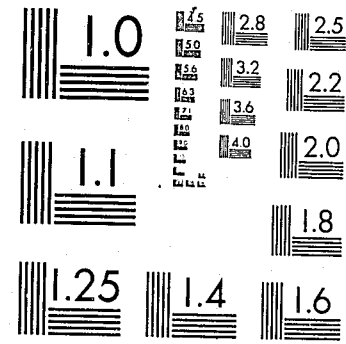


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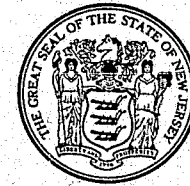
9/30/81

SPEN

COMMUNICATIONS

STATE OF NEW JERSEY
STATEWIDE POLICE EMERGENCY
NETWORK SYSTEM

1980



Honorable Brendan T. Byrne, Governor
Hon. J. Degnan, Attorney General

78/23



NEW JERSEY
STATEWIDE POLICE EMERGENCY NETWORK
PLAN

U.S. Department of Justice
National Institute of Justice

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ACQUISITIONS



State of New Jersey
DEPARTMENT OF LAW AND PUBLIC SAFETY
STATEWIDE POLICE EMERGENCY NETWORK TASK FORCE

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Chief, Rahway Police Department
1470 Campbell Street
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(201) 388-1900

VICE-CHAIRMAN
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Chief, Lower Township Police Department
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(609) 886-1178

SECRETARY
LT. RALPH H. NILES
New Jersey State Police
P. O. Box 7068
West Trenton, N. J. 08625
(609) 882-2000

February 6, 1979

The Hon. John J. Degnan, Attorney General
of the State of New Jersey
State House
Trenton, New Jersey

Dear Sir:

It is my pleasure to present to you and to the entire law enforcement community of New Jersey, a Plan for a Statewide Police Emergency Network. This network, a radio communications system and a microwave backbone system, has been developed through the untiring efforts of the SPEN Task Force. This Task Force has collected information and analyzed the status of law enforcement communications as they exist within the State today. As a result of the information obtained, the Task Force has developed the SPEN Plan.

The concept of SPEN is simple: through the use of a Statewide frequency, this network will link all participating law enforcement agencies in the State together. Thus, once implemented, the proposed Statewide Police Emergency network will enable all participating law enforcement officials throughout the State of New Jersey to communicate with other participating officials within radio range, regardless of agency affiliation. This capability will greatly enhance the effectiveness and cooperative abilities of all law enforcement officials throughout New Jersey.

In addition to this Statewide communications capability, SPEN provides law enforcement officials in New Jersey with the ability to communicate across State lines in times of emergency. This has been done through the use of a nationwide radio frequency set aside specifically for that purpose. The States of Pennsylvania and New York are now in the process of designing and implementing communications systems on this frequency. Therefore, after SPEN has been implemented, police officials in New Jersey will have the capability to communicate

Continued

The Hon. John J. Degnan

- 2 -

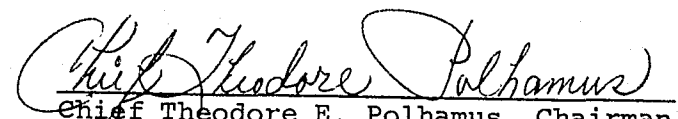
February 6, 1979

directly with other officers in their immediate jurisdiction regardless of State, local or institutional boundaries.

In addition, other neighboring States, such as Delaware, Connecticut and Maryland, have recently indicated interest in pursuing inter-State police radio communications along SPEN recommendations.

During times of natural disaster and/or local emergencies, radio communication between agencies is mandatory for the accomplishment of every objective.

Sincerely yours,


Chief Theodore E. Polhamus, Chairman
Statewide Police Emergency Network
Task Force

TEP:MB



JOHN J. DEGNAN
ATTORNEY GENERAL

STATE OF NEW JERSEY
DEPARTMENT OF LAW AND PUBLIC SAFETY
STATE HOUSE ANNEX
TRENTON, N.J. 08625
609 292-4919

January 21, 1980

Theodore E. Polhamus, Chief
Rahway Police Department
1470 Campbell Street
Rahway, New Jersey 07065

Dear Chief Polhamus:

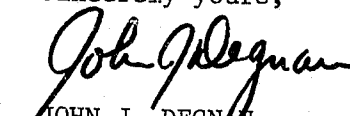
As agreed at our meeting on December 18, 1979 with you and representatives of the Statewide Police Emergency Network Task Force, I wish to officially notify the Task Force that I have accepted its Report and intend to implement its recommendations.

In order that I may give further consideration to the appointment of an appropriate agency to administer the plan, I would appreciate your sending me the names of those members of the Task Force who would be willing to continue to serve.

In the meantime, I have asked Director Bliss to supervise all financial arrangements which will be necessary for the proper utilization of the funds allocated by SLEPA. This will include obtaining the necessary waivers from the county governing bodies.

Lastly, I wish to express my appreciation for the belated opportunity to meet with you and receive your recommendations on behalf of the Task Force. The Report reflects an enormous amount of dedicated effort and expertise. I am certain that the entire law enforcement community will be grateful for the contributions of all of the Task Force members to this worthwhile project.

Sincerely yours,


JOHN J. DEGNAN
Attorney General

JJD:ams

cc: Asst. Attorney General Bliss
Colonel Pagano
Director Stier

FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

IN REPLY REFER TO:
7810-12

Honorable John J. Degnan
Attorney General
Department of Law and Public Safety
State House Annex
Trenton, New Jersey 08625

Dear Mr. Degnan:

This letter is to acknowledge the submission by the State of New Jersey of the Statewide Police Emergency Network (SPEN) plan. This plan was filed in accordance with Section 90.19(e)(14) of the Commission's rules since it utilizes the Nationwide Police Emergency Frequency of 155.475 MHz.

Since the plan also utilizes 154.680 MHz as an additional statewide channel, the request by the State of New Jersey for a waiver of Section 90.19(e)(12) of the Commission's rules to permit the intended use of this frequency as described in the plan, is approved.

Sincerely,



Carlos V. Roberts
Chief, Private Radio Bureau

INCORPORATED 1912



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Chief, Totowa Police Dept.

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Chief, Paramus Police Dept.

Counselor
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Executive Secretary
Arthur H. Temple
Crystal Brook Professional Bldg.
Route 35, Eatontown, N. J. 07724
201-542-4411
201-542-4414

New Jersey State Association of Chiefs of Police

Crystal Brook Professional Bldg. — Rt. 35, Eatontown, N. J. 07724
Arthur H. Temple — Executive Secretary — (201) 542-4411 542-4414

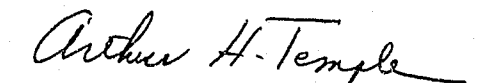
February 5, 1979

Chief Theodore Polhamus
Police Department
Rahway, New Jersey 07065

Dear Chief Polhamus:

The New Jersey State Association of Chiefs of Police, at their last regular business conference, held on February 1, 1979 at the Shore Casino, Atlantic Highlands, N.J., unanimously endorsed the recommendations of the New Jersey Task Force, toward the implementation of a statewide Police Emergency Radio System, as outlined in the Draft Copy presented to the Association.

