

**ASSOCIATED PUBLIC-SAFETY
COMMUNICATIONS OFFICERS, INC.**

P.O. Box 669 NEW SMYRNA BEACH, FLORIDA 32069

FOR:

U.S. DEPARTMENT OF JUSTICE
NATIONAL INSTITUTE OF JUSTICE

FY '32 UNSOLICITED
RESEARCH PROGRAM

CYCLE 2

TITLE:

RESEARCH AND EVALUATION OF EXISTING
IMPEDIMENTS TO THE ADOPTION AND
IMPLEMENTATION OF STATEWIDE PLANS FOR THE
OPERATION AND MANAGEMENT OF LAW ENFORCEMENT
ON THE COMMON NATIONAL RADIO FREQUENCY
155.475 MHz

U.S. DEPARTMENT OF JUSTICE
NATIONAL INSTITUTE OF JUSTICE

FY '82 UNSOLICITED
RESEARCH PROGRAM

CYCLE 2

RESEARCH AND EVALUATION OF EXISTING
IMPEDIMENTS TO THE ADOPTION AND
IMPLEMENTATION OF STATEWIDE PLANS FOR THE
OPERATION AND MANAGEMENT OF LAW ENFORCEMENT
ON THE COMMON NATIONAL RADIO FREQUENCY

155.475 MHz

MO
MT

yes

yes

yes

yes

yes

FR/AMB (150)

39.820 MHz

planning for 1984 implementation

UNSOLICITED RESEARCH PROGRAM

COVER SHEET

To be filled in by NIJ:
 Postmark Date: _____
 Paper Number: _____
 Panel Assignment: _____

Please complete this data sheet and use it as the cover sheet on each copy of your submission)

NAME, ADDRESS & PHONE NUMBER OF PERSON TO WHOM CORRESPONDENCE IS TO BE DIRECTED:

Mr./Mrs./Ms. Ernest J. Landreville, Executive Director
 Associated Public-Safety Communications Officers, Inc. (APCO)
 P.O. Box 669 105 1/2 Canal Street 427-3461
 New Smyrna Beach, Florida 32069 904 428-8700
 Zip Code Area Code Number

OFFICIAL APPLICANT:
 Same Other (specify: _____)

TITLE OF SUBMISSION: RESEARCH AND EVALUATION OF EXISTING IMPEDIMENTS TO THE ADOPTION AND IMPLEMENTATION OF STATEWIDE PLANS FOR THE OPERATION AND MANAGEMENT OF LAW ENFORCEMENT EMERGENCY COMMUNICATIONS SYSTEMS OPERATED ON THE COMMON NATIONAL RADIO FREQUENCY--
 AUTHOR OF SUBMISSION: Ernest J. Landreville --155.475 MHz
 Executive Director

PRIMARY SUBJECT AREA OF PROPOSED RESEARCH (Check one):
 (This will assist us in assigning your proposal to a review panel, but does not determine panel assignment or otherwise affect the review process. This list is not meant to indicate areas of interest or to exclude projects in other areas.)

- | | |
|--|---|
| <input type="checkbox"/> Adjudication (Prosecution, Defense, Courts) | <input type="checkbox"/> Corrections |
| <input type="checkbox"/> Alternatives to Courts/Dispute Resolution | <input checked="" type="checkbox"/> Evaluation (of existing programs) |
| <input type="checkbox"/> Career Criminals | <input type="checkbox"/> Forensics |
| <input type="checkbox"/> Causes of Criminality | <input type="checkbox"/> Methodology Development Programs |
| <input type="checkbox"/> Community Attitudes, Fear & Responses to Crime & Criminal Justice | <input type="checkbox"/> Physical Environment & Crime |
| <input type="checkbox"/> Crime Prevention | <input type="checkbox"/> Police Science |
| | <input type="checkbox"/> Specific Crimes (Specify) |
| | <input type="checkbox"/> Other (Specify) |

TOTAL AMOUNT OF FUNDING REQUESTED (include indirect costs/overhead)
 \$85,000 (year one)

TOTAL TIME PERIOD FOR PROJECT (in months) Completion presently foreseen 12 months from commencement of activity

LIST ALL PROPOSED PROFESSIONAL STAFF, CONSULTANTS AND ADVISORY BOARD MEMBERS LISTED IN THE SUBMISSION. (This will assist us to avoid conflicts of interest in the selection of outside reviewers of your submission.)
 PROJECT DIRECTOR/PRINCIPAL INVESTIGATOR: Donald B. Hall, Administrative Assistant to Ernest J. Landreville, Executive Director,

acting under the direction of the National Board of Officers
 of Associated Public-Safety Communications Officers, Inc. (APCO)
 - Ernest J. Landreville, Executive Director, APCO National Office

