monitor CB Radio	Record Telephone	24-Hour Capability	Function Performed For Other Agencies Served	Sworn Dispatchers	Number of Dispatchers	Record Radio Traffic	ASTRA	ALERT II	Usage	Other Data System Interfaces	Radio (Transmit/Receive Capability)	Telephone Hotline
Atchison Police Dept.	13	29	Yes	Atchison Co. Sheriff Atchison Fire Dept.	No	No	No	Yes	Disp.	Yes	5	No	Yes	No	Light	ALERT II via Leavenworth Police Dept.	Atchison Co. Sheriff* Atchison Fire Dept.*	
Dodge City Police Dept.	14	26	Yes	Ford County Sheriff Dodge City Fire Dept. Bucklin Police Dept. Spearville Police Dept. Ford County Fire Dept. Ford County Ambulance	Yes	PT	Yes	Yes	Disp. Disp. Disp. Disp. Disp.	No	4	Yes	Yes	No	Moderate	None		Dodge City Fire Dept. Ford County Fire Dept. Ford County Ambulance Dodge City Fire Chief Ford County Jail Ford County Sheriff
Emporia Police Dept.	24	31	Yes	Lyon County Sheriff Emporia Fire Dept. Emporia Ambulance	Yes	PT	No	Yes	Alert Alert Disp.	No	7	Yes	Yes	No	Moderate	None	Lyon County Sheriff Emporia Fire Dept. Emporia Ambulance Emporia St. College KHP*	Emporia Fire Dept.
Independence Police Dept.	11	22	Yes	Independence Fire Dept. Independence Ambulance Cherryville Police Dept. Caney Police Dept. Elk City Police Dept. Montgomery Co. Sheriff	Yes	PT	Yes	Yes	Disp. Disp. Disp. Disp., PT Disp., FT Disp., PT	No	3	No	No	No		ASTRA via Sheriff KHP	Wilson County Sheriff Montgomery Co. Sheriff Local Gov't Coffeyville Police Dept. KHP* Oklahoma Highway Patrol	Independence Fire Dept. Independence Ambulance

P = Planned * = Cross Monitoring Only
PT = Part-time ** = ALERT II Only

Table 3-4
Performance Summary of Key Aspects of Law Enforcement Agencies
Telecommunications System Functions

AGENCY	PUBLIC ACCESS			COMMAND AND CONTROL SUPPORT				DATA SYSTEMS ACCESS				INTERAGENCY COORDINATION						
	Population Served (Thousands)	Number of Sworn Officers	24-Hour Capability	Other Agencies Served	911	Monitor CB Radio	Record Telephone	24-Hour Capability	Function Performed For Other Agencies Served	Sworn Dispatchers	Number of Dispatchers	Record Radio Traffic	ASTRA	ALERT II	Usage	Other Data System Interfaces	Radio (Transmit/Receive Capability)	Telephone Hotline
Leavenworth Police Dept.	26	44	Yes	Leavenworth Fire Dept. Leavenworth Ambulance	No	No	Yes	Yes	Alert	Yes	4	Yes	No	Yes	Moderate	None	Leavenworth Co. Sheriff* KHP* Plott County, Mo. Sheriff* Ft. Leavenworth Military Police*	
Lenexa Police Department	13	26	Yes	Lenexa Fire Dept. Lenexa Ambulance Lenexa Dept. of Public Works	No	Yes	No	Yes	Alert Alert Alert	Yes	5	No	No	Yes	Moderate	None	Lenexa Dept. of Public Works Johnson Co. Sheriff* Shawnee Police Dept.* Olathe Police Dept.* Johnson Co. Fire Dept.* Overland Park Police Dept.*	Lenexa Fire Dept. Lenexa Ambulance Overland Park Police Dept. Johnson Co. Sheriff's Dept. Shawnee Police Dept.
Lawrence Police Dept.	46	89	Yes	Lawrence Fire Dept. Lawrence Ambulance	Yes	No	Yes	Yes	Alert Disp.	No	6	Yes	No	Yes	Moderate	Municipal Computer Batch Process of Reports	Lawrence Fire Dept. Lawrence Ambulance Douglas Co. Sheriff Kansas University Local Gov't Kansas Turnpike Authority* KHP	Lawrence Fire Dept. Lawrence Ambulance Kansas University

P = Planned * = Cross Monitoring Only
PT = Part-time ** = ALERT II Only

Table 3-4(2)

AGENCY	PUBLIC ACCESS							COMMAND AND CONTROL SUPPORT					DATA SYSTEMS ACCESS				INTERAGENCY COORDINATION	
	Population Served (Thousands)	Number of Sworn Officers	24-Hour Capability	Other Agencies Served	911	Monitor CB Radio	Record Telephone	24-Hour Capability	Function Performed For Other Agencies Served	Sworn Dispatchers	Number of Dispatchers	Record Radio Traffic	ASTRA	ALERT II	Usage	Other Data System Interfaces	Radio (Transmit/Receive Capability)	Telephone Hotline
Olathe Police Department	18	34	Yes	Olathe Fire Dept. Olathe Ambulance Municipal Services	No	Yes	No	Yes	Disp. Disp. Disp.	Yes	5 1/2	No	No	Yes	Heavy	None	Johnson Co. Fire Dept. Johnson Co. Sheriff* Kansas City Missouri*	Johnson Co. Sheriff CD Circuit Prairie Village PD EOC Johnson Co. Sheriff Lenexa Police Dept. Prairie Village Police Dept.
Overland Park Police Dept.	84	94	Yes	Johnson Co. Fire Dept.	No	Yes	Yes	Yes	Disp.	No	9	Yes	No	Yes	Heavy	None	Olathe Fire Dept. Johnson Co. Sheriff KHP CD Overland Park Police Dept. Lenexa Police Dept.	City Hospital

P = Planned
 PT = Part-time
 * = Cross Monitoring Only
 ** = ALERT II Only

Table 3-4(3)

AGENCY	PUBLIC ACCESS							COMMAND AND CONTROL SUPPORT					DATA SYSTEMS ACCESS				INTERAGENCY COORDINATION	
	Population Served (Thousands)	Number of Sworn Officers	24-Hour Capability	Other Agencies Served	911	Monitor CB Radio	Record Telephone	24-Hour Capability	Function Performed For Other Agencies Served	Sworn Dispatchers	Number of Dispatchers	Record Radio Traffic	ASTRA	ALERT II	Usage	Other Data System Interfaces	Radio (Transmit/Receive Capability)	Telephone Hotline
Shawnee County Sheriff	155	70	Yes	Ambulance County Fire County Ambulance	No	No	Yes	Yes	Alert Alert Alert	Yes	5	Yes	Yes	Yes	Heavy**	County Computer-Report Processing	KIHP* Topeka Police Dept.* County Fire County Ambulance Kansas Turnpike Authority*	KIHP Topeka Police Dept. County Fire County Ambulance Weather Bureau CD
Wyandotte County Sheriff	189	60	Yes	Banner Springs Police Dept. Edwardsville Police Dept. County Park Rangers	No	P	Yes	Yes	Disp.	Yes	4	Yes	Yes	No	Heavy	None	Bonner Springs Police Dept.* Edwardsville Police Dept.* Kansas City Police Dept. KHP* CD Kansas City Kansas Police Dept.*	KHP Kansas City Police Dept. CD

P = Planned
 PT = Part-time
 * = Cross Monitoring Only
 ** = ALERT II Only

Table 3-4(4)

AGENCY	PUBLIC ACCESS			COMMAND AND CONTROL SUPPORT				DATA SYSTEMS ACCESS				INTERAGENCY COORDINATION						
	Population Served (Thousands)	Number of Sworn Officers	24-Hour Capability	Other Agencies Served	911	Monitor CB Radio	Record Telephone	24-Hour Capability	Function Performed For Other Agencies Served	Sworn Dispatchers	Number of Dispatchers	Record Radio Traffic	ASTRA	ALERT II	Usage	Other Data System Interfaces	Radio (Transmit/Receive Capability)	Telephone Hotline
Riley County Consolidated Police Dept.	57	67	Yes	Pottawatomie Co. Sheriff Riley County Fire Dept. Ogden City Fire Dept. Riley City Fire Dept. Riley County Ambulance Manhattan Fire Dept. Clay County Sheriff	Yes	PT	Yes	Yes	Disp. Disp. Disp. Disp. Alert Alert Alert	Yes	8	Yes	Yes	No	Moderate	None	All agencies dispatched	Manhattan Fire Dept. Riley County Fire Dept. Kansas State University
Salina Police Department	38	63	Yes	Salina Fire Dept. Salina Ambulance	Yes	Yes	Yes	Yes	Disp. Disp.	Yes	4	Yes	Yes	No	Moderate	None	Salina (2)	Salina County Sheriff KHP CD

P = Planned
 PT = Part-time
 * = Cross Monitoring Only
 ** = ALERT II Only

Table 3-4(5)

AGENCY	COMMAND AND CONTROL SUPPORT				INTERAGENCY COORDINATION			
	Dispatch	Tactical	Special Purpose P ₃	Data Transmission	39.46 - R1 ²	39.58/39.70 - R2	Other	Monitor
Atchison Police Department	155.010/ 158.970	None	None	None	No	No	None	39.46 39.58 154.355 155.940
Dodge City Police Department	154.980	None	None	None	Yes	Yes	155.115	None
Emporia Police Department	460.050/ 465.050	None	None	None	Yes	Yes	155.550 155.760	44.94
Independence Police Department	155.625	None	None	None	Yes	Yes	155.370 158.820	44.70 44.94 45.18 155.490
Lawrence Police Department	158.790 154.770	None	None	None	Yes	No	154.040 154.400 153.890 155.220 49.36	159.120

NOTE: All frequencies in MHz

¹ Frequency presentation format = transmit/receive frequencies at base.

² See Table 6-5 for definition of interagency coordination channels.

Table 3-5
 Command and Control Support and Interagency Frequency Usage Summary

AGENCY	COMMAND AND CONTROL SUPPORT				INTERAGENCY COORDINATION			
	Dispatch	Tactical	Special Purpose	Data Transmission	39.46 - R1 ²	39.58/39.70 - R2	Other	Monitor
Leavenworth Police Department	453.200/ 458.200 453.350/ 458.350	None	None	None	Yes	Yes	46.44 156.000	44.94 155.625 165.625
Lenexa Police Department	460.325/ 465.325	460.450	460.050	None	Yes	Yes	155.955	154.250 155.925 158.820 158.775 158.730 158.850
Olathe Police Department	453.825/ 458.825	None	453.900/ 458.900	None	No	No	453.450/ 458.450	44.94 155.760 158.775 158.850 154.250 460.325
Overland Park Police Department	158.850/ 158.970	158.850	None	None	Yes	No	158.775	154.250 155.760 155.850

NOTE: All frequencies in MHz

¹ Frequency presentation format = transmit/receive frequencies at base.

² See Table 6-5 for definition of interagency coordination channels.

Table 3-5(2)

AGENCY	COMMAND AND CONTROL SUPPORT				INTERAGENCY COORDINATION			
	Dispatch	Tactical	Special Purpose	Data Transmission	39.46 - R1 ²	39.58/39.70 - R2	Other	Monitor
Riley County Consolidated Police Department	39.58/ 39.70 154.875/ 158.970	None	None	None	Yes	Yes	None	None
Salina Police Department	460.025/ 465.025	460.025	460.175	None	Yes	Yes	155.040	None
Shawnee County Sheriff	39.58/ 39.70	None	None	None	Yes	Yes	None	44.82 44.98 460.250 460.350 460.400 460.475 158.910 159.120
Wyandotte County Sheriff	155.520	None	None	None	Yes	No	153.965. CD	153.770 154.190 155.190 155.370 155.430 155.610

NOTE: All frequencies in MHz

¹ Frequency presentation format = transmit/receive frequencies at base.

² See Table 6-5 for definition of interagency coordination channels.

Table 3-5(3)

by the Kansas Law Enforcement Telecommunications Coordinating Committee, were described individually. This section of Chapter 3 summarizes how each of the four law enforcement telecommunications system functions are performed for the remaining law enforcement agencies in the state.

3.5.1 Public Access

Public access to law enforcement agencies throughout Kansas is provided mainly by the public telephone system. CB radio is increasingly being used as an alternative means of public access, particularly in the western part of the state. Other means of public access are intrusion alarms, street call boxes, and walk-in complaints.

In populous areas, citizen access to law enforcement services is available on a 24-hour basis. However, in most of the less populated areas, 24-hour law enforcement service is unavailable. There are a few exceptions, however, such as counties with a large municipal county seat which can frequently support 24-hour law enforcement services. In addition, the KHP, through its seven division headquarters, provide fulltime citizen access for law enforcement service throughout Kansas, regardless of local availability.

The many telephone numbers published for police agencies across the state, in addition to the numerous telephone companies that provide telephone service in Kansas, create confusion for the public attempting to obtain access. Many telephone companies do not list the emergency number of a KHP headquarters because it is outside their telephone area. In certain rural areas, a call for law enforcement assistance will often be deferred if a toll charge is involved. The use of CB radio as a means of reliable public access is still being assessed. In many areas of Kansas a degree of organization has taken place among CB operators with some success.

3.5.2 Command and Control Support

County sheriffs' departments and KHP have jurisdictional responsibility outside incorporated city limits. Most agencies operate a dual-frequency VHF low-band simplex system for command and control of vehicles over extended geographic areas. The statewide sheriff's frequency, 39.58 MHz, is used for base-to-mobile and 39.70 MHz for mobile-to-base transmissions. The 39.46 MHz frequency is used for statewide point-to-point interagency coordination.

In general, each law enforcement agency dispatches its own mobiles. However, in some cases, the sheriff's department is dispatched by a municipal law enforcement agency. Also, large municipal law enforcement agencies frequently dispatch law enforcement personnel for less populated adjacent communities. Informal cooperative arrangements have been formed between agencies for emergencies and routine sharing of dispatching responsibility.

Radio channel loading for most law enforcement agencies is usually light, except in municipal areas. However, transmission problems frequently result from mutual interference among co-channel users.

Under emergency conditions, the KHP can provide a mobile communications command post for affected areas thus increasing the communications resources normally available to local law enforcement agencies. Similarly, most county Civil Defense emergency operating centers provide command post operations for all public safety organizations for the duration of an emergency.

3.5.3 Data Systems Access

In general, data systems access is accomplished through the ASTRA data system. By an act of the state legislature a county must have at least one ASTRA data terminal, usually at the sheriff's department. Some counties cannot conveniently access data systems during evening hours and weekends because the sheriff's departments are closed during these periods. As a minimum, law enforcement agencies with ASTRA terminals usually have access to KBI, NCIC, Kansas Division of Motor Vehicles (KDMV), and NLETS information data banks. In the eastern part of the state, many agencies subscribe to ALERT II in addition to the required ASTRA data system. ALERT II provides rapid access to criminal history files and specific data from MULES, Missouri DMV, NLETS, NCIC, and KDMV.

3.5.4 Interagency Coordination

Interagency coordination is accomplished mainly by cross-monitoring operational frequencies of adjacent police agencies. However, many mobiles of adjacent agencies are incapable of directly communicating with one another. Most municipal or county agencies cross-monitor regional KHP frequencies; agencies adjacent to the Kansas Turnpike also monitor the Turnpike Authority operational frequency. Agreements are of a long-standing, informal nature.

The Civil Defense Local Emergency Network provides a more formal means of interagency coordination in the form of multiple telephone loop circuits linking all public safety and emergency response agencies to local dispatch centers. These circuits sometimes parallel the county CD radio system. The circuits are frequently exercised and tested often by weather alerts.

Interstate coordination is achieved by cross-monitoring or cross-banding radio systems of law enforcement agencies that border Kansas.

3.6 Common Carrier

The state government of Kansas is served primarily by Southwestern Bell for most of its telecommunications needs. The various independent telephone companies throughout the state provide services at the local level when state facilities are located within their boundaries. The telecommunications facilities provided by common carriers are important to law enforcement functions because they can provide various optional communications alternatives for both voice and data service. The following paragraphs describe the state's communications facilities in terms of the KANS-A-N switching network, KANS-A-N Telpak network, 911 emergency service, and independent telephone companies.

3.6.1 KANS-A-N Switching Network

The Kansas common control switching arrangement (CCSA) network (KANS-A-N), a sophisticated private telephone network, links the state's communications facilities into a common net. The system has one CCSA switcher located in Topeka where a No. 1 ESS is utilized to provide the CCSA switching capability. All the state's facilities have access to the CCSA network either directly (on-net access) or indirectly (off-net access). On-net access is provided when sufficient traffic from a state facility justifies the dedicated circuit. Off-net access is used to accommodate the smaller state offices and those serviced by independent companies. Figures 3-4 and 3-5 show on-net and off-net access locations, respectively. Any telephone in the State not connected to the KANS-A-N system can be called using off-net access lines. In addition, the system provides call identification records for all calls to permit cost allocation among agencies. State law enforcement facilities can use the state switching network to access any of the other state facilities in the network, any off-net telephones in the state, or the WATS lines for interstate calling.

3.6.2 KANS-A-N Telpak Network

The transmission facilities used to interconnect on- and off-net access points of the KANS-A-N system are incorporated into the KANS-A-N Telpak network. This network concentrates circuits into large groups to take advantage of group Telpak rates. The network is shown in Figure 3-6. Also indicated on this illustration are intercity links (designated ICX) which require only a few circuits and are insufficient to justify Telpak A. Included in this network are leased circuits used for functions other than those performed by the KANS-A-N network such as data circuits, 911 trunking circuits, emergency medical services (EMS) circuits, radio leased lines, emergency tielines, etc. Law enforcement facilities need dedicated circuits of this type and, in most cases, the Telpak network is the most economical way to meet this need.

3.6.3 911 Emergency Service

Where regionalized 911 dispatch centers are planned, the common carrier switching equipment located within the region determines the sophistication of the 911 service provided. Since it is usually desirable to provide uniform 911 features within a region, the 911 features of the system are dependent on the capabilities of the oldest switching equipment serving the community. In areas of moderate population density, there is a greater likelihood that more modern switching equipment will be serving the community within the 911 region, resulting in greater availability of 911 features. Usually, in areas of sparse population, older, less sophisticated switching equipment prevails. Also, these areas are more likely to be served by independent telephone companies. For these reasons, 911 features are generally limited. Called party hold and emergency ringback are generally available when direct trunking to the dispatch center from the local switch serving the community is utilized. Usually, no costs other than direct trunk costs are associated with called party hold; however, additional costs are charged for emergency ringback and switchhook status features because of the additional equipment required. The newer 911 features such as automatic location identification and selective routing are dependent on the newest type of switching equipment available and currently are not being offered. If they do become available, significant additional cost will be involved.