Sincerely yours,



Arthur H. Temple
Executive Secretary

AHT/ly



State of New Jersey

DEPARTMENT OF LAW AND PUBLIC SAFETY
DIVISION OF STATE POLICE

POST OFFICE BOX 7068
WEST TRENTON, NEW JERSEY 08625
(609) 882-2000

JOHN J. DEGNAN
Attorney General

COLONEL C. L. PAGANO
Superintendent

March 7, 1979

Chief Theodore E. Polhamus
Chairman, SPEN Task Force
Rahway Police Department
1470 Campbell Street
Rahway, N.J. 07065

Dear Chief:

The New Jersey State Police have received and reviewed the New Jersey Statewide Police Emergency Network Task Force Report and proposed emergency communications plan. As a result of this review, I am pleased to formally announce that the State Police heartily endorsed the activity of the Task Force and the communications plan it produced.

The preparation of such a report depended heavily upon the professional expertise of each of the Task Force members. The public safety community is indeed fortunate to have access to such individuals serving in the many areas of law enforcement. Their professional skills, initiative and dedication have made this document possible.

I personally would like to thank all those who contributed to the development of the SPEN report.

Sincerely,

Clinton L. Pagano

Colonel Clinton L. Pagano
Superintendent

THE COUNTY PROSECUTORS ASSOCIATION



OF NEW JERSEY

March 6, 1979

Chief Theodore Polhamus
Rahway Police Department
1470 Campbell Street
Rahway, New Jersey 07065

Statewide Police Emergency Network Task Force

Dear Chief Polhamus:

The New Jersey Prosecutors' Association has reviewed the Report of the SPEN Task Force, which you serve as Chairman. The details contained in the Report and its Appendix clearly demonstrate the painstaking efforts made by the Task Force in this endeavor.

The New Jersey Prosecutors' Association totally supports efforts to enhance the efficiency of police officers throughout the State in their response to crime and other emergency situations. The plan proposed by the Task Force is certainly an answer to a major problem of the law-enforcement community in New Jersey. Our Association is of the opinion that the Report is evidence that the Task Force has explored the situation thoroughly, and we are confident it has selected the most reasonable answers to the problem of police communications. It is our suggestion, however, that Appendix L include the sources which form the basis for the cost factors listed.

Aside from the above suggestion, the Association endorses the Report of the SPEN Task Force as we are satisfied it is the product of careful, analytical study. We thank you for your efforts, and ask you to convey our gratitude to the members of the Task Force.

With kindest regards, I am

Very truly yours,

Oscar W. Rittenhouse

OSCAR W. RITTENHOUSE
President - The County Prosecutors
Association of New Jersey

OWR/LJS

Copies to: The Honorable Edwin H. Stier
The Honorable Cornelius Sullivan
The Honorable John Stamler
The Honorable Dennis Bliss



Sheriffs' Association of New Jersey



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GILBERT W. LUGOSSY

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THOMAS J. O'ROURKE
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GERALD A. WILLIS

UNION COUNTY
RALPH FROELICH

WARREN COUNTY
KENNETH H. GAYLORD

* PAST PRESIDENT

February 15, 1979

Chief Theodore E. Polhamus
Chairman - SPEN
Rahway Police Department
1470 Campbell Street
Rahway, N.J. 07065

Dear Chief Polhamus,

Please be advised that having reviewed the SPEN Plan, the Sheriffs' Association of New Jersey has approved, and therefore unanimously voted to endorse the SPEN Plan.

Also be advised that we expect to participate fully upon implementation of the Plan.

Very truly yours,

John M. Fox
John M. Fox
Sheriff
Secretary/Treasurer

The Sheriff is the highest and only law enforcement official elected by you, the people of New Jersey.

NEW YORK STATEWIDE LAW ENFORCEMENT TELECOMMUNICATIONS COMMITTEE

Chief Harlin R. McEwen, Chairman
Cayuga Heights Police Dept.
836 Hanshaw Rd., Ithaca, N.Y. 14850

Sheriff Allen L. Capwell, Vice-Chairman
Wyoming County Sheriff's Office
145 N. Main St., Warsaw, N.Y. 14569

T/Lt. Joseph W. Gallelli, Secretary
New York State Police
State Campus, Albany, N.Y. 12226

February 21, 1979

Chief Theodore E. Polhamus, Chairman
N.J. Statewide Police Emergency
Network Task Force
c/o Rahway Police Department
1470 Campbell Street
Rahway, New Jersey 07065

Dear Chief Polhamus:

Members of the New York Statewide Law Enforcement Telecommunications Committee have reviewed the draft copy of the N.J. Statewide Police Emergency Network Task Force Report which was previously submitted to us.

At a meeting of NYSLETC held in Albany, N.Y. on February 1, 1979, NYSLETC directed me to advise you that insofar as the part of the report concerns your proposed implementation of the Nationwide Police Emergency Channel of 155.475 MHz., the plan does not conflict with the goals and objectives of the New York Statewide Law Enforcement Emergency Communications Plan.

You and your committee should be commended for your efforts in New Jersey to improve police communications.

Please be assured of our future cooperation in matters of mutual interest.

Very truly yours,
Harlin R. McEwen
Harlin R. McEwen
Chairman

HRM:bp

PENNSYLVANIA STATE POLICE
DEPARTMENT HEADQUARTERS
1800 ELMERTON AVENUE
HARRISBURG, PA. 17120

May 25, 1979


Lieutenant Martin G. Ficke
New Jersey State Police
P. O. Box 7068
West Trenton, New Jersey 08625

Dear Lieutenant Ficke:

We have reviewed your proposed implementation plan for the use of the Nationwide Police Emergency Frequency, 155.475 MHz. We find no part of the plan which does not fit the intent for which the frequency is to be used. Further, we believe the plan to be so developed that when the Pennsylvania plan has been implemented our two states will each enjoy a viable and useable Emergency Communications Program which will mutually benefit our law enforcement community.

Please consider this letter as our approval of your plan.

Sincerely,


Robert I. Kimmel
Director
Communications Division



STATE OF DELAWARE
DEPARTMENT OF PUBLIC SAFETY
DIVISION OF COMMUNICATIONS
1407 NORTH DUPONT HIGHWAY
DOVER, DELAWARE 19901

PHONE: (302) 678-4153

March 26, 1979

New Jersey State Police
P.O. Box 7068
West Trenton, New Jersey 08625

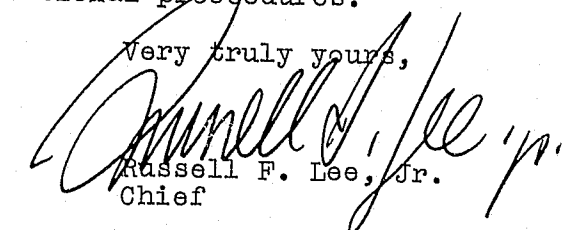
ATTN: Lt. Martin G. Ficke

Dear Lt. Ficke:

I have reviewed your proposal for the implementation of the Nationwide Police Emergency Frequency (155.475MHz) in the state of New Jersey with the communications committee of the Delaware Police Chief's Council, and we have no objectives to your plan. You may consider this letter as formal approval of your plan by the State of Delaware.

