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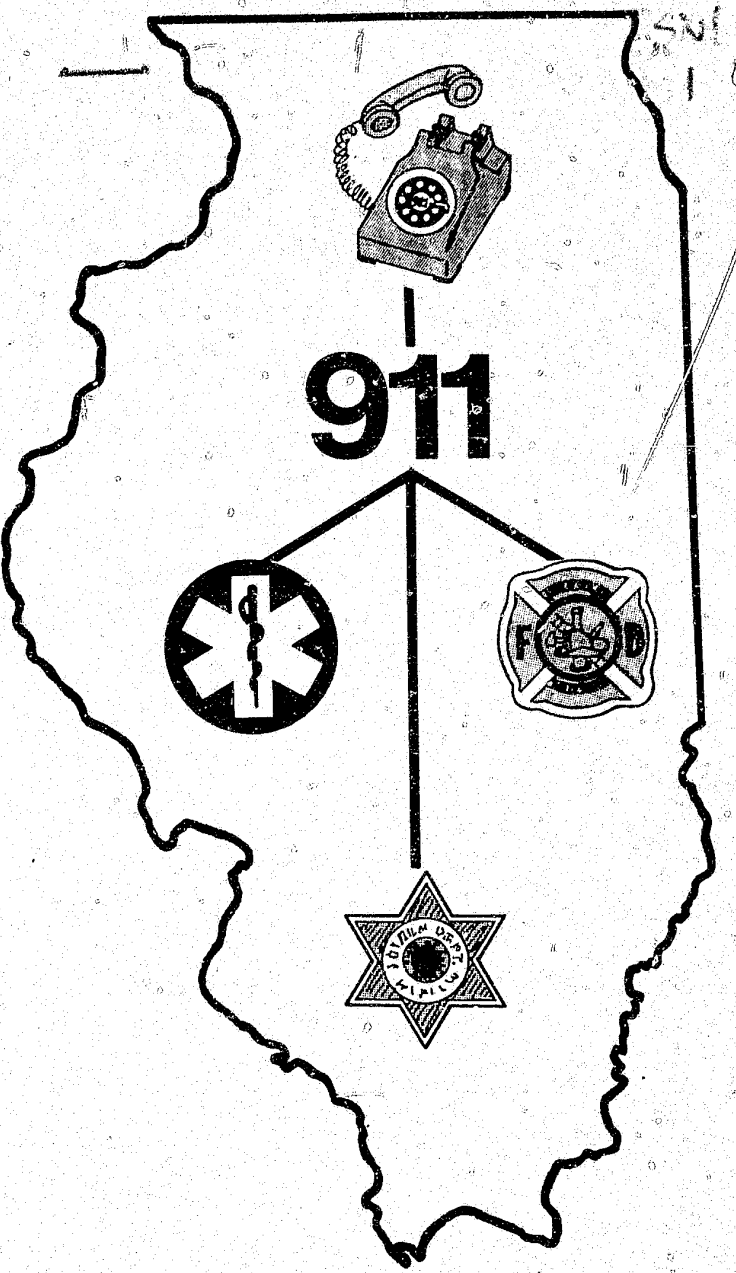

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ILLINOIS 911 TELEPHONE PLANNING MANUAL

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U.S. DEPARTMENT OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMINISTRATION
WASHINGTON, D.C. 20531

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Final Report June 1976

ILLINOIS 911 TELEPHONE PLANNING MANUAL

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CONTENTS

FOREWORD

This manual has been prepared by the Stanford Research Institute (SRI) with assistance from the Illinois Telephone Association (ITA). Its purpose is to provide telephone companies in the State of Illinois with guidelines, suggestions and recommendations to help them in the planning and implementation of telephone company responsibilities as outlined in House Bill 911 which took effect July 1, 1975.

It is recognized that each telephone company has unique situations which will have to be determined locally. Also, since the state of the art is under constant development, this manual is seen as a living document which is subject to update in future years.

This SRI study was financially aided by Grant #1717 from the Illinois Law Enforcement Commission.

I. INTRODUCTION

This Telephone Planning Manual is intended for use of telephone companies within the State of Illinois who will be involved, in varying degrees, in the planning and implementation of 911 telecommunication facilities for agencies (public agencies and public safety agencies). It is not the purpose of this guide to imply that the telephone companies (Telcos) will be responsible for all other requirements of 911 systems such as the Public Safety Answering Point (PSAP), personnel requirement, designing or purchasing customer owned equipment or communication facilities. The guidelines reflect the current state of the art and may be used, where applicable, until future revisions become necessary.

The word Agency or Agencies as used in the text of this manual will mean both of the following:

> PUBLIC AGENCY - "Public agency" means the state and any city, county, city and county, municipal corporation, public district, or public authority located in whole or in part within this state which provides or has authority to provide firefighting, police, ambulance, medical, or other emergency services.
>
> PUBLIC SAFETY AGENCY - "Public safety agency" means a functional division of a public agency which provides firefighting, police, medical, or other emergency services.

A. PURPOSE OF GUIDE

1. To provide guidelines for telephone company planning covering its telecommunications responsibilities in a 911 system.

2. To aid in understanding the telecommunication requirements of agencies by describing central office requirements, network arrangements, terminal equipment, available features, interconnection arrangements where required, community contact procedures, and other related items.

3. To give appreciation of the costs and effort required to implement the telephone company portion of 911 systems. Costs are variable between companies. Even within companies, costs will change between now and 1985.

4. To point out the impact of the Illinois Law (HB 911) which requires that every telephone company provide telecommunications capability so that basic 911 systems can be implemented and operating by December 31, 1985.

B. TELECOMMUNICATIONS RECOMMENDATIONS

1. Any inquiry concerning possible adoption of 911 by any appropriate agency shall receive prompt response.

2. Any inquiry from an associated telephone company concerning a 911 service request in a mutually served area shall also receive a prompt response.

3. All telephone companies will cooperate with agencies in providing information to reasonable requests. This includes identification of telephone company exchange boundaries as they relate to the agencies' boundaries involved within a proposed 911 system. However, telephone companies are constrained, by cost and personnel limitations, in their ability to respond to requests requiring extensive studies and research.

4. Telephone companies must participate in the early planning stage by working with the appropriate agencies in developing the most applicable telecommunications systems and/or alternatives.

5. To minimize unnecessary telephone cost, the involved governmental body or bodies should provide a resolution requesting 911 service before the Telco proceeds with design, engineering and implementation.

6. Signed agreements will be required with all involved public agencies before the telephone company commits itself to excessive implementation expenditures. (This applies to situations where telephone companies are requested to order equipment or facilities after which the agencies change plans rendering the equipment/facilities surplus.) These agreements will be developed as described in the Local Government 911 Planning Manual.

7. Telephone companies will review and identify at an early date the equipment requirements and associated costs to modify or equip each central office to insure that 911 dialed calls can be switched through the office.

8. Telephone companies will continue operator assistance if caller dials "Operator" instead of 911. The operators will connect callers to appropriate PSAPs.

9. Telephone companies will arrange to allow 911 calls at no charge to the calling party.

10. Existing tariff rates will apply where applicable. Special assemblies or features will be provided at charges consistent with each telephone company's costs and revenue requirements.

11. Where a central office or offices serve several public agencies, central office boundaries or telephone numbers will not be changed to provide 911 service to meet the requirements of individual public agencies or public safety agencies. Telephone subscribers will not be transferred to another central office or to dedicated line groups created solely to accommodate 911. This may include the exclusion of class marking (class of service) solely for 911. However, telephone companies will actively work with agencies where boundary mismatches exist to achieve an acceptable emergency reporting arrangement.

12. Telephone companies will not act as arbitrators to settle disputes between agencies. This is a responsibility of the ICC.

13. Since it is likely that some of the older switching equipment in many telephone companies will be replaced by December 31, 1985, the engineering and economic penalties of modifying the older equipment for 911 service capability must be reviewed with the agencies in an effort to establish an acceptable in-service date.

14. All public safety agencies coexisting within a telephone exchange must agree on a method of handling their 911 calls.

    If, due to boundary mismatch problems, an agency's 911 calls must be handled by more than one PSAP, the affected agency must agree on the call handling method to be employed by the PSAPs.

Jurisdictions in an exchange area must share the costs of non-basic 911 telephone system modifications and additions required to provide 911 service in the exchange area.

Agreement shall be obtained from participating agencies and the ICC before 911 systems are implemented.

15. When a special arrangement is required to provide selective routing, if and when available, the telephone companies will decide which equipment will be used. If the most economical decision is to share another telephone company's equipment, negotiations will be conducted and resolved by the involved telephone companies, with the ICC's approval.

C. BACKGROUND OF THE DEVELOPMENT OF 911

'911' (Nine-One-One) is the three-digit telephone number that has been designated as the "Universal Emergency Number" for public use throughout the United States to report emergencies and request emergency assistance. It is intended as a nationwide telephone number giving the public direct access to a Public Safety Answering Point (PSAP) which will be responsible for taking the appropriate action. The operation of the PSAP is not a responsibility of the telephone companies providing the telecommunication portion of the 911 system.

The concept of a nationwide telephone number was first used in Great Britain more than 30 years ago when the code "999" was established on a national scale. Other countries in Europe and around the world have since provided their citizens with similar uniform emergency telephone numbers.

In the United States, official impetus for the development of a nationwide emergency telephone number was provided by the 1967 recommendation of the President's Commission on Law Enforcement and Administration of Justice that a "single number should be established" for reporting police emergencies. Other Federal Government agencies and various government officials supplied further stimulus. In 1968, the American Telephone and Telegraph Company announced that it would make the digits 911 available for national use.

The code 911 was chosen because it best fits the need of all parties involved. First, and most important, it meets public requirements because it is brief, easily remembered and can be dialed quickly. Second, it best meets the long range numbering plans and switching configurations of the telephone industry. It is a unique number, never having been authorized as an office code, area code, or service code. Using other telephone numbers for each emergency was determined to be contrary to the purpose of a single universal number.

In March of 1973, the Office of Telecommunications Policy, Executive Office of the President, issued a national policy statement which recognized the benefits of 911, encouraged the nationwide adoption of 911, and provided for the establishment of a Federal Information Center to assist units of government in planning and implementation. The intense interest in the concept of 911 can be attributed primarily to the recognition of several characteristics of modern society: increased incidence of crimes, accidents, and medical emergencies; inadequacy of existing emergency reporting methods; and the continued growth and mobility of the population.

Since 1968, the use of 911 has spread to the extent that now over 30 million Americans are served by this emergency number. The first Illinois 911 system was installed in May of 1968 in Geneseo. Twenty-two other systems have also been voluntarily installed by communities before the State of Illinois established its law on September 25, 1975, mandating 911 service for all Illinois communities by December 31, 1985. A number of other states have adopted similar laws and several others have bills pending.

II. DESCRIPTIONS OF 911 SYSTEMS

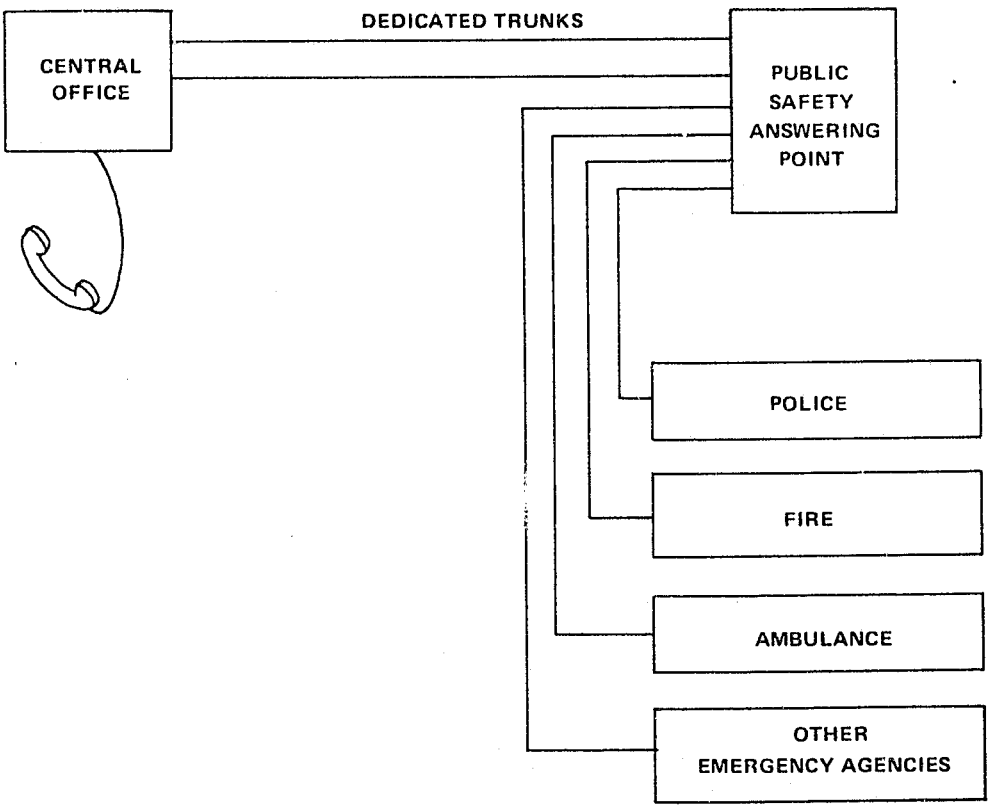
A. BASIC SYSTEMS

The basic 911 system allows a person dialing 911 to be connected, without charge, to a Public Safety Answering Point (PSAP) where the emergency message will be handled by one of the methods as described in part "B" of this section.