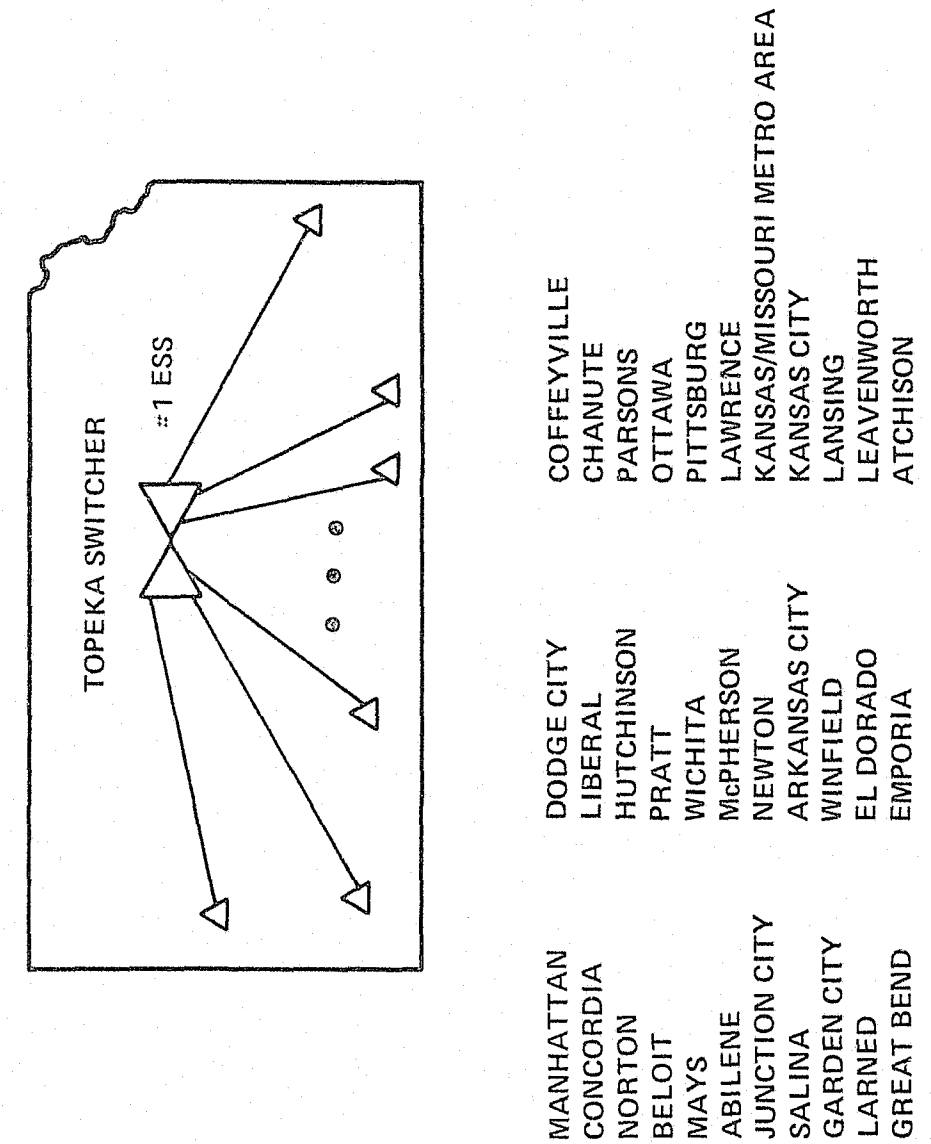
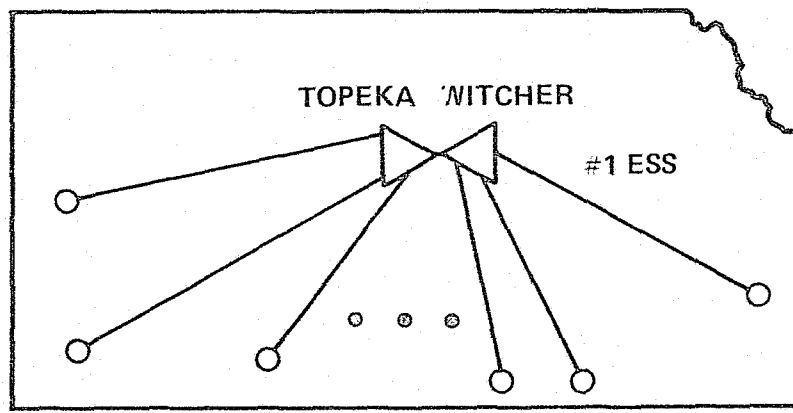


Figure 3-4
KANS-A-N Off-Net Access Locations



MANHATTAN
 CONCORDIA
 BELOIT
 NORTON
 HAYS
 ABILENE
 JUNCTION CITY
 SALINA
 GARDEN CITY
 LARNED
 GREAT BEND
 DODGE CITY

HUTCHINSON
 McPHERSON
 LIBERAL
 PRATT
 WICHITA
 TOPEKA
 WELLINGTON
 ARKANSAS CITY
 NEWTON
 EL DORADO
 WINFIELD
 INDEPENDENCE

COFFEYVILLE
 EMPORIA
 CHANUTE
 PARSONS
 OTTAWA
 PITTSBURG
 OSAWATOMIE
 OLATHE
 LAWRENCE
 KANSAS CITY
 LANSING
 LEAVENWORTH
 ATCHISON

Figure 3-5
 KANS-A-N Network Access Locations

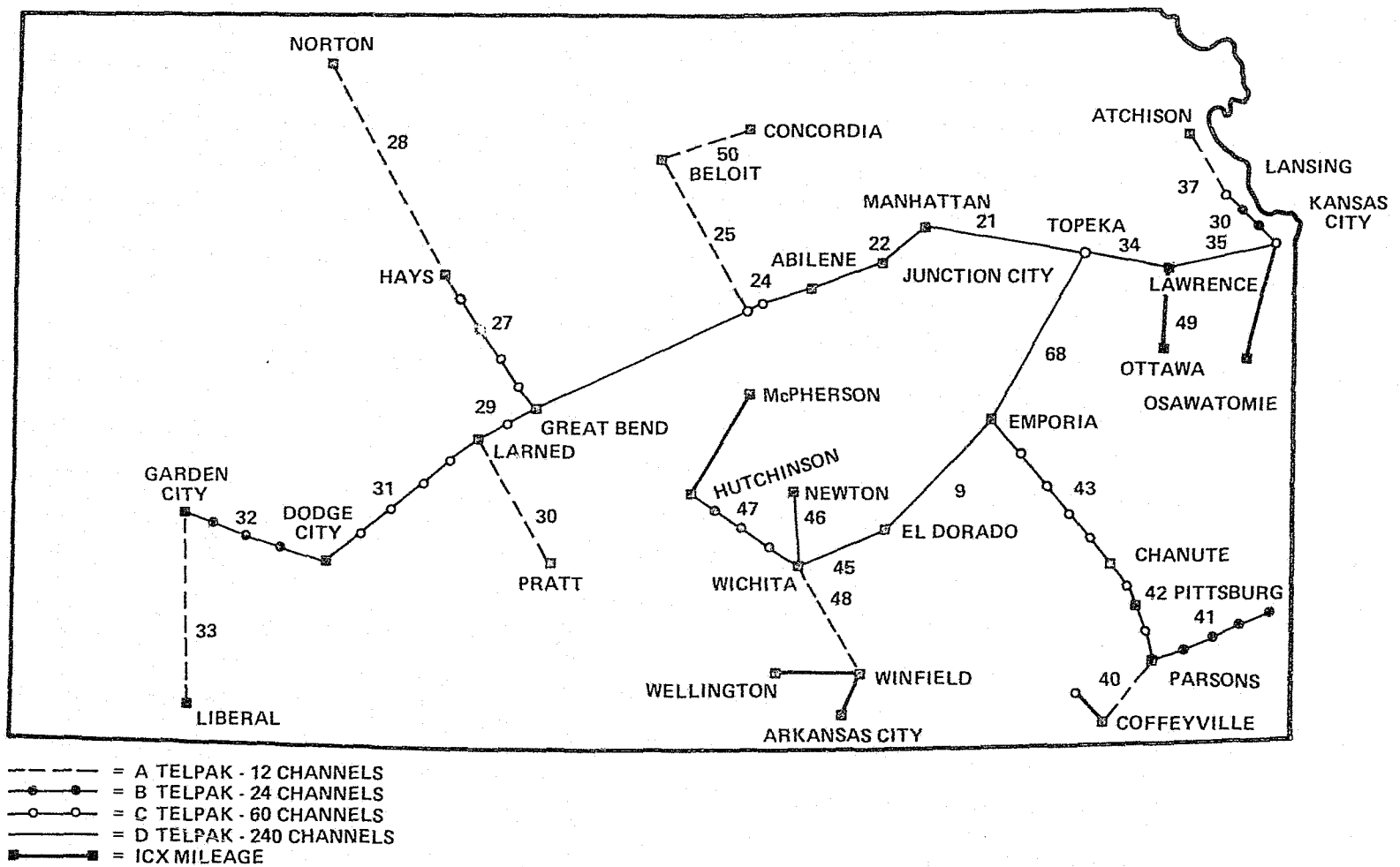


Figure 3-6
 KANS-A-N Telpak

3.6.4 Independent Telephone Companies

Forty-seven independent telephone companies, in addition to Southwestern Bell, serve Kansas. Most of these companies are small and serve areas of sparse population. The distribution of these 47 companies (by number of exchanges) is indicated below.

Number of Exchanges	Size Intervals				Total
	1	2-5	6-10	11 or more	
Independent Telcos	15	10	12	10	47

There are ten independent telephone companies that provide service through more than ten exchanges. Table 3-6 lists these ten companies and shows the number of exchanges and the general location served by the company. State law enforcement facilities must interface with the independent companies as well as Southwestern Bell to implement 911 systems in regions served by these common carriers.

3.7 Interconnect

Throughout the state, the Kansas state government has no interconnect¹ equipment providing switched communications service. All facilities and services are supplied by the state's common carriers. One county and two municipalities have purchased interconnect PBX equipment as an alternative to the Southwestern Bell offerings. The Johnson County Sheriff's Office in Olathe has purchased a 400-line PABX system which provides six central office lines multiplied on five consoles with pickup lines from the PBX for emergency dispatching. Mission and Overland Park (Court House) have purchased 200-line PABX systems; however, the law enforcement dispatch interface remains external to the interconnect equipment and is served by Southwestern Bell.

¹To connect privately-owned or leased components to a public network of a communications common carrier.

Table 3-6
Independent Telephone Companies
Having More Than Ten Exchanges

TELEPHONE COMPANY	NUMBER OF EXCHANGES	GENERAL LOCATION WITHIN STATE
Continental Telephone Co. of Kansas, Inc.	93	Throughout Mid and Eastern portion
United Telephone Co. of Kansas, Inc.	65	Throughout
Rural Telephone Service Co., Inc.	27	Northwest Area
Craw-Kan Telephone Cooperative Assn., Inc.	26	Southeast Corner
Golden Belt Telephone Assn., Inc.	15	Midwest Area
Pioneer Telephone Assn., Inc.	15	Southwest Corner
The Tri-County Telephone Assn., Inc.	13	Mid-Eastern Area
Southern Kansas Telephone Co., Inc.	13	South Central Area
Haviland Telephone Co., Inc.	12	South Central Area
J.B.N. Telephone Co., Inc.	12	Northeast Corner

CHAPTER 4 RELATED PLANS, PROGRAMS, AND SYSTEMS

This chapter defines related plans, programs, and systems affecting law enforcement telecommunications system planning in Kansas. Information described in this chapter provides a logical framework for coordination among programs with common objectives or where interfaces will occur with the implementation of the law enforcement telecommunications system concept defined in Chapter 6. Thorough definition of plans, programs, and systems related to law enforcement telecommunications will prevent duplication and allow for constructive interfaces among planning personnel of all agencies involved. Related plans, programs, and systems considered in this chapter include:

- o Law enforcement and criminal justice
- o Emergency medical
- o State and local civil preparedness and disaster
- o Fire
- o Other related state.

4.1 Law Enforcement and Criminal Justice

This section presents law enforcement and criminal justice agencies' related communications plans, programs, and systems of Kansas:

- o Adjacent states' communications plans
- o Courts, corrections, and prosecutors' offices.

4.1.1 Adjacent States' Communications Plans

Kansas is bordered by Nebraska, Missouri, Oklahoma, and Colorado. Each state has either developed or is developing a law enforcement telecommunications plan, as summarized in the following text.

Presently, Nebraska is primarily using VHF low band for law enforcement telecommunications and employs 39.90 MHz (sheriffs' frequency) as the statewide "mutual aid" frequency. Low band operational frequencies typically include all frequencies between 39.74 and 39.94 MHz inclusively, with the exception of 39.82 MHz. However, present plans recommend curtailing the current proliferation of small, independent law enforcement agencies which operate on VHF low band and evolving toward regional or cooperative law enforcement agencies which will employ VHF high band.

Most Missouri law enforcement agencies currently operate on VHF high band. Exceptions include a few municipal law enforcement agencies on VHF low band and the Missouri Highway Patrol which operates on 42-43 MHz. The Missouri Highway Patrol plans to convert to VHF high band. Missouri law enforcement agencies typically maintain three common frequencies:

- 155.475 MHz -- mutual aid
- 155.370 MHz -- interstate
- 155.730 MHz -- area net.

Other operational frequencies usually are clustered about these so a single radio can accommodate all frequencies.

The two major Missouri cities bordering Kansas are Kansas City and St. Joseph. Table 4-1 summarizes how these cities perform each of the four law enforcement telecommunications system functions, and Table 4-2 summarizes frequency usage. Because of their proximity to Kansas, significant interagency coordination exists particularly in the case of Kansas City, Missouri. Both cities participate in the ALERT II system which also services users on the eastern border of Kansas.

Oklahoma law enforcement agencies employ VHF high band except for several urban cities, which employ UHF. Oklahoma's law enforcement telecommunications plan recommends continued use of 155.490 MHz as the mutual aid frequency. Therefore, where operational requirements dictate, all interstate radio communications should occur over 155.490 MHz.

The area of Colorado bordering Kansas typically employs VHF high band systems which also include a capability on the statewide mutual aid frequency of 155.905 MHz. Colorado plans to evolve toward the nationwide mutual aid frequency of 155.475 MHz. Economic constraints and other priorities preclude immediate adoption of this frequency.

4.1.2 Courts, Corrections, and Prosecutors' Offices

Courts, and prosecutors' offices throughout Kansas do not use radio equipment for communications. Corrections institutions utilize an expanding communications system on VHF high band. These agencies require criminal justice data stored by the KBI which is processed by accessing the closest ASTRA terminal. Typically, each county's court and prosecutor's office accesses ASTRA through its own sheriff's department. Once criminal justice data is requested, the message is switched to KBI where a manual search begins. If a criminal history exists, a brief criminal justice overview is returned via ASTRA to the requesting agency. Afterwards, a complete criminal history sheet is mailed within 24 hours. Complete criminal justice histories are sent over ASTRA when the need is urgent. These services are available from KBI on a 24-hour basis.

Plans have been made to computerize criminal justice histories to ensure uniform reporting and rapid turnaround time for about 250 Kansas agencies.

4.2 Emergency Medical Services

This section discusses Kansas EMS activities affecting both law enforcement telecommunications planning and required interfaces with EMS systems. Included are Kansas EMS communications plan, and ambulance operations (related to law enforcement activities).

AGENCY	PUBLIC ACCESS		COMMAND AND CONTROL SUPPORT					DATA SYSTEMS ACCESS			INTERAGENCY COORDINATION				
	24-Hour Capability	Other Agencies Served	911	Monitor CB Radio	Record Telephone	24-Hour Capability	Function Performed For Other Agencies Served	Sworn Dispatchers	Number of Dispatchers	Record Radio Traffic	ASTRA	ALERT II	Usage	Other Data Interfaces	Radio (Transmit/Receive Capability)
Kansas City, Missouri Police Dept.	Yes	None	No	Yes	Yes	Yes	None	48	Yes	No	Yes	Heavy	Municipal computer-batch reports	Leawood, Kansas Police Dept., Liberty, Missouri Police Dept., Clay Co., Sheriff Jackson Co., Police Dept., Missouri Highway Patrol	Kansas City, Missouri Fire Dept., Missouri Highway Patrol
St. Joseph, Missouri Police Dept.	Yes	Buchanan County Sheriff, St. Joseph Fire Dept., St. Joseph Ambulance	Yes	Yes	Yes	Disp.	No	9	Yes	No	Yes	Moderate	MILES	Missouri Highway Patrol, St. Joseph Fire Dept., St. Joseph Ambulance	Missouri Highway Patrol

Table 4-1
Kansas City/St. Joseph Telecommunications Functions

AGENCY	COMMAND AND CONTROL SUPPORT				INTERAGENCY COORDINATION			
	Dispatch	Tactical	Special Purpose	Data Transmission	39.46 - R1 ²	39.58/39.70 - R2	Other	Monitor
Kansas City, Missouri Police Department	154.710 154.740 154.860 156.090	155.850	None	462.950/ 467.950	No	No	155.370 155.640	42.06 155.190 155.430 155.610 155.340 162.400
St. Joseph, Missouri Police Department	460.150 ¹ / 465.150 460.200/ 465.200 460.225/ 465.225 154.755 155.370 155.730		460.600	462.975/ 467.975	No	No	39.10	39.58 42.06 162.400

NOTE: All frequencies in MHz.

¹ Frequency presentation format = transmit/receive frequencies at base.

² See Table 6-5 for definition of interagency coordination channels.

Table 4-2
Frequency Usage

4.2.1 Kansas EMS Communications Plan

The preliminary plan for a statewide coordinated EMS communications system has been prepared by Kansas State University. The plan identifies the need for the establishment of regional Medical Resource Coordination Centers (MRCC) strategically located throughout Kansas and served by a common Enterprise number. The use of an Enterprise number has the advantages of rapid implementation, single-number access statewide, compatibility with 911 systems, and the ability to be gradually phased out and replaced by 911. An Enterprise call is conducted through the following steps:

- o Caller dials "0"
- o Caller asks for Enterprise number
- o Operator dials Enterprise number connecting caller with local EMS access point.

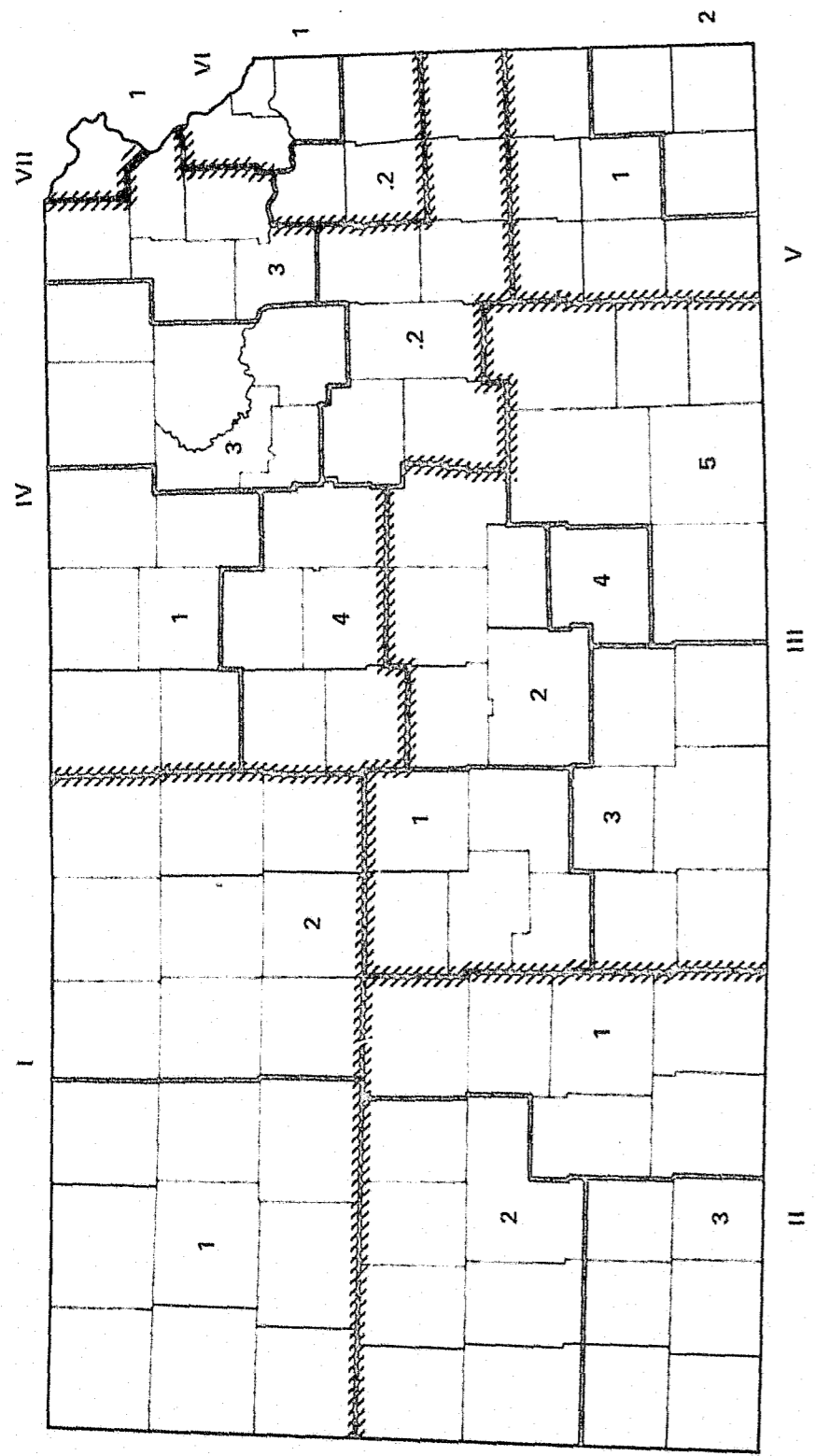
An Enterprise call is considered a collect call.