In our future meetings we will develop a memorandum of agreement on inter-state operational procedures.

Very truly yours,


Russell F. Lee, Jr.
Chief

RFL:dh

cc: Mr. Paul Edginton DNREC
Capt. Charles Burris DSP
Capt. Neile Williams MSP
Mr. Robert Kimmel PSP



HARRY HUGHES
GOVERNOR

GORDON C. KAMKA
SECRETARY
PUBLIC SAFETY AND
CORRECTIONAL SERVICES

STATE OF MARYLAND

DEPARTMENT OF
PUBLIC SAFETY AND CORRECTIONAL SERVICES

MARYLAND STATE POLICE

Electronic Services Division
Jessup, Maryland 20794
301/799-3466

March 30, 1979

EDWIN R. TULLY
DEPUTY SECRETARY
FOR PUBLIC SAFETY

COLONEL THOMAS S. SMITH
SUPERINTENDENT
MARYLAND STATE POLICE

New Jersey State Police
P. O. Box 7068
West Trenton, New Jersey 08625

ATTN: *Lieutenant Martin G. Ficke*

Dear Lieutenant Ficke:

I have reviewed your proposal for the implementation of the Nationwide Police Emergency Network Plan in the State of New Jersey with my staff. Preliminary system design involving the National Police Emergency Frequency (155.475 MHz) in the State of Maryland will be compatible with your system. We have no objections to the implementation of your plan.

Sincerely,

N. C. Williams

N. C. Williams - Captain
Commander
Electronic Services Division

NCW:JRB:hr

The material contained in this report has been produced using financial support provided by Grant Numbers: A B7-169-76 and A B6-188-77 of the New Jersey State Law Enforcement Planning Agency. The fact that SLEPA furnished financial support to the activity described in this publication does not necessarily indicate its concurrence in the statements or conclusions contained therein.

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TASK FORCE CHAIRMAN : Theodore E. Polhamus
Chief of Police
Rahway Police Department

VICE-CHAIRMAN : Robert M. Denny
Chief of Police
Lower Township Police Department

SECRETARY : Anthony Sacco
Sergeant
New Jersey State Police

CONTACT POINT : Frequency Coordination Planning Unit
Division of State Police
Box 7068, West Trenton, New Jersey
(609) 882-1261

ACKNOWLEDGEMENTS

The Statewide Police Emergency Network (SPEN) Plan has been developed through the continuous and dedicated efforts of the members of the SPEN Task Force. This Task Force, composed of representatives of the total law enforcement community of the State, has spent many hours and travel time away from their primary jobs in an effort to meet, to research, and to analyze the status of law enforcement communications throughout New Jersey.

In addition to the SPEN Task Force, special recognition should be awarded to the State Law Enforcement Planning Agency for acknowledging the need in New Jersey for a coordinated Statewide emergency communications system and for providing the funding to make such a project possible.

Acknowledgement should also be given to those representatives of the Attorney General's office (Asst. A.G. Dennis Bliss and D.A.G. James Keating in particular) who offered assistance in developing those sections of the Plan dealing with legal questions and interpretations.

The Staff of the Office of Frequency Coordination, as the host agency of the SPEN Grant, has contributed a great deal of time and technical expertise to the development of the SPEN Plan. Much of the basic groundwork, compilation of information and dissemination of reports to the Task Force was accomplished by this group of people.

Our thanks should be offered to Mr. Ron Hockemeier, who though not a member of the SPEN Task Force, was instrumental in much of the editing of the final SPEN Plan. This third party view and comments on the Task Force's product was invaluable to the SPEN Plan.

Finally, I would like to extend a note of appreciation to Mr. George Petrutsas of the Federal Communications Commission for convening with representatives of the Task Force and assisting them in developing a statewide communications plan which is both suited to the particular needs of the New Jersey law enforcement community and in conformance with FCC Rules and Regulations.

Theodore Polhamus
Chairman

NEW JERSEY SPEN TASK FORCE MEMBERSHIP

Captain Richard C. Amme
N.J. Department of Defense

* Alan L. Armitage, Director
Hunterdon County Communications

Alfred A. Assaiante
Bureau of Telecommunications

Alan Beck
*State Law Enforcement Planning Agency
Division of Criminal Justice*

Joseph E. Benton, Director
*Camden City/County
Law Enforcement Planning Agency*

Alvin J. Beveridge
State Law Enforcement Planning Agency

* Chief Gavin Blane
Bergenfield Police Department

Deputy Attorney General Dennis L. Bliss
Office of the Attorney General

Deputy Attorney General Alan Bowman
Division of Criminal Justice

** Honorable Stephen Champi
Somerset County Prosecutor

Chief Robert M. Denny
Lower Township Police Department

** Frank Devine
State Law Enforcement Planning Agency

Lieutenant Martin G. Ficke
N.J. Police Frequency Coordinator

Sheriff John Fox
Morris County Sheriff

Inspector Agatino Garufi
Atlantic City Police Department

** Major John Gribbin
N.J. Department of Defense

** Chief Matthew Haney
Cranford Police Department

* Joined the Task Force in 1978
** Resigned from the Task Force in 1977
*** Resigned from the Task Force in 1978

*** Chief Joseph L. Lake
Weehawken Police Department

** Deputy Attorney General Al Luciani
Division of Criminal Justice

Chief Walter Miller
West Deptford Police Department

Lieutenant Ralph H. Niles
N.J. State Police

*** Honorable James T. O'Halloran
Hudson County Prosecutor

Thomas O'Reilly
*State Law Enforcement Planning Agency
Division of Criminal Justice*

Captain Herbert Plump
Division of Systems & Communications

Chief Theodore E. Polhamus
Rahway Police Department

Captain Robert T. Sloss
Emergency Services

* Honorable John H. Stamler
Union County Prosecutor

** J. Morgan Van Hise
Emergency Services

Chief Eugene A. Velli
Cape May Police Department

LIAISON STAFF

James R. Barsuglia
N.J. Police Frequency Coordinator

Norman R. Coltri
N.J. Police Frequency Coordinator

Anne M. Cornelius
N.J. SPEN Task Force

Deputy Attorney General
James M. Keating, Jr.
Office of the Attorney General

PREFACE

The Statewide Police Emergency Network Task Force has spent two years laying the groundwork for a statewide police communications plan. In addition to the development of this plan, the Task Force has researched and recommended methods for officially establishing the communications system outlined in the plan. The recommended methods for the establishment of a statewide police emergency network are as follows:

1. Legislation
2. Executive Order of the Governor
3. Executive Directive of the Attorney General

It is the consensus of the Task Force that the best way to establish a governing board such as the one discussed in the SPEN Bylaws would be the third alternative: Executive Directive of the Attorney General. The reasons for this selection are many:

- A. The Attorney General as the chief law enforcement officer in the State maintains a direct relationship with the law enforcement community in New Jersey. Therefore, he would be in a better position to appoint knowledgeable members to the Executive Board to direct the operation of the System.
- B. The Attorney General has also been kept aware of the development of the SPEN Plan through representatives from his office on the SPEN Task Force. He is therefore in a good position to evaluate the merits of the plan and to possess a working knowledge of the details of the system.
- C. The Attorney General's Executive Directive is the most expeditious method to authorize the initial implementation of the system.
- D. This method will also afford the Attorney General the opportunity to appoint a broad spectrum of knowledgeable law enforcement related personnel drawing on Municipal, County and State sources of expertise. This will accomplish the goal of obtaining a broad cross representation of the law enforcement community and potential users of the SPEN System.

The Executive Directive method of appointing the SPEN Board and authorizing System implementation will succeed in allowing the Attorney General to benefit from the experience of initial SPEN operation to determine at a later date the possibility for legislation or Executive Order of the Governor. This delay in obtaining legislation or Executive Order will provide New Jersey with the ability to refine SPEN operation, to accurately gauge the possible requirements for future financial support, and allow for such provisions to be made.

An Executive Order of the Governor would succeed in establishing the SPEN System in New Jersey. This would serve the purpose of assuring Statewide endorsement and participation in this communications plan. The Executive Order, however, is time consuming, for the Governor and his staff must be briefed on the details of the proposed system before they can be prepared to make an astute decision on the merits of its implementation in New Jersey.

Although time consuming, legislation would prove to be the ultimate method of obtaining permanent status for the SPEN System. Members of the Legislature represent all of the citizens throughout New Jersey. Their support, by implementing SPEN through law, would illustrate the Legislature's confidence in the benefits of such a system to the citizens of this State.

Legislation at a later date would provide the State lawmakers with the ability to assess SPEN after it has become operational. Thus, they will be able to evaluate the increased communication capabilities it has provided to the law enforcement community and be able to make intelligent decisions concerning future funding to sustain its operation. An act of legislation ensures the permanency of SPEN in New Jersey. It is therefore advisable that the Legislature be able to see the system in operation, note its benefits and provide for its future funding. In this way, the experience and knowledge gained in the past would be able to guide decisions for the future.

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VOLUME I
NEW JERSEY STATEWIDE POLICE EMERGENCY NETWORK
TASK FORCE REPORT

I. INTRODUCTION

The Goal of Law Enforcement Telecommunications is the prompt and timely delivery of public safety services.

There are four functional objectives which must be met to achieve this goal:

- A. **Prompt public access.** Citizens throughout the State must be provided with an efficient and easily accessible means to contact the law enforcement agency in times of distress.
- B. **Effective assignment and utilization of resources.** Law enforcement agencies throughout the State must have the capability of responding to signals of distress in a swift and reliable manner to facilitate delivery of their resources to the citizen and to ensure that personnel dispatched to the scene are adequately reinforced.
- C. **Immediate access to criminal justice data base.** Law enforcement personnel dispatched to the scene of a distress signal must be capable of quick access to data files to enhance the probability of apprehension of criminals and to heighten their awareness as to the nature of dangers which they may confront.
- D. **Efficient coordination of all criminal justice resources.** There must be a means to interface the various criminal justice agencies, to ensure effective and cooperative utilization of presently available resources.

In short, a well-designed telecommunications system which encompasses these four functional elements will enable criminal justice agencies to deliver a higher quality of service to the citizens it protects and serves.

The SPEN Task Force reviewed Law Enforcement Telecommunications in New Jersey and determined that the "efficient coordination of all criminal justice resources to ensure prompt public access to police" would be its first priority.

Efficient coordination of criminal justice resources is useless if there is no workable method for the public to alert the agency of the need for its services. As importantly, public access systems are ineffective if there is no way to efficiently coordinate responding criminal justice agencies.

The SPEN Task Force prepared this report to identify current deficiencies and to propose viable methods of implementing these two functional objectives. In essence, the current defects: decrease the probability of apprehension of criminals, preclude effective and full use of limited resources, and, on occasion, seriously jeopardize the safety of law enforcement officers and citizens.

The Telecommunications System proposed in this report promises to improve the delivery of services to the citizens of New Jersey.

Organization of Report

The goals of the New Jersey Statewide Police Emergency Network (SPEN) Task Force are:

1. To increase the effectiveness of police officers through improved communications capabilities.
2. To assure greater safety and mobility for the police officer.
3. To enhance public safety in the areas of crime, natural disaster, and other emergency situations.
4. To increase the apprehension of criminals and deter the incidence of crime through the rapid response of police agencies.
5. To provide every police department in the State with the ability to coordinate activities with other departments.

This report reflects the Task Force's efforts to meet the stated goals.

Chapter Two gives a background of Police Communications and explains why the Task Force was appointed. It also notes the action taken by the Task Force in order to obtain its goals.

Chapter Three reports the findings of the Task Force in its study of the problem, and Chapters Four and Five note the Task Force's recommendations to the Attorney General, New Jersey's Chief Law Enforcement Official.

Volume II of the SPEN report provides an appendix with added documentation of the Task Force's activities. It supplies information gathered by the Task Force in its research and supports its final recommendations.

II. BACKGROUND

New Jersey Law Enforcement Systems

In contrast to many countries, the American criminal justice system is fragmented, multi-level and extremely diverse. The reason for this is simple, the concept of a national or statewide police force is anathema to American society.

Home Rule is the method through which American municipalities maintain their independence and ability to govern themselves. In this way, they become directly responsible for the direction of their lives and are not dependent on the dictates of a larger form of government. Home Rule causes a purposeful division of government services to the public. This division, though planned in order to preserve local autonomy, imposes constraints on the delivery of certain services. Specifically, the individual provision of law enforcement communications can cause the inefficient use of the limited supply of radio frequencies available within an unchanging radio spectrum. Well designed public service systems can overcome these seeming inefficiencies, however, and continue to preserve the cherished independence of police agencies essential to American concepts.