39.820 MHz
FR/AMB (150)
yes
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planning for 1984 implementation

- APCO Board of Officers, acting in the capacity of Board of Directors for the purposes of the subject project:

Russell V. Robinson	Detroit, Michigan
Joseph W. Gallelli	Albany, New York
Craig M. Jorgensen	Salt Lake City, Utah
Charles F. English	Raleigh, North Carolina

- APCO Spectrum Management Council, acting in the capacity of Advisory Board members:

Henry L. Crutcher	Sacramento, California
Sanford H. Smith	Greensboro, North Carolina
Gary D. Gray	Orange, California
Irving E. McAndrew	Montpelier, Vermont
Art McDole	Salinas, California
Norman Coltri	West Trenton, New Jersey
David Wise	East Lansing, Michigan
Robert L. Gaston	Austin, Texas
Weldon P. Hale	Towson, Maryland

MO yes yes yes FR/AMB (150) 39.820 MHz
 MT yes yes yes planning for 1984 implementation

ABSTRACT

The Associated Public-Safety Communications Officers, Inc. (APCO) is a not-for-profit association begun in January 1935. APCO's purpose is to foster the application of communications technology and to promote communications management and operational effectiveness at all levels of government.

APCO is recognized by the FCC as frequency coordination body for the Police and Local Government Radio Services. APCO regularly participates in FCC proceedings having potential impact upon Public Safety Radio Service users. APCO is a member of the Public Safety Communications Council and the Land Mobile Communications Council.

APCO is recognized worldwide for the products of its PROJECT SERIES FOUNDATION, which includes, among other such publications, *The Public Safety Standard Operating Procedure Manual*, *Police Telecommunications Systems*, *State Comprehensive Law Enforcement Planning for Telecommunications*, and for the results of national surveys of public-safety telecommunication systems.

In 1976, as a result of APCO efforts, the Federal Communications Commission designated the frequency 155.475 MHz as the National Law Enforcement Emergency Channel (NLEEC) to serve law enforcement officers outside communications range of their own radio systems when multi-jurisdictional responses to emergency situations develop. Implementation has been slowed because of the use of this frequency for different purposes in existing systems in many of the States.

PROGRAM EXPOSITION

INTRODUCTION

In 1976 APCO's petition for a common nationwide channel for law enforcement was granted by the FCC, and state police frequency 155.475 MHz was designated as the National Law Enforcement Emergency Channel (NLEEC). Its purpose is twofold: to provide a common nationwide channel assuring the safety of officers, and to aid in the multi-jurisdictional responses to emergency situations. Specifically, it permits direct mobile-to-mobile communication between law enforcement units of different jurisdictions; provides itinerant law enforcement units a communication capability when away from their normal jurisdiction; and allows improved command and control communications between officers of different jurisdictions responding to an emergency.

There are a number of serious constraints which have been clearly identified since inception and which have impeded the implementation of NLEEC in large areas of the United States. Amongst these are:

- a) in certain areas state police agencies have been operating on this frequency for some time as a part of their state police system. The frequency cannot be used as the NLEEC in that state until a suitable replacement frequency is found and the capital acquired to perform a changeover.
- b) In other areas, states are committed to low band frequencies and have a well-developed network in operation. Placing 155.475 MHz (high band) NLEEC in their fleet would require a significant expenditure for new radios operating on high band to be installed alongside their existing low band radios.

- c) Several states already had a well developed common channel system in operation on other high band frequencies -- Alabama on 155.01 MHz, California on CLEMARS, and others. These states will gradually move toward implementation of the NLEEC as capital is available to fund the changeover.
- d) The FCC requires a state plan to be adopted for using NLEEC before any licenses will be issued. The development of such a plan requires careful, broad-based effort and acceptance.

Although the impediments identified above would appear to lend themselves to categorization, there remain other serious and troublesome technical and administrative difficulties inherent in these broad areas. Further, given the geographical and political complexions of the diverse areas of our nation, differentiating circumstances compel varying response to overcome the obstacles which now prevent the full, nationwide implementation of the NLEEC system.

It is APCO's intent to delve deeper into the practical, administrative and technical difficulties faced by individual states in order to more clearly and definitively identify existing obstacles. In so doing, APCO would study, research, evaluate and correlate the identifiable impediments and, in publishing its findings, contribute towards the creation of a valuable reference resource for those states not yet in a position to adapt the NLEEC system.