The recommended MRCC plan, defined by Kansas State University, is shown in Figure 4-1. The plan divides Kansas into seven EMS regions. The four regions in western Kansas have medical control points within Kansas; the three eastern regions are actually western extensions of Missouri EMS regions. Six of the regions are further broken down into two or more EMS districts, each of which contains one MRCC. Each MRCC has a land area less than 10,000 square miles and a population less than 200,000.

MRCC responsibilities are to:

- o Receive calls for emergency medical assistance from a 911 center (probably law enforcement) or via an Enterprise number
- o Determine the most appropriate ambulance company that should respond (which may or may not be hospital based)
- o Contact the ambulance by radio and/or telephone
- o Dispatch the ambulance
- o Coordinate emergency medical team and hospital resources
- o Provide links between emergency medical team and hospital medical consultation (medical control)
- o Contact the appropriate hospital
- o Provide the hospital with preliminary data on the patient.

Additionally, the MRCC is responsible for handling coordination with other emergency agencies and MRCCs of adjacent districts, when necessary.



EMS REGIONAL AND SUBREGIONAL (DISTRICT) BOUNDARIES WITH MEDICAL RESOURCE COORDINATION CENTER (MRCC) LOCATIONS AND POTENTIAL LOCATIONS FOR MEDICAL CONTROL POINTS (MCP).

Figure 4-1
Kansas State University MRCC Plan

UHF radio will be employed for radio communications because:

- o Service is reserved for EMS use (interference with other users is not a problem)
- o Channels are available
- o Telemetry of biomedical data is permitted only on UHF.

The Kansas State University plan does not clearly recommend a specific interface with law enforcement and other public safety agencies. However, the plan does recommend that an MRCC perform the functions of both medical control and dispatch. Currently, complaint reception and initial ambulance dispatch are performed by law enforcement agencies while the medical control function will eventually be performed by MRCCs. For effective public safety operation, the law enforcement and EMS dispatch centers should be colocated or an acceptable interface established between dispatch centers and respective MRCCs. Regardless, since 90 percent of all citizen access emergency calls are for law enforcement, 911 dispatch centers will most likely be staffed by law enforcement personnel. The projected 911 dispatch arrangement defined in the Kansas SCLEP-TEL (see Chapter 6) is at variance with that proposed in the state's EMS plan.

4.2.2 Ambulance Operations

Kansas ambulance agencies are generally independent companies dispatched by law enforcement agencies (or, in a few cases, a fire dispatcher). Medical control information normally is unavailable during operations. In areas without 911 telephone service, frequently the ambulance emergency telephone number terminates at the local law enforcement agency.

Once a complaint is received and the appropriate response determined, ambulance personnel are contacted by various means, including:

- o Telephone
- o Pocket pager
- o Mobile radio.

Kansas ambulances maintain communications with their dispatcher using VHF low band, VHF high band, or UHF radios. No one frequency is dominant in Kansas, and a trend toward UHF is not apparent. However, in those urban areas where funds permit, there appears to be a trend toward UHF radio to take advantage of the inherent capability of equipment in this band to transmit biotelemetry data.

Few ambulance operators maintain communications with neighboring hospitals. Law enforcement agencies sometimes provide an interface between ambulances and hospitals, with few ambulances equipped for direct communications.

4.3 Civil Preparedness and Disaster

The Kansas State Civil Defense Office provides an emergency communications system based in the Emergency Operating Center (EOC), State Office Building, Topeka. The Center is manned 24 hours per day.

All requests for assistance come to the EOC through either the KHP or Sheriff's Department via telephone or teletype. Additionally, a volunteer amateur radio station is maintained in the EOC to provide emergency backup communications capability. Once a call is received and a response is warranted, an alert is made to any one or all of the 39 state warning points which are interconnected by telephone or teletype. Teletype terminals include both models 28 ASR and 33 ASR. IBM 3767 CRT terminals are planned as replacements.

4.4 Fire Agencies

Kansas fire agencies generally are small and independent, and are staffed by part-time volunteer firefighters. Most rural counties require several fire agencies to obtain full county coverage with each fire company assigned a specific area of primary responsibility.

Public access to fire agencies is usually accomplished by telephone, usually through a fire-only telephone number or 911. For this reason, most rural fire agencies are alerted and/or dispatched by local law enforcement agencies. However, in metropolitan and urban areas, a fulltime fire dispatcher normally is employed to perform complaint operator and dispatch functions. Dedicated land lines and/or cross-monitoring procedures are used for interagency coordination between fire dispatchers and municipal law enforcement agencies.

The majority of Kansas fire agencies employ VHF high band radios formerly used by their local government. As a result, local law enforcement agencies often dispatch fire agencies on a dispatch frequency that is no longer used for law enforcement.

4.5 Other Related Factors

Other related factors impacting law enforcement telecommunications planning are the legislative ruling on the use of the state Kansas Agency Network (KANS-A-N) and current policies in effect at the police training academies.

4.5.1 KANS-A-N Legislative Ruling

KANS-A-N is a statewide, leased, private, long-distance telecommunications network providing service for most state government offices located throughout Kansas. The cost is less per call than that available from other tariffed services. KANS-A-N is employed for official state long-distance business calls only. Personal calls are not authorized.

Current law prohibits this network from being used by non-state agencies precluding the availability of its low cost per call to large law enforcement agencies with a high volume of long-distance calls. A change in this policy can be achieved in two ways: through either corrective legislation, or an administrative mandate issued by the Secretary of Administration. The tariff structure in Kansas permits non-state agencies to use KANS-A-N and only a modification in policy is required to allow access by county or local law enforcement agencies.

4.5.2 Police Training Academies

Currently, Kansas law prohibits non-sworn law enforcement personnel from attending any police training academy in the state. A key element of the state system concept defined in Chapter 6 is the provision of uniform training statewide for police dispatchers. Law enforcement agencies in Kansas frequently employ civilians as dispatchers who are restricted from any state training academy. Therefore, a change in this policy would be required to permit non-sworn dispatch personnel to attend specialized dispatcher courses conducted at Kansas police training academies.

CHAPTER 5 LAW ENFORCEMENT TELECOMMUNICATIONS PROBLEM ANALYSIS

This chapter of the Kansas SCLEP-TEL presents the analysis of problems addressed as part of the development of the state system concept defined in Chapter 6. Included is an assessment of the:

- Deficiencies in existing law enforcement telecommunications capabilities
- Difficulties likely to be encountered in the achievement of law enforcement telecommunications system objectives.

The remainder of Chapter 5 analyzes problems in each of the four law enforcement telecommunications functional areas.

5.1 Public Access

Key public access problems currently facing Kansas include:

- Lack of 24-hour access capability
- Lack of public access flexibility
- 911 implementation obstacles.

These three problems are discussed individually in the following subsections.

5.1.1 Lack of 24-Hour Access Capability

Law enforcement telecommunications system objective 2.1.1(1) is:

To provide convenient and effective methods by which all persons in Kansas, regardless of their location, can access a law enforcement complaint operator on a 24-hour basis.

Currently, only a few counties (such as Johnson, Wyandotte, Shawnee, Sedgwick, Riley, and Saline) provide countywide 24-hour service. The remaining counties are of two types.

In the first type, 24-hour public access is available at one or more locations in the county, but not everywhere within the county. In these instances, law enforcement telecommunications system objective 2.1.1(1) could be achieved through one of the agencies providing 24-hour service to other agencies that do not have this capability. The baseline of this approach is the establishment of a cooperative organizational arrangement satisfactory to all participating agencies.

In the second type, 24-hour service does not exist anywhere within the county. This situation significantly hampers the achievement of law enforcement telecommunications

system objective 2.1.1(1) since an agency that could provide 24-hour public access service to other law enforcement agencies in the county does not exist. The achievement of this objective would, therefore, require the establishment of a cooperative organization (at either the county or multicounty level) that is economical, agreeable to participating agencies, and provides the required 24-hour capability. Law enforcement agencies desiring to establish such a cooperative organization often find that agreement on the most appropriate type of management approach is difficult to establish. Successful achievement of law enforcement telecommunications system objective 2.1.1(1) in these instances will probably require technical planning assistance from the Kansas SPA to identify alternative approaches and reconcile differences among potential participating agencies. Counties of this type will represent the most significant obstacle in achieving 24-hour public access across the entire state, since much of Kansas is rural and falls into this category.

5.1.2 Lack of Public Access Flexibility

As discussed in Chapter 2 of the Kansas SCLEP-TEL, the rural nature of Kansas makes the exclusive use of telephone an unsatisfactory method for achieving public access. Except in metropolitan or highly populated areas, immediate telephone access often is unavailable to the Kansas citizen or transient. Therefore, to provide quick, convenient, and effective methods by which all persons in Kansas, regardless of their location, can access a law enforcement complaint operator on a 24-hour basis, requires the establishment of alternative means for public access.

A possible solution to this problem is the CB radio service for highway safety sponsored by the National Highway Traffic Safety Administration offering states and communities funding assistance to participate in their National Emergency Aid Radio (NEAR) Program. NEAR and other programs developed for monitoring CB radio emergency transmissions can provide for flexible public access where telephone service is unavailable.

Currently, however, personnel participating in these programs have no well-defined procedures for communicating public safety complaint requests for service to the appropriate law enforcement agency with jurisdictional responsibility. For this reason, the utilization in Kansas of CB radio to complement telephone service will require the establishment of specific operating procedures for personnel monitoring emergency CB channels to relate information to the proper law enforcement resources. Since Kansas law enforcement agencies have no direct authority over personnel participating in NEAR or other CB monitoring programs, the relationship would necessarily be cooperative.

5.1.3 911 Implementation Obstacles

A law enforcement telecommunications system objective defined in Chapter 2 is "to establish 911 systems where economical and practical." Currently, telephone switching hardware in Kansas permits implementation of 911 anywhere in the state. However, one of the most significant obstacles facing 911 system planners in Kansas will be the resolution of the incompatibility between jurisdictional and telephone exchange boundaries. Jurisdictional boundaries have evolved and changed continuously; their location is predominately based on political and geographic considerations. On the other hand, telephone exchange

boundaries are determined by population densities and the desire of the telephone company to minimize cost. Since telephone exchange boundaries are fairly permanent and are expensive to modify, 911 dispatching boundaries (which are, for the most part, confined to jurisdictional boundaries) cross exchange boundaries. ESSs serving the metropolitan areas of Wichita, Topeka, and Kansas City offer the potential for future resolution of the telephone exchange/geographic area mismatch problem through suitable reprogramming of switching computer software. However, providing 911 service for those areas not having advanced ESS equipment requires the establishment of cooperative public access arrangements, such as those previously described, to facilitate the employment of handoff procedures to resolve the mismatch problem.

Figure 5-1 illustrates this point. The figure shows four adjacent cooperative dispatch centers organized to provide 24-hour public access. As shown in the figure, since the telephone exchange boundary does not match the political boundary, in three areas the citizen dialing 911 would terminate his call at cooperative dispatch center A; in actuality, the law enforcement agency that should respond would eventually be dispatched from another center. This problem could be resolved procedurally by immediately transferring calls of this type from cooperative dispatch center A to that dispatch center having appropriate jurisdictional responsibility using established handoff procedures.

The employment of fragmented dispatch centers that do not maintain 24-hour service would render the handoff process somewhat ineffective. The organizational problems associated with realizing the 24-hour public access capability also represent significant obstacles to implementing a 911 capability within current telephone switching equipment constraints.

5.2 Command and Control Support

Key command and control support problems currently facing Kansas include the lack of:

- o 24-hour dispatch capability
- o Operational flexibility provided by current radio network configuration
- o Uniform dispatch methods.

These three problems are discussed individually in the following subsections.

5.2.1 Lack of 24-Hour Dispatch Capability

Law enforcement telecommunications system objective 2.1.2(1) is:

To provide continuous dispatching service for all Kansas law enforcement personnel on a 24-hour basis.

Problems associated with the achievement of this objective are directly related to those described previously in the establishment of a 24-hour public access capability. A

typical problem associated with the implementation of cooperative arrangement for providing 24-hour dispatch service is individual law enforcement agencies' fear of loss of autonomy.

One approach for resolving this problem is to differentiate between the two possible functions that could be performed by a cooperative dispatch center: dispatching and alerting. Dispatching implies command and control; that is, the center would select the actual vehicle that should respond to the request for service and provide direct command and control of all follow-on action required.

Alert is defined as the notification of the responding agency by various means (i.e., telephone, mobile radio, pocket paging, etc.), with command and control responsibility totally residing with the notified agency. As in the case of public access, the achievement of law enforcement telecommunications system objective 2.1.2(1) will require that participating agencies agree upon organizational relationships and procedures.

5.2.2 Lack of Radio Network Configuration Operational Flexibility

Law enforcement radio frequencies employed in Kansas include the VHF low and high and UHF bands. Most systems operating in these bands have evolved gradually with little provision for interfacing with adjacent systems. The interagency coordination problem created by the diverse frequency band usage in Kansas is discussed further in Section 5.4.

A primary radio network problem currently facing Kansas is the widespread use of the 39.58-MHz frequency for dispatch by most rural law enforcement agencies. Law enforcement agencies share this frequency with local government. Typically, a county sheriff, law enforcement agencies, and government personnel within the county simultaneously employ this frequency for dispatching and other purposes. The long-range propagation characteristics of low band result in frequent interference. Eventually, dispatch frequencies selected should be those dedicated by the FCC exclusively for law enforcement use.

5.2.3 Lack of Uniform Dispatch Methods

Currently, dispatch procedures employed by most Kansas law enforcement agencies are informal and vary considerably across the state. A primary obstacle in the establishment of cooperative command and control support arrangements is the lack of uniform dispatch procedures that would be acceptable to all participating agencies. The problem is further compounded because there is no single source of recommended procedures that could be adopted, except for established APCO training programs.

Implementation of uniform methods and procedures in Kansas may meet resistance, since personnel are already familiar with the current, informal procedures.

Implementation of law enforcement telecommunications system objective 2.2.2(1), "to establish a uniform training program for law enforcement telecommunicators," offers the potential for establishing well-defined procedures that could be adopted by professional dispatchers serving law enforcement agencies across Kansas. However, the diversity of

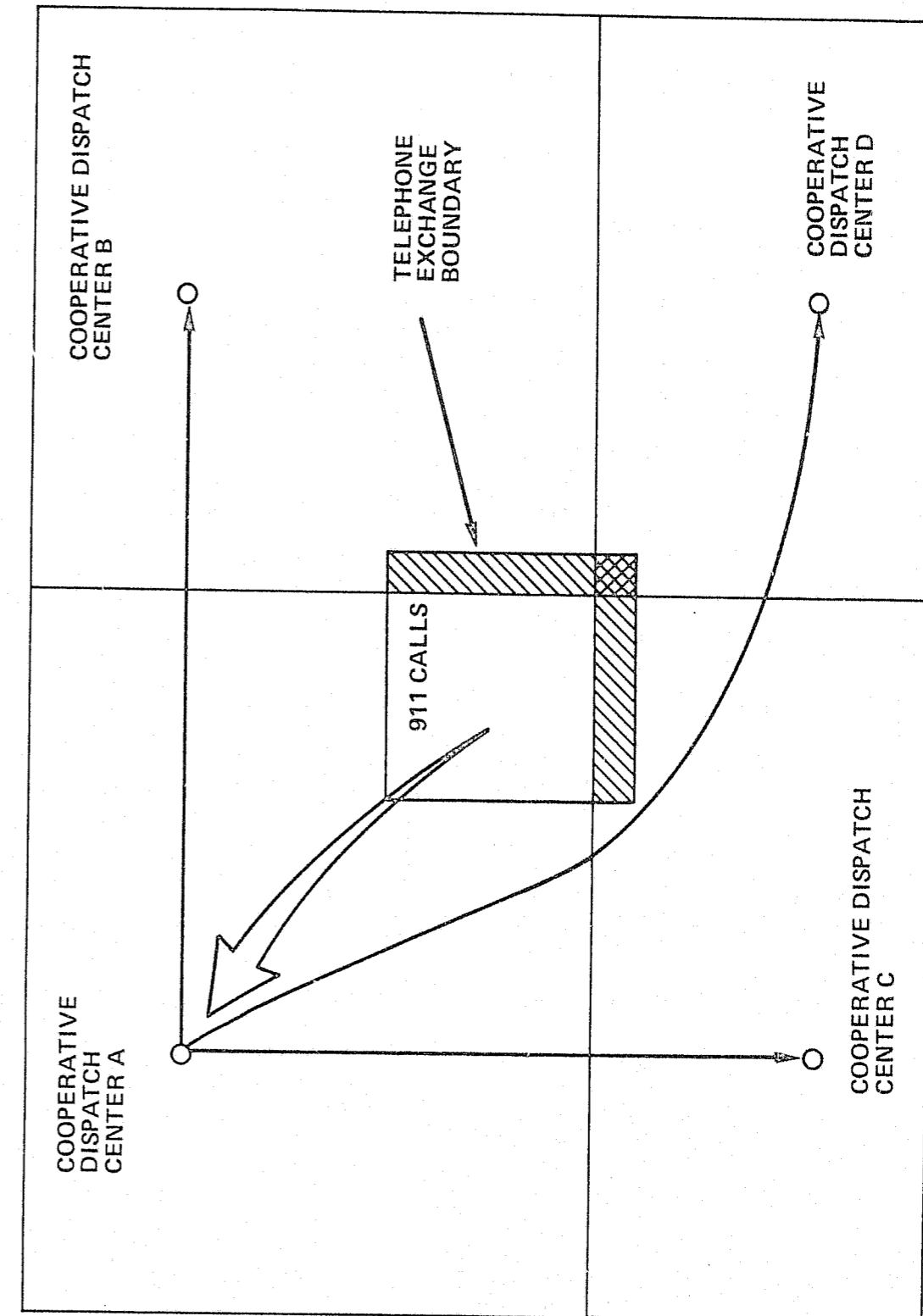


Figure 5-1
911 Handoff Example

training requirements across the state and the difficulty that individual law enforcement agencies would have in receiving training at a single location necessitate a more flexible approach. Individual training requirements of law enforcement agencies across the state, therefore, must first be defined, and then the most cost-effective approach for satisfying them developed. This would probably result in the establishment of several training centers and a varied curriculum to include extension courses.