Within New Jersey, sociopolitical concepts which date to pre-revolutionary times require that municipality, the government level closest to the citizens, provide primary public services. For this reason, the vast majority of New Jersey citizens receive front line law enforcement service from 482 full time Municipal Police departments. There are also 3 County and 8 Park Police departments in New Jersey. Additionally, each county maintains a Prosecutor's and Sheriff's office with countywide jurisdiction. There also exist eleven colleges with recognized law enforcement capability and thirty-nine Special (Part Time) Police departments in the State. Including the State Police, there exist eleven State agencies with police powers throughout New Jersey. The Table on the following page illustrates a breakdown of all police departments in New Jersey by County.¹

New Jersey and its bordering states operate five interstate police agencies:

1. The N.Y.- N.J. Port Authority
2. The Delaware River Joint Toll Bridge Commission
3. The Burlington County Bridge Commission
4. The Delaware River Port Authority
5. The Delaware River and Bay Authority

In addition, the Federal Government maintains several military installations and various agencies with law enforcement responsibility in the State.

Each of these agencies employs its own staff, utilizes its own personnel and maintains its own communications system. As a result, there exists much diversity of police services and telecommunications systems in the State. The spinoff leaves many agencies unable to effectively communicate and coordinate activities when the need for such coordination may arise. Appendix A, *The Problem*, provides a detailed description of the difficulties confronting police communication systems today. A well designed communication system must be developed to alleviate these difficulties. The system must enable New Jersey's law enforcement agencies to retain their independence as well as permit them to easily communicate with other police agencies whenever the situation dictates. The *Goals and Objectives* of SPEN listed in Appendix B, have been developed in order to meet these requirements.

1. Statistics provided by the Uniform Crime Reporting Unit, New Jersey State Police, (March 1, 1978 update).

POLICE DEPARTMENTS BY COUNTY ²

| | Total Municipalities | Organized | Special | No P.D. | County Agencies | State Agencies | Colleges |
|--------------|-------------------------|------------|-----------|-----------|--------------------|-------------------|-----------|
| Atlantic | 23 | 17 | 3 | 3 | 2 | -- | 1 |
| Bergen | 70 | 70 | -- | -- | 3 | 1 | -- |
| Burlington | 40 | 27 | 9 | 3 | 2 | -- | 1 |
| Camden | 37 | 34 | 2 | 1 | 3 | -- | -- |
| Cape May | 16 | 13 | -- | 3 | 2 | -- | -- |
| Cumberland | 14 | 5 | 2 | 7 | 2 | -- | -- |
| Essex | 22 | 22 | -- | -- | 3 | -- | 1 |
| Gloucester | 24 | 23 | 1 | -- | 2 | -- | 1 |
| Hudson | 12 | 12 | -- | -- | 3 | -- | -- |
| Hunterdon | 26 | 16 | 5 | 4 | 2 | -- | -- |
| Mercer | 13 | 13 | -- | -- | 2 | 10 | 1 |
| Middlesex | 25 | 25 | -- | -- | 3 | -- | 2 |
| Monmouth | 53 | 48 | 2 | 3 | 2 | -- | 2 |
| Morris | 39 | 39 | -- | -- | 3 | -- | -- |
| Ocean | 33 | 32 | 1 | -- | 2 | -- | -- |
| Passaic | 16 | 16 | -- | -- | 3 | -- | 1 |
| Salem | 15 | 6 | 7 | 2 | 2 | -- | -- |
| Somerset | 21 | 18 | 1 | 2 | 3 | -- | -- |
| Sussex | 24 | 13 | 2 | 9 | 2 | -- | -- |
| Union | 21 | 21 | -- | -- | 3 | -- | 1 |
| Warren | 23 | 12 | 9 | 2 | 2 | -- | -- |
| TOTAL | 567 | 482 | 44 | 39 | 51 | 11 | 11 |

SPEN Task Force

In 1976, the New Jersey County and Municipal Government Study Commission³ stated that there is a need in New Jersey for:

- The development of additional capabilities in communications for: state-local routine contacts; a statewide emergency frequency for local use; regional supplemental emergency frequencies, and radio access to data systems.
- The adoption of 911 universal emergency telephone number.

In response to this report, and to the urgings of New Jersey's law enforcement community, Attorney General William F. Hyland appointed the SPEN Task Force in May, 1977 to address the problem. The current Attorney General, Honorable John J. Degnan has continued to support the Task Force and has endorsed its goal of developing a statewide police emergency network (SPEN). This Task Force consists of representatives of New Jersey's total law enforcement community, the eventual users of the SPEN system. Consequently, the product emerging from the Task Force is anticipated to be the most comprehensive, versatile and meticulously considered communication system developed thus far in New Jersey. Because SPEN has been created jointly by those agencies who will eventually rely on it, the system is uniquely based on careful and thorough evaluation of the needs of the total law enforcement community. Every component of law enforcement in this State has meaningfully participated in the research and planning of SPEN.

2. Ibid.

3. *Aspects of Law Enforcement in New Jersey*, (State of New Jersey County and Municipal Government Study Commission, 1976), p. 91.

Task Force Surveys

In order to acquire an accurate picture of the present status of police telecommunication systems in New Jersey, the SPEN Task Force developed a questionnaire and surveyed the entire law enforcement community that serves New Jersey. Appendix C lists a copy of the "White Paper" and questionnaires sent to New Jersey's law enforcement agencies. The Task Force also queried Interstate agencies and other states concerning the structure and development of their own communication systems. Particular attention was paid to those states adjoining New Jersey. This was done so that proper interfacing capabilities could be built into the system at the beginning stages of SPEN's development. In this way, the New Jersey Task Force hoped to develop a system which would not only be beneficial to the citizens and law enforcement agencies in New Jersey, but one which would also enable effective coordination across State lines.

Approximately 80% of the police agencies responded to the SPEN Questionnaire. These responses were compiled for analysis by the Task Force membership. It is upon this information, and the information provided by other states who have implemented their own communication systems,⁴ that the recommended New Jersey system has been developed. Appendix D, the *Status of New Jersey's Police Communications Systems*, presents the information gathered by the Task Force.

III. FINDINGS

The New Jersey SPEN Task Force has painstakingly gathered data in order that the network developed and recommended for implementation will be suited to the needs of all users and serve as a model for future statewide communications systems.

This chapter describes the current status of New Jersey's law enforcement communications. By studying the strengths and faults of these existing systems, the Task Force has been able to develop a communications system which would be an asset to all law enforcement agencies in New Jersey.

Current Status of New Jersey Communication Systems

In order to attain the stated goal of "prompt and timely delivery of public safety services," there must be an "efficient coordination of all criminal justice resources." Law enforcement radio communications is the fundamental method of facilitating the coordination of these resources.

The New Jersey SPEN Task Force found that New Jersey experiences difficulty in its law enforcement intercommunication capabilities. (Appendix D) Many municipalities participate in regional systems. Most counties possess some type of police communication network. There exists no system, however, which encompasses all law enforcement agencies operating within a region of the State. The result is that all these systems, though adequate for routine operating needs within an area, provide little opportunity for interfacing different communication systems throughout the State.

Police Communications

Since most municipalities maintain their own police departments, they often make use of individual communications systems. As previously noted, this situation can lead to inefficiencies and ineffectiveness during specific emergency situations.