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BACKGROUND

APCO, in behalf of and in support of its membership's Public Safety responsibilities, in 1975 filed a Petition for Rulemaking (RM 2522) before the FCC to establish 155.475 MHz as a National Law Enforcement Emergency Channel. The FCC responded favorably and, on January 21, 1976, under Docket No. 20560, RM 2522, issued a Report and Order designating frequency 155.475 MHz exclusively for use, on a nationwide basis, in police emergency communications networks operated under statewide law enforcement emergency communications plans. The FCC stated: "While it is necessary for each state to develop a detailed plan for its emergency communications network before implementation the Commission will not impose a standard operating plan on all states since unique requirements and constraints must be taken into account in developing an appropriate plan in each state."

By 1981, 24 states or portions thereof had operational NLEEC systems and 6 states were in the planning stages.

State plans developed to date deal primarily with intra-state emergency communications capabilities. States have not appropriated the funds and APCO does not have available financial resources to provide an analysis of inter-state impediments and develop recommendations to expedite the implementation of this valuable resource. The inter-state aspects of the use of the emergency channel most certainly require technical analysis and inter-state guidance to provide the system described in the FCC Report and Order. There are unique requirements and constraints which must be taken into account in developing each state plan to dovetail into the plans and operations of

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adjoining jurisdictions. In addition, information as to methodology utilized by states with operational NLEEC systems can enhance implementation and improve cost effectiveness for states in the planning stage. The effectiveness of the total inter-state system substantially increases as each state added expands the operational area.

With the approval of a National Law Enforcement Emergency Channel, states were provided a tool to substantially improve emergency communications capabilities. The local, state or federal officer outside the range of his own system would have access to a lifeline for assistance in any emergency situation.

Separate individual actions by the states, to date, have resulted in similar planning sequences being repeated by each state, resulting in duplication of effort and cost, with the resultant delays in the development of a nationwide effective system in every state. Individually developed systems do not necessarily have compatible procedures or equipment. Thus far, this nationwide emergency channel capability has not been addressed as it pertains to possible use by Federal Marshals transporting prisoners inter-state, or by the Federal Nuclear Regulatory Commission which handles and transports nuclear materials.

The use of the channel on an inter- or intra-state basis becomes especially valuable when emergency communications needs occur affecting a large area or one overlapping state borders.

The law enforcement officer and the public using our highway systems are endangered by a lack of communications to provide essential emergency services. An effective nationally available National Law Enforcement Emergency Channel would be a major step in eliminating these problems.

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planning for 1984 implementation
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PROPOSED RESEARCH DESIGN AND METHODOLOGY

The preceding background statements describe the need to coordinate activities to expedite the implementation of the National Law Enforcement Emergency Channel. The objectives and method of accomplishing these objectives are listed in the following tasks. The key to the success of this effort is the unique expertise available in APCO's national Office and membership. This project, like APCO's membership, is national in scope. It is cost effective because APCO members serve without compensation while providing their expertise through volunteer committee activities. When meetings are scheduled in support of approved grant objectives, the members are reimbursed only for travel costs and actual per diem expenses.

● TASK I:

1. Identify and contact each state official currently responsible for coordination and management of state law enforcement and emergency communications systems.
2. Prepare and distribute suitable questionnaire and, when necessary, establish personal contact to solicit each state's status as to implementation of NLEEC.
 - a) Determine methodology being followed in each state in implementing system.
 - b) Obtain copies of existing NLEEC system operational procedures.
 - c) Identify implementation, regulatory, operational, technical and compatibility problems and characteristics existing in the states.

● TASK II:

1. Correlate results of survey developed under Task I.

FR/AMB (150) 39.820 MHZ
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planning for 1984 implementation

- a) Compare methodology and conceptual aspects of each system.
 - b) Derive commonality of operational, technical and regulatory problems.
 - c) When identified problems have been successfully resolved by one state, provide pertinent information to other interested states.
 - d) Establish a library of state NLEEC-approved system plans and operational procedures.
2. Review technical aspects of each state's system to ensure inter-state communications compatibility, taking into account inter-state regulatory and operational considerations.
 3. Provide results of correlation and recommendations to states, with view to securing their comments and observations.
 4. Recontact states to determine level of progress and, when necessary, establish personal contact to expedite NLEEC implementation.

● TASK III

1. Correlate material developed from state participants and APCO Task Groups.
2. Prepare final project report to encompass status of NLEEC with recommendations as to implementation procedures.
3. Provide final project report to all states. Include copies of pertinent state plans to be used as a guide by states in the process of developing implementation plans.

MO MT FR/AMB (150) 39.820 MHz
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4. Develop recommended national guidelines for legislative language for use by states contemplating implementation of NLEEC.
5. Publish in The APCO BULLETIN a summary of results of project.

It is anticipated that this project will provide assistance to states to encourage early implementation of NLEEC systems. The assistance provided will emphasize benefits, including cost effective approaches towards the development of implementation plans. This fact alone should encourage additional states to participate.