5.3 Data Systems Access

Key problems that significantly affect the timely and effective access by Kansas law enforcement to state, national, and other data file systems are:

- o Unavailability of 24-hour data systems access capability
- o Inadequate data systems access capability for high-volume users.

5.3.1 Unavailability of 24-Hour Data Systems Access Capability

Presently, data systems access terminals are typically located in sheriffs' departments as directed by Boards of County Commissioners. The sheriffs' departments are frequently on duty only from 8:00 a.m. to 5:00 p.m., excluding weekends and holidays. This situation prevents data systems access during off-hours. Law enforcement agencies maintaining 24-hour operation must contact adjacent on-duty county law enforcement agencies or the regional KHP headquarters for data systems access during off-hours, which increases data systems access and response time.

Round-the-clock cooperative public access dispatch centers should have a continuous, online data systems access capability to state and national files. A potential problem in achieving law enforcement telecommunications system objectives 2.1.3(1) and 2.1.3(2) may be difficulty in relocating data systems access terminals to 24-hour centers under current Boards of County Commissioners' policies.

5.3.2 Inadequate Data Systems Access Capability for High-Volume Users

The ASTRA network utilizes Teletype Models 33 and 35 terminals to provide data systems access. Present operational procedures require that a user prepare a torn paper tape while the teletype is in an offline mode. The teletype is then set online and the tape message is transferred over ASTRA. While the tape is being prepared and then transmitted, the terminal is unavailable for other request/response messages. This is also true when the terminal is printing a response message. These preparation/transmission/reception delays cause a bottleneck for high-volume users, and result in inefficient utilization of law enforcement personnel and excessive response times to data systems inquiries.

5.4 Interagency Coordination

Key interagency coordination problems currently exist in the following areas:

- o Current frequency usage
- o Interstate coordination methods
- o Public safety coordination.

These three problem areas are discussed individually in the following subsections.

5.4.1 Current Frequency Usage

As discussed in Section 5.2, Kansas law enforcement agencies currently operate on VHF high and low band and UHF. This diversity of frequency usage directly affects the ability to realize the following interagency coordination law enforcement telecommunications system objectives:

- o Law enforcement telecommunications system objective 2.1.4(1) -- "to allow any law enforcement officer in the State of Kansas to communicate with any other law enforcement officer consistent with procedures established"
- o Law enforcement telecommunications system objective 2.1.4(2) -- "to provide communications interfaces among all law enforcement agencies in the state."

The achievement of these law enforcement telecommunications system objectives will either require the adoption of a common statewide frequency (necessitating the procurement of a second radio in the vehicle for those law enforcement agencies operating in other bands) or the development of methods for interfacing law enforcement agencies employing radio communications equipment that operates in different bands. Candidates for a statewide emergency frequency are 39.58 MHz, and the APCO-endorsed national emergency frequency of 155.475 MHz recently approved by the FCC. Utilizing 39.58 MHz would require that cities on VHF high band and UHF cross-band at 24-hour dispatch centers to achieve the required coordination capability. In addition, 39.58 MHz is not dedicated for law enforcement use, but must be shared with local government. Utilization of the frequency 155.475 MHz could be incorporated into the existing equipment of those cities and counties in southeast Kansas using VHF high band. However, this approach would probably require the incorporation of a second radio for most rural areas.

5.4.2 Interstate Coordination Methods

Current methods employed for achieving interstate coordination are mainly informal, based upon personal relationships. Effective interstate law enforcement coordination cannot be achieved without the provision of more effective methods that allow point-to-point communications among key law enforcement agency dispatch centers and point-to-mobile communications as appropriate. Presently, law enforcement telecommunications systems of surrounding states operate on high band (except for Nebraska, which is planning to evolve towards this band in the future). Provisions must therefore be made for providing interstate law enforcement agency communications between Kansas metropolitan areas operating on UHF, and rural law enforcement agencies operating on VHF low band.

5.4.3 Public Safety Coordination

EMS communications plans under development call for the establishment of multicounty regional coordination centers to provide EMS communications capability. It is important that Kansas law enforcement and EMS planners differentiate between the EMS communications functions of dispatch and medical control. Dispatch communications is associated with providing administrative control of a vehicle, such as verifying the location of an incident and defining the appropriate entry hospital. Through HEW funding, emergency medical technicians (EMT) attending to patients are receiving increased training that permits their administering treatments (such as cardiopulmonary resuscitation) under the direct supervision of a physician. Voice and telemetry communications between EMTs and physicians who may not be located at the destination hospital is termed medical control.

EMS medical control communications networks can be organized independently from those employed for dispatching since, in many cases, separate radio equipment is employed. Dispatch equipment is normally that utilized by the agency to which the ambulance is attached (fire, police, etc.). The trend in medical control communications is toward the employment of UHF equipment based upon HEW and FCC guidelines to permit the eventual evolution toward telemetry.

The utilization of 911 for public access necessitates effective interfaces between law enforcement, EMS, and fire dispatchers for proper operation. Ideally, complaint reception and dispatch personnel should be colocated to permit coordination of response when required.

The incompatibility between the organization of law enforcement and EMS dispatch communications should be resolved through coordinated planning to preclude future reduced effectiveness.

CHAPTER 6 KANSAS LAW ENFORCEMENT TELECOMMUNICATIONS STATE SYSTEM CONCEPT

This chapter of the Kansas SCLEP-TEL presents the law enforcement telecommunications state system concept for achieving the law enforcement telecommunications system objectives defined in Chapter 2 and resolving the problems identified in Chapter 5. The state system concept represents the Kansas law enforcement telecommunications system toward which the state's law enforcement agency telecommunications systems should evolve. The contents of this chapter, along with law enforcement telecommunications priorities and budget allocations established by the Kansas SPA defined in Chapters 7 and 8 will represent the basis for approval of grant requests from individual law enforcement agencies. In addition, since the state system concept has been defined to resolve current law enforcement telecommunications deficiencies, it should represent a valuable guide to law enforcement telecommunications planning personnel, even if contemplated system developments will not involve LEAA funding.

The first step in developing the state system concept was the identification of alternative approaches for satisfying system objectives and resulting deficiencies considering existing law enforcement telecommunications systems and available resources defined in Chapter 3, and related plans, programs, and systems presented in Chapter 4. Those alternatives representing the most cost-effective solutions were selected considering all law enforcement agencies as a whole across the state. Modifications to existing systems and procedures were only defined in the state system concept when necessary to achieve a specific approved system objective. The state system concept reflects the current situation in Kansas, and the situation projected for an approximate 10- to 15-year period based upon available information. In this regard, the ideas presented in this chapter should evolve based on new, more recent information which may change original assumptions.

The primary elements of the state system concept to be implemented by this plan include:

- o Cooperative dispatch centers (CDC) will be established to provide 24-hour public access and dispatch service where it is currently unavailable.
- o All dispatch centers will be staffed by personnel who have received training that meets an established minimum standard.
- o Wherever appropriate, dispatch centers will provide related public safety services.
- o Public access to dispatch centers will occur using the universal emergency number, 911, where possible.
- o Mobile communications networks employing VHF low and high band and UHF will be configured and/or expanded as needed to provide statewide interagency coordination capabilities required by operational considerations.
- o Dispatch centers will be afforded a 24-hour data systems access capability to state and national law enforcement data files.

- o CB radio will be employed for public access in those areas where the telephone alone is unsatisfactory.

The remainder of this chapter details these elements of the state system concept. Section 6.1 presents functional concepts for achieving system objectives defined in Chapter 2 of the SCLEP-TEL in the four law enforcement telecommunications functional areas (public access, command and control support, data systems access, interagency coordination). Section 6.2 presents minimum capabilities for law enforcement telecommunications system elements (radio networks, dedicated wire networks, dispatch center information processing, terminal equipment, and law enforcement telecommunications personnel) necessary for realizing functional concepts presented in Section 6.1. Finally, Section 6.3 presents plans that need to be formulated for satisfying law enforcement telecommunications requirements common to all law enforcement agencies in the state.

6.1 Functional System Concepts

This subsection presents preferred functional concepts and alternatives for achieving law enforcement system objectives. Individual law enforcement agencies should review these concepts to determine those that are applicable and appropriate to their individual needs.

6.1.1 Public Access Interface

Minimum law enforcement telecommunications public access capabilities should include the:

- o Establishment of CDCs throughout Kansas, to the county level as a minimum, to provide 24-hour public access where it is currently unavailable.
- o Utilization of CB radio to provide flexible and convenient methods for a citizen requiring service to access a law enforcement complaint operator.
- o Establishment of 911 where economical and required coordination capabilities permit.

The functional concepts for achieving each of these capabilities are individually discussed in the following paragraphs.

(1) Establish CDCs That Provide 24-Hour Public Access Where It Is Currently Unavailable

Law enforcement telecommunications system objective 2.1.1(1) is:

To provide convenient and effective methods by which all persons in Kansas, regardless of their location, can access a law enforcement complaint operator on a 24-hour basis.

As discussed in Chapter 5, currently, only a few counties in Kansas provide 24-hour service countywide. Those counties already providing 24-hour public access countywide satisfy law enforcement telecommunications system objective 2.1.1(1) and will, therefore, remain unchanged.

The remaining counties can be divided into two types:

- o Type 1 - 24-hour public access service is available at one or more locations in the county, but not countywide.
- o Type 2 - 24-hour public access service is unavailable throughout the county.

These counties should establish a CDC using cooperative arrangements acceptable to participating agencies. The CDC should serve at least an entire county and provide 24-hour public access capability. For economic reasons, where possible, an existing law enforcement agency that provides 24-hour service should serve as the CDC for those agencies that do not.

Public access to the CDC serving the county will occur using a single, seven-digit number or 911. Although 911 is technically feasible throughout Kansas, its practicality is a function of several factors described later in this section. However, implementation of a single, seven-digit number will assist the citizen in obtaining access to a law enforcement complaint operator by significantly decreasing the many law enforcement emergency telephone numbers currently employed throughout Kansas.

After receiving complaint information from a citizen accessing the CDC, one of two functions is performed:

- o Dispatch - if the CDC is a law enforcement agency that currently has command and control responsibility for its own agency, the CDC will dispatch those vehicles directly under its control plus those of other agencies in the county (or more than one county if appropriate) that have arranged to be dispatched by the CDC.
- o Alert - for all other agencies located within the county (multicounty), it will alert on-duty personnel through various means and provide all information obtained from the citizen, plus any additional data available at the CDC relevant to the incident. In this case, alert implies only notification with the responsibility for command and control residing totally with the notified agency.

An important aspect in the establishment of CDCs on a countywide basis is to ensure that personnel providing public access service at the center have been afforded adequate training. Since these personnel will be interfacing with multiple agencies, efficient operation depends on standard procedures that are acceptable to all concerned. In addition, operating personnel must be able to identify which agency is responsible for particular geographic areas. Therefore, personnel must have accessible, complete data that specifically defines agency areas of responsibility.

People requiring immediate assistance are often confused and unaware of their specific location. Therefore, a means for defining geographic information and all streets served by each agency should eventually be prepared as agencies join the cooperative system. In addition, for some CDCs, the use of a rear screen projection system may be appropriate to provide immediate access to detailed street maps; locations of hydrants, buildings, and plants; and other necessary public safety data. The conversion to the cooperative countywide system can be incremental as the required data is developed and CDC personnel training completed.

To ensure the accurate recording of complaint information, magnetic recordings should be made of all telephone line inputs to the CDC along with radio responses when the CDC performs a dispatch and/or alert function. CDCs will utilize appropriate equipment for recording of all input lines and all radio channels.

Figure 6-1 illustrates an example of the preferred cooperative CDC arrangement where one or more law enforcement agencies in a county provide 24-hour service. In this example, agencies A and B maintain 24-hour public access and dispatch capabilities for their jurisdictions, but the remaining agencies do not. Through coordination, law enforcement agencies not maintaining 24-hour service request that law enforcement agency B provide a countywide public access alert service using a cooperative arrangement. Law enforcement agency A serves a metropolitan area with unique requirements; it therefore continues to provide its own 24-hour public access capability. It is important to note that law enforcement agency B need not necessarily dispatch the resources of law enforcement agencies, C, D, E, and F to satisfy law enforcement telecommunications system objective 2.1.1(1), but only alert them regarding the location and nature of the service request. The responsibility for appropriate follow-up action and response is left totally to the appropriate law enforcement agency. A dedicated tieline or other means should be employed under this arrangement between law enforcement agency A and B to facilitate coordination and to efficiently handle misdirected calls.

Utilizing the approach shown in Figure 6-1, a citizen requesting service, regardless of location (except in that area served by law enforcement agency A) would dial a single seven-digit number or 911 to reach the complaint operator at law enforcement agency B. The complaint operator would record relevant information which would then be relayed to the appropriate law enforcement agency using established methods and procedures. In some cases, the public telephone can be employed to communicate with "on-call" personnel using a duty roster provided to law enforcement agency B by each agency served. In other instances, electronic methods such as a pocket pager can be used where the telephone is inappropriate. It is important to note that agency B only provides a public access service function for other agencies; the other agencies totally control their own resources.

When countywide 24-hour service is unavailable (including those cases where an existing 24-hour operation in the county, for whatever reason, cannot provide a service function to remaining agencies), establishment of a CDC will be more difficult.

In these instances, economic considerations usually preclude any single law enforcement agency from maintaining 24-hour service. The preferred approach for achieving

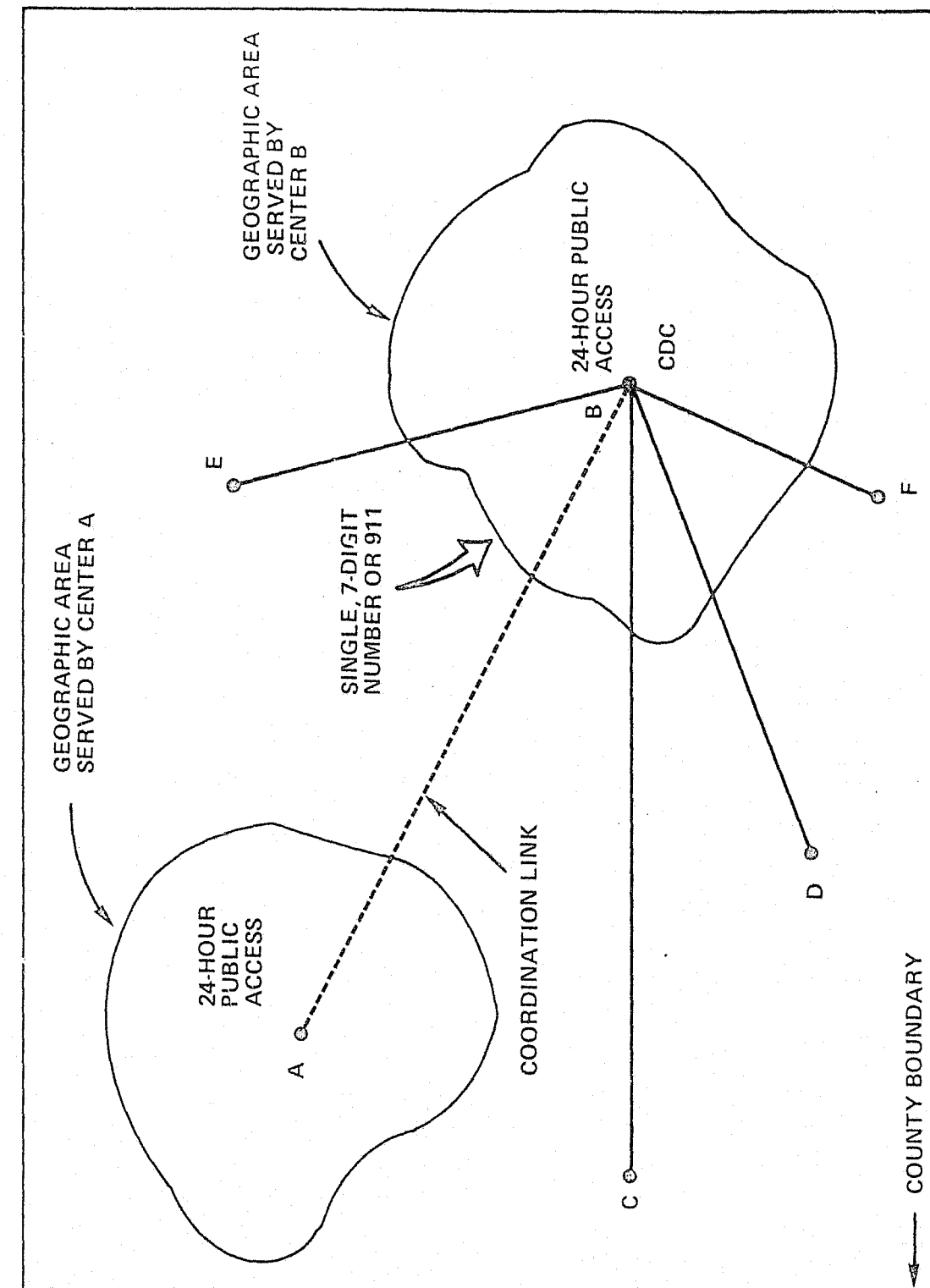


Figure 6-1
CDC Configuration Using an Existing 24-Hour Dispatch Center

law enforcement telecommunications system objective 2.1.1(1) is for a sufficiently large number of law enforcement agencies (perhaps a multicounty arrangement) to pool their resources into a cooperative arrangement that permits 24-hour service. The first approach is for individual law enforcement agencies to provide staff to a cooperative CDC facility according to some agreed upon schedule. When geographic considerations prevent this, the second approach is for individual municipalities to partially fund an independent civilian organization that provides public access and alert capability for participating law enforcement agencies. Implementation of this second approach requires the cooperation of a sufficient number of law enforcement agencies (county or multicounty) to make 24-hour public access economical and feasible. The third approach is for a law enforcement agency close to the county maintaining 24-hour service to provide public access using a foreign exchange line or other appropriate method. The cost of the line would be borne by law enforcement agencies served.

(2) Utilize CB Radio for Public Access to Complement Public Telephone

As discussed in Chapter 5, the major portion of Kansas is rural and, except in metropolitan or highly populated areas, immediate telephone service is unavailable to a citizen requiring service. Therefore, to complement available telephone service, the NEAR Program (currently being sponsored by the National Highway Traffic Safety Administration) and other CB radio monitoring programs should be employed to provide additional public access capability. The current increase in the use of CB radio by citizens throughout the United States makes this approach particularly desirable.

CDCs providing countywide service and other dispatch centers should contact NEAR or other CB organizations within their county to define specific procedures by which citizens monitoring CB emergency transmissions will relay citizen requests for service to the CDC. CDC personnel should develop a specific reporting form to be provided free of charge to citizens monitoring CB emergency transmissions. The form should be simple, but include all relevant information, such as:

- o Citizen's name
- o Nature of incident
- o Time and location of incident
- o Need for law enforcement, ambulance, or fire equipment.

After providing this information to the dispatch center, the CB monitor originally communicating with the citizen requesting service should maintain communications to obtain relevant follow-up information to be transmitted to the dispatch center, if appropriate. CB operators should not participate in resulting law enforcement actions unless specifically requested by the law enforcement agency alerted.