The basic 911 system will be provided in a manner selected by the Telco where no specific features are requested by the agency.

1. Simple Configuration

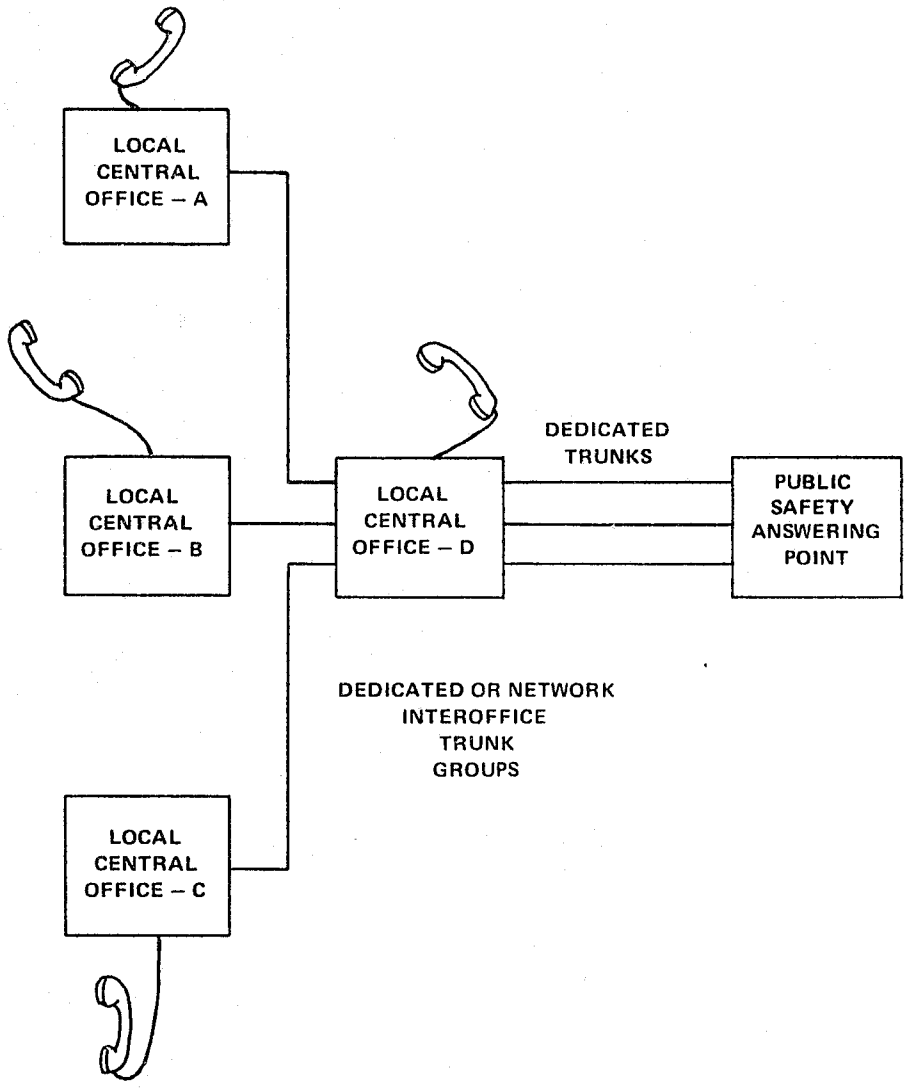
In its most simple system configuration, a 911 system will involve one central office, its serving area, and a PSAP with incoming 911 trunks from that office.



A SIMPLE 911 SYSTEM CONFIGURATION

2. Multi-Central Office Configuration

Often, the area served by the PSAP will encompass more than one central office serving area. This happens in the case of large cities or where a number of communities combine into a centralized PSAP arrangement. Such systems require the use of interoffice facilities between central offices as the diagram below shows.



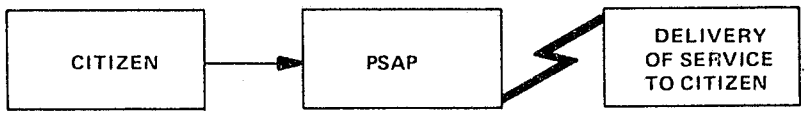
MULTI – CENTRAL OFFICE 911 CONFIGURATION

B. METHODS OF RESPONSE

Once the caller is connected to the PSAP, there are four basic ways in which the appropriate response may be made. Any PSAP might use one or all of these methods.

1. Direct Dispatch

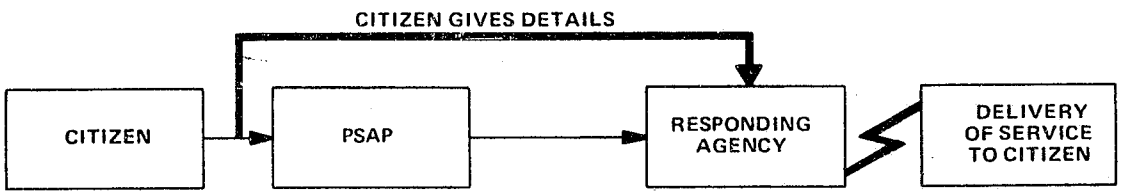
When the direct dispatch method is used, the dispatching of the appropriate police, fire, or emergency medical vehicle is performed by personnel at the PSAP. Two way radio is most often used although there may be some need for special telephone circuits or radio paging equipment to alert volunteer fire departments and sound remote alarms.



DIRECT DISPATCH

2. Call Transfer

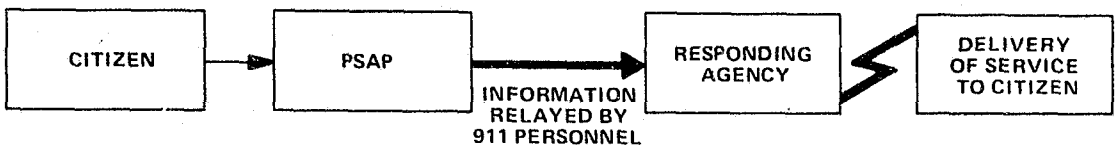
When call transfer is employed, the PSAP attendant queries the caller for the location and nature of the emergency. Once this is obtained, the appropriate agency is determined and the call is connected via private line circuits, a telephone network call, or customer owned radio links to the dispatcher of that agency. The PSAP attendant will stay on the line initially to insure a proper connection. These arrangements will require the greatest amount of Telco involvement in order to provide the necessary transfer circuits, private line channels, transmission levels, speed dialers, etc.



CALL TRANSFER

3. Call Relay

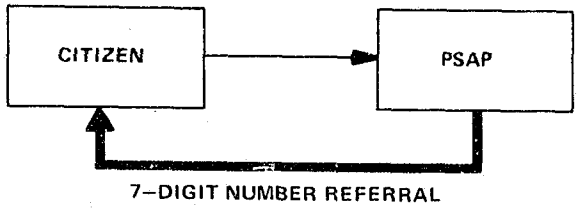
With the call relay method, the PSAP attendant answers the call and records all of the pertinent data. This information is then forwarded over private line voice channels, the telephone network, data links, or customer owned facilities to the appropriate dispatch center.



CALL RELAY

4. Call Referral

When this method is used, the PSAP attendant gives the caller the 7-digit number of the correct agency, requiring the caller to dial the number. This may be used for agencies, such as public works, poison control, suicide prevention, etc. who receive infrequent emergency calls from the area. It is also used to refer non-emergency calls to the correct 7-digit administrative numbers.



CALL REFERRAL

C. SYSTEM FEATURES

Most 911 systems may be equipped with one or more of the following features which are designed to improve the quality, speed, and accuracy of the PSAP response. These features may be provided at the request of PSAP officials and are limited by the Telcos capability of providing them.

1. Forced Disconnect

The forced disconnect feature allows the PSAP attendant to disconnect any call on a 911 trunk. This feature prevents intentional jamming of the PSAP by persons dialing all of the 911 trunks and refusing to hang up. The Forced Disconnect feature can be provided for simple 911 configurations using local facilities, and for multi-central office configurations using either direct or telephone network interoffice trunk facilities.

2. Idle Circuit Tone Application

This feature provides a means of determining upon answering a call whether the calling party has already disconnected or whether the caller is still off hook but unable to speak. If the caller abandoned the line just before the PSAP attendant answered, a distinct tone is applied to the PSAP. If the caller is unable to verbally respond but is still on the line, no tone will be heard. The feature can be provided with either direct or regular network interoffice trunks.

3. Called Party Hold

This feature enables the PSAP attendant to retain control of the call connection and to hold the line up for manual tracing even if the calling party goes on-hook. This is a useful feature to locate people who did not communicate all of the data needed for response by the PSAP and to trace nuisance calls. Called Party Hold can only be provided with direct dedicated trunk facilities.

4. Ringback

This feature is used in conjunction with Called Party Hold to ring back a held connection after the calling party has gone on-hook before the PSAP has obtained all of the necessary emergency data. Single party service and direct dedicated trunks are required.

5. Switchhook Status Indication

This feature allows the PSAP to monitor, by means of supervisory lamps, the status of a calling party being held. This is a desirable feature, especially if Called Party Hold is provided, because it will help insure that the caller's line is not unnecessarily held up after the emergency call is completed. Direct dedicated trunks are required.

6. Visual Identification of Incoming Lines

When direct dedicated trunks are used in a multi-central office 911 system, the names of the originating offices can be affixed to the incoming lamps to tell which office the call is coming from.

7. Automatic Number Identification

Automatic Number Identification (ANI) means the ability to identify the telephone number of every caller for billing purposes. In the language of 911 however, ANI means forwarding the caller's telephone number to the PSAP where special equipment translates the data into a visual display of the caller's number at the attendant position. The central office, as a requirement for ANI, must be able to identify each caller's number and forward that number to the PSAP. The PSAP equipment must be compatible with Telco equipment to receive this data. Direct dedicated trunks are also required.

8. Automatic Location Identification

This feature uses the ANI feature and expands upon it by using the caller's telephone number to search a computer data file which contains an address or location coordinate for every telephone number. Both the caller's number and location are then displayed at the PSAP attendant position. As with the ANI feature, direct dedicated trunks are required.

9. Dial Tone First

Dial Tone First (DTF) or coin free dialing allows a caller to dial 911 from a pay telephone without depositing coins. This is an invaluable feature in an emergency and a requirement for all 911 systems by December 31, 1985 according to

Illinois' 911 Law. However, the Illinois Commerce Commission has already mandated DTF service for all Illinois pay phones by December 31, 1981. In the interim, 911 systems may be installed without DTF if equipment is not available to provide it.

D. SELECTIVE ROUTING

Selective routing is being designed as a possible solution to the problem of Telco/public agency overlaps where telephone central office serving area boundaries are not coincident with community or PSAP boundaries. However, selective routing is presently not operational anywhere in the United States and it may not be widely available for a number of years.

Selective routing automatically routes a 911 call to a predetermined answering point which serves the geographical location of the originating telephone. With selective routing, the 911 call is connected via dedicated trunk facilities to a central office where a stored program switcher routes the call to the appropriate PSAP.

Selective routing, when developed, may solve most of the problems of jurisdictional boundary and telephone boundary mismatch, but it does not eliminate the need for cooperation between agencies. Selective routing does not, for example, solve the fire and law enforcement intergovernmental problems because it can only determine one jurisdiction and not the nature (police, fire or medical) of the 911 call. It may be necessary (unless all calls are dispatched by the answering agency) for a public safety agency to answer all of the emergency calls originating in its jurisdiction and to route the appropriate information to other public safety agencies in the jurisdictional area using the basic 911 methods described above in paragraph B. In summary, selective routing does not provide a technical solution for what are essentially political, organizational, and intergovernmental problems. Furthermore, those public safety agencies opting for selective routing systems must pay for them at rates which are compensatory to the Telcos, reflecting investment costs, expenses, and rate of return.

A selective routing pilot study, financed by the Law Enforcement Assistance Administration with the cooperation of A.T.&T. is being performed in Alameda County, California. Automatic Number Identification (ANI) and Automatic Location Identification (ALI) displays are also being developed for the Alameda County Study.

Selective routing is a future enhancement and is limited to new technology and availability. It may also depend on Telco policy.