It may be noted that many of the states currently constrained from operation on the NLEEC do have agencies along their borders who monitor the NLEEC used by an adjacent state. The most significant indication of the NLEEC need and acceptance by law enforcement is the fact that Canada, our neighbor to the north, has numerous monitoring points along the border.

An additional product of benefit to all states and federal communications users will be in the form of an analysis of interstate compatibility of the system. This is an important consideration for coordination of interstate emergency activities and assistance to the federal agencies having emergency communications requirements.

Enclosed for record purposes is documentation identifying APCO as a not-for-profit organization, and notification of APCO's approved provisional overhead rate of 83.11% established by the Bureau of Justice Statistics, Department of Justice.

MO MT FR/AMB (150) 39.820 MHz
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PRELIMINARY BUDGET AND COST ANALYSIS
 (Based on information current as of March 1982)

A. Grant Management (12 months)

1. Project Director/Principal Investigator		
2 days per week @ \$22,000 per annum	\$	9,000
2. APCO Executive Director		
1 day per week @ \$28,000 per annum		5,600
3. Secretary		
3 days per week @ \$8,000 per annum		<u>4,800</u>
Total direct labor	\$	19,400
Benefit rate 18.1%		<u>3,510</u>
Total (rounded)	\$	23,000
Overhead rate (BJS) 83.11%		<u>19,115</u>
Total - Grant Management (rounded)		\$ 42,000

B. Travel and approved allowances

1. Individual travel (research and evaluation missions)		
12 at average of \$500 each	\$	6,000
2. Board of Officers and Advisory Board		
members - Committee meetings		
a) Task Group meetings (two)		
Board of Directors (4 persons)		
Advisory Board members (9 persons)		
Executive Director (1 person)		
Project Director (1 person)		
2 Task Group meetings (1 day duration) x		
15 persons x average \$500 =		15,000

FR/AMB (150) yes yes yes MO
 39.820 MHz MT
 planning for 1984 implementation

Forward	\$ 21,000	\$ 42,000
b) Progress Evaluation/Regular Committee meetings (two)		
2 Progress Evaluation/Regular Committee meetings (2 day duration) x 15 persons x average \$600 =	<u>18,000</u>	
Total		39,000

C. Operating Expenses

Data Processing Services	\$ 1,500	
Reproduction (printing costs)	2,000	
Postage	<u>500</u>	
Total		<u>4,000</u>

Total Estimated Project Costs: \$85,000

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Address any reply to: P.O. Box 187, Cornwallis Heights, Pa. 19020

**Internal Revenue
Service Center**

June 5, 1972

EO:SU:A pdp (S)

Mr. J. Rhett McMillian, Jr.
Post Office Box 669
New Smyrna Beach, Florida 32069

Re: Associated Public Safety
Communications Officers,
Incorporated
EIN: 63-0461885

Dear Mr. McMillian:

Our records show the above organization to be exempt under
Section 501 (c) 6, granted March 3, 1964.

Thank you for your cooperation.

Sincerely yours,

T. Lamagna
T. Lamagna
Chief, Exempt Organization
Returns Branch

JUN 8 1972
A.M.C.O.

FR/AMB (150) yes yes yes yes MO MT
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planning for 1984 implementation

APCO PROJECTS COMPLETED AS OF DECEMBER 1981

<u>Project No.</u>	<u>Project</u>
1.	Film - THE LITTLE WE HAVE
2.	PUBLIC SAFETY COMMUNICATIONS STANDARD OPERATING PROCEDURE MANUAL
3.1	POLICE TELECOMMUNICATIONS SYSTEMS
3.2	ILLINOIS POLICE COMMUNICATIONS STUDY (2 Vols.)
3.3	PUBLIC ADMINISTRATION REQUIREMENTS STUDY FOR LAKE MICHIGAN METROPOLITAN AREA LAW ENFORCEMENT COMMUNICATIONS NETWORK
4.	Official Ten Signal List (Origination)
5.	THE PUBLIC SAFETY COMMUNICATIONS STANDARD FREQUENCY COORDINATION MANUAL
6.	Video Tape of Conferences as a training aid for Conference Chairpeople
7.	Public Safety Communications Equipment Specifications
8.	APCO Conference Rules Manual (1 Vol.) APCO Chapter Secretaries Manual (1 Vol.)
9.	AN INTRODUCTION TO THE THEORY OF WAITING TIMES
10.	Technical Home Study Course
11	National Operator Training Program/Communications Management Training Course
12.	Municipal Spectrum Requirement 18261
13.	PLANNING GUIDELINES FOR LAW ENFORCEMENT TELECOMMUNICATIONS SYSTEMS
13.1	A REVIEW AND ASSESSMENT OF TELECOMMUNICATIONS PLANNING IN THE 50 STATE PLANNING AGENCIES
13.A	KANSAS STATE COMPREHENSIVE LAW ENFORCEMENT PLAN - TELECOMMUNICATIONS
14.	AN AURAL BREVITY CODE FOR PUBLIC SAFETY COMMUNICATIONS
15.	IACP Project - Implementing Regional PSC Systems

Project No.