(3) The Establishment of 911 Where Economic and Required Coordination Capabilities Permit

Currently, the telephone hardware employed in Kansas described in Chapter 3 technically permits the establishment of 911 anywhere in the state. However, implementation of 911 systems that result in improved public access capabilities and are also economic and practical are a function of:

- o The degree to which dispatch centers providing 24-hour public access capability have been established
- o Staffing implications
- o Economic considerations.

As discussed in Chapter 5, 911 system implementation in Kansas will require either cooperative dispatching (i.e., handoff procedures) between jurisdictions or the addition of expensive equipment and/or modifications to selectively route calls to the appropriate areas. Currently, ESS equipment serving major municipalities in Kansas offers the only potential for resolving the problem electronically. However, even this equipment will require extensive software modifications. Therefore, the mismatch problem will need to be handled by cooperative dispatch methods. The establishment of CDCs providing 24-hour public access capability countywide (where it is currently unavailable) and dispatch or alert service will greatly facilitate the establishment of cooperative arrangements for realizing 911.

Both rural and metropolitan law enforcement agencies attempting to implement 911 have experienced a dramatic increase in the number of calls received, having significant staffing implications. For example, in the long run, New York City experienced a thirty-percent increase in the number of calls in a given month after implementing 911. Therefore, law enforcement agencies need to consider staffing associated with a potentially significant increase in complaint traffic prior to proceeding with 911 implementation.

A 911 system on a county or multicounty basis could involve long-distance trunking; associated costs with significant economic implications should be addressed prior to implementation. In Kansas, a dial-tone first capability will be unavailable in the majority of the state for some time, placing the financial burden of citizen access to the nearest telephone exchange on the citizen requesting service. However, the 911 systems planner should consider the economic impact of trunking costs from exchanges to the dispatch center.

Considering the above three factors, the following three conceptual public access approaches are appropriate for CDCs providing 24-hour countywide (or multicounty) service. Alternatives are termed:

- o Countywide seven-digit
- o Limited 911
- o Total 911.

As a minimum, citizens will access a CDC complaint operator using a single, seven-digit countywide number. A sufficient number of telephone exchanges will terminate at the CDC to include the entire county or multicounty area. In most cases, some telephone

exchange boundaries will overlap into adjacent jurisdictions. The telephone exchange/jurisdictional boundary mismatch problem should be resolved by publishing the law enforcement emergency number in one county and not in another. Figure 6-2 illustrates this approach. As shown in the figure, one of the telephone exchanges necessary to provide public access to County X overlaps into County Y. Accordingly, a citizen dialing the County X emergency number would access the County X dispatch center. However, as shown in the figure, the County X number is not published for County Y and, therefore, the public is unaware of its availability. In this way, utilization of a single, seven-digit emergency number throughout the county is possible without the need for handoffs between adjacent CDCs.

Figure 6-3 depicts two options for 911 implementation where it is economic and feasible as previously described. As discussed earlier, effective implementation of 911 where a telephone exchange/political boundary mismatch problem exists is resolved through the establishment of effective handoff procedures between adjacent CDCs where the mismatch occurs.

However, implementation of CDCs throughout Kansas will probably occur in an evolutionary manner. During this transitional period, CDCs could implement 911 in those areas of their jurisdiction where telephone exchanges included do not cross outside their area of responsibility. Option 1 depicted in Figure 6-3 indicates an implementation in an area totally contained within the jurisdictional boundary. A single, seven-digit number would then be employed for the remaining area. This approach should only be implemented when 911 capability will be provided to the majority of citizens with only a minimal seven-digit area. Using this method, it is important that all citizens in the county be properly educated regarding the availability of 911 service.

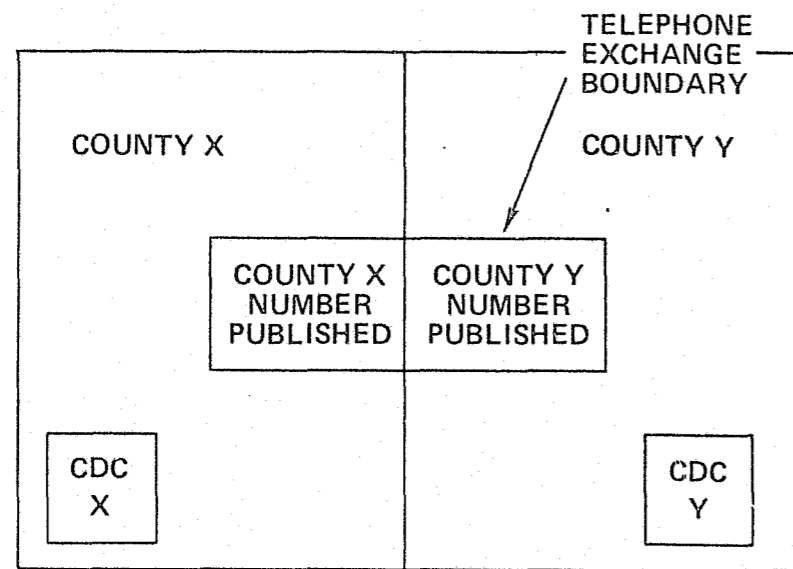
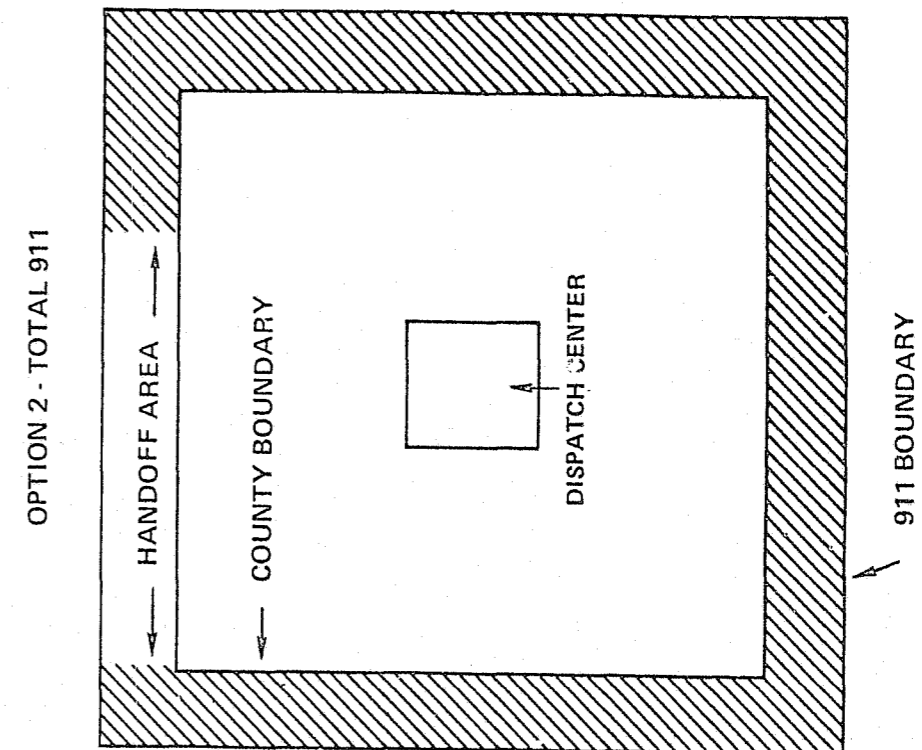


Figure 6-2
Public Access (Seven-Digit Number)



OPTION 1 - LIMITED 911

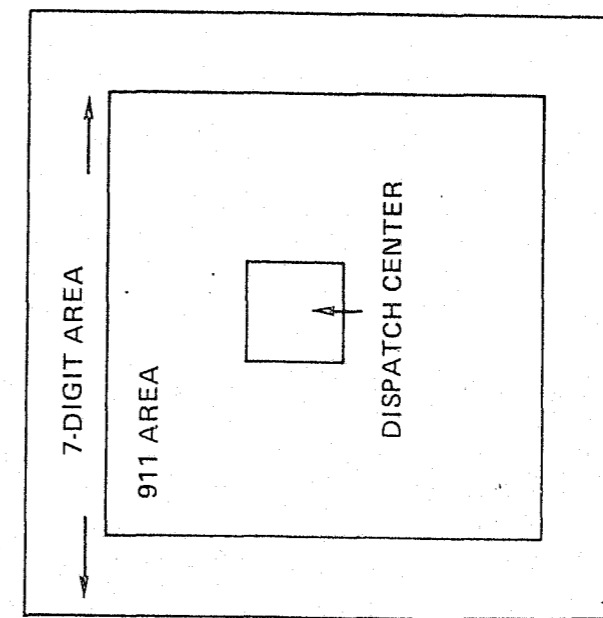


Figure 6-3
Public Access (911 Options)

As CDCs providing 24-hour service are established throughout the state, 911 can be implemented where economical and feasible through the use of cooperative handoff procedures among adjacent CDCs. Option 2 in Figure 6-3 indicates that provision of total 911 throughout the county results in a telephone exchange overlap into adjacent jurisdictions. Since citizens dialing 911 in this handoff area will access the inappropriate CDC, efficient and effective procedures must be established for handing off calls of this type to the appropriate CDC. The typical approach employed is the establishment of a hotline between CDCs. During the citizen access transfer process, personnel at the originating CDC remain online until the handoff is completed.

Law enforcement telecommunications system objective 2.1.1(3) is:

To minimize the time required for a person in Kansas to reach a law enforcement complaint operator to that defined by the National Advisory Commission on Criminal Justice standards and goals.

The many telephone numbers employed for law enforcement public access in Kansas now result in excessive complaint access delays associated with the citizen determining the appropriate number. For this reason, one of the three methods described above should be employed by all CDCs to minimize the telephone numbers employed across the state, thereby minimizing this problem.

6.1.2 Command and Control Support

Minimum law enforcement telecommunications command and control support capabilities should include the:

- o Establishment of CDCs throughout Kansas, to the county level as a minimum, to provide 24-hour dispatch service where it is currently unavailable or in existing systems where greater efficiency will result
- o Utilization of uniform procedures within a CDC and the adoption of uniform communications methods among dispatch centers statewide
- o Incorporation in radio networks of channels defined in the Kansas state system concept, as a minimum
- o Incorporation of information processing technology in command and control support systems, which results in cost-effective, real improvements in response time; improved manpower efficiency; increased data systems access and shortened response time; and greater accuracy of information transmission.

Each recommendation is individually discussed in the following paragraphs.

(1) The Establishment of CDCs to Provide 24-Hour Dispatch Service

Law enforcement telecommunications system objective 2.1.2(1) is:

To provide continuous dispatching service for all Kansas law enforcement personnel on a 24-hour basis.

As discussed in Subsection 6.1.1, only a few counties in Kansas currently provide countywide 24-hour dispatch service. Those counties already providing countywide 24-hour dispatch service satisfy law enforcement telecommunications system objective 2.1.2(1) and will, therefore, remain unchanged.

Remaining counties should establish CDCs (corresponding to those providing a public access function) using cooperative arrangements acceptable to participating agencies. As discussed in Paragraph 6.1.1(1), after receiving complaint information from a citizen accessing the CDC, one of two functions is performed; dispatch or alert (see previous definitions) using methods and procedures agreed upon by participating agencies.

Future information processing developments will allow law enforcement agencies to access shared computer facilities. This will provide a capability that assists law enforcement agencies in the performance of many tasks that could include:

- o Resource allocation
- o Administration (payroll, etc.)
- o Facsimile (fingerprinting identification, warrants, etc.)
- o Remote training.

The establishment of CDCs in Kansas will allow the development of cost-effective communications network structures which will facilitate the development of future consolidated information processing systems.

Where possible, cooperative and other dispatch centers should collocate facilities with EMS and fire dispatch operations to provide a public safety command and control support capability. When 911 is used to access a CDC or existing dispatch center, public safety dispatching facilities and staff must be colocated or effective handoff procedures established from law enforcement complaint operators to EMS and fire personnel. The law enforcement telecommunications state system concept defined in Chapter 6 of the SCLEP-TEL should be a prime input in current EMS planning.

(2) The Utilization of Uniform Procedures Within a CDC and the Adoption of Uniform Communications Methods Among Dispatch Centers Statewide

Law enforcement telecommunications system objective 2.1.2(2) is:

To provide and adopt uniform dispatch methods and procedures.

The diversity of law enforcement agencies across Kansas makes impractical the adoption of uniform methods and procedures by all law enforcement agencies. However, CDCs should adopt uniform dispatching procedures within their own jurisdiction, acceptable to participating law enforcement agencies. This will be particularly important since CDC staff may initially be unfamiliar with the geographic area and special characteristics of jurisdictions of law enforcement agencies served by the center. For this

reason, it is important that the CDC staff, in conjunction with law enforcement agency personnel, develop efficient methods to insure the accurate identification of request for service locations and effective communications with the appropriate law enforcement resource. A communications coordinating committee composed of CDC staff and representatives of participating law enforcement agencies is an effective method for developing uniform methods and procedures within a county (multicounty) system.

While dispatch methods and procedures within a county system will vary among systems, effective statewide law enforcement requires uniform, statewide communications methods among dispatch centers. This will permit effective interagency communications methods which will be defined later in this chapter.

Although definitions of uniform dispatch methods and procedures within a dispatch center's jurisdiction can be developed locally, the adoption of uniform procedures for communications among dispatch centers throughout the state can be most effectively developed at the state level. Therefore, a uniform training program (to include telecommunicator courses for law enforcement telecommunicators) should be established at the police training academies. Course material should be of two types: recommended guidelines that should be followed by all dispatch operators with special requirements of various levels of law enforcement agencies identified; and uniform statewide procedures for communications among all dispatch centers. After acceptance of established procedures, appropriate training material should be included in the training programs of field personnel.

The training program developed at police academies should include methods for providing training to personnel of law enforcement agencies that, because of their location, size, and/or funding situation, cannot receive training directly. An extension program, consisting of audio-visual material that can be used locally or through a correspondence method, should also be incorporated in police academies' programs. The current tape cassette training courses developed by APCO are representative of this method.

(3) Incorporation in Radio Networks of Channels Defined in the Kansas State System Concept as a Minimum

Law enforcement telecommunications system objective 2.1.2(3) is:

To provide a command and control support communications capability for Kansas law enforcement agencies consistent with operational requirements.

To satisfy this system objective, the state system concept defines frequency band usage for categories of law enforcement agencies within Kansas. The state system concept for achieving interagency coordination communications is presented in Subsection 6.1.4.

Preferred frequency bands in the Kansas law enforcement telecommunications state system concept were identified by use of the following criteria:

- o Characteristics of man-made environment
- o Propagation characteristics
- o Minimal change in existing frequency assignments
- o Interagency coordination
- o Current interference problems

- o Frequency availability
- o Special requirements.

Three types of man-made environments characterize Kansas:

- o Metropolitan -- large, closely spaced buildings and high population density with large amounts of man-made noise from automobiles and industry. Examples are: Topeka, Wichita, and Kansas City, and Johnson County.
- o Urban -- suburban areas with homes and apartments as well as modern industrial developments; average building height less than three stories. Examples are: Emporia, Independence, and Dodge City.
- o Rural -- areas with few buildings and obstacles, and little man-made noise; includes farmland, forests, and other undeveloped land areas. Examples are the major portion of central western Kansas.

Significant frequency band changes should only be adopted when necessary to achieve system objectives, and not for the sake of change. In Kansas, frequency band utilization according to the previous characterization of man-made environments is as follows:

- o Metropolitan -- UHF
- o Urban -- VHF high band
- o Rural -- VHF low band
- o KHP/KBI -- VHF low band.

An important consideration in defining frequency band usage is the ability to satisfy interagency coordination requirements, which include:

- o Point-to-point communications between existing 24-hour dispatch centers, newly established CDCs, and Kansas state-level law enforcement agencies.
- o Communications interfaces that provide interagency coordination capability between law enforcement agencies operating on different bands relevant to operational requirements.
- o Providing communications capability for law enforcement agency personnel who must routinely travel out of their normal jurisdiction. Examples include:
 - Metropolitan mobiles operating on UHF and urban mobiles operating on VHF high band traveling in a rural environment (prisoner transfer, etc.) where existing communications occur on VHF low band.
 - Selected sheriffs in southeast Kansas operating on VHF high band transferring prisoners to Hutchinson, Topeka, and Lansing where communications occur on VHF low band.
 - Law enforcement agency mobiles in Kansas traveling out of state, and those of other states traveling into Kansas (usually for prisoner transfer or exchanges).

- Communications between state-level Kansas law enforcement agencies and rural law enforcement agencies, both operating on low band. This requirement is particularly important since the rural nature of Kansas precludes extensive individual law enforcement capabilities. Most rural law enforcement agencies, therefore, depend heavily on KHP support and vice versa.
- Interagency coordination required for joint operations where mobiles may be functioning on different bands in a manner consistent with established operational procedures.

Frequency band usage should allow the development of channel recommendations or procedures that permit both intra- and interstate law enforcement interagency coordination satisfying the above requirements.

An important consideration in future band use is radio interference currently experienced by users. Currently, Colorado, Oklahoma, and Missouri are functioning on high band. Although Nebraska is operating on low band (38.74-39.96 MHz), new cooperative systems will operate on high band. Accordingly, interference under current frequency band utilization will be minimal with appropriate coordination of frequencies employed by urban law enforcement agencies operating on VHF high band near Kansas borders.

The current trend is the establishment of law enforcement radio networks where individual agencies have multi-channel capability that provides operational flexibility and permits interagency coordination. The availability of sufficient frequencies to actually implement projected radio channel utilization plans must be considered in defining future frequency band usage. The current utilization of VHF high band and the evolution of Nebraska systems toward this band, potentially will result in significant frequency congestion on VHF.

Propagation characteristics and FCC rulings concerning band use must be considered in assessing current and future special requirements, such as digital data transmission. Urban areas anticipating the employment of digital devices to satisfy operational requirements should consider using UHF. Economics will probably preclude rural areas from implementation of dedicated mobile data terminals; voice communications to established data terminals is preferred.

Table 6-1 summarizes the frequency bands that should be employed by Kansas law enforcement agencies based upon analysis of alternatives conducted using the above criteria. A primary consideration in using VHF low band for rural areas is the significant need for direct interagency communications with state-level Kansas law enforcement agencies which operate on VHF low band (because of extended coverage needs) and the future frequency congestion projected on VHF high band because of its use in surrounding states.

Table 6-2 summarizes the definition of radio channels that will be employed in Kansas law enforcement command and control support radio networks. P₁, a basic dispatch channel, is used by a dispatch center for dispatching or alerting all police vehicles within the county and for mobile-to-mobile communications. P_{1N} depicts those situations, primarily in metropolitan areas, where a jurisdiction is broken into dispatch zones, each having a

Table 6-1
Frequency Band
Usage Summary

Category	Band
Metropolitan	UHF
Urban	VHF -- high band
Rural	VHF -- low band
Southeast Kansas counties	VHF -- high band
KHP/KBI	VHF -- low band

Table 6-2
Command and Control Support
Radio Channel Definition

P ₁	Dispatch	UHF -- Metropolitan VHF (HB) -- Urban and Southeast Kansas area VHF (LB) -- Rural and KHP/KBI
P _{1N}	Dispatch Channel For Zone N	Pertains only to those CDCs in which independent dispatch zones are established
P ₂	Tactical P _{2N} -- tactical frequency for zone N if appropriate	Simplex (In UHF systems use the base to mobile frequency of the duplex pair)
P ₃	Special Purpose (Surveillance and Investigation)	Applies only to metropolitan and urban areas
P ₄	Data Transmission	Applies primarily to metropolitan and urban areas

CONTINUED

1 OF 2

separate channel. P₂ is used as a tactical frequency for extended mobile-to-mobile communications to preclude congestion on P₁. P₃ is used for special purposes such as surveillance and investigation, and applies primarily to metropolitan areas. P₄ is a dedicated data channel which currently must be employed with voice having precedence (dictated by FCC rules).