III. ILLINOIS 911 STATUTE

A. SYNOPSIS OF LAW

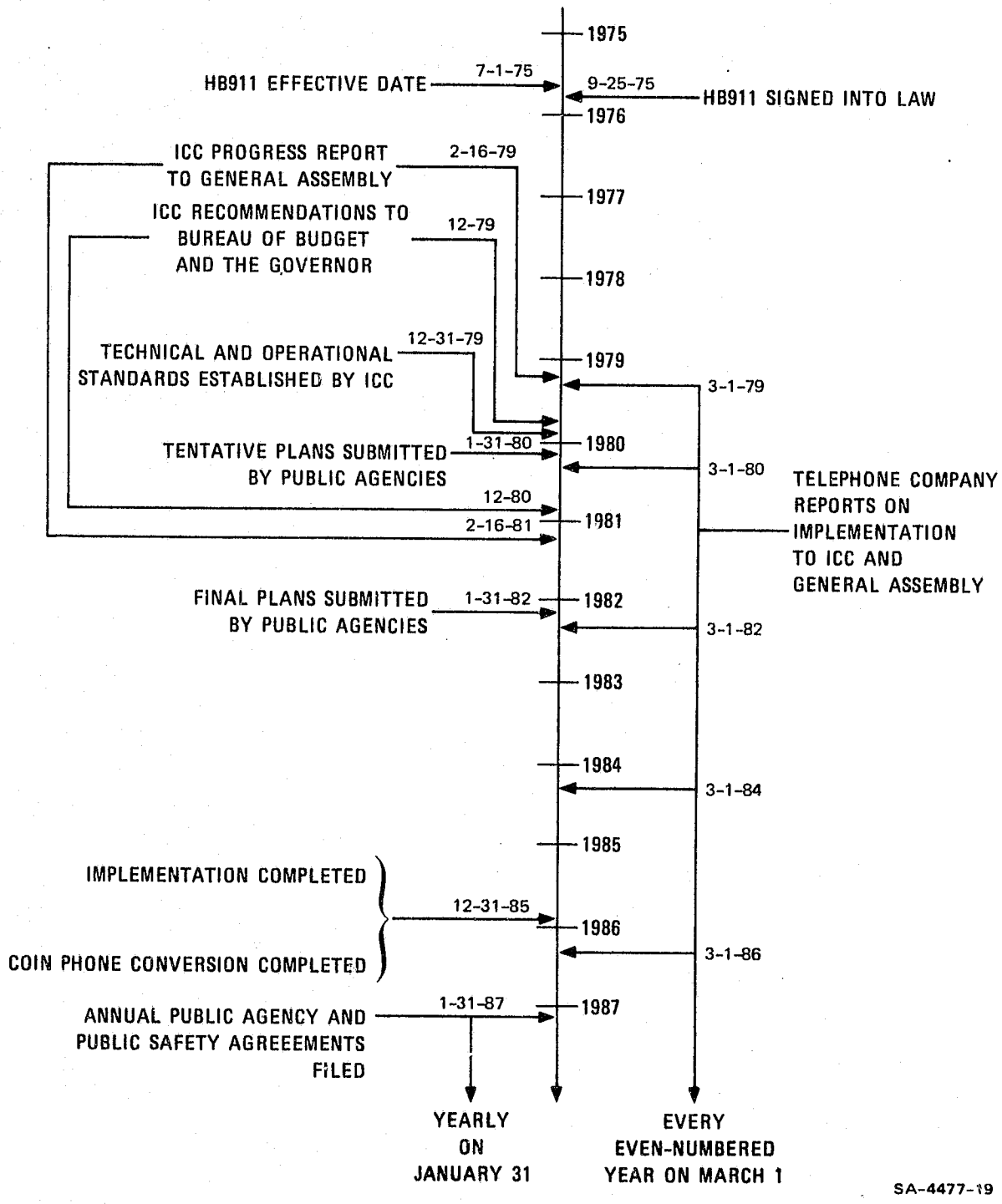
Illinois House Bill 911 was signed into law on September 25, 1975 and became Illinois Public Act 79-1092. A complete copy of the law is contained in appendix B. This law requires that 911 be established as the primary emergency telephone number for use throughout the State and that 911 service shall be in operation by no later than December 31, 1985. In addition, at that time all pay telephones in the State must allow a caller to dial 911 without depositing a coin. Every unit of local government or special purpose district which has authority to provide fire-fighting, police, ambulance, medical or other emergency services shall establish a 911 system.

The telephone companies in the State are directed to work with these agencies to implement 911 service. Plans for the 911 system are to be submitted to the telephone companies and to the ICC (see Section 11 of the Bill). The telephone companies are required to file periodic reports with the ICC and the General Assembly (see Section 13 of the bill).

The Illinois Commerce Commission will act as the overall coordinator for compliance with the law, and the Illinois Attorney General will assist and provide enforcement of provisions of the law if needed.

B. IMPLEMENTATION TIME TABLE

The following is an extraction of the critical dates contained in the law.



IV. 911 SYSTEM CONSIDERATIONS

A. CENTRAL OFFICE MODIFICATION

The modification of central offices to receive and properly direct 911 calls is one of the most important Telco functions in the planning of 911 systems.

1. Types of Central Offices

Stored Program Control offices are the easiest to modify for 911 service. All that is generally required are new memory translations and the addition of trunk relay circuits for supervision and signaling.

Crossbar and other common control electromechanical offices are also usually easy to modify by making the necessary cross connections and adding trunk relay circuits.

Modification of direct progressive control equipment, which includes step-by-step, XY, all-relay, and motor-switch equipment, has different problems and solutions, depending on whether a telephone number prefix beginning with the digit 9 is involved. In a central office where no prefix starts with the digit 9 and whose calls are not routed to an office where this situation exists, the first problem in modifying the equipment to accept and route 911 calls is to clear the ninth level of the first selector. Two principal things must be done to clear the ninth level of the first selector: (1) the dial speed test, revertive call, and other administrative functions assigned to this level must be reassigned; and (2) the absorb and blocking class marks must be removed from this level. These two actions may require considerable rewiring. Further, an additional bank of second and third selectors might have to be purchased and installed. Building additions may be necessary in some cases to accommodate added equipment. Central offices which have a prefix beginning with 9, or whose calls are routed to an office having a 9 prefix, are sometimes more expensive to modify.

In summary, modification of direct progressive control offices such as step-by-step, can be difficult and costly.

2. Modification Costs

Costs for the modification of individual central offices can vary from $100 to $250,000 depending upon the problems involved. In planning for 911 systems, costs can be substantially reduced in some cases by scheduling 911 system introductions with other major changes such as the replacement of a step-by-step office. Also, growth additions of selector banks or building space additions are opportune times to add 911 capability to an office. These costs will be born by the Telcos and be reflected in their rate base.

There may be some unusual telephone company expenditures that should probably be reviewed on a case by case basis. These may include (a) building additions or reconditioning required to provide the local central office capability to switch a 911 call, (b) advancing telephone switching expenditures to provide certain features desired by the agencies such as automatic number identification (ANI), (c) being forced to modify older switching equipment that is scheduled for replacement in the near future, (d) major cable expenditures or conduit additions being advanced for providing 911 system requirements and (e) cancellation of significant equipment or facility requirements provided for 911 service due to change of plans by agencies.

B. CIRCUIT CONSIDERATIONS

The following standards are designed to establish uniformity in 911 circuit design.

1. Functions

The signaling requirements for the 911 trunks, as a minimum, are the same as the central office signaling requirements for a customer line with terminating only service. That is, it alerts the PSAP by placing ringing on the line to the attendant, returns audible ring to the caller, and trips the ring when the PSAP goes off hook. Furthermore, it should allow the call to be made free of charge and return the coin to pay telephone if a deposit was made.

2. Number of Trunks

There must be, as a minimum, two 911 trunks originating from each central office if direct trunking is used. In determining the number of 911 trunks required for a PSAP, pure statistical application of the formulas provided in the study will sometimes result in the requirement of only one 911 trunk. However, due to the highly critical nature of this service, the recommended state standards require a 2 trunk minimum for safety against facility or circuit failure.

The best way to determine trunk requirements is to obtain data from PSAP officials on the busy hour call rate and holding time. A minimum of P.01 grade of service must be maintained.

If this data cannot be provided, estimates will have to be made:

- Assume that a 911 system will receive 0.28 calls in its average busiest hour for each 1,000 population that is served by the system.
- If the population is not known, it can be estimated from the number of main stations in the 911 system by using TABLE-A.

3. Circuit Protection

All facilities associated with 911 service must be equipped at all exposed terminations, including central office distributing frames, with protection devices that prevent accidental workman contact.

Safeguarded circuits must not be opened, grounded, short circuited, or manipulated in any way by telephone company workmen until the local test desk obtains prior circuit release from the appropriate PSAP.

Restoration procedures should be established in the planning activities with PSAP officials to insure that 911 facilities are given the proper priority in the restoration sequence.

Every Telco should both write practices and train personnel involved with 911 facilities or records on 911 circuit protection.

TABLE-A

ESTIMATING COMMUNITY POPULATION

FROM TOTAL NUMBER OF MAIN STATIONS

(This table is to be used only if no reliable local source is readily available)

This table is designed for use in estimating the population of a community from the number of main stations. Three "People-Per-Main Station" densities are given: high, median and low. In most cases it is expected that the median density value would provide the closest estimate of population. However, factors such as high concentrations of business or unusual socio-economic conditions, which influence the density, may require a high or low density value to be used.

People-Per-Main Station Density	People-Per-Main Station Ratio
High	2.5
Median	1.8
Low	1.2

To estimate the population of a community from the number of main stations:

1. Select the People-Per-Main Station Density that would most likely fit the community. As mentioned above, in most cases the median density will apply.
2. Multiply the People-Per-Main Station Ratio by the number of main stations in the community to estimate the community population.

For example: A median density community with 4,500 main stations would have an estimated 8,100 population (1.8 x 4,500 = 8,100).

4. Diversity

911 facilities should always be assigned in more than one facility route whenever alternate routes exist and are available. Creating new routes solely for 911 diversity should not be instituted unless requested and paid for by PSAP officials. If only one facility path exists, some degree of diversity should be provided by spreading the assignment of 911 circuits throughout that facility.

5. Overflow

911 calls that encounter a busy at the PSAP will not get automatic overflow to the Telco operator. This situation creates confusion for both the caller and the Telco operator. 911 overflow will receive normal central office trunk busy tone. Education of the public should instruct them to immediately redial 911.

6. Transmission Designs

911 facilities should be designed with the same transmission levels that apply to existing tariff services, i.e., if local business line rates are used, the 911 circuit is designed with the same levels as local business lines. In another example, if private line tariffs apply, private line circuit design levels should be used. Any 911 system must provide an acceptable level of transmission.

C. PSAP ARRANGEMENTS

Appropriate arrangements for the PSAP will have to be determined in consultation with the public agencies operating the service. The type of equipment required for each installation may be determined by the complexity of the PSAP's operation including the number of emergency agencies involved. The PSAP could range from a single telephone or call director to a sophisticated call distributing or multiple switchboard installation with an extensive private line network. The customer will pay tariff rates for the equipment and services provided. The following technical information is provided regarding equipment that could possibly be used in a 911 system.

1. Existing Terminal Equipment

The basic equipment required for call answering can range from an individual pushbutton type telephone to a large pushbutton answering system, multiple switchboard, or automatic call distribution system. Most of this equipment can be furnished by the telephone industry under their current tariff schedules. Where certain configurations of equipment required are not offered in current industry tariffs, special assembly tariffs or contracts should be developed for a specific application.

a. Key Equipment. Incoming 911 lines, two-way lines, and direct tie lines are terminated on pushbuttons, usually provided in multiples of six or ten. The pushbutton modules are wired to an associated telephone set, headset, handset, or speaker-phone. An incoming call on a line is noted by flashing lamp associated with pushbutton and an audible signal. Pushing the button answers the call. Pushbutton operated holding features allow calls to be held while other calls are answered or originated.

b. Switchboards. PBXs and PABXs are available in manual and automatic versions and also in cord type or cordless, i.e., pushbutton or lever switch, attendant operation.

These switchboards are designed to answer calls from street side emergency telephones as well as central office lines and usually are (or can be) equipped to "transfer" calls to other locations. Calls are answered by both pushbutton and cord and jack methods described above.

c. Automatic Call Distributor. Equipment to distribute large volumes of incoming calls to attendants not already working on calls or to "store" calls until attendants become available.

d. Centrex. A type of private branch exchange in which incoming calls can be dialed direct to any extension without an operator's assistance. Outgoing and intercom calls are dialed by the extension users.

2. Special Application Equipment

Requires either circuit or equipment design efforts. Requires drawings and documentation for manufacturing and/or installation. They could be as minor as interconnecting standard equipment in an unorthodox manner or as extensive as designing a complete customized installation. In either case they are not covered by standard tariffs and should be reviewed to recover costs.

3. Interconnect Equipment

If the PSAP elects to use customer owned and maintained (COAM) equipment, a connecting arrangement may be required. This requirement should properly be reviewed and analyzed by the Telco.

Typical COAM equipment would include recording equipment, key telephone equipment, switchboards, ACDs (automatic call distributor), and monitor devices.

4. Emergency Power

Continuous operation of the telephone equipment used to answer 911 calls usually depends on a local source of commercial power. Interruption of that power will in most cases halt operations. Smaller installations with only a few trunks may function indefinitely with individual ringers and/or neon lamp indicators. Apparatus of this sort derives its energy from the central office.