For example, police cars in one municipality may be idle while a major crime is in progress in an adjacent town. The lack of common communication causes these officers, who would otherwise be on the alert for criminals fleeing through their jurisdiction, to remain inactive and unaware of major events occurring next door. This lack of awareness could seriously affect the law enforcement official's ability to adequately safeguard his community and its citizens.

4. These states include: Illinois-ISPEN, Wisconsin-WISPEN, Missouri-MULE, California-CLEMARS, Indiana-ILEEN, Connecticut, New York, Pennsylvania, Delaware and Maryland are presently in the planning and implementation stages of their respective statewide police communication systems. Greater detail of the progress and development of these systems is located in Appendix D.

Frequently, a police officer is required to leave his area of jurisdiction on police business. This may take him out of range of the normal communications system. Most communications systems in New Jersey are limited in such a way that a law enforcement official who departs from his area is without communication capability to his own or to any other police agency. Thus, he may become isolated and unable to attain assistance when it is needed most.

If a trip is planned, provisions may sometimes be made to maintain communications. If however, this situation is spontaneous (emergency activity), no prior provision will have been made. The police officer is therefore left without an effective means of communication in a situation which may require communication, support and assistance. This lack of communication could prove harmful, even fatal, to the officer or citizen involved.

Existing fragmented communications systems preclude most attempts of inter-agency coordination. A common statewide communications system, independent of the normal agency system, would enable all police to communicate and easily coordinate activities that require interagency cooperation.

The concept of a statewide radio communications system is not a new one. In 1973, the National Advisory Commission on Criminal Justice Standards and Goals made the following recommendations:

Every police agency should immediately insure that its radio communications system makes the most efficient use of its radio frequency.

1. *Every State should immediately establish common statewide police radio frequencies for use by State and Local law enforcement agencies during periods of local disaster or other emergencies requiring interagency coordination.*
2. *Every agency should, by 1978, have a base station, mobile, and portable radio equipment capable of two way operation on a common statewide police radio frequency.*
3. *Every agency should, by 1978, acquire and operate multichannel mobile and portable radio equipment capable of two way operation on operational frequencies, daily car-to-car tactical frequencies, joint public safety tactical frequencies and statewide tactical frequencies.⁵*

In recognition of the importance of statewide and nationwide police communication capabilities, the Federal Communications Commission designated the frequency of 155.475 MHz in 1976 as the Nationwide Police Emergency Frequency. This frequency has been allocated exclusively for use in law enforcement emergency situations.

In 1976, the Associated Public Safety Communications Officers, Inc. (APCO) noted that:

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 itinerant 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.⁶*

5. National Advisory Commission on Criminal Justice Standards and Goals, *Report on Police*, (U.S. Government Printing Office, 1973), p. 558.

6. "APCO Recommendations for the Development of Statewide Plans for the Operation and Management of Law Enforcement Emergency Communications System Operated on the Common National Frequency 155.475 MHz," *APCO Bulletin* (March, 1976), p. 20.

The utilization of this frequency will do more than permit statewide intercommunication capabilities among law enforcement agencies. This frequency will also allow law enforcement personnel to communicate across State lines as well as extend communication throughout the nation.

Therefore, a statewide system that is built around the Nationwide Police Emergency Frequency would facilitate both satisfaction of statewide needs and provide the potential for nationwide expansion.

Public Access

Radio Telecommunications is an important and indispensable aspect of law enforcement activities. Oftentimes, the effectiveness of a police agency's radio system determines the success or failure of an operation.

In addition to radio communications, public access is important to police effectiveness. A law enforcement agency may possess an exceptional internal radiocommunications system, but have an ineffective method to receive calls of distress from the citizens. The New Jersey County and Municipal Government Study Commission has noted that:

In many ways the telephone is the most important communications device used by law enforcement agencies since it is the direct link between the police and the public. Virtually all citizen complaints and calls for assistance are made via the telephone and, although superior devices are being developed, for the present this medium is also the most reliable means of inter-agency communication.⁷

Every citizen should be able to rapidly and easily summon help in an emergency. A citizen should be able to call for emergency police, fire or ambulance service promptly, without confusion and without regard to geographic location.

National studies have clearly demonstrated that the speed in which a citizen may transmit a distress signal can increase the apprehension of criminals and reduce the loss of life and property. Moreover, leading authorities have suggested that the ease in reaching help can increase the citizen's involvement in reporting crimes and emergencies.

Rapid response to an emergency call can mean the difference between apprehension and escape or between life and death. To a panic-stricken caller, each unanswered ring of a police telephone can be interpreted as deliberate indifference.⁸

The telephone is the primary link between the police and the public whom they serve. Most New Jersey citizens in need of police and emergency services are confronted with a bewildering array of different telephone numbers. When the citizen does reach the correct agency, the person who receives the call may lack the training to provide adequate advice or to send appropriate assistance.

Local departments have different numbers and individuals away from their communities may be forced into time consuming delays in securing the local number from a directory or from an operator. Moreover, because of the utilization of a local department's number for both emergency and routine business emergency callers may receive busy signals. Clearly improvements in telephone communication are necessary for the improvement of law enforcement in general.⁹

Public access problems are not unique to New Jersey, in the early 1960's the difficulties in public access were increasingly identified as a national problem. In 1967, the President's Commission on Law Enforcement and Administration of Justice recommended that a single number should be established for reporting emergencies. Other Federal Government Agencies concurred. In 1968 the American Telephone & Telegraph Company announced that the number 911 was being made available as the single emergency telephone number for use in the United States.

7. *Aspects of Law Enforcement in New Jersey*, p. 55.

8. *Report on Police*, p. 547.

9. *Aspects of Law Enforcement in New Jersey*, p. 55.

The National Advisory Commission on Criminal Justice Standards and Goals stressed the importance of a fast, efficient telephone access system to the quality of law enforcement operations.

A rapid, accurate telephone communications component, therefore, has a direct bearing on operational costs, efficiency, and effectiveness; it cannot be considered a "backroom operation" and assigned low budget priorities.¹⁰

Thus, money, time and effort should be expended in the development and improvement of New Jersey's telephone access capabilities.

Perhaps the most important improvement that can be made on the existing telephone system is the initiation of the universal 911 emergency number. In many of the jurisdictions in the United States the number may be dialed from a pay phone without having to insert a coin. This increases the accessibility of the police to those in need of aid in street emergencies. The ease of memorizing the 911 emergency number, also contributes to faster response in emergency situations.¹¹

Presently, only 17% of New Jersey's population and about 6% of the State's geographic area are served by Public Safety 911 systems. Nationwide, over 20% of the Country's citizens are served by Public Safety 911 systems. Each system has reaffirmed the validity and concept of 911. Chicago found that emergency calls directly to the center increased 37% after 911 was implemented. Hunterdon County confirmed that emergency calls to telephone operators decreased after 911 was implemented.