Table 6-3 presents the command and control support channel allocation plan for metropolitan, urban, and rural areas, with counties in southeast Kansas currently operating in VHF high band defined separately. The recommended simplex or half-duplex operation is also indicated.

It is important to note that rural areas currently employ 39.58 MHz for base-to-mobile and mobile-to-mobile communications, and 39.70 MHz for mobile-to-base communications. As these areas initiate cooperative systems to provide 24-hour public access and dispatch service capability, they should select a pair of dispatching frequencies other than 39.58 and 39.70 MHz. Table 6-4 summarizes frequency pairs that should be employed for dispatching and tactical use on VHF low band. The selection of particular frequencies should be coordinated by individual law enforcement agencies with the APCO frequency coordinator.

Equipment procured should employ channels shown in Table 6-3 as a minimum; also as a minimum, equipment should have the capability to simultaneously receive or scan on dispatch and interagency coordination channels listed in Subsection 6.1.4. Those law enforcement agency mobiles that routinely monitor tactical channels may also incorporate this capability on these channels. Rural law enforcement agencies that desire to monitor

Table 6-3
Command and Control Support
Channel Allocation Plan

CATEGORY	CHANNEL				
	Band	P ₁	P ₂	P ₃	P ₄
Metropolitan	UHF	H	S	H	H
Urban	VHF (H)	H	S		
Rural	VHF (L)	H*	S		
Southeast Kansas (high band)	VHF (H)	H	S		

S -- Simplex (base receive only)

H -- Half-duplex

* -- Statewide coordination frequencies of 39.58 MHz and 39.70 MHz should not be used by countywide CDCs for dispatching.

Table 6-4
Low Band Dispatch and Tactical Channels

A. Dispatch Channels (P₁)

DISPATCH CHANNEL	MOBILE-TO-BASE FREQUENCY (MHz)	BASE-TO-MOBILE FREQUENCY (MHz)
1	37.02	37.14
2	37.04	37.16
3	37.08	37.20
4	37.12	37.24
5	37.28	37.40
6	37.42	37.30
7	39.12	39.24
8	39.26	39.14
9	39.16	39.28
10	39.20	39.32
11	39.34	39.22
12	39.36	39.48
13	39.40	39.52
14	39.42	39.54
15	39.44	39.56
16	39.60	39.72
17	39.74	39.62
18	39.64	39.76
19	39.66	39.86
20	39.68	39.80
21	39.84	39.96

B. Tactical Channels (P₂)

TACTICAL CHANNEL ¹	TRANSMIT	RECEIVE
1	37.06	37.06
2	37.22	37.22
3	37.32	37.32
4	37.34	37.34
5	37.36	37.36
6	37.38	37.38
7	39.02	39.02
8	39.04	39.04
9	39.08	39.08
10	39.30	39.30
11	39.38	39.38
12	39.86	39.86
13	39.88	39.88
14	39.92	39.92
15	39.94	39.94

¹Rural mobiles may employ the P₁ base-to-mobile frequency as the mobile-to-mobile tactical frequency.

tactical frequencies should use the frequency selected for P₁ base-to-mobile as their tactical frequency precluding the need for dual receive on P₁ and P₂. Further clarification regarding minimum multiple receive capability is presented in Section 6.2.

Table 6-5 below summarizes existing KHP command and control support frequency use. KHP will continue to use the indicated frequencies.

Table 6-5
Kansas Highway Patrol Command
and Control Support Frequency (MHz)
Allocation

MODE	ZONE A	ZONE B
Base-to-Mobile	44.98	44.94
Mobile-to-Base	44.82	45.18
Mobile-to-Mobile	44.98	44.94

The above band, channel, and frequency plan only deals with the command and control support law enforcement telecommunications function. The state system concept for achieving interagency coordination is presented later in this subsection.

(4) Incorporation of Information Processing Technology

Law enforcement telecommunications system objectives 2.1.2(4) and 2.1.2(5) are:

To minimize the time from complaint reception to dispatch of the appropriate response.

To improve the accuracy of command and control support communications.

Current information processing technology (computer-aided dispatching, dispatch center computer support, etc.) offers the potential for assisting major municipalities in achieving the above two system objectives. It is important to realize, however, that inappropriate use of available technologies can result in the ineffective use of limited funds and marginal or reduced performance. Typical information processing functions available include:

- Vehicle selection – a geocoding scheme along with established vehicle control plan and status maintenance methods are used to select the vehicle that can most rapidly respond to a reported incident. However, minimum distance methods typically employed in vehicle selection information processing software have proven somewhat ineffective in established systems. Therefore, the actual utility of this information processing function is questionable until vendors improve software capabilities.

- Status maintenance – digital or voice transmission between the dispatch center and field forces is used to maintain the status of law enforcement resources (available, on-route, at the scene, on break, etc.). The utility of information processing equipment in performing this function improves with the number of vehicles: 20 to 40 mobiles typically are required for cost-effective operation.
- Address verification – information processing employed for address verification is extremely expensive since a geocoding data base must be established for the entire municipal area. In many cases, dispatchers familiar with a municipality perform this function manually in a more cost-effective fashion.
- Criminal history, event, and vehicle data file search – information processing equipment (see data systems access) employed for this purpose offers significant potential for improving the safety and effectiveness of field law enforcement officers. Data systems access terminals located at the dispatch center normally will satisfy requirements in this area. Significant reduction in turnaround time can be established utilizing mobile data terminals. However, the need for this approach must be clearly established.
- Statistical analysis – information processing systems online can be used to generate a data base for more effective allocation of law enforcement resources. This is most applicable for metropolitan areas having high crime areas where non-uniform distribution of resources may be more effective on a real-time basis than the use of uniform dispatch zones.
- Generation of daily and management reports – online computer-aided dispatch systems can be used to relieve officers from the time-consuming responsibility of preparing daily reports since information will be available online as part of operating transmissions.

A decision to implement information processing technology in major metropolitan areas should be prefaced by a comprehensive study of the performance impact and cost-effectiveness of various levels of implementation.

The results of this study should accompany any request for Kansas SPA funding of information processing systems.

6.1.3 Data Systems Access

Law enforcement telecommunications system objectives 2.1.3(1) and 2.1.3(2) are:

To provide data systems access capabilities for all Kansas law enforcement agencies to state, national, and other data files related to law enforcement.

To minimize data systems access response time to that required by particular Kansas law enforcement operations.

To achieve these objectives, the functional concept for data systems access is to:

- o Provide data systems access capabilities for all 24-hour dispatch centers using the existing network configuration modified to satisfy new requirements.
- o Incorporate high-speed terminals in selected locations to improve data systems access time.

(1) Provide Data Systems Access to All 24-Hour Dispatch Centers

The data systems access network configuration currently employed in Kansas is broken down into three major parts:

- o Kansas law enforcement agency data communications
- o Kansas DCS
- o National and other state law enforcement agency data communications.

The ASTRA and HYSIS networks provide data systems access for Kansas law enforcement agencies by means of multi-drop polled communications lines. The DCS provides both computer access to law enforcement data files within Kansas and overall computer control of the data systems access network. The DCS computer also acts as an interface between Kansas law enforcement data users in Federal and other state agencies. Kansas law enforcement agencies can transmit and receive data messages to national and other state law enforcement agencies via message switching at the DCS. The network configuration is shown in Figure 6-4.

To achieve a 24-hour data systems access capability, a state ASTRA data terminal should be provided to all 24-hour dispatch centers with the exception of ALERT II data system users subscribing to the Kansas City, Missouri system. ALERT II data system terminals provide all the features of the ASTRA network with improved performance.

Currently, ASTRA data terminals are typically located at county sheriffs' offices, usually based upon recommendations of county Boards of Commissioners. The satisfaction of law enforcement telecommunications system objective 2.1.2(1) may require the relocation of some terminals to a 24-hour center or the establishment of a real-time 24-hour link from a sheriff's office to the center.

Currently, the Kansas DCS IBM computer provides a central control point for the ASTRA and HYSIS data systems access network. The DCS computer is being upgraded by employing a more powerful processing unit that should provide adequate service to law enforcement users. Data systems access capability will provide:

- o 2400-baud leased line to NCIC in Washington, D.C.
- o 4800-baud leased line to Kansas City, Missouri and the State of Missouri's law enforcement agencies and files
- o 2400-baud link to NLETS which provides message switching from/to law enforcement agencies in other states and at the Federal level.

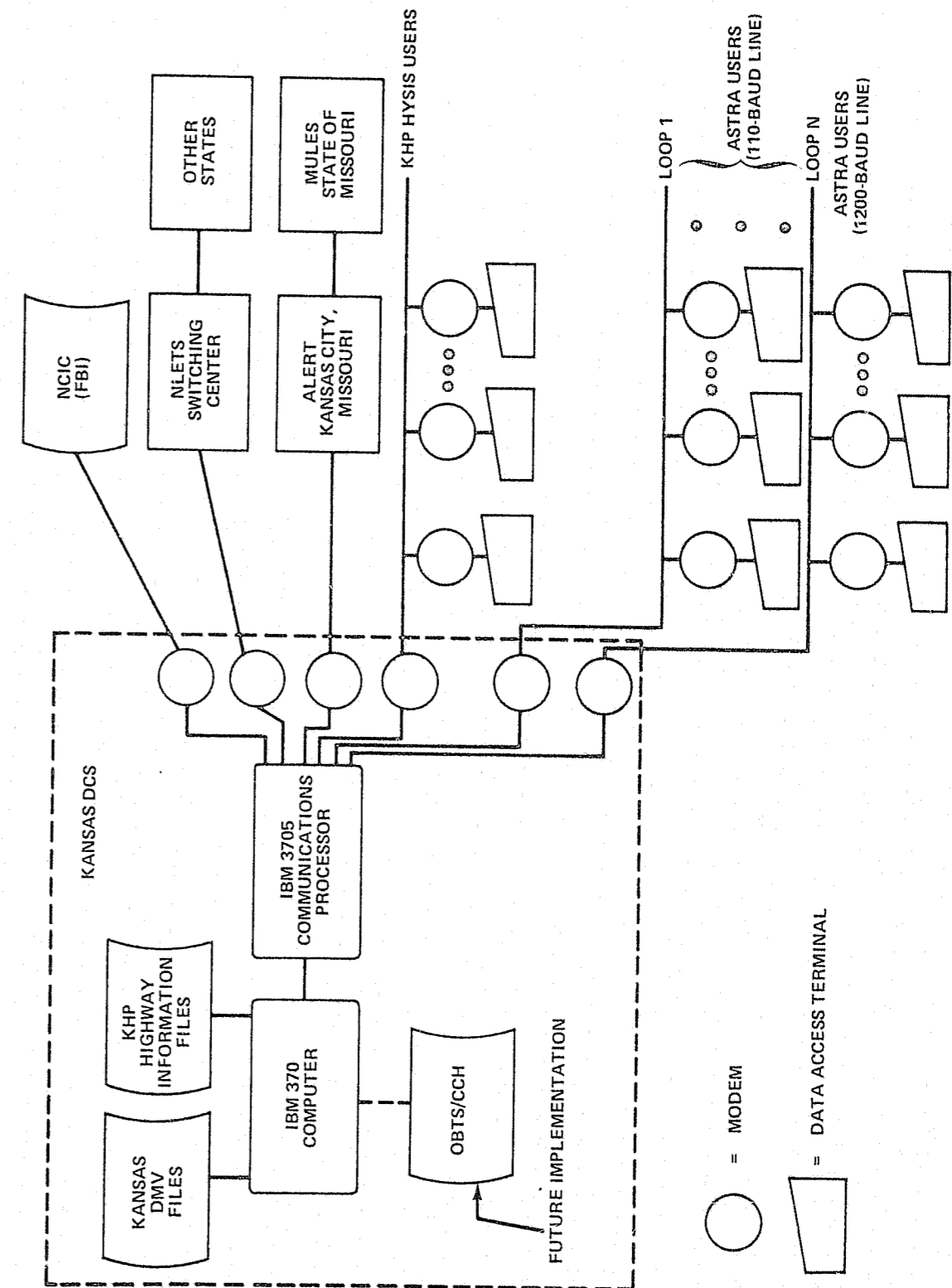


Figure 6-4
Data Systems Access Network

In many cases, access to state law enforcement data files in adjacent states occurs informally through communications among law enforcement agencies along the Kansas border. Effective, real-time interfaces should be established from the DCS computer and criminal justice information systems serving adjacent states.

Under an LEAA grant, the Jet Propulsion Laboratory (JPL) is currently conducting an analysis of requirements for the design of intra-state law enforcement and criminal justice telecommunications systems. At the conclusion of this study, the above recommendations should be reviewed using the JPL computer software tool developed.

(2) Incorporate Selected High-Speed Terminals

The present Kansas law enforcement data network is composed of two parallel networks; HYSIS and ASTRA. The KHP HYSIS network employs a multi-drop, 2400-baud data link in consonance with IBM 3275 CRT terminals and IBM 3284 printers. The terminals, located at regional KHP headquarters, provide adequate data systems access capabilities for KHP users.

The state ASTRA data system meets the present and projected needs of most Kansas law enforcement agencies. However, for high-volume users, law enforcement agencies should consider replacing Teletype Models 33 and 35 with a new faster and quieter data terminal. This terminal will provide an increased throughput rate at a cheaper per-terminal cost. Implementation of this approach would require the establishment of a new multi-drop communications loop with engineering dependent upon analysis of traffic, the statewide common-control switching arrangement configuration, and tariffs necessary for cost-effective operation. In addition, the new links would provide a transition network for eventually upgrading the entire ASTRA network should future law enforcement data traffic saturate the current system.

6.1.4 Interagency Coordination

Minimum law enforcement telecommunications interagency coordination capabilities shall include the:

- o Ability of intra- and interstate law enforcement agencies to communicate, consistent with operational procedures and actual operational requirements.
- o Establishment of communications interfaces with emergency medical, fire, and other emergency resources and essential public services.
- o Utilization of uniform dispatch methods and procedures by 24-hour dispatch centers throughout the state.

These elements of the functional concept for interagency coordination are individually discussed in the following paragraphs.

(1) The Ability of Inter- and Intrastate Law Enforcement Agencies to Communicate, Consistent With Operational Procedures and Actual Operational Requirements

Law enforcement telecommunications system objectives 2.1.4(1), 2.1.4(2), and 2.1.4(4) are:

To allow any law enforcement officer in the State of Kansas to communicate with any other law enforcement officer consistent with procedures established.

To provide communications interfaces among all law enforcement agencies in the state.

To provide necessary communications between Kansas law enforcement agencies and those of adjacent states.

Actual law enforcement interagency requirements necessary to achieve the objectives described above were presented in Paragraph 6.1.2(3). To satisfy these requirements, interagency coordination channels presented in Table 6-5 have been defined as part of the state system concept.

R₁ will serve as the statewide, point-to-point frequency among all law enforcement agency dispatch centers. This frequency currently utilizes 39.46 MHz; no modification is recommended. R₂ will serve as the statewide base-to-mobile, mobile-to-mobile, and mobile-to-base channel, allowing communications among field forces and dispatch centers. The interim R₂ recommendation is:

- o Base-to-mobile and mobile-to-mobile -- 39.58 MHz
- o Mobile-to-base -- 39.70 MHz.

Currently, 39.58 and 39.70 MHz are used for dispatching. As individual agencies establish CDCs, each should select a dispatch frequency pair (other than the above frequencies) from those listed in Table 6-4. Since actual frequency selection by individual agencies will be dependent upon the specific organization developed, frequency availability at the time, and other frequency coordination considerations, the state system concept does not recommend specific dispatch frequencies for this purpose. Since 39.58 and 39.70 MHz are currently licensed and available for most rural radio systems, the incorporation of a separate dispatch and, if appropriate, tactical frequency on unused channels will provide the required command and control support and interagency coordination communications capability.

The 39.58-MHz frequency should be used only as an interim solution since it is currently shared with local government. The law enforcement communications coordinating committee serving Kansas has indicated that applications for non-law enforcement uses normally are not granted, thereby precluding immediate problems. However, future consideration should be given to modifying this frequency to one dedicated for law enforcement use near 39.58 MHz; this would require only a crystal change in existing equipment for implementation.

CHANNEL	DEFINITION	COMMENT
R ₁	Statewide point-to-point	39.46 MHz statewide
R ₂	Statewide coordination frequency	Base-to-mobile and mobile-to-mobile 39.58 MHz Mobile-to-base 39.70 MHz
R _N	National emergency communications frequency	Kansas Highway Patrol base-to-mobile (if required for emergency communication, with out-of-state mobiles using this frequency)
R _{OK}	Interstate coordination point-to-point	Oklahoma - 155.490 MHz
R _{MO}	Interstate coordination point-to-point	Missouri - 155.370 MHz
R _{CO}	Interstate coordination point-to-point	Colorado - 154.905 MHz
R _{NB}	Interstate coordination point-to-point	Nebraska - Not selected yet

Table 6-5
Law Enforcement Interagency
Coordination Radio Channel Definition

Table 6-6 summarizes intrastate interagency coordination channel capabilities for law enforcement agency categories defined earlier in this chapter. Metropolitan law enforcement agencies performing command and control support functions on UHF will acquire a transmit/receive capability on the statewide coordination frequency and the statewide point-to-point frequency established on low band. Urban areas will incorporate the statewide coordination frequency into their low-band command and control support base and mobile equipment with the transmit/receive capabilities indicated in Table 6-6.

In addition, urban CDCs will have the capability for transmission/reception on 39.46 MHz.

The KHP will establish a capability for communications on the statewide coordination frequency. Since 39.58 MHz will be used for transmission and 39.70 MHz for reception, the current problem of KHP monitoring irrelevant transmissions on 39.58 MHz will not occur. The KHP regional headquarters at Chanute will maintain a transmit/receive point-to-point capability on 155.370 MHz for communications with dispatch centers in southeast Kansas.

KHP regional headquarters will acquire a transmit/receive capability on the national emergency frequency 155.475 MHz. Base stations of other law enforcement agencies will include a transmit/receive capability on 155.475 MHz if communications are required with out-of-state mobiles using this frequency. Kansas mobiles may acquire a second radio operating on the national emergency frequency only if they frequently travel out of state to locations where this frequency is employed. Urban VHF high-band mobiles will incorporate the frequency in their existing equipment, if possible. KHP mobiles will maintain their current capability for receiving on 39.58 MHz.

Dispatch centers in those counties in southeast Kansas operating on high band will maintain their current point-to-point communications capability on 155.370 MHz (for communications with Missouri and KHP Chanute regional headquarters). In addition, those law enforcement agencies in southeast Kansas operating mobiles (currently equipped with high-band equipment) that travel in low-band areas (e.g., prisoner transfer) will acquire a second low-band radio in their vehicles on their statewide coordination frequency R₂.

Interagency coordination channels will be incorporated into command and control support radio equipment when there is band compatibility. In these instances, equipment will include a simultaneous receive capability on P₁, R₂, and R_N as a minimum (see Section 6.2).

As indicated in Table 6-7, interagency coordination of Kansas law enforcement agencies with those in adjacent states will be achieved through point-to-point communications between KHP regional headquarters and state police dispatch centers of adjacent states using frequencies indicated. Base-to-mobile and mobile-to-mobile interagency coordination communications among individual law enforcement agencies along the border will then occur through KHP regional headquarters as required.