Larger, more complex arrangements require an alternate source of local power for lamps, switching and auxiliary units. Many sites used as answering locations have emergency power units. If use of the customer's standby power facilities is contemplated, it is important to confirm adequate capacity and connection to the telephone apparatus when it assumes the load. The time required for

the stand-by source to come on line is also critical. A prolonged delay during a black-out can have serious consequences. The customer can elect to have the telephone company supply emergency power for telephone equipment at normal tariff rates. One of the recommended state standards would require all PSAPs to have standby power.

5. Transfer Arrangements

a. Direct Transfer Trunks. When direct transfer trunks are provided they should be accessible from all 911 positions. These trunks will permit the 911 attendant to have the capability to automatically ring another station and add that station to the 911 call with minimum transmission loss. The 911 attendant should have the option of remaining on the line or dropping off to answer other calls. If the attendant drops off, the call is effectively transferred. These trunks should permit the emergency agency to hold a connection for tracing purposes.

b. Dial Network. Dial lines and trunks, similar to direct trunks, should be provided to dial up seldom-called emergency agencies.

D. GENERAL CONSIDERATIONS

1. Direct vs. Tandem Trunks

Direct trunking to a PSAP is by far the most desirable arrangement. With direct trunking, features such as Forced Disconnect, Idle Circuit Tone Application, Called Party Hold, and Switchhook Status Indication may be provided with a minimum of cost and engineering time. These features were covered in more detail in Section II-C.

With tandem trunking, however, some of the above features would be unavailable. The use of tandem trunking is an option which can be provided subject to its availability from the Telco.

2. Assignment of a Seven-Digit Number

Each PSAP must have a seven-digit number for non-emergency and administrative use, or to allow the operator to reach the appropriate agency or PSAP. The PSAP may maintain a separate secondary backup emergency number, and shall maintain a separate number for non-emergency telephone calls.

3. Restricting Use of Other 3-Digit Emergency Numbers

Questions may be directed to the telephone companies about the use of another three-digit telephone number other than the 911 number for certain emergency services. The Telco viewpoint to questions or proposals on this matter is covered by the following.

The basic purpose and principle of a universal emergency number is defeated by this proposition. The major intent of 911 implementation is to provide one simple, nationwide code to give the public direct access to an emergency answering center. Whether partially or fully implemented, the effect on the public of another special code would be to cause inconvenience and confusion, particularly to those away from their home communities.

The State of Illinois has enacted a law which makes 911 mandatory and specifies that every 911 system shall include police, firefighting, and emergency medical and ambulance service. Therefore, establishing another special number for a specific public safety agency, such as only one of of the above, seems contrary to the stated requirement of the law.

Nationally, various public safety agency groups have accepted 911 as indicated by their endorsement of the number. The Office of Telecommunications Policy, Executive Office of the President has issued a national policy statement endorsing 911 and urging its implementation. To date, 911 has been established satisfactorily in hundreds of communities nationwide with no apparent requirement for a separate special code. Should a special number be initiated for any one public safety agency, other agencies may ask for special numbers.

If a special code other than 911 were introduced, the following cost penalties and shortcomings would either be included in direct charges for the system or passed along to subscribers via rate base inclusion:

a. There would be a cost associated with making available and restricting the use for other purposes of another special code. Although there is no asset entry in the accounts for number codes, the limited combinations of a given number of digits places a value on codes for the telephone industry. Under the existing nationwide

numbering plan, the exhaustion of available NPA codes as well as prefix codes in a given NPA results in extremely costly measures to rearrange the dialing patterns. These measures include realigning NPA boundaries, splitting existing NPAs, and introducing interchangeable codes. Each code, therefore, has a value associated with the degree to which its utilization contributes to the advancement of these major expenditures. These measures, which result in telephone number changes, are also disruptive and annoying to the public.

In addition to the inherent cost of setting aside a code, there is the extensive rearrangement cost which would be necessary to clear out a particular code in order to make it universally available if it is currently being utilized. One- or two-digit codes are even more costly since, without special timing apparatus to determine whether additional numbers are forthcoming before switching the call, they would render entire groups of three-digit codes inoperative.

Utilization of a four-digit code presents the same problem pertaining to universality as the three-digit code. While a prefix code is not totally consumed by this option, 1000 numbers in the prefix become unassignable. The four-digit number is less convenient and commitable to memory. A certain number of dialing errors committed by individuals calling other numbers in the prefix would be inevitable. A 911-X (X being any digit from 0 to 9) would avoid prefix conflict problems, but would require a costly timing apparatus to distinguish the other emergency calls from 911 calls.

The special symbols such as appear on a 12-bottom Touch-Tone^{R} set (* and #) have been designated to be used for special signaling functions. These include Picturephone^{R} signaling, indicating end of digits dialed for International calls, and communications with computers (banks, credit card agencies, etc.). Since dial phones and 10-digit Touch-Tone^{R} or equivalent phones are not equipped to send these signals, the universal use of any code including these symbols would be prohibited.

b. Any code which is a portion of another code or number would require costly timing apparatus. If a switching machine is to receive some codes which are portions of other codes switched by the machine, the practical way to distinguish between them is to measure a reasonable time interval after the shorter code to determine whether to treat the abbreviated code or wait for more information.

   The timing apparatus and equipment modifications required for this operation are major expenditures for each office. The usage of costly common control equipment during the timing also could cause premature or otherwise unnecessary equipment additions. No matter what time interval is chosen there is always the chance of misreading the dialer's intent and misdirecting the call. Also, the time interval represents a delay for the emergency to get attention. The effectiveness of an emergency reporting system is thereby diminished.

c. Special switching modifications and trunk circuit development may be required for the new special code, such as were required and specially developed for 911.

   All Step type of switching offices require a build out of additional equipment to process a new code. Crossbar and electronic offices require an update in the common control mechanism to recognize the special code.

d. Trunk group inefficiencies due to two networks would add to overall costs. A separate number for one specific public agency would mean splitting one trunk group for 911 into two. The total number of trunks required to provide the same grade of service to two systems would consequently increase. This is due to trunk efficiency increasing as the size increases and vice versa. The number of trunks for small systems might double since the second system would also require a minimum size trunk group.

e. Selective call routing expense would effectively be doubled based on current developments. The current concept of this yet undeveloped method of dealing with non-coincident boundaries implies that an additional number to 911 would require twice the equipment and

software to implement as well as increasing the continuing clerical work and work procedures to update the data base for every telephone number change or address change within the 911 serving area.

f. Depending on the particular 911 arrangement, special transfer circuits at the 911 console and the special emergency number console may be necessary due to dialing errors, confusion between numbers, etc. that result in getting to the wrong console. For example, attendant work time for handling calls at a fire answer point location would probably be increased with the necessary additional cross transferring of calls, as well as the critical delay of promptly caring for the non-fire emergency calls that are directed to the fire emergency number.

g. Provision of various special features, both currently available and proposed for 911 systems, may require redundant systems and/or special interconnections to transfer data. These features include Forced Disconnect, Tone Application (Idle Trunk Indication), Called Party Hold, Ringback, and Calling number identification and location.

Since some of these features are trunk related and billed, a cost penalty due to less efficient trunk groups (more trunks) would also apply for these services.

The law does allow for a secondary backup number which might be able to serve as a primary number for a particular agency if so desired and publicized. The additional publicity would, of course, be another cost the community would incur for this option as it would for a special abbreviated code. This option would also tend to subvert the universal emergency number program.

E. TARIFF CONSIDERATIONS

The Telephone Companies will provide the following without direct charge to the PSAPs:

- Normal central office rearrangements associated with opening of the 911 code.
- Use of local central office equipment and intraoffice trunks involved to route calls within the local serving central office area.

- Use of regular message network interoffice trunk facilities.
- Calls to 911 from coin and non-coin phones will be without charge to the caller or called parties.
- Treatment of 911 circuits with respect to normal maintenance, protection, etc.

The cost of the above items will continue to be recovered through inclusion in overall revenue requirements obtained through all telephone service subscribers.

The following items are typical of the ones directly billable to the single point designated by the responsible agencies.

- Dedicated 911 trunk circuits from originating central office to PSAP.
- Dedicated 911 interoffice trunk facilities.
- Terminating equipment and telecommunications at the PSAP.
- Special features not included as integral part of trunk circuit equipment.
- Private line circuits and transfer arrangements from the PSAP to other PSAPs and to Public Agencies' telecommunication locations.
- Special arrangements for recording, announcements, overflow, etc.
- Special conditioning or back-up arrangements of cable facilities or equipment.
- Prorated cost of switching equipment, logic functions, memory capacity and administrative cost requirements for selective routing requirements.

Special charges may be applicable where additional expenditures are required to meet 911 requirements or service date. These should be reviewed on a case by case basis and may include (a) building additions or reconditioning required to provide the local central office capability to switch a 911 call, (b) advancing telephone switching expenditures to provide certain features desired by the agencies such as automatic number identification (ANI), (c) being forced to modify older switching equipment that is scheduled for replacement in the near future, (d) major cable expenditures or conduit additions being advanced for providing 911 system requirements and (e) cancellation of significant

equipment or facility requirements provided for 911 service due to change of plans by agencies. Approval may have to be obtained from the ICC before any of the above special charges are billed to a 911 customer.

V. PLANNING FOR 911 SERVICE

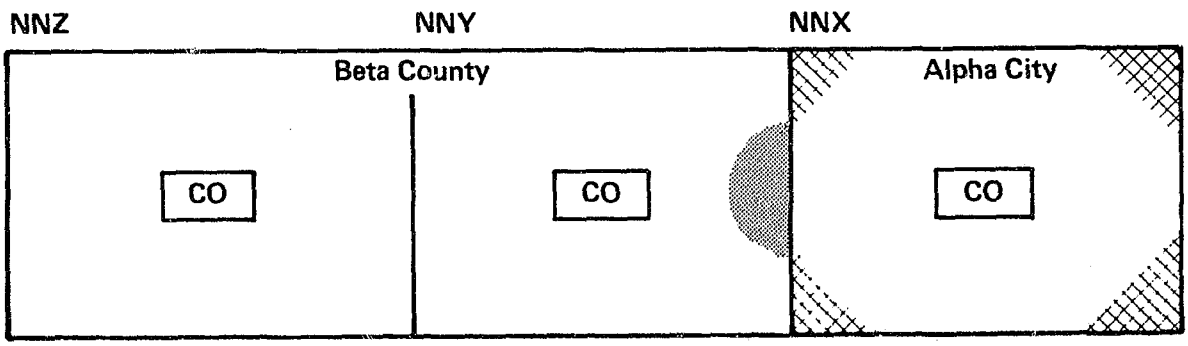
A. INTRACOMPANY COORDINATION

It is recommended that every Telco establish a 911 coordinator to be responsible for the planning and implementation of 911 systems for agencies served by your company. If necessary, he or she should arrange for a committee representing the departments that will assist in the planning and implementation of various telecommunications aspects of 911 systems.

B. IDENTIFYING KNOWN BOUNDARY MISMATCHES

1. Jurisdictional/Telco Boundary Overlaps

In rare cases jurisdictional and telephone central office boundaries will coincide. The following figure illustrates a typical boundary problem arising from 911 service.



Most of Alpha City is served by the NNX central office (exchange). Some of the area outside of Alpha City is also served by NNX. This area is shown x-hatched. In addition, the dotted area within the NNY exchange boundary is part of Alpha City. These exchange boundary problems are inherent in a single number approach to emergency calling.

Let us assume that two PSAPs (Public Safety Answering Points) are to be established, one in Alpha City serving only Alpha City, the other in Beta County to serve both the NNZ and NNY exchanges.

Calls to 911 originating from the x-hatched area would be routed to the PSAP located in Alpha City. Answering personnel should be aware of this and appropriate procedures should be established to relay or transfer the call to the proper serving agency with minimum delay. (See Section II-B for more detail on relaying or transferring calls.) Calls originating from the dotted area served by the NNY exchange would automatically be routed to the Beta County PSAP and would have to be transferred or relayed to the Alpha City PSAP as outlined above for the x-hatched area in the NNX exchange.

If the dotted area has a high population density while the remainder of the NNY CO area is predominantly rural, one alternative might be to route NNY 911 calls to the Alpha City PSAP instead of to the Beta County PSAP. There are no definitive solutions. Choices must be made with all concerned groups participating to optimize the operation of the system. Not only the present situation should be considered but future possibilities should be anticipated and be part of the input. Extra costs, if any, may influence the choice of one arrangement over the other.