Project

- 5/1
074
16. THE APPLICATION OF THE 900 MHz BAND TO LAW ENFORCEMENT COMMUNICATIONS
- 16.A.1 900 MHz TRUNKED COMMUNICATIONS SYSTEM FUNCTIONAL REQUIREMENTS DEVELOPMENT
- 16.A.2 THE OPERATIONAL IMPACT OF 900 MHz RADIO SYSTEMS ON LAW ENFORCEMENT COMMUNICATIONS
- 16.B.1 DRAFT SYSTEM IMPLEMENTATION PLANS FOR PARTICIPATING COMMUNITIES
- 16.B.2 SYSTEM IMPLEMENTATION PLANNING GUIDELINES
17. LAW ENFORCEMENT TELECOMMUNICATIONS: PROBLEMS AND RECOMMENDATIONS
- 1/10
076
- 2/15/
- 077-SE

Amended 10/01/81

L E A A GRANTS

5/13/74 - 11/13/75 (74-SS-99-3310)	PROJECT 13 TASKS 1 AND 2	"A REVIEW AND ASSESSMENT OF TELECOMMUNICATIONS PLANNING IN THE 50 STATE PLANNING AGENCIES"
	TASK 3	"PLANNING GUIDELINES FOR LAW ENFORCEMENT TELECOMMUNI- CATIONS SYSTEMS"
1/10/76 - 1/9/77 (76-SS-99-6022)	PROJECT 13A	"STATE COMPREHENSIVE LAW ENFORCEMENT PLAN - TELECOMMUNICATIONS PREPARATION GUIDE"
		"KANSAS STATE COMPREHENSIVE LAW ENFORCEMENT PLAN - TELECOMMUNICATIONS 1977"
2/15/77 - 2/14/78 (77-SS-99-6009)	PROJECT 16	"THE APPLICATION OF THE 900 MHZ BAND TO LAW ENFORCEMENT COMMUNICATIONS"

3/15/78 - 3/15/79
(78-SS-AX-0021)

PROJECT 16A
TASK I

IDENTIFY MODEL COMMUNITIES
SUITABLE FOR AND CAPABLE
OF IMPLEMENTING DIGITALLY
ADDRESSED, TRUNKED COMMUNI-
CATIONS SYSTEMS (DATCS)

TASK II

"THE OPERATIONAL IMPACT OF
900 MHZ RADIO SYSTEMS ON LA
ENFORCEMENT COMMUNICATIONS"

TASK III

"900 MHZ TRUNKED COMMUNI-
CATIONS SYSTEM FUNCTIONAL
REQUIREMENTS DEVELOPMENT"

5/15/79 - 11/15/79
(79-SS-AX-0013)