The above interagency coordination recommendations minimize required radio resource acquisitions necessary to achieve the interagency coordination system objectives defined in Chapter 2.

AGENCY	BASE					MOBILE			
	Transmit 39.58 MHz	Receive 39.70 MHz	Transmit and Receive 155.370 MHz	Transmit and Receive 155.475 MHz	Transmit and Receive 39.46 MHz	Transmit 39.70 MHz	Receive 39.58 MHz	Transmit 39.58 MHz	Transmit/Receive 155.475 MHz
Metropolitan	X	X		X ¹	X				X ⁶
Urban	X	X		X ¹	X				X ⁶
Rural	X	X			X	X	X	X	X ⁶
KHP/KBI	X	X	X ²	X ¹	X	X ⁴	X	X ⁴	X ^{5, 6}
Southeast Kansas (VHF high band users)	X	X	X	X ¹		X ³	X ³	X ³	X ⁶

¹Only at those locations where emergency communications with out-of-state law enforcement mobiles using this frequency may be required

²Chanute headquarters only

³Only those mobiles employed for transporting prisoners to areas employing VHF low band

⁴KBI mobiles only - provide communications with local county sheriffs

⁵Regional KHP headquarters only

⁶Only those Kansas mobiles that travel out-of-state in locations where this frequency is used.

Table 6-6
Law Enforcement Intrastate
Interagency Coordination

KHP LOCATION	BASE FREQUENCY (S) T/R	ADJACENT STATE			
		Colorado	Nebraska	Missouri	Oklahoma
Topeka	*				
Salina	*				
Norton	39.90		X		
Chanute	155.370 155.490			X	X
Wichita	155.490				X
Garden City	155.905	X			
Olathe	155.370			X	

* No interface

Table 6-7
Interstate Interagency
Coordination Frequencies

(2) **The Establishment of Communications Interfaces with Emergency Medical, Fire, and Other Emergency Resources**

The EMS communications system plan prepared by Kansas State University identifies the need for the establishment of regional MRCCs strategically located throughout Kansas. To provide the framework for establishment of effective interfaces among law enforcement and EMS agencies, it is important to differentiate between two EMS functions: dispatch and medical control. The dispatch function is concerned primarily with controlling the vehicle's location and responding to emergency requests. To facilitate operations involving law enforcement and EMS resources, the dispatch function for emergency medical resources should, if possible, be colocated with 24-hour dispatch centers or CDCs. The medical control function is associated with controlling the ambulance's point of entry, medical transfers, and communications among EMTs and physicians who may be at remote locations. It is important to note that the communications network organization for the performance of the dispatching and medical control functions need not be the same. Should collocation of law enforcement and EMS dispatching functions be impossible within the current Kansas EMS planning philosophy, effective communications interfaces (either dedicated tielines or other methods) should be established between CDCs (or other dispatch centers) and MRCCs.

Kansas fire agencies are normally dispatched locally. Therefore, 24-hour dispatch centers and newly established CDCs will establish interfaces with these agencies to permit coordination of resources when required.

Civil preparedness capabilities vary considerably throughout Kansas. Radio resources, where they do exist, provide a fallback capability to Kansas law enforcement agencies. Therefore, 24-hour dispatch centers and CDCs should establish appropriate procedures with civil preparedness resources as appropriate.

(3) **The Utilization of Uniform Dispatch Methods and Procedures By 24-Hour Dispatch Centers Throughout the State**

Since command and control support requirements vary considerably among Kansas law enforcement agencies, individual centers should employ procedures that are effective for their operation. However, to facilitate communications among CDCs and 24-hour dispatch centers throughout Kansas, uniform procedures must be established that permit effective communications among centers. Therefore, the training curriculum developed at Kansas police academies should include provision for the development of uniform procedures for interagency coordination among law enforcement agencies throughout the state. These procedures should also be coordinated with adjacent states.

6.2 Minimum Capabilities of Law Enforcement Telecommunications System Elements

Law enforcement telecommunications systems consist of:

- o Radio networks
- o Dedicated wire networks
- o Dispatch center information processing equipment

- o Terminal equipment
- o Law enforcement telecommunications personnel.

This subsection presents minimum capabilities defined for each law enforcement telecommunications system element necessary for achieving system objectives, or realizing the functional concept defined in Section 6.1.

6.2.1 Radio Networks

Minimum capabilities for law enforcement telecommunications radio networks are as follows:

- o Base stations and mobiles will include the capability for transmission/reception on the command and control support and interagency coordination channels recommended in Sections 6.1 and 6.4.
- o Base stations and mobiles will have the capability for simultaneous receive on P₁, R₂, and E_N when equipment procured is band compatible (as defined in Table 6-1) using multiple receive or scanning approaches.
- o All VHF low-band communications equipment will include at least four channels, and will incorporate the statewide coordination frequency.
- o All VHF high-band base stations and radios will contain at least four channels and will include the national emergency frequency of 155.475 MHz if this frequency is within the range of frequencies employed for command and control support operations.
- o UHF base station and mobile equipment will include at least an eight-channel capability to provide flexibility for future expansion.
- o Radio base stations will provide for emergency power and physical security.
- o Tone-coded squelch will be employed where appropriate except on 155.475-MHz receivers.
- o Equipment will be limited in power for transmission over the dispatch jurisdictional area and adjacent counties.

6.2.2 Dedicated Wire Networks

No minimum capabilities have been adopted.

6.2.3 Dispatch Center Information Processing

The minimum capability for law enforcement telecommunications dispatch center information processing systems is that all 24-hour dispatch centers and CDCs will continuously record public access and radio transmission.

6.2.4 Terminal Equipment

Minimum capabilities for law enforcement telecommunications terminal equipment are as follows:

- o A sufficient number of public access trunks and positions will be employed to ensure that the probability of a busy signal is less than 0.02.
- o All public access equipment will employ a hunting capability.
- o Data systems access transmission standards will be evaluated in light of the results of the JPL requirement study when published.

6.2.5 Law Enforcement Telecommunications Personnel

Law enforcement telecommunications system standards for law enforcement telecommunications personnel are as follows:

- o Personnel serving as dispatchers in CDCs or existing dispatching locations will receive training.
- o Telecommunications dispatch personnel serving in CDCs or existing 24-hour dispatch centers should be salaried at a level commensurate with their responsibilities and level of experience and training.

6.3 Common Requirements Plan

This section of Chapter 6 presents the need for the development of plans to satisfy requirements common to all Kansas law enforcement agencies. These include:

- o Development of a standard curriculum and training course at Kansas police academies.
- o Consideration of "Requirements Analysis and Design of Intrastate Law Enforcement and Criminal Justice Telecommunications Systems" data systems access network recommendations when results are published.
- o Provision of a technical planning assistance program for local law enforcement agencies that wish to establish CDCs.
- o Update of Kansas SCLEP-TEL annually.

These planning requirements are individually discussed in the remainder of Chapter 6.

6.3.1 Police Academies Curriculum

As discussed in Section 6.1, the need exists to develop a standard curriculum to be used at Kansas police academies that considers the individual needs of dispatch centers across the state and also allows for common methods and procedures for communications

among dispatch centers statewide. The training program developed should consider dispatch training requirements common to all law enforcement agencies in Kansas and also identify those requirements peculiar to metropolitan, urban, and rural agencies. It should also recognize the need for training field forces in communications procedures.

In many instances, law enforcement dispatch personnel of rural agencies will be unable to attend a formal course provided at police academies. As discussed earlier, the curriculum, therefore, should allow for extension courses that will provide necessary training. To maximize the effectiveness of the program, a training manual should be developed that will be the primary source document for the course and can also be distributed to all law enforcement agencies in the state. The APCO dispatcher training program represents one source of material for the development of this manual.

6.3.2 Consideration of "Requirements Analysis and Design of Intrastate Law Enforcement and Criminal Justice Telecommunications Systems" Recommendations

The final product of the JPL requirements study will be data systems access planning tools to be used by individual states in the design of their data systems access networks. Upon completion of this study, the functional concept for data systems access presented in Subsection 6.1.3 should be reviewed in light of the results.

6.3.3 CDC Technical Planning Assistance Program

One of the most important system objectives adopted as part of the Kansas SCLEP-TEL is the establishment of 24-hour public access and dispatch service across the state through cooperative arrangements where it is currently unavailable. In many cases, geographically separated individual law enforcement agencies can find it difficult to implement the necessary coordination to define specific cooperative arrangements that will satisfy their needs and be satisfactory to all participating agencies.

The Kansas SPA will assume responsibility for a technical planning assistance program to serve requests for assistance from a majority of law enforcement agencies in a county.

6.3.4 Kansas SCLEP-TEL Distribution

To be effective, the Kansas law enforcement telecommunications state system concept must be understood by law enforcement agencies in the state. Individual law enforcement agencies submitting grant requests should be afforded the opportunity to determine whether their project is in consonance with the ideas, policies, and procedures established for the Kansas SCLEP-TEL. The technical planning assistance program previously defined should include provisions for aiding law enforcement agencies in understanding and interpreting the contents of the SCLEP-TEL as may be appropriate to their own situation.

6.3.5 Annual Plan Update

The Kansas plan will be updated annually and a digest of pertinent results distributed to Kansas law enforcement agencies.

CHAPTER 7 LONG-RANGE PLAN AND FORECAST

This chapter of the SCLEP-TEL defines a multi-year strategy for achieving the law enforcement telecommunications system objectives presented in Chapter 2 through implementation of the law enforcement telecommunications state system concept described in Chapter 6. This chapter also defines program elements and associated priorities, and presents a 3-year budget for expenditures in the LEAA 2.5.5.2 program descriptor category and a forecast of results and accomplishments.

7.1 Long-Range Plan

The long-range plan consists of a multi-year budget and financial plan. Table 7-1 summarizes program elements presented in the order of priority that will be employed for allocation of 2.5.5.2 funds. For purposes of developing the multi-year budget and financial plan, a program element is defined as a major grouping or classification of projects designed to satisfy a related set of law enforcement telecommunications system objectives. Accordingly, Table 7-1 also presents those law enforcement telecommunications system objectives from Table 2-1 that are related to each program element and, in addition, those subsections of Chapter 6 that directly pertain to each program element.

Table 7-2 presents a multi-year budget for each program element defined in Table 7-1. The table indicates Federal and other matching funds.

The multi-year budget presented in Table 7-2 was developed by defining typical projects that would be funded in each program element and then estimating average project cost. Table 7-3 summarizes the cost of particular equipment categories likely to be procured as part of implementing systems associated with defined program elements. Cost estimates presented in Table 7-3 are based upon typical average unit costs provided by hardware vendors for equipment categories indicated.

Table 7-4 presents typical quantities of items necessary for implementing projects associated with each program element. When several types of projects are funded under the same program element, required item quantities for implementation of each type of project are broken out separately. For example, Program Element 7, "to provide an interagency coordination radio communications capability to counties in southeast Kansas operating on VHF high band" is broken down into two types of projects:

- o Program element 7A -- implementation of VHF low-band base radios operating on the Kansas statewide regional coordination frequency
- o Program element 7B -- implementation of VHF low-band mobile radios for those law enforcement vehicles that typically leave their own jurisdiction and enter areas where VHF high-band equipment is not employed.

PROGRAM ELEMENT NUMBER	PROGRAM ELEMENT OBJECTIVE	LAW ENFORCEMENT TELECOMMUNICATIONS RELATED SYSTEM OBJECTIVE (See Table 2-1)	RELATED STATE SYSTEM CONCEPT SUBSYSTEMS (See SCLEP-TEL Chapter 6)
1	To provide a minimum radio communications capability for those Kansas law enforcement agencies that currently have none	2.1.2(3)	6.1.2(3) 6.2.1
2	To implement 24-hour cooperative dispatch centers (CDCs) that, as a minimum, serve all law enforcement agencies in a county	2.1.1(1) 2.1.1(2) 2.1.1(3) 2.1.1(4) 2.1.2(1) 2.1.2(4)	6.1.1(1) 6.1.1(2) 6.1.1(3) 6.1.2(1) 6.1.2(2) 6.1.2(3) 6.1.4(4) 6.1.3(1) 6.1.3(2) 6.1.4(2) 6.2.1 6.2.3 6.2.4 6.2.5 6.3.3
3	To provide a minimum level of training for all law enforcement telecommunicators consistent with individual operational responsibilities	2.1.1(4) 2.1.2(2) 2.1.2(4) 2.1.2(5) 2.2.2 2.1.4(5)	6.1.2(2) 6.1.4(2) 6.2.5 6.3.1 6.3.3

Table 7-1
Program Element Summary

PROGRAM ELEMENT NUMBER	PROGRAM ELEMENT OBJECTIVE	LAW ENFORCEMENT TELECOMMUNICATIONS RELATED SYSTEM OBJECTIVE (See Table 2)	RELATED STATE SYSTEM CONCEPT SUBSYSTEMS (See SCLEP-TEL Chapter 6)
4	To provide a data system access capability to all 24-hour dispatch centers (including newly established CDCs)	2.1.3(1) 2.1.3(2)	6.1.3(1) 6.1.3(2) 6.2.4 6.3.2 6.3.3
5	To provide an interagency coordination radio communications capability to metropolitan areas	2.1.4(1) 2.1.4(2) 2.1.4(3)	6.1.4(1) 6.1.4(2) 6.1.4(3) 6.2.1 6.3.3 6.3.4
6	To provide an interagency coordination radio communications capability to urban areas	2.1.4(1) 2.1.4(2) 2.1.4(3)	6.1.4(1) 6.1.4(2) 6.1.4(3) 6.2.1 6.3.3
7	To provide an interagency coordination radio communications capability to counties in southeast Kansas operating on VHF high band	2.1.4(1) 2.1.4(2) 2.1.4(3)	6.1.4(1) 6.1.4(3) 6.2.1 6.3.3

Table 7-1(2)

PROGRAM ELEMENT NUMBER	PROGRAM ELEMENT OBJECTIVE	LAW ENFORCEMENT TELECOMMUNICATIONS RELATED SYSTEM OBJECTIVE (See Table 2)	RELATED STATE SYSTEM CONCEPT SUBSYSTEMS (See SCLEP-TEL Chapter 6)
8	To provide an interagency coordination radio communications capability to KHP/KBI	2.1.4(1) 2.1.4(2) 2.1.4(3) 2.1.4(4)	6.1.4(1) 6.1.4(3) 6.2.1 6.3.3
9	To incorporate cost-effective information processing technology in command and control support systems	2.1.2(4) 2.1.2(5) 2.1.3(1)	6.1.2(4)

Table 7-1(3)

MULTI-YEAR BUDGET (Thousands)									
PROGRAM ELEMENT	FY 1977 ACTION YEAR			FY 1978			FY 1979		
	FEDERAL	OTHER		FEDERAL	OTHER		FEDERAL	OTHER	
1	31.05	State Local	1.73 1.73	31.50	State Local	1.73 1.73	0	0	
2	156.1	State Local	8.67 8.67	156.1	State Local	8.67 8.67	156.1	State Local	8.67 8.67
3	27	State	3	90	State	10	180	State Local	10 10
4	(NO PROJECTED EXPENDITURES)								
5	79.7	State Local	4.4 4.4	0	0		0	0	
6	87.75	State Local	4.88 4.88	87.75	State Local	4.88 4.88	87.75	State Local	4.88 4.88
7	20.3	State Local	1.0 1.0	5.4	State Local	.03 .03	0	0	
8	46.8	State	5.2	20.7	State	2.3	12.15	State	1.35
9	(TO BE DETERMINED)								
TOTAL	444.10	State Local	28.63 20.43	386.40	State Local	27.63 15.33	431.40	State Local	24.65 23.3

Table 7-2
Multi-Year Budget

ITEM	CATEGORY	ESTIMATED UNIT COST (\$)	COST INCLUDES
1	VHF low band base (4 channel)	5,500	Equipment, installation, documentation, testing, training, antenna, transmission line, basic remote console
2	VHF high band base (2 channel)	4,000	Equipment, installation, documentation, testing, training, antenna, transmission line, basic remote console
3	CDC control console	10,000	Equipment, installation, documentation, testing, training
4	Ancillary equipment	7,000	Logging recorder, console chairs, alarm system, file cabinet, time stamp, information file system
5	Rear screen map projector	2,500	Equipment, installation
6	VHF low band mobile (4 channel)	2,000	Equipment, installation, documentation, testing, training, antenna, control unit
7	Emergency power	2,000	Equipment, installation, documentation, testing
8	Mobile crystal change	100	Installation
9	Tower	10,000	Shelter, erection, site preparation
10	VHF high band mobiles (4 channel)	2,500	Equipment installation

Table 7-3
Equipment Cost Summary

Table 7-4
Required Item Quantities for
Typical Program Element Projects

PROGRAM ELEMENT	ITEM NUMBER/QUANTITY										TOTAL (thousands)
	1	2	3	4	5	6	7	8	9	10	
1	1					3					11.5
2	1		1	1	1	10	1	10			57.8
3	N/A (see multi-year forecast for description)										-----
4	No cost for implementation										-0-
5	1	1				10					29.5
6	1	1				5					19.5
7A	1										5.5
7B						1					2.0
8A	1										5.5
8B		1									4.0
8C										1	2.5

7.2 Multi-Year Forecast of Results and Accomplishments

To project the multi-year forecast of results and accomplishments and to facilitate evaluation of the degree to which law enforcement telecommunications system objectives are being achieved, Table 7-5 defines Quantifiable Evaluation Indicators (QEI) for each Table 7-1 program element. Since QEIs can be evaluated numerically, progress toward implementation of the law enforcement telecommunications state system concept can be evaluated quantitatively. This aspect of the Kansas SCLEP-TEL is discussed further in Chapter 9.

Table 7-6 summarizes the contemplated number of projects that will be funded under each program element. The entries in Table 7-6 coupled with the cost of a typical project summarized in Table 7-4 form the baseline for development of the multi-year budget presented in Table 7-2. These estimates may vary depending upon funding availability and the actual number of grant requests received under each program element.