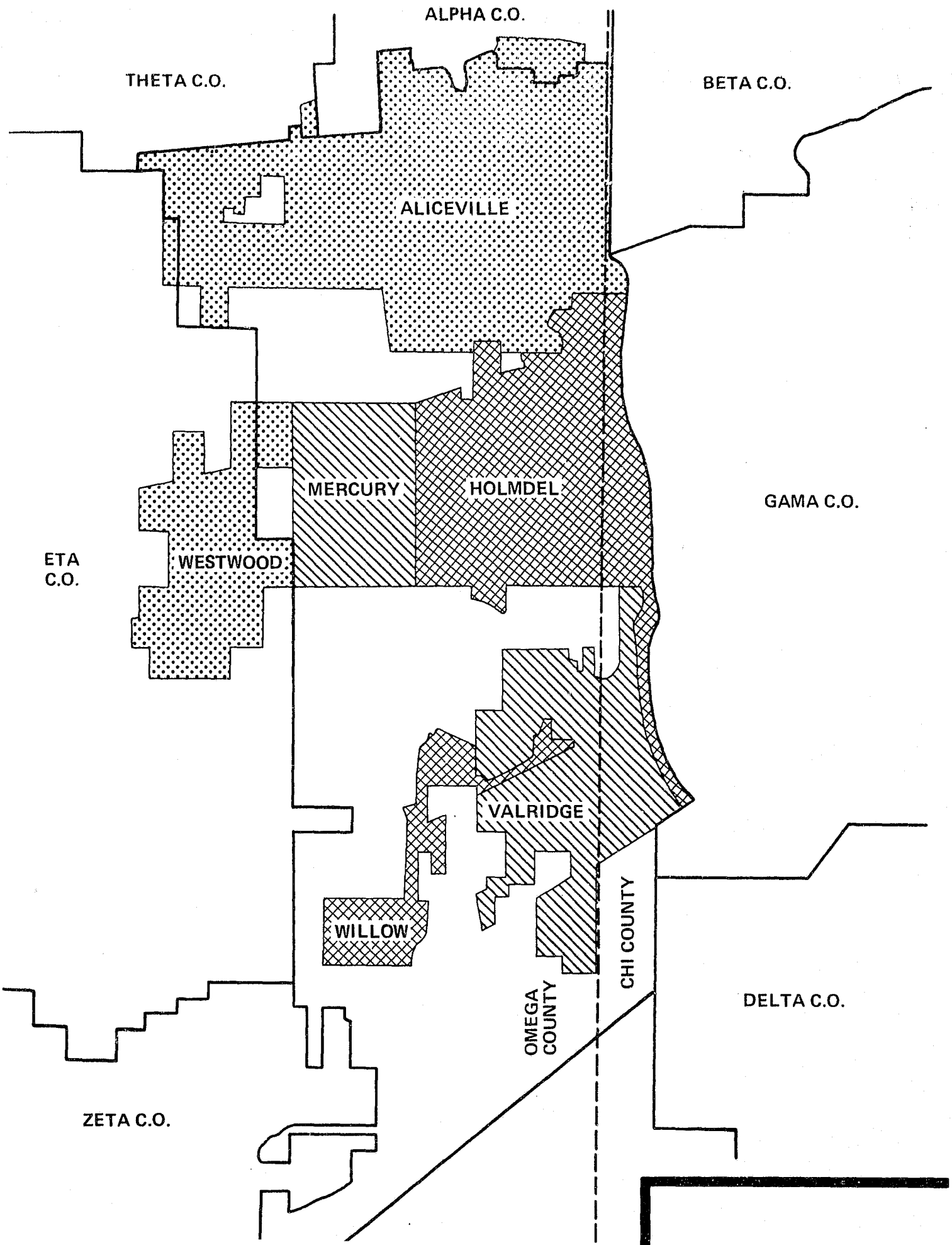
2. Exchanges Serving More Than One Municipality

Boundary inconsistencies between the telephone office or exchange territory and the various communities and unincorporated areas it serves pose a major problem. This is further complicated when the communities are served by police and fire agencies whose jurisdictional areas are not coterminous.

The following map of the Holmdel exchange illustrates some of these problems.

- The exchange area (heavy black line) serves basically five communities - Aliceville, Mercury, Holmdel, Willow, and Valridge. There are three sections of Aliceville that lie outside the Holmdel exchange. These are served by Alpha, Theta and Eta. Holmdel also serves a small section of Westwood the largest portion of which is served by Eta.

- The communities of Aliceville, Mercury, Holmdel and Willow provide their own police and fire protection.


ALPHA C.O.
THETA C.O.
BETA C.O.
ALICEVILLE
MERCURY
HOLMDEL
GAMA C.O.
ETA C.O.
WESTWOOD
VALRIDGE
WILLOW
CHI COUNTY
OMEGA COUNTY
DELTA C.O.
ZETA C.O.

- Valridge has its own fire agency, but its police protection is provided by the Sheriff's Department. Since it is divided by a county line, its police protection is split county-wise between Chi and the Omega counties.
- The unincorporated areas obtain fire protection from various fire agencies, many of which have jurisdictions which transcend the Holmdel office boundary.
- The unincorporated areas receive police protection from the Chi County Sheriff or the Omega County Sheriff depending on their location county-wise.

If Holmdel were to be arranged for 911 service it would be necessary that its five major communities and its unincorporated areas jointly establish a PSAP which would answer 911 calls and then use one of the basic 911 call handling methods described in Section II-B to route each caller or his information to the proper agency for disposition. Calls orginating from those portions of Aliceville outside of the Holmdel boundary and that part of Westwood within the Holmdel boundary would have to be handled by mutually agreed-upon techniques adopted with adjacent PSAPs.

If a jointly operated PSAP cannot be agreed upon, then the only recourse is a decision by the ICC, which could include selective routing as described in Section II-D.

C. IDENTIFYING KNOWN CENTRAL OFFICE PROBLEMS

In handling a 911 call, a direct trunk group from the local office to the PSAP is strongly recommended. However, in metropolitan areas this emergency traffic could possibly be routed over established trunk groups to a tandem machine. Tandem routing is less of a problem in common control offices (including SxS offices equipped with common control features). In non-common control offices special arrangements usually have to be made to facilitate tandem trunking. The applicable arrangements are discussed below. Whichever type of office serves the PSAP must be arranged to complete on either a simple seizure or on a ringdown basis depending on the type of customer equipment.

1. Features

In direct trunking, the following features could be part of the trunk circuit, if they are available in the Telco:

Forced Disconnect, Tone Application, Called Party Hold, Ringback, and Calling Party Switchhook Status (Refer to Section II-C).

If tandem trunking is used some of the above features are not available.

2. Common Control Office

Direct trunking to the PSAP may be used. In this case, the call is handled on an operator class basis, and out-trunk relay equipment with ringdown signaling is required.

Arrangement for tandem is possible in common control central offices and use of this method depends on equipment arrangements provided in the local and tandem office. If the common control central office is equipped for code conversion, it could convert the 911 number to an arbitrary type code and outpulse this code to tandem. The tandem must be arranged to handle these codes and pass the call forward to the PSAP. If these features are available, the traffic can be handled on this basis without requiring any equipment modifications at the Common Control Tandems and Stored Program Control Tandems.

3. Stored Program Controlled Office

A stored program control office can handle these calls on either a direct or tandem routing. If the routing is to be tandem, the outpulsing can be MF or DP and the tandem must be arranged as discussed under the section on tandem.

4. Step-by-Step

In general, the prime considerations in step-by-step cities involve the equipment arrangements in the step-by-step offices and the most economical way to separate out the 911 traffic. Factors involved include the treatment of level 9, the digit absorbing arrangements in the local offices, the availability of a common control or step-by-step tandem, the amount of common control and/or step-by-step common control, etc.

If the area has a step-by-step tandem which is reached by a trunk group on level 9 and the group is selected when "9" is the "A" digit, then level 1 of the incoming selector at the tandem must be available for routing 911 calls depending upon digit absorbing arrangements.

Common control tandem can be used where the various step-by-step originating offices have a trunk group to tandem on level 9 which is selected without any digit absorbing. At tandem, these dial pulse trunk groups would be associated with a separate group of 10-digit incoming registers arranged to reconstruct a "9" as the "A" digit on all calls. Common control offices in the area would MF pulse 911 to tandem, and calls from all offices would be routed to a common group of straightforward trunks to the PSAP. An alternative is to route common control 911 traffic via a common control tandem or common control office and route step-by-step traffic via some type of concentrating equipment.

Where there is local calling between step-by-step cities which will have separate PSAPs, and level 9 in either city is used for trunking to the other, the back-haul cost or a change in central office codes is less costly than introducing a level 9 selector stage in each building involved and splitting the inter-city trunk group into groups from the second selectors. If the first selector level 9 routes to a common control office, a second stage of selection may be introduced.

5. Tandem and Toll Offices

Tandem and Toll offices as used here means any type office where a 911 call is routed from one central office through another office using its switching capabilities to route it to the central office in which the PSAP is located.

Some of the more salient points to be aware of:

- Does the tandem office have the capability of restructuring the incoming calls from the digits received to the required digits for outpulsing to gain access to the PSAP located in the distant office?
- In selecting the tandem office the above is important, but also the terminating office must be considered on how it will handle completion on an incoming trunk basis.

D. HANDLING 911 CALLS PRIOR TO ESTABLISHING SERVICE

Some citizens will attempt to use 911 before it is actually working. In order to protect and strengthen public understanding of the 911 concept, we must treat non-working 911 calls in as special and informative a manner as possible. Customers dialing non-working 911 should route to a special recorded announcement or to a live intercept.

VI. CONTACT WITH AGENCIES

A. TELCO CONTACT PROCEDURES

- Make contact with customers (local 911 Committees) who want information about 911 service for their community.
- Advise other Telcos, if included in proposed geographical area, that initial 911 contracts have been received.
- Request from them a map that identifies their fire, ambulance and police boundaries.
- Contact telephone planning engineer to determine central office and trunking capabilities.
- Review the telephone exchange boundary with overlay of jurisdictional boundaries with local 911 committee. If no mismatch exists proceed with securing resolution from appropriate public agencies and/or public safety agencies to begin feasibility studies and implementation of system.
- PSAP location must be determined (See Section VI-B).
- Where boundary overlap exists, have agencies secure agreements from contiguous agencies and determine what method the PSAP will use when handling calls (Use Exhibit 1 in Section XII-E).
- Once these agreements are reached secure a resolution from the appropriate agencies.
- Have emergency agencies set up 3 months peg count of calls presently handled. The peg count should identify types of calls being handled (See Exhibit 2 in Section XII-E) by the following types: administrative calls coming in on emergency lines, emergency calls, and other calls of a non-emergency nature (personal, other department information, etc.). It is vitally important that the PSAP understands the necessity for keeping non-emergency calls off the 911 lines. If these non-emergency calls are allowed, the PSAP will suffer with a busy condition on these lines.
- Determine from study the trunking requirement to provide P.01 grade of service -- there is a proposed standard calling for a minimum of two trunks.
- Provide tentative cost for 911 system based on study and operational agreements by the agencies. (Police, fire, and ambulance must agree.)

- Be prepared to make formal presentation to involved agencies. Obtain agreement to proceed and set approximate target date for cutover.
- Hold the interdepartmental meeting. Include all involved telephone companies. (See Section VIII-A)
- It is suggested that schedules and forms for guiding the interdepartmental meeting be used. (Exhibit 3 in Section XII-E is an example.)
- Minutes should be issued to all attending plus copies to company 911 coordinator.
- Cooperate in Public Awareness programs.
- Certain post cutover activities are necessary. (These are suggested in Section X.)

B. AGENCIES - FUNCTIONS & RESPONSIBILITIES

The functions and responsibilities of local agencies and governments are described in a companion manual, "Illinois Local Government 911 Planning Manual."

VII. INTERCOMPANY 911 SYSTEMS

A. TELCO COORDINATION

When a Telco is first contacted by an agency or local 911 committee concerning a possible 911 system which may involve more than one Telco, the contacted Telco is responsible for advising all possibly involved Telcos that preliminary discussions have begun.

Once the location of the PSAP has been determined, the Telco providing service to the PSAP location will be responsible for all required intercompany coordination.

B. NEED FOR UNIFORMITY

An intercompany 911 system should be designed where practical to provide uniform service to the PSAP.

- Line status tones and signal formats should be the same from all Telcos.
- 911 features provided for the PSAP attendant should be operable in the same manner regardless of the originating Telco office.
- Trouble reports should be forwarded to the Telco that serves the PSAP.
- Trouble alarms on trunks and facilities should be provided in the central office serving PSAP.
- Telco that serves the PSAP will act as 911 coordinator for all involved Telcos and will be responsible for Sections VIII and X.

VIII. INSTALLING A 911 SYSTEM

A. ESTABLISHING INTRACOMPANY COORDINATION

Some Telcos have established steering committees and assigned people to 911 work. Other Telcos have opted to have only one individual assigned full time. The size of a company will probably dictate the need for people. However, the Illinois Commerce Commission requests each Telco to have at least one person designated as a contact on 911 matters.

As suggested in Section V, paragraph A, the coordination of a system or many systems can best be accomplished by people dedicated and/or assigned to a steering committee consisting of representatives from these departments:

1. Marketing
2. Engineering and Switching
3. Public Relations
4. Commercial
5. Outside Construction/Plant Engineer
6. Directory Representative

While we list these departments as minimum participants it is not suggested that these are the only skills necessary. Your company needs will dictate the extent of interdepartmental cooperation. This manual is not intended to spell out each department's function or to spell out its responsibility.

B. INTRACOMPANY COORDINATION FUNCTIONS

The functions outlined below are intended to call attention to specific items needed to ensure a good 911 system.