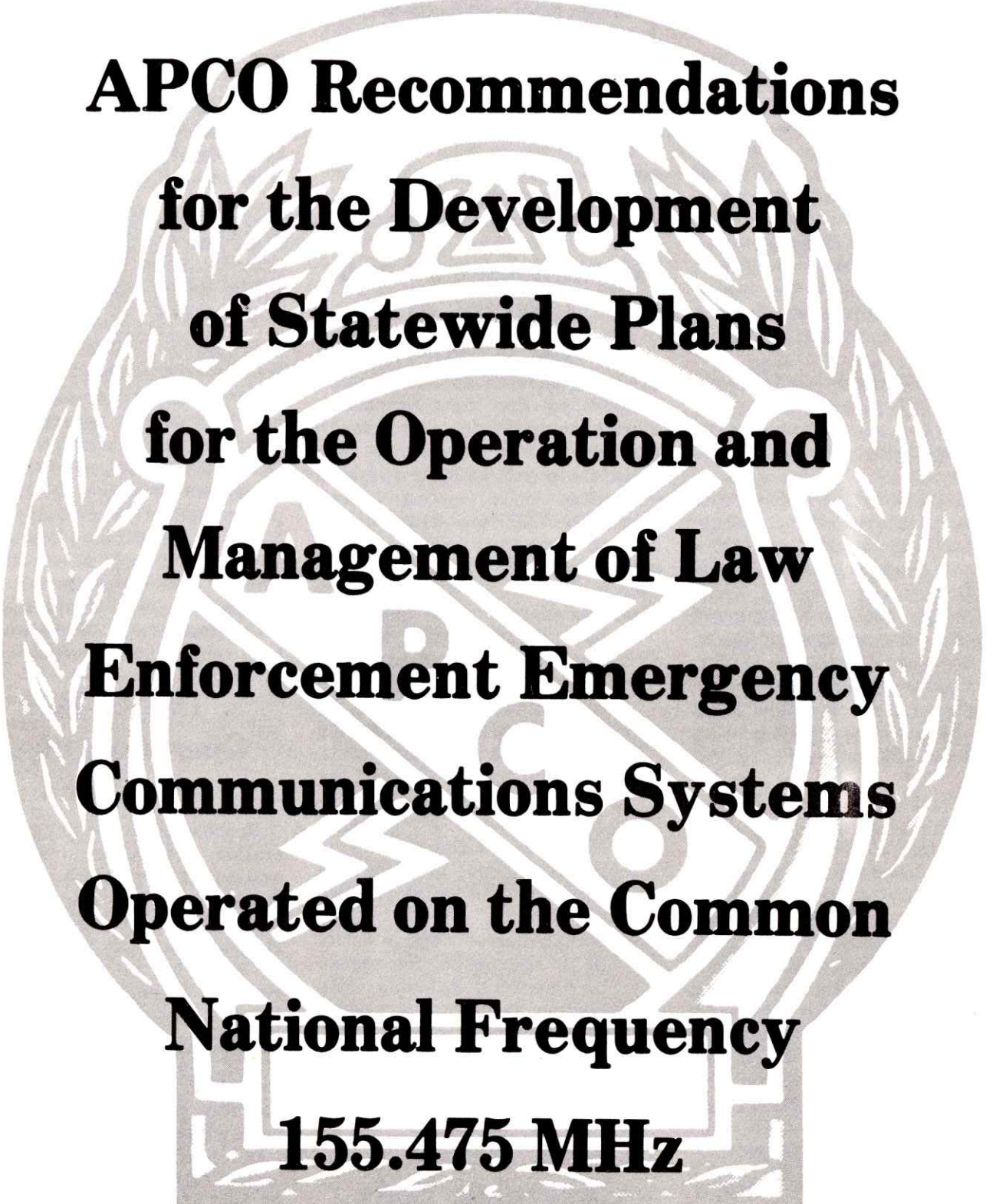
PROJECT 16B

COMMUNITY COMMUNICATIONS
SYSTEM IMPLEMENTATION
PLANNING (TRUNKED 900 MHZ
MOBILE RADIO SYSTEM DEVELOP-
MENT)

9/10/78 - 12/31/79
(78-TA-AX-0036)

PROJECT 17

"LAW ENFORCEMENT TELECOMMUNI-
CATIONS: PROBLEMS AND
RECOMMENDATIONS" (TECHNICAL
ASSISTANCE PROGRAM)

The background of the page features a large, faint watermark of the APCO logo. The logo is circular and contains the letters 'APCO' in a stylized font, surrounded by a wreath and other symbols.

**APCO Recommendations
for the Development
of Statewide Plans
for the Operation and
Management of Law
Enforcement Emergency
Communications Systems
Operated on the Common
National Frequency
155.475 MHz**

The Associated Public-Safety Communications Officers, Inc.
P.O. Box 669, New Smyrna Beach, FL 32069
904/427-3461

In response to a request by the Associated Public-Safety Communications Officers, Inc. (APCO), the Federal Communications Commission (Commission) has designated the frequency 155.475 MHz for use exclusively in law enforcement emergency communications systems. This action by the Commission has made available a valuable tool which will help assure the safety of law enforcement officers and aid in the coordination of multi-jurisdictional responses to emergency situations. The nationwide use of this emergency channel, under sound technical and operational standards, will provide the following major improvements in law enforcement communications:

- (a) Permit direct mobile-to-mobile emergency communications between law enforcement vehicles from various jurisdictions;
- (b) Provide itinerate law enforcement vehicles with a communications capability when away from their normal jurisdiction;
- (c) Provide improved command and control communications to supervisory personnel in situations where law enforcement officers from multiple jurisdictions are responding to an emergency.

Considerable time and money will be expended in developing and implementing a nationwide, base and mobile law enforcement emergency communications network on this frequency. Significantly, the resulting communications network can achieve its full potential only if its day-to-day use is prudently managed. The purpose of this paper is to provide state and local authorities some basic guidelines for developing statewide plans to govern the operation and management of emergency communications systems operating on this frequency.

A guideline does not normally recommend specific system operating procedures. However, since multi-jurisdictional forces are involved in implementing and utilizing a common national communication network, it is considered useful to highlight some of the more import-

ant operational considerations. In similar vein, financial considerations are mentioned. Both will be useful in visualizing an effective management plan that meets local needs where there has been no prior experience in such matters.