This past experience and success with 911 reemphasizes the need for the expansion of 911 systems and public access in New Jersey so that New Jersey law enforcement agencies would be able to more effectively service the citizens of this State.

IV. RECOMMENDATIONS - - POLICE COMMUNICATIONS

The New Jersey Statewide Police Emergency Network Task Force presents the following recommendations on behalf of New Jersey's law enforcement community whose public mission is the provision of faithful and effective service to its citizenry.

A. SPEN System

The SPEN Task Force recommends that New Jersey implement a Statewide Police Emergency Network. This network should be structured around the Nationwide Frequency of 155.475 MHz in order to utilize and tie into nationwide resources. The fully implemented SPEN System envisioned by the Task Force would enable by local direction:

- Any on-duty police officer to speak to any other on-duty police officer (within radio range) and eventually, to a Statewide Control point regardless of jurisdiction, area or parent agency.

This proposed communications capability is unprecedented in New Jersey. It will provide police agencies throughout the State with expanded communications capabilities and facilitate interagency communication. If the system is implemented:

- Police officers will be:
 - made aware of serious in-progress crimes in adjacent jurisdictions.
 - able to coordinate and assist officers from other agencies operating in their jurisdiction.
 - able to call for and receive assistance from law enforcement officials from other agencies operating in their jurisdiction.
 - able to coordinate planned or spontaneous activities that require multiple-agency cooperation.

10. *Report on Police*, p. 547.

11. *Aspects of Law Enforcement in New Jersey*, p. 55.

- Citizens will benefit by:
 - improved effective use of police resources.
 - greater probability of immediate police assistance.
 - reduction in the hazards associated with high speed chases.

Appendix E provides an outline of the system proposed by the Task Force. This outline includes the recommended structure of the fully implemented SPEN System.

B. Executive Board

It is recommended that the Attorney General appoint an Executive Board which would oversee the system and make policy decisions concerning its operation and expansion. This Executive Board could consist of representatives of Municipal, County and State agencies using the network throughout the State. In this way, the utilization and future direction of SPEN would be governed by those agencies that are most familiar with its operation and most concerned with its policies and procedures. Appendix F lists sample Bylaws outlining the structure of the Executive Board.

C. Administrative Staff

While the Executive Board would be charged with the responsibility of tending to the future administration and operational needs of SPEN, the day-to-day operation and monitoring of the system should be provided. Thus, the SPEN Task Force recommends that a full time administrative staff be appointed. This staff would have the ability to perform the functions necessary to keep the system operational on a daily basis. Appendix G provides a list of possible duties and activities of the Administrative Staff members.

D. Licensing the System

The SPEN System would be available for use by all eligible agencies of the State, Counties and Municipalities. In order to become a participating agency encompassed under this plan, it is recommended that these agencies be required to file an application with the SPEN Executive Board. This Board, representative of the total Law Enforcement Community of the State, would endorse eligible agencies and recommend that the APCO frequency coordinator for New Jersey issue a favorable report to the Federal Communications Commission. Participating agencies would agree to adhere to the rules and regulations of the Federal Communications Commission and the Executive Board of SPEN. An example of such a contractual agreement appears in Appendix I.

Each participating agency would, upon receiving favorable frequency coordination, apply directly to the Federal Communications Commission for a license on the SPEN System. In many cases, this authorization would be a modification to an existing license. Although each agency would hold an autonomous license, participation under and compliance with the State Plan would be required while operating on SPEN System frequencies. See Appendix H for sample licensing procedures.

E. System Standards

The system recommended by the New Jersey SPEN Task Force encompasses the entire State of New Jersey and extends into its neighboring states. A system as complex as this requires a well defined set of guidelines which would restrict access to the system and ensure proper utilization of the network. Thus, it is recommended by the New Jersey Task Force that SPEN adopt System Standards for its operation. As a result of the Task Force's analysis, its members recommend standards similar to those presented in Appendix J. It is the opinion of the Task Force that these Standards would adequately meet the needs of the eventual SPEN System.

F. Operating Procedures

Clearly defined operating procedures are required in order to ensure proper use of the system and to preclude any type of system abuse. These procedures are essential to assure proper operation by system users and to secure the maximum benefit from system utilization. A recommended set of SPEN Operating Procedures developed by the Task Force is presented in Appendix K.

G. System Implementation

Once the plan for the final SPEN System has been accepted, it will be necessary to develop an implementation schedule for putting the system into operation. The SPEN Task Force recommends that an implementation schedule be adopted which would allow maximum statewide coverage of the Nationwide Police Emergency Frequency (155.475 MHz) at its earliest stages. The establishment of statewide coverage initially assures the police officer using SPEN that he will be able to communicate with other police officers wherever he may travel throughout the State. A recommended implementation schedule for SPEN is presented in Appendix L.

V. RECOMMENDATIONS - - PUBLIC ACCESS

Fragmented telecommunications systems affect not only police interagency communications, they also hinder public access capabilities. As a result:

1. Citizens are confronted with an estimated 1,000 different telephone numbers to use to reach emergency service.¹²
2. There are about 150 cooperative and 350 municipal dispatch points.¹³

It is apparent that Public Access is woefully inadequate. Statewide, telephone operators handle 3,500 calls each day¹⁴ where a person dialed "0" and asked to be connected to emergency agencies. The profusion of local dispatch points compounds the problem of public access. Sampling suggests that many dispatch points lack written procedures, recording devices, dispatch records, etc., all of which are essential to quality service to citizens.

The New Jersey County and Municipal Government Study Commission discovered and defined these difficulties in their study. Their report includes the following recommendations:

1. *Municipalities throughout the State should strive to place their police, fire and emergency squad services on the universal 911 emergency number.*
2. *Technical assistance in planning such conversions is already available and should be offered by the State agency to all applying jurisdictions.*
3. *State-aid funds should be made available to facilitate installation of equipment, including automatic switching equipment necessary to convert to the 911 number.*
4. *Priority in granting State-aid funds should be given to municipalities desiring to conduct an emergency dispatching service jointly, where such joint operation can be justified as economically and technically feasible.¹⁵*

In recognition of the needs of this critical area, the SPEN Task Force strongly concurs with the recommendations presented by the Study Commission and contributes the following recommendations:

A. Telephone Access

It is recommended that it be the policy of the State of New Jersey, in accordance with national policy, to encourage the implementation of 911 throughout the State. In order to facilitate this action, it is recommended that a Task Force made up of representatives of all levels of State government including police, fire and emergency medical services, be convened to meet with the New Jersey telephone companies to establish a plan for the implementation of 911 as an emergency access number.

12. New Jersey State Department of Health 1978 Survey of 911 Systems for New Jersey. Unpublished.

13. *A Review and Assessment of Telecommunications Planning in 50 State Planning Agencies.* Vol. II, APCO, 1975, p. 619.