1. Review Proposed Systems

Upon receipt of a resolution to study or develop a plan from a community or governmental body, contact the Illinois Commerce Commission to confirm that your company and the agency has complied with Section 6 of HB 911.

2. Assess Telco Problems

Prior to a commitment to provide 911 service, be sure that: central office modification is within the present CO completions schedule; any overlap condition has been identified; all agencies agree on how all calls will be handled and by what method; and all charges connected with the proposed system have been discussed with the agencies.

3. Determine Implementation Intervals

The intracompany coordinating steering committee should use a standard form that identifies all of these areas:

a. Equipment ordering and installation.
b. Training
c. Public awareness program
d. Directory issue
e. Testing system and putting system on line.

By standardizing procedures and by following a directive, all of the tasks identified on the form can be performed and a 911 system can be implemented successfully.

4. Implementation

Followup is a must if a community or governmental body is to meet its commitment. All the details should be completed by the assigned dates to meet final "on line" service due date.

Probably the Marketing/Commercial management person assigned the 911 coordination is the one person who will know the status of every item and department responsibility.

IX. COMMUNITY RELATIONS

Probably the most important activity in the development of a 911 system is the "Public Awareness" of what it's all about.

No system is going to be effective unless the personnel operating the answering positions are properly trained and the users (the public) are aware of how to use it. To this end a joint public agency/Telco committee should be formed to prepare and execute a program for public awareness. Following are some ideas to guide in the development of the public awareness program.

A. PRESS RELATIONS AND SCHEDULES

More than likely the Telcos have already established good press relations in their areas. Once a resolution has been established by an agency, a first press release or conference can announce tentative plans and an estimated "on line" date for the 911 system.

Generally, do not start a series of releases or picture stories until three months prior to the due date of the system. It's suggested that joint releases be arranged with the city administrators and with the chiefs of the participating agencies.

There are many methods to build public awareness, such as placards and bumper stickers (for police, ambulance, fire apparatus, city vehicles). Also, some assistance may be obtained from the ITA steering committee.

B. SERVICE CLUB FUNCTION

Service clubs are constantly looking for programs of from 20 to 25 minutes. This is an excellent opportunity to tell the "911 Telecommunications Story."

The city mayor, manager, or other city spokesman can easily prepare a short talk on the subject. This could be followed by either a Telco or an ICC representative supplying the "how it will work" talk, followed by questions and answers. This is very inexpensive and yet very effective way to reach the opinion leaders of your community.

C. FILM SHOWINGS

There are films available that provide basic information about 911. If the ITA or the ICC purchase any of these films, a schedule can be set up for showings at service clubs, PTA, etc.

D. SLIDE PRESENTATION

When film showings are not acceptable or do not provide adequate information, a slide talk can be given with a prepared script.

Training of personnel will have to be coordinated through a cooperative effort by the ITA and all associated companies to get the public awareness campaign off the ground and into implementation.

E. SCHOOL PROGRAMS

Some Telcos have personnel trained in contacting grade, high or junior college schools to present educational and informative programs to students. Once a community has begun the installation of a 911 system the public awareness program begins. It is suggested that where there already exists a department dealing with schools, that department's representative set up a schedule of all programs for students. The PR committee should consist of:

1. Police Chief in uniform
2. Fire Chief in uniform
3. City Mayor
4. Telephone Company Representative
5. Public Safety Director

The intent is to have each representative talk about how 911 will effect his or her function and how it will work including information concerning key features: call hold, ringback, forced disconnect, etc. Experience has shown that when this kind of program is presented to the entire school population, little or no "false alarms" or "crank calls" are experienced by the PSAP.

X. POST 911 INSTALLATION CONSIDERATIONS

A. EVALUATING THE INSTALLED SYSTEM

After a system has been in service for a reasonable period, a review should be made to determine whether the PSAP is working as planned. It is most important to determine that adequate trunking has been provided, and that all the instructions are being followed. Where the PSAP is experiencing excessive non-emergency calls on 911 lines, special attention should be given to develop an "emergency use only" program. While it is primarily the responsibility of the PSAP to initiate this program, the Telco should provide suggestions and ideas based on experience with other successful public agency programs.

B. RESTORATION OF SERVICE

It is recommended that all Telcos give top priority to service restoration at any PSAP location. It shall be the responsibility of every telephone company to arrange for the best repair service program that can be provided from their service center.

1. Trouble Reporting Procedures

When reporting trouble at the PSAP it is recommended that the supervisor on duty follow the normal routine that is currently used in the area. Because of the identification of the 911 center the request will automatically suggest immediate restoration.

2. Restoral Priority

As indicated earlier, it is suggested that each repair center have written and/or oral instructions outlining a precedure to be followed in service restoration.

C. TRACING CALL

It should be clearly pointed out to the management of a PSAP that the Telco serving their area will provide a trace of a 911 caller only if the Supervisor or Watch Commander personally requests this to be done. It is a Telco policy that only the address of the calling party will be provided.

1. General Guidelines

It is suggested that written agreements be reached with each PSAP, as part of the initial service order, outlining the procedure that will be followed to accomplish the trace.

It is recognized that certain conditions must be met by law enforcement officials and Telco employees in providing data on services of customers. We suggest a day and night number be given to the PSAP supervisors. Only a PSAP supervisor should be authorized to make the request.

In Unmanned Offices, call out time may be warranted. Many areas could have a two or three hour delay because of travel and a limited number of trained people. No cross charge of overtime shall be rendered to the PSAP should the Telco personnel be summoned after hours.

D. MODIFYING EXISTING SYSTEMS

While some systems are already on line, it will be necessary to review each one. The primary reason for review will be to make sure all systems are on record with the ICC and have been approved by the ICC.

1. Agencies Initiated Request

As time passes, it might be necessary or desirable to modify some 911 systems. To accomplish this, local agencies should contact the serving Telco and the ICC through regular request channels.

Disputes will undoubtedly occur between 911 system participants even after system implementation has taken place. Such difficulties will be referred to the ICC.

2. Telco Initiated Contact

It is recommended that each Telco set up a review procedure with each PSAP to ensure the items listed below will have "spotlight" recognition after six months and subsequently every year.

a. Review with PSAP Director any trunking problems (i.e.: busy conditions, repair conditions, etc.) to insure that a P.01 grade of service is being provided.

b. Review any additional boundary modifications the community is planning, so that the ICC can review and approve the techniques the PSAP will use in handling the additions.

c. Inform the PSAP of any rate changes contemplated.

d. Review operational standards for quality of service at the PSAP.

e. Review the proposed ICC mandatory standards to make certain that the Telco is in compliance with them.

XI. OTHER 911 CONSIDERATIONS

A. RESOLVING DISAGREEMENTS BETWEEN AGENCIES

When the situation arises where agencies cannot reach an agreement on the location of the PSAP, the agencies that will participate, or which agency will control its operations, the ICC will have to settle the matter. The Telco role is not to arbitrate in disputes, but to provide consultation and assistance for the telephone portion of the 911 system.

B. CALLS FROM MOBILE TELEPHONES

It is recommended that when 911 is implemented mobile dialed calls be switched directly to the 911 PSAP that is homed on the serving central office. Although this can result in a PSAP relaying a call, we feel it is the best procedure for the following reasons.

- Based on a recent study, the number of emergency calls from mobile telephones is low.
- Due to the geographic area involved in a mobile call, it will be extremely difficult for a telephone operator to determine the exact PSAP to contact. The problem will be further compounded as TSPS is introduced and many of the small operator offices are closed. The PSAP receiving the call can be equipped with other PSAPs' 7-digit numbers. A faster response time can therefore be obtained by a map reference by the contacted PSAP, with the call then relayed to the appropriate PSAP.

C. MANUAL OFFICE

911 Calls will be handled by a Telco operator who will establish a connection to PSAP.

- The only feature lost with a Manual Central Office is tone application. All other features are incorporated into the Manual Cord Board.

XII. APPENDICES

A. GLOSSARY TO TERMS

ACD - (See Automatic Call Distributor).

ALI - Automatic Location Identification: Identifies location (address) of point of origin of the call.

ANI - Automatic Number Identification: Equipment in a central office for recording the calling party's telephone number without operator intervention.

AREA CODE - The three-digit code used when dialing calls from one Numbering Plan Area (NPA) to another.

AUDIBLE SIGNAL - Buzzer or bell to indicate an incoming call.

AUTOMATIC CALL DISTRIBUTOR - Equipment to distribute large volumes of incoming calls in approximate order of arrival to attendants not already working on calls or to "store" calls until attendants become available.

AUTOMATIC CALL ROUTING - (See SELECTIVE ROUTING).

BASE RATE - The established telephone exchange service rate, exclusive of mileage, for main telephone, auxiliary line, or trunk line service.

BASE RATE AREA - That portion of the exchange area within which exchange service, other than rural line service, is offered at base rates for each grade of service without mileage or highway construction charges.

BASIC SYSTEM - A telephone service which automatically connects a person dialing the digits "911" to an established public safety answering point through normal telephone service facilities.

CALL ANSWERER - The initial answerer of a 911 call.

CALL REFERRAL METHOD - Calling party is referred to a secondary number.

CALL RELAY METHOD - The call is answered at the PSAP where the pertinent information is gathered and then the interrogator relays that information to the proper public safety agency for their action. This can be accomplished by radio, intercom, telephone, etc.

CALL TRANSFER METHOD - The PSAP interrogator determines the proper responding agency and connects the user to that agency which then performs the necessary dispatching in accordance with prearranged plans with cooperating agencies.

CALLED PARTY HOLD - Enables the public safety answering point to control the connection for confirmation and tracing of a call.

CENTRAL OFFICE - Sometimes called a wire center; the smallest subdivision within the telephone system which has relatively permanent geographic boundaries.

CENTRAL OFFICE IDENTIFICATION - When an answering point serves more than one central office area, it is possible to identify the central office forwarding the call by dedicated (direct) trunking from the central office to the PSAP.

CENTREX - A type of private branch exchange in which incoming calls can be dialed direct to any extension without an operator's assistance. Outgoing and intercom calls are dialed direct by the extension users.

CLASS MARK - A connection, or a signal, which provides information regarding the class of service to which a particular subscriber is entitled.

CLASS OF SERVICE - Service order code designation of the combination of telephone service features (equip., calling area units, dial types) to which business and residence customers subscribe. It is used for rating, identification and assignment purposes.

CNIL - Calling Number Identification and Location; sometimes used by the telephone industry in referring to the combination of automatic number identification and automatic location identification.

CO - (See CENTRAL OFFICE).

COMMON CONTROL - A type of dial telephone switching in which the dialed digits are stored temporarily in a sub-set of equipment that is shared by all of the line and trunk terminations; this sub-set of control is used only in setting up the connections and then goes to the next request for connection service.

CONNECTING ARRANGEMENT INTERFACE - A protective device between Telco equipment and Customer Owned and Maintained (COAM) equipment.

DDD - Direct Distance Dialing; telephone service which permits subscribers to dial their own long distance calls.

DIAL TONE FIRST - Allowance of a 911 or "O" Operator calls to be completed without the deposit of a coin.

DID - Direct Inward Dialing; an outside call dialed directly to an extension without going through the switchboard which serves an office, store, building, etc. (Centrex Service)

DIRECT DISPATCH METHOD - All 911 call answering and radio dispatching is done by the personnel at the public safety answering point.

DIRECT PROGRESSIVE CONTROL - A type of dial telephone switching in which the dialed digits control the electromechanical switches (e.g., Step-by-Step or XY) to activate the connection through the apparatus; the switches used remain connected for the length of the call.

DIRECT TRUNKING - An arrangement where a telephone line connection has no intermediate points before reaching the final destination (called) party.

DOD - Direct Outward Dialing; a reverse direction of DID; an extension user dials "out" without switchboard operator assistance.

EAS - Extended Area Service; telephone service that allows subscribers in an exchange area to pay flat monthly or measured rates instead of long distance charges for calls to nearby exchange areas. See EXCHANGE.

EAX - Electronic Automatic Exchange; a modern central office with programmable phone switching logic.

EMERGENCY CALL - A call that requires immediate action.

ESS - Electronic Switching System; a modern central office with programmable phone switching logic.

EXCHANGE - A defined area, served by one or more telephone central offices, within which the telephone company furnishes service.

FORCED DISCONNECT - The capability of the 911 center to disconnect a 911 call to avoid caller jamming of the incoming phone lines.

FOREIGN EXCHANGE SERVICE - A telephone line associated with an exchange foreign to the exchange in which it is installed.

ICC - Illinois Commerce Commission.

ITA - Illinois Telephone Association.

KEY TELEPHONE EQUIPMENT - An instrument that has the capability of multiple line terminations. Each line is accessed by depressing associated button (key).

LOCAL SERVICE AREA - That area that can be called without incurring multimessage units or a toll charge.

MAIN STATION - A telephone station that is connected directly to a central office and has a unique telephone number. It is not an extension station.

MESSAGE UNIT - The unit of measurement for charging for local message use, based upon time and distance.

MULTIJURISDICTIONAL SYSTEM - A system covering more than one political boundary or agency.