A principal objective of each state's management plan must be to assure disciplined, controlled use of the radio network. If use of the network is not so restricted, it will not be available in times of emergency to provide the unique benefits which it is intended to offer.

Establishment and Control of the System

Careful advance system planning is perhaps the most important element in establishing a successful emergency radio network. In each state, the cognizant state and local authorities must, among others, take the following factors into account during the initial planning of the system:

- (a) Designation of a governing body to administer the network on an overall basis;
- (b) Designation of a particular communications entity to install, maintain and operate the system on a day-to-day basis.
- (c) Development of a plan for financing the system;
- (d) Establishment of technical standards for the system;
- (e) Establishment of operating standards and procedures for the systems;
- (f) Designation of a single entity to be responsible for regulatory matters, including Commission licensing of system equipment and users.

Each of these requirements is treated in greater detail below.

State Network Governing Body

In those states which establish law enforcement emergency communications networks, the entire law enforcement community will presumably be served eventually by the emergency network and every

agency will have a significant investment in at least mobile radio equipment to operate on the channel. Accordingly, overall responsibility for, and control of, the system should normally be vested in a broadly representative governing board. Members of the board should represent the full range of types of law enforcement entities which will be using the system as well as representatives from such organizations as:

State Association of Chiefs of Police
State Sheriff's Association
State Police or Patrol
Public Safety communications organizations
State Department of Communications

At least a majority of the members of the governing board should be communications oriented and a significant amount of additional communications technical expertise should be available to the board on a continuing basis. Board members should have adequate time to make a continuing contribution to it, since the management of the emergency radio network will be a continuing process.

Day-to-Day Operation of the Systems

Responsibility for day-to-day operation and management of the system may typically be vested in a single law enforcement agency (normally the state police or equivalent agency) with prior experience in operating a statewide radio system. Since the system will function under detailed operating procedures established by the governing board, the critical requirement with respect to its day-to-day operation is that it be in the hands of experienced, capable communicators working within clearly defined lines of authority and responsibility. In most states, these qualifications are most readily available in the state department of public safety or equivalent agency.

Operating compacts between a state system and separate law enforcement systems, or between

separate law enforcement systems, are typical governing instruments. Information about such agreements in effect in actual operating systems is available from the APCO National Office.

Financing the System

The optimum means of financing the system will vary depending upon the laws of the state involved, the organization of law enforcement services in the state, the cost of implementing the system, the extent to which various law enforcement agencies in the state participate in the network, etc. However, it is essential that a detailed and realistic plan of financing be agreed upon well in advance if future misunderstanding is to be avoided.

In some states, the state criminal justice planning agency contributes funds to a governing body purchasing plan. In other states, the individual participating systems take care of their own financing arrangements. Regardless of the method employed, its provisions should be clearly stated and made known to all.

Since development of a nationwide emergency law enforcement communications network has long been a primary goal of law enforcement communications planners,^{1/} states should carefully explore the possible availability of funding from federal agencies, private foundations, etc.

Establishment of Technical Standards

The existing cooperating state law enforcement radio network typically offers the most optimum emergency channel resource. These systems are adequately manned and offer best area coverage in a state. They already recognize the technical and operational needs of other intrastate and interstate systems.

To the extent that participating agencies presently operate on low-band VHF or UHF frequencies, it

will be necessary for their communications units to have an added intercommunication capability on 155.475 MHz. Under any circumstances, such an added capability should be a future system objective. If an agency's current operation is in the high-band VHF spectrum, and existing communication units have a compatible configuration, it should be feasible to add the emergency channel.

The desired level of monitoring may be achieved by various methods. Among others, multi-frequency scanning with fixed priority is one option, and tone squelch offers another means. Individual system requirements will dictate the most optimum method for a given system. The attached APCO supplemental comments in Docket No. 20560, available from the National Office, provides additional insight into these and related matters.

Regular testing to assure the technical efficacy of the emergency network is essential. The nature of such tests and the manner in which they are conducted should be a provision established by the governing body.

Establishment of Operating Standards

The dedication of the frequency 155.475 MHz for use in law enforcement emergency radio networks has set aside a valuable spectrum resource. Rigid control of radio traffic and enforced discipline will be necessary to achieve the goals of APCO's original proposal and thus justify the allocation of this valuable spectrum. Superfluous and uncontrolled traffic on an emergency network will ultimately defeat its intended purpose. Accordingly, a principal objective of the network operating procedures must be to establish means of assuring disciplined use of the system.

In general, the emergency channel can be used in any law enforcement action requiring *emergency* communication on a primary basis between mobile units under circumstances where regular radio facilities are not adequate. However, this broad usage may well have to be curtailed in areas where

the high frequency of "emergencies" would dictate that the channel only be used in "major" emergencies. Such operational distinctions should be made under the authority of the governing body.