Table 7-5
Quantifiable Evaluation Indicators

PROGRAM ELEMENT	QEI	DESIRED ACCOMPLISHMENT
1	Number of law enforcement agencies with no radio capability	Reduce QEI to zero
2	Fraction of Kansas law enforcement agencies that provide 24-hour service	QEI equals 1.0
3	Fraction of law enforcement telecommunicators that have received training required by minimum state standards	QEI equals 1.0
4	Fraction of 24-hour public access/command and control support facilities that have a data systems access capability	QEI equals 1.0
5	Fraction of metropolitan areas with an interagency coordination radio communications capability defined in Table 6-6	QEI equals 1.0
6	Fraction of urban areas with an interagency coordination radio communications capability defined in Table 6-6	QEI equals 1.0
7A	Fraction of dispatch centers serving counties in southeast Kansas operating on VHF high band that have an interagency coordination radio capability on the state regional coordination frequency	QEI equals 1.0
7B	Fraction of mobiles in southeast Kansas operating on VHF high band who routinely travel outside their jurisdiction that have an interagency coordination capability as defined in Table 6-6	QEI equals 1.0
8A	Fraction of KHP/KBI regional headquarters with an interagency coordination radio capability on R ₁ (see Table 6-6)	QEI equals 1.0
8B	Fraction of KHP/KBI regional headquarters with an interagency coordination radio capability on the national emergency frequency	QEI equals 1.0

Table 7-5(2)

PROGRAM ELEMENT	QEI	DESIRED ACCOMPLISHMENT
8C	Fraction of KHP/KBI mobiles that routinely travel in areas employing the national emergency frequency that have mobile radio systems with this capability	QEI equals 1.0
9	NOTE: The number of metropolitan areas that should implement information processing technology command and control support systems that will cost-effectively support operations must be determined on a case-by-case basis through requirements analysis. A QEI has therefore not been established for this program element	

Table 7-6
Projected Numbers of Projects

PROGRAM ELEMENT	PROJECTED NUMBER OF PROJECTS (BY YEAR)		
	FY77	FY78	FY79
1	3	3	0
2	3	3	3
3	1 (30K)	2 (100K)	3 (200K)
4	N/A	N/A	N/A
5	3	0	0
6	5	5	5
7A	3	0	0
7B	3	3	0
8A	5	2	1
8B	3	3	2
8C	5	(TO BE DETERMINED)	
9	(TO BE DETERMINED)		

Table 7-7 summarizes the current value of QEIs defined for each program element and projected improvements to be accomplished through the expenditure of LEAA funds in the 2.5.5.2 category for fiscal years 1977-79. As indicated in this table, many law enforcement telecommunications system objectives will be achieved during this 3-year period. However, total accomplishment of Program Element 2, implementation of 24-hour cooperative dispatch centers across the state, will necessarily occur in an evolutionary fashion as law enforcement agencies become more familiar with the Kansas SCLEP-TEL philosophy and the benefits to be achieved by organizing their individual systems in accordance with the concepts presented in Chapter 6. However, the Kansas SCLEP-TEL has incorporated several budgetary planning incentives designed to stimulate participation in Program Element 2 type projects. Projects in LEAA program descriptor category 2.5.5.2, funded according to the planned expenditures presented in Table 7-1 will evolve Kansas toward a law enforcement telecommunications system that will serve the current and future needs of the entire Kansas law enforcement community.

PROGRAM ELEMENT	CURRENT VALUE	END OF FY 1977	END OF FY 1978	END OF FY 1979
1	0.0118	0.0059	0.00	0.00
2	0.118	0.124	0.130	0.136
3	0.000	0.000	0.100	0.400
4	0.583	0.635	0.683	0.733
5	0.000	1.00	1.00	1.00
6	0.531	0.688	0.844	1.00
7A	0.333	0.666	0.666	0.666
7B	0.333	0.666	1.00	1.00
8A	0.000	0.625	0.875	1.00
8B	0.000	0.375	0.750	1.00
8C	0.000	0.313	TO BE DETERMINED	TO BE DETERMINED
9		NOT APPLICABLE		

Table 7-7
QEI Projections

**CHAPTER 8
LAW ENFORCEMENT TELECOMMUNICATIONS ANNUAL ACTION PROGRAM**

This chapter summarizes planned LEAA program descriptor code 2.5.5.2 expenditures for 1977. Chapter 8 is particularly important to Kansas law enforcement agencies because it defines those programs and associated priorities which will be funded. Therefore, grant applications should only be submitted for projects associated with program elements in which funds will be expended. In addition, projects must comply with the law enforcement telecommunications state system concept presented in Chapter 6 to ensure that LEAA funds are employed for achieving the law enforcement telecommunications system objectives defined in Chapter 2. Individual law enforcement agencies can employ Table 7-1 to determine applicable subsections and page numbers of Chapter 6 of the Kansas SCLEP-TEL that relate to each program element. Only those grant applications in which systems to be implemented comply with related elements of the law enforcement telecommunications state system concept will normally be approved.

8.1 Implementation Strategy and Monitoring Design

Table 8-1 summarizes the annual action program and budgetary summary for each program element. State-level projects will be funded on a 90 percent Federal/10 percent state basis. Local law enforcement projects will be funded on a 90 percent Federal/5 percent state/5 percent local basis. An "EP" has been inserted in the project priority column if all projects, both anticipated and those that will be identified during the action year, are judged to have equal priority.

During the course of the action year, an attempt will be made to utilize all funds in the LEAA program descriptor 2.5.5.2 category apportioned to particular program elements defined in Table 8-1. If funds allocated to a particular program element have not been committed and there is a reasonable expectation that they will remain unused, the remaining funds in a program element may be applied toward projects associated with lower priority program elements. In these instances, funds will first be applied toward the program element of next priority, and then other program elements of decreasingly lower priority if appropriate.

This subsection presents the implementation strategy for each program element listed in Table 8-1 and, if appropriate, a monitoring design.

8.1.1 Program Element 1 -- To Provide A Minimum Radio Communications Capability For Those Kansas Law Enforcement Agencies That Currently Have None

(1) Implementation Strategy

Currently, all law enforcement agencies in Kansas have implemented a basic radio communications capability with the exception of a few county law enforcement marshals. The objective of Program Element 1 is, therefore, to provide funds for such law enforcement agencies that currently have no capability.

PROGRAM ELEMENT	OBJECTIVE	Program Element Budget Allocation (Thousands)			ANTICIPATED PROJECTS	PROJECT PRIORITY
		Federal	State	Local		
1	To provide a minimum radio communications capability for those Kansas law enforcement agencies that currently have none	31.05	1.73	1.73	Several marshals in rural areas	EP
2	To implement 24-hour cooperative dispatch centers (CDCs) that, as a minimum, serve all law enforcement agencies in a county	151.5	8.42	8.42		EP
3	To provide a minimum level of training for all law enforcement telecommunications consistent with individual operational responsibilities	27.0	3.0	0	Training requirements study	1
					Initial training program definition	2
4	To provide data systems access capability to all 24-hour dispatch centers (including newly established CDCs)	(NO PROJECTED EXPENDITURES)				EP

Table 8-1
Annual Action Program Summary

PROGRAM ELEMENT	OBJECTIVE	Program Element Budget Allocation (Thousands)			ANTICIPATED PROJECTS	PROJECT PRIORITY
		Federal	State	Local		
5	To provide an interagency coordination radio communications capability to metropolitan areas	79.7	4.4	4.4	Wichita Topeka Kansas City	EP
6	To provide an interagency coordination radio communications capability to urban areas	87.75	4.88	4.88	Junction City Lawrence	EP
7	To provide an interagency coordination radio communications capability to counties in southeast Kansas operating on VHF high band	20.3	1.0	1.0	Bourbon County Allen County Woodson Mobiles traveling out of VHF area	EP
8	To provide an interagency coordination radio communications capability to KHP/KBI	46.8	5.2	0	All KHP/KBI regional headquarters are candidates	Priorities will be determined during course of action year
9	To incorporate cost-effective information processing technology in command and control and control support systems	REQUESTS BUDGETED ON A CASE-BY-CASE BASIS			No projects identified	Priorities will be established based upon chronological receipt of grant requests
TOTAL		444.10	28.63	20.43		

EP = All projects of equivalent priority

Table 8-1(2)

(2) Monitoring Design

Grant applications will be reviewed by the Kansas SPA for compliance with the law enforcement telecommunications state system concept. After implementation, the system will be evaluated for compliance with the original grant application.

8.1.2 Program Element 2 – To Implement 24-Hour Cooperative Dispatch Centers That, As A Minimum, Serve All Law Enforcement Agencies In A County

(1) Implementation Strategy

Projects funded under Program Element 2 are of the greatest importance in achieving high-priority law enforcement telecommunications system objectives adopted for Kansas. However, projects funded in this category will require that individual law enforcement agencies in a county determine among themselves an organizational approach for achieving 24-hour public access/command and control support capability in consonance with the law enforcement telecommunications state system concept. In most cases, achievement of the required coordination and development of an operational concept will be difficult for rural law enforcement agencies. Therefore, the implementation strategy for projects under Program Element 2 will consist of:

- o SPA technical clarification assistance
- o SPA technical planning assistance program.

Individual law enforcement agencies must understand the rationale for and the benefits to be derived from forming cooperative 24-hour arrangements. In addition, it is important that individual law enforcement agencies understand requirements that must be satisfied by proposed systems contemplated for implementation prior to submitting a grant application.

Selected concepts and technical information presented in the Kansas SCLEP-TFL may not be clear to some law enforcement agencies reviewing the SCLEP-TEL. For this reason, the Kansas SPA will provide a representative at meetings at the request of law enforcement agencies to clarify concepts or other information presented in the SCLEP-TEL.

It will also be difficult for individual law enforcement agencies to independently devise an organizational and law enforcement telecommunications system concept that complies with all requirements necessary for projects to be implemented in the Program Element 2 category. In many cases, this can be attributed primarily to the coordination difficulties associated with the wide geographic distribution of law enforcement agencies, particularly in rural areas. Therefore, the Kansas SPA will either provide or arrange for planning assistance in the development of grant applications for establishing county CDCs upon receipt of a written request signed by all law enforcement agencies in a county.

Technical planning assistance will be employed to assist in the development of alternative organizational arrangements and system design concepts that participating

agencies will review to select the preferred approach. The approach selected must ensure conformance with the philosophy defined in Chapter 6 of the SCLEP-TEL, and that resulting grant applications will satisfy established requirements

(2) Monitoring Design

The monitoring design for Program Element 2 will consist of:

- o System concept review and satisfaction of coordination requirements
- o FCC coordination.

All grant requests for funds under Program Element 2 will be carefully reviewed to assess compliance with related subsections of the state system concept (see Table 7-1). However, in most cases, implementation of a Program Element 2 project will require agreement among participating law enforcement agencies regarding an acceptable organizational arrangement and cost allocation.

Therefore, grant requests in the Program Element 2 category will be accompanied by statements signed by all participating law enforcement agencies indicating their concurrence with the proposed system concept. This should include staffing approach, allocation of operating cost, etc., and an intent to participate in the system as defined when implemented, with no significant modifications. For a project to be funded under Program Element 2, all law enforcement agencies participating in the CDC must agree to participate with the only exceptions being those law enforcement agencies that currently maintain 24-hour service with special requirements that would not be satisfied by a cooperative arrangement. This requirement is particularly important to preclude implementation of fragmented, cooperative systems that eventually do not provide 24-hour public access/command and control support service throughout the state.

In most cases, implementation of a CDC will require application to the FCC for several frequencies not currently being utilized. As required in Chapter 3, Paragraph 60 of M4100.1, potential subgrantees must include an assurance of licensability once compliance with FCC rules and regulations has been determined. Subgrants for acquisition of equipment will be conditioned upon the availability of required frequencies.

After implementation, the Kansas SPA will perform an onsite evaluation of the operating system to determine compliance with the grant application and to also determine that the number of law enforcement agencies that originally indicated an intent to participate actually are participating.

8.1.3 Program Element 3 – To Provide A Minimum Level Of Training For All Law Enforcement Telecommunicators Consistent With Individual Operational Responsibilities

(1) Implementation Strategy

Telecommunicator training will be made available to those law enforcement agencies in Kansas that desire it, in three phases:

- Define training requirements
- Develop training program
- Conduct training program.

Law enforcement agencies throughout Kansas function under diverse operating conditions. For this reason, law enforcement agency training must be tailored to specific agency needs and also be available at convenient locations. The first phase in Program Element 3 will, therefore, be to conduct a study to define specific law enforcement telecommunicator training requirements for selected categories of law enforcement agencies and geographic considerations that should be addressed in the development of an effective training program.

In Phase II, the results of the Phase I study will be employed to develop a law enforcement telecommunicator training program that addresses the specific operational and geographic requirements defined. The training program will define the appropriate curriculum, training facilities, and responsibilities, along with implementation budgetary estimates. To facilitate the provision of training to rural law enforcement agencies, the training program developed in Phase II will include training programs that can be used off site to satisfy training requirements for those law enforcement agencies unable to attend a formal training session.

In Phase III, a training program will be established at selected police academies or other facilities that are convenient to agencies that desire to participate.

(2) Monitoring Design

A monitoring design for Program Element 3 will be defined as part of the development of the Kansas law enforcement telecommunicator training program in Phase II as just described.

8.1.4 Program Element 4 – To Provide A Data Systems Access Capability To All 24-Hour Dispatch Centers

(1) Implementation Strategy

Satisfaction of law enforcement telecommunications system objectives associated with Program Element 4 will only involve operating funds since data terminals are normally obtained on a leased basis. For this reason, the implementation strategy will be for the Kansas SPA to encourage law enforcement telecommunications personnel establishing 24-hour CDCs to either establish an arrangement for utilizing an existing terminal (frequently located at the sheriff's office), or acquire a second terminal consistent with data systems access and response time requirements.

(2) Monitoring Design

Not applicable.

8.1.5 Program Element 5 – To Provide An Interagency Coordination Radio Communications Capability To Metropolitan Areas

(1) Implementation Strategy

Implementation of projects associated with Program Element 5 will require that the major municipalities of Wichita, Kansas City, and Topeka concur with the law enforcement telecommunications state system concept philosophy and the need for this capability.

(2) Monitoring Design

Both grant requests and implemented systems will be reviewed for concurrence with the state system concept.

8.1.6 Program Element 6 – To Provide An Interagency Coordination Radio Communications Capability To Urban Areas

(1) Implementation Strategy

See Program Element 5.

(2) Monitoring Design

See Program Element 5.

8.1.7 Program Element 7 – To Provide An Interagency Coordination Radio Communications Capability To Counties in Southeast Kansas Operating On VHF High Band

(1) Implementation Strategy

The current budget calls for those law enforcement agencies in southeast Kansas currently operating on VHF high band bordering those counties operating on low band to acquire a capability on the statewide regional coordination frequency R₁. In addition, law enforcement mobiles in southeast Kansas operating on high band that frequently travel outside their normal jurisdiction should also acquire a regional coordination capability on this frequency. Grant applications received for procurement of equipment in either category will be reviewed to determine the actual need for this capability on a case-by-case basis.

In addition, the grantee must provide assurance of frequency coordination (see discussion above) and that frequencies requested are licensable.

(2) Monitoring Design

Implemented systems will be reviewed for compliance with requirements defined in the law enforcement telecommunications state system concept.

8.1.8 Program Element 8 – To Provide An Interagency Coordination Radio Communications Capability To KHP/KBI

(1) Implementation Strategy

Projects in Program Element 8 will fall into three basic categories. First, KHP/KBI regional headquarters will acquire a regional coordination capability on R₁.

Second, those KHP/KBI regional headquarters in areas where law enforcement mobiles of surrounding states employing the national emergency frequency (155.475 MHz) will implement a radio base station capability on this frequency. As shown in the multi-year plan, other KHP/KBI regional headquarters will acquire a capability on this frequency in the future.

The final project category in this program element is implementation of a mobile radio capability on the national emergency frequency for those KHP/KBI mobiles that routinely travel into areas that utilize this frequency. Projects in the third category will be approved on a case-by-case basis depending upon demonstrated need.

(2) Monitoring Design

Grant applications and implemented systems will be reviewed to determine compliance with the law enforcement telecommunications state system concept. In addition, grant applications must be accompanied by an indication showing assurance that required frequencies have been coordinated and will be obtainable after implementation.

8.1.9 Program Element 9 – To Incorporate Cost-Effective Information Processing Technology in Command and Control Support Systems

(1) Implementation Strategy

As described in Chapter 6 of the SCLEP-TEL, information processing systems (such as computer-aided dispatch) will not be funded until a major municipality has clearly demonstrated the cost-effectiveness of such systems. Program Element 9 will be used to fund projects on a case-by-case basis when a major municipality indicates a desire to complete a preliminary cost-effectiveness information processing requirements study. Implementation funds allocated to this program element in the future will be based upon the results of any study efforts completed.

(2) Monitoring Design

Not applicable.

8.2 Summary of Projects

In 1978 and succeeding years, after publication of the Kansas SCLEP-TEL, detailed specific information will be provided in this subsection for contemplated projects in each program element category.

**CHAPTER 9
EVALUATION**

In 1978 and in succeeding years, Chapter 9 of the Kansas SCLEP-TEL will contain an evaluation performed by the SPA that will document the degree to which law enforcement telecommunications system objectives have been and are being achieved in prior year program elements, along with an evaluation of selected prior year projects.

Section 9.1 will present changes in each QEI defined in Chapter 7 along with an assessment of implementation problems encountered and plans for their resolution.

Section 9.2 will present selected completed projects in each program area that demonstrate progress toward achieving the law enforcement telecommunications system objectives defined in Chapter 2. Projects presented in this section will also be selected to show improved law enforcement telecommunications capabilities that are being realized in Kansas as a result of implementation of the law enforcement telecommunications state system concept presented in Chapter 6.

**APPENDIX A
MANAGEMENT CONSIDERATIONS**

This appendix summarizes management considerations that will be used by the Kansas SPA in evaluating law enforcement telecommunications grant requests in addition to compliance with the law enforcement telecommunications state system concept presented in Chapter 6 and priority and budget allocation defined in Chapters 7 and 8 of the Kansas SCLEP-TEL. These considerations include:

- o Agency concurrence
- o FCC coordination
- o Technical assistance requirements.

Grant requests, particularly for projects in the Program Element 2 category, where multiple law enforcement agencies will participate in a system, must be accompanied by a statement of concurrence signed by all participating law enforcement agencies. The statement must include:

- o CDC approach (which agency will assume public access/command and control support responsibility or the alternative cooperative approach adopted)
- o Approach contemplated for allocation of initial procurement and operating cost
- o Agency or person(s) responsible for systems management
 - Warranty management
 - Accommodation of new law enforcement agencies who wish to join the system
 - Maintenance management.
- o FCC licensee designee
- o Technical assistance requirements for implementation.

In addition, those grant applications in which implementation involves communications equipment and additional radio frequencies will include an assurance of licensability from the FCC, once compliance with FCC rules and regulations has been determined. The assurance provided need not be frequency approval of the request, but only that the required frequency can be obtained if the application is in good order. Subsequent subgrants for acquisition of communications equipment will be conditioned upon the actual securing of needed frequencies assigned by the FCC through appropriate licensing procedures.

In those instances where implementation of a project will require technical assistance arranged by the Kansas SPA, the grantee should indicate specific requirements as part of the grant application. In some instances, technical planning assistance will already have been provided in the development of the grant request. Technical assistance requirements identified as part of the grant application will, therefore, deal primarily with assistance necessary for system implementation should the grant be approved.

GLOSSARY

ALERT	Automated Law Enforcement Response Team
APB	All Points Bulletin
APCO	Associated Public-Safety Communications Officers, Inc.
ASTRA	Automated Statewide Telecommunications and Records Access
BSC	Binary Synchronous Communications
CB	Citizens Band
CCH	Computerized Criminal Histories
CCSA	Common Control Switching Arrangement
CDC	Cooperative Dispatch Center
DCS	Division of Computer Services
DOR	Department of Revenue (Missouri)
EOC	Emergency Operating Center
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
ESS	Electronic Switching System
FCC	Federal Communications Commission
HYSIS	Highway Safety Information System
ICX	Intercity Link
JPL	Jet Propulsion Laboratory
KANS-A-N	Kansas Agency Network
KBI	Kansas Bureau of Investigation
KDMV	Kansas Division of Motor Vehicles
KHP	Kansas Highway Patrol
LEAA	Law Enforcement Assistance Administration

MCJIS Missouri Criminal Justice Information System
MRCC Medical Resource Coordination Center
MULES Missouri Uniform Law Enforcement System
NCIC National Crime Information Center
NEAR National Emergency Aid Radio
NLETS National Law Enforcement Telecommunications System
QEI Quantifiable Evaluation Indicator
REJIS St. Louis Regional Justice Information System
SCLEP-TEL State Comprehensive Law Enforcement Plan -- Telecommunications
SPA State Planning Agency
TCAM Telecommunications Access Method
TELPAK AT&T Long-Lines Series 5000 Tariff Offering

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