MULTI-PARTY LINE - A local subscriber line terminating on the switching equipment that serves two or more main subscriber locations, requiring special equipment for discriminatory ringing and obtaining the correct number for billing.

NETWORK - 1. A series of points interconnected by communications channels.
2. The switched telephone network is the network of telephone lines normally used for dialed telephone calls.
3. A private line network is a network of communications channels confined to the use of one customer.

911 CENTER - (See PSAP).

NNX - The first three digits of a local telephone number that uniquely identifies that central office switching location within its Area Code number for nationwide long distance call routing.

NO-COIN DIALING - (See DIAL TONE FIRST).

NPA - The three-digit code used when dialing long distance calls from one Number Plan Area (NPA) to another.

ONI - Operator Number Identification: A method of obtaining the subscribers telephone number for billing long distance charges whereby the special long distance trunks go through an operator temporarily so she can input the calling number into the automatic billing equipment.

OVERFLOW ANSWERING - An answering position for every 911 line serving a PSAP.

PBX - Private Branch Exchange; a telephone switchboard with many stations not individually identifiable to the telephone company's switching network.

PSAP - Public Safety Answering Point; the initial answering location of a 911 call. Sometimes called a 911 center.

PUBLIC AGENCY - "Public agency" means the state and any city, county, city and county, municipal corporation, public district, or public authority located in whole or in part within this state which provides or has authority to provide firefighting, police, ambulance, medical, or other emergency services.

PUBLIC SAFETY AGENCY - "Public safety agency" means a functional division of a public agency which provides firefighting, police, ambulance, medical, or other emergency services.

RINGBACK - Permits the answering point to ring the hung up telephone on a held circuit; this feature is useful when a calling party has failed to provide all necessary information to the answering point before hanging up.

SELECTIVE ROUTING - Selective routing terminates a call at a PSAP determined by the location of the calling telephone. This is accomplished by using a computer to process the calling telephone number.

SOPHISTICATED SYSTEM - A basic system with the additional capability of automatic identification of the caller's number, holding the incoming call, reconnection on the same telephone line, clearing a telephone line, or automatic call routing or combinations of such capabilities.

STEP-BY-STEP - Any type of electromechanical switches used in a switching equipment where the (dial) pulses cause vertical and/or horizontal movement of contact switches to select and connect the input to an output line; generally two to four "stages" of switches are used in a local office connection.

STORED PROGRAM CONTROL OFFICE - (See ESS and EAX).

SWITCHED NETWORK - A complex of diversified channels and equipment that automatically routes communications between the calling and called person or data equipment.

TANDEM TRUNKING - An arrangement where a telephone line connection has one or more intermediate points that are required or permitted (usually on a controlled dial pulse basis) before reaching the final destination (called) party.

TELCO - Telephone Company.

TELEPHONE LINE - A telephone line from a telephone company central office that is connected to key or non-key telephone equipment.

TPL - Terminal-per-Line: An equipment method used to terminate one multi-party line on the switching equipment where the last digit identifies each unique party; affects the amount of equipment used, especially in mixed party office.

TPS - Terminal per Station: An equipment method used to terminate a subscriber line on the switching equipment where the directory number and the actual line equipment number need not be the same; generally more flexible than TPL.

TSPS - An electronic operating position system whereby operator-handled traffic is routed to its final destination via a central switching machine.

TRUNK - A circuit used for connecting a subscriber in a central office to all other services in/out of the switching equipment (e.g., Long Distance Trunk, Operator Trunk, Recorded Announcement Trunk, etc.).

WIRE CENTER - (See CENTRAL OFFICE).

B. HOUSE BILL 911

HB0911 LRB0744-79-JOB/kk

AN ACT in relation to the designation of an emergency telephone number for use throughout the State.

Be it enacted by the People of the State of Illinois, represented in the General Assembly:

Section 1. The General Assembly finds and declares that it is in the public interest to shorten the time required for a citizen to request and receive emergency aid. There currently exist thousands of different emergency phone numbers throughout the state, and present telephone exchange boundaries and central office service areas do not necessarily correspond to public safety and political boundaries. Provision of a single, primary three-digit emergency number through which emergency services can be quickly and efficiently obtained would provide a significant contribution to law enforcement and other public service efforts by making it less difficult to quickly notify public safety personnel. Such a simplified means of procuring emergency services will result in the saving of life, a reduction in the destruction of property, quicker apprehension of criminals, and ultimately the saving of money. The General Assembly further finds and declares that the establishment of a uniform, statewide emergency number is a matter of statewide concern and interest to all inhabitants and citizens of this State. It is the purpose of this Act to establish the number "911" as the primary emergency telephone number for use in this State and to encourage units of local government and combinations of such units to develop and improve emergency communication procedures and facilities in such a manner as to be able to quickly respond to any person calling the telephone number "911" seeking police, fire, medical, rescue, and other emergency services.

Section 2. As used in this Act, the terms defined in Sections 2.01 through 2.09 have the meanings ascribed to them

Originated in the House of Representatives

Clerk of the House

PUBLIC ACT 79-1082

in those Sections.

Section 2.01. "Public agency" means the State, and any unit of local government or special purpose district located in whole or in part within this State which provides or has authority to provide firefighting, police, ambulance, medical, or other emergency services.

Section 2.02. "Public safety agency" means a functional division of a public agency which provides firefighting, police, medical, or other emergency services.

Section 2.03. "Direct dispatch method" means a telephone service providing for the dispatch of an appropriate emergency service unit upon receipt of a telephone request for such services and a decision as to the proper action to be taken.

Section 2.04. "Relay method" means a telephone service whereby pertinent information is noted by the recipient of a telephone request for emergency services, and is relayed to appropriate public safety agencies or other providers of emergency services for dispatch of an emergency service unit.

Section 2.05. "Transfer method" means a telephone service which receives telephone requests for emergency services and directly transfers such requests to an appropriate public safety agency or other provider of emergency services.

Section 2.06. "Referral method" means a telephone service which, upon the receipt of a telephone request for emergency services, provides the requesting party with the telephone number of the appropriate public safety agency or other provider of emergency services.

Section 2.07. "Basic system" means a telephone service which automatically connects a person dialing the digits "911" to an established public safety answering point through normal telephone service facilities.

Section 2.08. "Sophisticated system" means a basic system with the additional capability of automatic

identification of the caller's number, holding the incoming call, reconnection on the same telephone line, clearing a telephone line, or automatic call routing or combinations of such capabilities.

Section 2.09. "Commission" means the Illinois Commerce Commission.

Section 3. Every local public agency, within its respective jurisdiction, shall establish and have in operation by December 31, 1985, a basic or sophisticated system as specified in this Act.

The establishment of such systems shall be centralized to the extent feasible. Nothing in this Act shall be construed to prohibit or discourage in any way the formation of multijurisdictional or regional systems, and any system established pursuant to this Act may include the territory of more than one public agency or may include a segment of the territory of a public agency.

Section 4. Every system shall include police, firefighting, and emergency medical and ambulance services, and may include other emergency services, in the discretion of the affected local public agency, such as poison control services, suicide prevention services, and civil defense services. The system may incorporate private ambulance service. In those areas in which a public safety agency of the state provides such emergency services, the system shall include such public safety agencies.

Section 5. The digits "911" shall be the primary emergency telephone number within the system, but a public agency or public safety agency may maintain a separate secondary backup number, and shall maintain a separate number for nonemergency telephone calls.

Section 6. All systems shall be designed to meet the specific requirements of each community and public agency served by the system. Every system, whether basic or sophisticated, shall be designed to have the capability of

utilizing at least 1 of the methods specified in Sections 2.03 through 2.06, in response to emergency calls. The General Assembly finds and declares that the most critical aspect of the design of any system is the procedure established for handling a telephone request for emergency services.

In addition, to maximize efficiency and utilization of the system, all pay telephones within each system shall, by December 31, 1985, enable a caller to dial "911" for emergency services without the necessity of inserting a coin.

Section 7. The General Assembly finds that, because of overlapping jurisdiction of public agencies, public safety agencies and telephone service areas, the Commission shall establish a general overview or plan to effectuate the purposes of this Act within the time frame provided in this Act. In order to insure that proper preparation and implementation of emergency telephone systems are accomplished by all public agencies by December 31, 1985, the Commission, with the advice and assistance of the Attorney General, shall secure compliance by public agencies as provided in this Act.

Section 8. The Commission, with the advice and assistance of the Attorney General, shall coordinate the implementation of systems established under this Act. The Commission, with the advice and assistance of the Attorney General, shall assist local public agencies and local public safety agencies in obtaining financial help to establish emergency telephone service, and shall aid such agencies in the formulation of concepts, methods, and procedures which will improve the operation of systems required by this Act and which will increase cooperation between public safety agencies.

Section 9. To accomplish the responsibilities specified in this Act, the Commission is directed to consult at regular intervals with the State Fire Marshal, the Department of

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Public Health, the Department of Transportation, the public utilities in this State providing telephone service, the Department of Law Enforcement, and the State Division of Forestry. Such agencies shall provide all necessary assistance and consultation to the Commission to enable it to perform its duties specified in this Act.

Section 10. Technical and operational standards for the development of the local agency systems shall be established and reviewed by the Commission on or before December 31, 1979, after consultation with all agencies specified in Section 9.

Section 11. On or before January 31, 1980, all public agencies shall submit tentative plans of the establishment of a system required by this Act to the public utility or utilities providing public telephone service within the respective jurisdiction of each public agency. A copy of each such plan shall be filed with the Commission.

On or before January 31, 1982, all public agencies shall submit final plans for the establishment of the system to such utilities, and shall make arrangements with such utilities for the implementation of the planned emergency telephone system no later than December 31, 1985. A copy of the plan required by this subdivision shall be filed with the Commission. In order to secure compliance with the standards promulgated under Section 10, the Commission shall have the power to approve or disapprove such plan, unless such plan was announced before the effective date of this Act.

If any public agency has implemented or is a part of a system required by this Act on a deadline specified in this Section, such public agency shall submit in lieu of the tentative or final plan a report describing the system and stating its operational date.

Plans filed under this Section shall conform to minimum standards established pursuant to Section 10.

Section 12. The Attorney General may, in behalf of the

Commission or on his own initiative, commence judicial proceedings to enforce compliance by any public agency or public utility providing telephone service with this Act.

Section 13. On or before February 16, 1979, and again on or before February 16, 1981, the Commission shall report to the General Assembly the progress in the implementation of systems required by this Act. Such reports shall contain his recommendations for additional legislation.

In December of 1979 and in December of 1980 the Commission, with the advice and assistance of the Attorney General, shall submit recommendations to the Bureau of the Budget and to the Governor specifying amounts necessary to further implement the organization of telephone systems specified in this Act during the succeeding fiscal year. The report specified in this paragraph shall contain, in addition, an estimate of the fiscal impact to local public agencies which will be caused by implementation of this Act.

By March 1 in 1979 and every even-numbered year thereafter, each telephone company shall file a report with the Commission and the General Assembly specifying, in such detail as the Commission has by rule or regulation required, the extent to which it has implemented a planned emergency telephone system and its projected further implementation of such a system.

Section 14. The General Assembly declares that a major purpose in enacting this Act is to eliminate instances in which a responding emergency service refuses to render aid to the requester because the requester is outside of the jurisdictional boundaries of the emergency service. Therefore, in implementing systems under this Act, all public agencies in a single system shall annually enter into a joint powers agreement or any other form of written cooperative agreement which is applicable when need arises on a day-to-day basis. In addition, such agreements shall be entered into between public agencies and public safety

agencies which are part of different systems but whose jurisdictional boundaries are contiguous. The agreements shall provide that, once an emergency unit is dispatched in response to a request through the system, such unit shall render its services to the requesting party without regard to whether the unit is operating outside its normal jurisdictional boundaries.

Section 15. Copies of the annual agreement required by Section 14 shall be filed with the Attorney General and the Commission. Commencing with the year 1987, all such agreements shall be so filed prior to the 31st day of January. The Attorney General shall commence judicial proceedings to enforce compliance with this Section and Section 14, where a public agency or public safety agency has failed to timely enter into such agreement or file copies thereof.

Section 16. This Act takes effect July 1, 1975.

William A. Redmond
Speaker, House of Representatives

Bill Harris
President of the Senate

APPROVED

this 25th day of September 1975 A.D.