The emergency radio network is primarily a mobile-to-mobile service with base station service a secondary feature. It is principally intended to provide a communications capability among law enforcement mobile units of differing jurisdictions when an emergency arises which renders the regular channels of communication inadequate to provide the communication capability needed to successfully complete the operation under severe stress conditions.

In order to preserve the emergency nature of the network, mobile installations must be limited to law enforcement vehicles. A proliferation of ambulances, fire trucks and public works vehicles on the channel will only degrade the capability and capacity of the network.

APCO has developed a manual of system operating procedures. Copies of this manual are available at a reasonable cost from the Association's National Office. It is suggested this manual be referenced when emergency channel system operation procedures are being developed. Obviously, if an existing state system is being used for emergency channel operation, that system's procedures will have certain operating requirements that will have to be addressed.

Therefore, detailed operating procedures are not included in these general guidelines. However, in order to emphasize the importance of proper operating procedure on a common nationwide channel, an example of an appropriate request for emergency assistance might be:

"EMERGENCY...calling any unit...EMERGENCY (type of message) Jefferson County Unit 32 (agency and unit calling) on Route 12 north of Route 36 (location where help is needed) in pursuit of (nature of problem) headed north (direction of travel) need (type of assistance desired)."

A mobile unit of another jurisd-

(Continued on Page 22)

^{1/} See, *Report on Police*, National Advisory Commission on Criminal Justice Standards and Goals, January 1973.

RECOMMENDATIONS

diction, monitoring the emergency channel, and in range of the transmission, will be in a position to respond. If such a mobile unit of another jurisdiction does not hear the call, the call will normally be heard by the base station of the other jurisdiction. The base station will advise one of its own units on its own channel of the emergency need and then advise the unit needing assistance, over the emergency channel, of the estimated time of resources response. The station will then advise the unit needing help that it is standing by until the emergency resources arrive at the scene.

Whether or not codes are used in these procedures is normally left to the judgement of the governing authority. Codes are recommended, and if considered, the only signal or code used should be the Public-Safety Aural Brevity Code developed by APCO as the result of a study funded by the Office of Telecommunications Policy, Executive Office of the President. The thrust of this study is that common codes should be used on common channels that transcend jurisdictional boundaries, and, that codes offer certain other advantages that are useful in this respect. A copy of this study can be obtained at reasonable cost from the National Office of the APCO association. Use of non-standard codes could obviously result in disastrous confusion in the context of a multi-jurisdictional response to a major emergency.

Where many units are involved in a particular emergency response, individual mobile operators must exercise discretion to avoid overloading the emergency channel. For example, congestion can be relieved to some extent in such cases if mobile units transmit only when they need information to properly participate.

All dispatch or control centers of law enforcement agencies participating in the network should continually monitor the law enforcement emergency radio channel. The receiver for each department's monitor should have a range comparable to its radio coverage.

An emergency network base station, with discretion, may broadcast flash messages whenever coverage is required in many jurisdictions and an urgency exists for an all-out effort for apprehension of a criminal, the mobilization of forces for a disaster, riot, etc. Further traffic should be handled on the various regular communications systems.

Base stations may also properly engage in a somewhat broader range of communications with itinerant law enforcement vehicles carrying out duties outside the range of their regular communications system.

Coordination of Regulatory Affairs

Like any other law enforcement communications system, an emergency network operating on 155.475 MHz must be licensed by the Commission and operated in accord with its rules. The entity responsi-

ble for day-to-day operation of the network normally should be given responsibility for all licensing and regulatory matters.

The initial application for use of the frequency should be submitted first to the cognizant frequency advisory committee, or committees, functioning in the state involved. Detailed technical and operating plans for the network should be submitted to the coordination committee so that the planned emergency network may be coordinated with adjacent states. If the frequency is not in use in adjacent states, or it is used there in a law enforcement emergency radio system, a recommendation will be made to grant the coordination request. Should an adjacent state be using the frequency for some other purpose, an analysis will be made to determine when a licensing recommendation can be issued. The frequency coordinator's recommendation must then accompany the network application when it is filed with the Commission.

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THE APCO STORY

APCO is an association of administrators, engineers, dispatchers, and technicians who are responsible for the design, operation, and maintenance of telecommunications systems serving public-safety agencies at the Federal, state, and local government levels. Since its founding in 1935, APCO has become an officially recognized advisory group to the Federal Communications Commission for matters including frequency allocation and coordination, as well as initiation of technical and operational advances. APCO is dedicated to serving by establishing, identifying, and evaluating progressive operating techniques and electronic instrumentation which can respond to both current and future telecommunications requirements.