James R. Thompson
GOVERNOR

C. EXISTING 911 SYSTEMS IN ILLINOIS (As of 12-31-75)

Answering Center			Date In Service	No. of Inc. Places	Pop. (000)	No. of Public Safety Agencies				Number of 911 Lines[2]	Telephone Company: Central Offices	
Operating Agency	City	County				Police[1]	Fire	Amb.	Other			
Salem PD	Salem	Marion	12/69	1	6	2	1	0	-	2D	Salem	Illinois Bell
Evanston PD	Evanston	Cook	4/70	1	88	1	1	1	-	16D	Evanston	
Mount Vernon PD	Mt. Vernon	Jefferson	5/70	1	16	2	1	0	-	3D	Mt. Vernon	
Vandalia PD	Vandalia	Fayette	9/70	1	6	2	1	0	-	2D	Vandalia	
Plano PD	Plano	Kendall	6/72	1	5	2	1	1	-	2D	Plano	
Oak Park PD	Oak Park	Cook	4/73	1	63	1	1	1	-	9D	Oak Park	
Forest Park PD and River Forest PD (Dual Answering)	Forest Park & River Forest	Cook	6/73	2	29	2	2	2	-	6D	Oak Park	
Crystal Lake PD	Crystal Lake	McHenry	9/74	1	17	2	1	1	-	4D	Crystal Lake	
Brookfield PD	Brookfield	Cook	10/74	1	20	1	1	1	-	3D	La Grange	
Moline PD	Moline	Rock Island	11/74	1	47	2	1	1	-	9D	Moline	
Marengo PD	Marengo	McHenry	1/75	1	5	2	1	1	-	2D	Marengo	
Woodstock PD	Woodstock	McHenry	7/75	1	14	2	1	1	1[3]	5D	Woodstock	
Tinley Park PD	Tinley Park	Cook	6/75	1	22	2	1	1	-	4D	Tinley Park	
Glencoe PD	Glencoe	Cook	6/75	1	10.5	1	1	1	1[3]	3D	Winnetka	
Wilmette PD	Wilmette	Cook	10/75	1	33	1	1	1	-	3D	Wilmette	
Peoria PD	Peoria	Peoria	12/75	2	130	3	3	1	-	17D	Peoria	
Bloomington PD	Bloomington	McLean	2/69	1	41	2	1	1	-	6D	Bloomington Main Bloomington East	General
Normal PD	Normal	McLean	2/69	1	32	2	1	1	-	3D	Bloomington Normal	
Washington PD	Washington	Tazewell	5/71	1	15	2	1	1	-	2D	Washington Sunnyland	
Perry County SO	Pinckneyville	Perry	12/73	4	21	5	3	1	-	5^{D}_{T}	Pinckneyville DuQuoin Percy Continental: Tamaroa	
Henry County SO[4]	Cambridge	Henry	5/73	1	7	2	-	-	-	1D	Cambridge: Cambridge	
Geneseo PD	Geneseo	Henry	5/68	1	15	2	0	1	-	1D	Geneseo: Geneseo	
Woodford County SO	Eureka	Wookford	12/74	-	4	-	-	-	-	1D	El Paso: El Paso	

1. All 911 centers also answer calls for state police, generally relaying information over the radio.
2. D = Direct Trunked
   T = Tandem Trunked
3. Public works.
4. Not currently in use.

D. TELEPHONE COMPANIES IN THE STATE OF ILLINOIS

	Company	Telephone Number
	ICC REGULATED COMPANIES	
1.	Adams Telephone Cooperative Golden, IL 62339	217-606-4411
2.	Alhambra-Grantfork Telephone Co. Box 207 Alhambra, IL 62001	618-488-2165
3.	Cambridge Telephone Co. 111 E. First Street Geneseo, IL 61254	309-944-2103
4.	Cass County Telephone Co. 211 S. Main Street Virginia, IL 62691	217-452-3511
5.	Central Telephone Co. of Illinois 2004 Miner Street Des Plaines, IL 60016	312-824-9988
6.	Chandlerville Telephone Co. 211 S. Main Street Virginia, IL 62691	217-452-3511
7.	Continental Telephone Co. of Illinois 112 W. Elm Street Sycamore, IL 60178	815-895-5151
8.	C-R Telephone Co. Ranson, IL 60470	815-586-4211
9.	Crossville Telephone Co. Crossville, IL 62827	618-966-2296
10.	DePue Telephone Co. 303 West 4th Street DePue, IL 61322	815-447-2100
11.	Eastern Illinois Telephone Corp. 300 M. Maplewood Rantoul, Il 61866	217-893-3051
12.	Egyptian Telephone Co-op. Assn. Steeleville, IL 62288	618-965-3481

	Company	Telephone Number
13.	El Paso Telephone Co. 54 N. Central Street El Paso, IL 61738	309-527-4500
14.	Equality Telephone Co. Box 97 Equality, IL 62934	618-276-4211
15.	General Telephone Co. of Illinois 1312 E. Empire Street Bloomington, IL 61701	309-663-3311
16.	Geneseo Telephone Co. 111 E. First Street Geneseo, IL 61254	309-944-2103
17.	Grafton Telephone Co. Grafton, IL 62037	618-786-3311
18.	Gridley Telephone Co. Gridley, IL 61744	309-747-2221
19.	Hamilton County Telephone Co-op. Dahlgren, IL 62828	618-736-2211
20.	Hardin County Telephone Co. Rosiclare, IL 62982	618-285-6511
21.	Harrisonville Telephone Co. Waterloo, IL 62298	618-939-6111
22.	Henry County Telephone Co. 111 E. First Street Geneseo, IL 61254	309-944-2103
23.	Home Telephone Co. 801 Douglas Street St. Jacob, IL 62281	618-644-2111
24.	Illinois Bell Telephone Co. 225 W. Randolph Street Chicago, IL 60606	312-727-9411
25.	Illinois Consolidated Telephone Co. 117 S. 17th Street Mattoon, IL 61938	217-235-3391

	Company	Telephone Number
26.	Inland Telephone Co. P. O. Box 3000 Champaign, IL 61822	217-352-6300
27.	Intra State Telephone Co. 100 N. Cherry Street Galesburg, IL 61401	309-343-1112
28.	LaHarpe Telephone Co. LaHarpe, IL 61450	217-659-7722
29.	Lakeside Telephone Co. P. O. Box 3000 Champaign, IL 61822	217-359-3012
30.	Leaf River Valley Telephone Co. Leaf River, IL 61047	815-738-2211
31.	Madison Telephone Co. Hamel, IL 62046	618-633-2267
32.	Marseilles Telephone Co. 455 Main Street Marseilles, IL 61341	815-795-5161
33.	McDonough Telephone Co-op. Box 359 Colchester, IL 62326	309-776-3211
34.	McNabb Telephone Co. McNabb, IL 61335	815-882-2201
35.	Metamora Telephone Co. 220 North Menard St. Metamora, IL 61548	309-367-4197
36.	Mid-Century Telephone Co-op. P. O. Box 479 West Locust Street Canton, IL 61520	309-647-6113
37.	Midland Telephone Co. P. O. Box 3000 Champaign, IL 61822	217-359-4252
38.	Montrose Mutual Telephone Co. Dieterich, IL 62424	217-925-5242

	Company	Telephone Number
39.	Moultrie Independent Telephone Co. Lovington, IL 61937	217-873-5211
40.	Mt. Pulaski Telephone and Electric Co. 131 N. Kickapoo Street Lincoln, IL 62656	217-792-5618
41.	New Windsor Telephone Co. New Windsor, IL 61465	309-667-2123
42.	Northwestern Telephone Co. 302 W. Main Street Freeport, IL 61032	815-235-5010
43.	Odin Telephone Exchange Inc. P. O. Box 278 Odin, IL 62870	618-775-8222
44.	Orion Telephone Exchange Assn. Orion, IL 61273	309-526-3305
45.	Prarie Telephone Co. P. O. Box 3000 Champaign, IL 61822	217-359-2341
46.	Reynolds Telephone Co. Reynolds, IL 61279	309-372-4214
47.	Rossville Telephone Co. Rossville, IL 60963 Petersburg, IND 47567	812-354-8811
48.	Schuyler Telephone Co., The Rushville, IL 62681	217-322-3388
49.	Staunton Telephone Co. 2004 Miner Street Des Plaines, IL 60016	312-824-9988
50.	Tonica Telephone Co. Tonica, IL 61326	815-442-3211
51.	Viola Home Telephone Co. Viola, IL 61486	309-596-2222
52.	Wabash Telephone Co-op. Box 299 Louisville, IL 62858	618-665-3311

	Company	Telephone Number
53.	Woodhull Community Telephone Co. Woodhull, IL 61490	309-934-2150
54.	Yates City Telephone Co. Yates City, IL 61572	309-358-1300
	COMPANIES NOT REGULATED BY ICC	
55.	Bergen Telephone Co. 107 Plain Street Sharon, Wis. 53585	414-736-9981
56.	Clarksville Mutual Telephone Co. RFD 2 Marshall, IL 62441	217-889-2156
57.	Flat Rock Mutual Telephone Co. Flat Rock, IL 62427	618-584-3591
58.	Glasford Telephone Co. Main Street Glasford, IL 61533	309-389-2111
59.	Grandview Mutual Telephone Co. Paris, IL 61944	217-946-2424
60.	Kinsman Mutual Telephone Co. Wilson Street Kinsman, IL 60437	815-392-4210
61.	Leonore Mutual Telephone Co. Leonore, IL 61332	815-856-2200
62.	Oneida Telephone Exchange 801 Railroad Street Oneida, IL 61467	309-483-3111
63.	Sharon Telephone Co. 107 Plain Street Sharon, Wis. 53585	414-736-9981
64.	Southwestern Bell Telephone Co.	314-247-9800
65.	Timewell Telephone Exchange Timewell, IL 62375	Dial the Operator (Manual exchange)

E. EXHIBITS

911 EMERGENCY SERVICE OPERATIONAL CHECK LIST

(Example)

Please indicate by (√) and enter date subject discussed.

YES	DATE	
_____	_____	Obtain the exact boundaries of the municipalities within the telephone exchange and review with agencies involved.
_____	_____	Compile the boundaries on the telephone exchange map and ascertain extent of overlap and "other municipal involvement."
_____	_____	Has 911 concept been presented to officials of municipality?
_____	_____	Have the number of 911 lines been agreed to in order to handle estimated number of calls?
_____	_____	Secure municipality agreements on the following stipulations: • fire, police, and emergency medical must be included in the basic agreement. • where the exchange serves more than one community, all communities must agree to the 911 system design.
_____	_____	Has telephone equipment been reviewed for use in handling the 911 service and do you understand its operation?
_____	_____	Obtain written confirmation indicating approval by the official governing body of each involved jurisdiction.
_____	_____	Obtain written concurrence of any other municipalities or agencies involved in any boundary overlaps.
_____	_____	Verify that the ICC has approved the 911 system plan.

Please return completed copy to:

911 COORDINATOR _____

ADDRESS _____

CITY _____ ZIP _____

EXHIBIT 1

PEG COUNT FORM
(Example)

DATE _____

TYPE OF INCOMING CALL

BUSINESS	EMERGENCY	MISDIRECTED	NUISANCE	MISCELLANEOUS

DATE _____

TYPE OF INCOMING CALL

BUSINESS	EMERGENCY	MISDIRECTED	NUISANCE	MISCELLANEOUS

DATE _____

TYPE OF INCOMING CALL

BUSINESS	EMERGENCY	MISDIRECTED	NUISANCE	MISCELLANEOUS

EXHIBIT 2

INTERDEPARTMENTAL COORDINATION SCHEDULE

911 EMERGENCY REPORTING SERVICE
(Example)

ITEM	WORK REQUIRED	DEPT.	START	COMPLETE
1.00	Establish I.D. Committee			
2.00	CENTRAL OFFICE EQUIPMENT			
2.10	Trunk Recommendation to Switching Design			
2.20	Spec. Appl. Drawings			
2.25	Recommendations to Equipment Engineer			
2.30	Central Office Eqpt. Ordered			
2.40	Hold Method of Procedure Conference			
2.50	Equipment Installation Start			
2.60	Pre Cutover Trunk Test			
2.70	Operation Procedure Test			
2.80	Outside Cable Facilities			
3.00	MARKER & DECODER CROSS CONNECTIONS			
3.10	Furnish Cross-Connection List to Switching			
3.20	Run Cross-Connections			
4.00	TRUNK CROSS CONNECTIONS			
4.10	Run Cross Connections			
4.20	Misc. Cross Connections, Registers, etc.			
4.30	Central Office Records			
5.00	Subscriber Equipment (Type)			
5.10	Station Orders Issued			
5.20	Station Equipment Installed			

EXHIBIT 3

ITEM	WORK REQUIRED	DEPT.	START	COMPLETE
6.00	OUTSIDE VENDER ACTIVITY			
6.10	Special Radio Circuits			
6.20	Special Burglar Alarms			
6.30	Data Circuits			
6.40	Other			
7.00	EMPLOYEE AND CUSTOMER NOTIFICATION			
7.10	Revise Local Directory			
7.20	Customer Letter & 911 Stickers			
7.30	Press, T. V., Radio Releases			
7.40	Employee Information			
7.50	Notify Multiple Line Business Customers of Proper Dialing Instructions			
8.00	EMPLOYEE AND PSAP TRAINING			
8.10	Tracing Procedures			
8.20	Traffic Procedures			
8.30	Operator Training			
9.00	COIN TELEPHONES			
9.10	Request Count and Location of Coin Telephones			
9.20	Furnish Coin Instruction Cards			
9.30	Install Coin Instruction Cards			
10.00	TESTING			
10.10	Pre Cutover Test			
11.00	DUE DATE TO AGENCY			

EXHIBIT 3 (Concluded)

U.S. DEPARTMENT OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMINISTRATION
WASHINGTON, D.C. 20531

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF JUSTICE
JUS-436

THIRD CLASS