14. New Jersey State Department of Health Survey.

15. *Aspects of Law Enforcement in New Jersey,* (State of New Jersey County and Municipal Government Study Commission, 1976), p. 56.

Since full implementation of a statewide 911 system is a lengthy process, it is also recommended that common area-wide numbers be established in New Jersey for all public safety services. In this way, an entire area will be serviced by one public safety emergency number.

B. Radio Access

With the greater mobility of the public, some means of access should be provided for the citizen in transit. Several national programs have been initiated utilizing Citizens Band Two-Way Radio to connect the traveling motorist with emergency service. The Federal Communications Commission has set aside Channel 9 as an Emergency-Only Channel.

All State Police Stations presently monitor C.B. Channel 9 through a program funded by the New Jersey Office of Highway Safety. In addition, the Highway Safety program also funded approximately 200 C.B. base stations for local police departments. An estimated 5% of all police cars are equipped with C.B. mobile radios. The monitoring of C.B. Channel 9 is also done by volunteer REACT type groups and will shortly be done by U.S. Coast Guard installations.

Although no formal studies have been conducted in New Jersey, numerous agencies have noted quicker receipt of crime, fire, and accident information by C.B. radio than by telephone. In light of this, it is recommended that the State endorse the concept of monitoring Channel 9 C.B. and encourage participation by the many agencies providing service to the public.



VOLUME II

APPENDIX

APPENDIX A

THE PROBLEM

THE PROBLEM CONFRONTING LAW ENFORCEMENT COMMUNICATION SYSTEMS

I. The State

New Jersey is the fourth smallest state in geographic size in the nation and ranks eighth in population.¹ Despite this, it is the most densely populated state in the U.S. and is located in the highly populated Boston-Richmond corridor. New Jersey rests between New York, the most populous city in the nation and Philadelphia, the fourth most populous city.

New Jersey's 1976 provisional population is 7,431,750 residents. Its projected 1990 population is said to be 9,080,010 residents. Approximately 63% of the State's population lives within 30 miles of Times Square, New York City, and 16% reside within 30 miles of City Hall, Philadelphia.

Within a 75 mile radius of Times Square, New York City, over 10% of the nation's population lives in less than 2/10 of 1% of the total land mass of the United States.

The concentration of population around New York City and Philadelphia is greater than in any other area of the nation. This concentration of population requires a very high number of law enforcement agencies and personnel to safeguard the lives and well being of our citizens. These law enforcement agencies are confronted with rising crime rates and the increasing demands of the citizens for service.

II. Police Communications

In order to serve these rising needs, law enforcement officials have developed an increasing variety of communication tools. Sophisticated communication capabilities can enhance the efficiency and effectiveness of police officers and ensure prompt response to calls of distress. Ideally, these capabilities will provide lower response time, higher probability of criminal apprehension, increased safety for officers in the field, and increased safety for our citizens.

At the present time the telephone is the most important communication link between the public and the police. The teletype enables agencies to communicate among themselves, and the radio maintains communications within and among police agencies. While a telephone network may be expanded almost infinitely by adding new lines and equipment, a radio network is limited by a fixed number of available frequencies. Therefore, a systematic approach to radio communications is essential for planning its growth and optimal development.²

During times of emergency, any delay in the receipt of a request for assistance or pertinent information could cause much damage or result in the loss of life. The present telephone system does not meet the demands imposed on it for rapid transmission to the police agency. The present system requires a citizen in need of assistance to search for the particular agency's individual telephone number, dial and await response. This could be alleviated by the incorporation of a universal statewide emergency telephone number. It would provide immediate response and referral service, and thus save valuable time.

The present telephone system is even less adequate for inter-police emergencies, because the time expended to individually dial each affected agency's telephone number would cause destructive delays. These delays could be eliminated by a common radio frequency and a single radio transmission to all concerned police agencies.

In addition to these difficulties, when an emergency strikes an area, telephone service is often the first form of communications to go "down". The recent "nuclear emergency" at Three Mile Island in Harrisburg, Pennsylvania was a prime example of this. Shortly after the situation became known to the public, it became difficult, if not impossible to make use of the telephone system. All lines were tied up, delays were imminent, and the possibility of success in completing a call was said to be "precarious at best".

1. Statistics obtained from the Office of Business Economics, New Jersey Department of Labor and Industry.

2. *Aspects of Law Enforcement in New Jersey*, (State of New Jersey County and Municipal Government Study Commission, 1976), p. 57.

The teletype machine, as a common police communications device alternative to the telephone, is mainly useful for relaying routine administrative messages from agency to agency. It is also used for transmitting alarms, but the small number of municipal sending and receiving terminals severely limits its effectiveness for this purpose. In municipalities that have police services but no teletype sending terminals, alarms destined for teletype transmission must first be sent, usually by telephone, to an intermediate agency for transmission. In times of emergency, this routing constitutes costly delays which must be alleviated through an alternate method of communications.

The proliferation of individual police radio communication systems and the limited number of police radio frequencies available in any one portion of the radio spectrum has congested the radio frequencies. This congestion has forced police departments to operate in a variety of frequency bands. The HF, VHF, UHF and the 800 MHz portions of the radio spectrum are, and will continue to be utilized by law enforcement agencies. This diversity has made extensive inter-agency mobile-to-mobile and base-to-mobile communications almost impossible. As noted by the Associated Public Safety Communications Officers, Inc., (APCO) "The incompatibility of police radios makes it impossible to promptly coordinate available police manpower and other resources in times of emergency."³ Thus, multi-jurisdictional activities and emergencies cannot be adequately coordinated.

Because of the lack of comprehensive planning when radio utilization first came into being, and the ever growing problem of frequency congestion, police agencies within the State usually operate on radio channels which are not common to those of their neighboring agencies. In many cases, adjacent municipalities are unable to talk to each other. As a result, interagency coordination is not possible.

One of the major difficulties with law enforcement communications systems today is the lack of ability of one police officer to directly communicate with another. A police officer may be in the position to assist a fellow colleague, but he fails to do so simply because of his lack of knowledge of the situation. Lack of communication between and among different law enforcement agencies decreases the awareness that any single police officer may possess of the activities within his own and neighboring jurisdictions.

A system must be developed which would interconnect police agencies of different jurisdictions and provide for interagency communications. Should a major crime or hot pursuit situation develop, there is no fast, efficient method to alert all nearby police of the situation. A system must be devised to allow the different police radio dispatchers to inter-communicate on a common system, and, at the very least, disburse information faster than a fleeing suspect can travel. This ability for mutual communication and mutual assistance affords law enforcement agencies with the capability to coordinate and to ultimately create more effective law enforcement systems within their communities.

III. Advantages of a Developed Radio Communications System

An officer who is able to communicate with any other law enforcement official located within his immediate geographical area maintains a higher margin of personal safety. Proper communicative ability can decrease the hazards facing a police officer. It also can ensure a greater probability of increasing the criminal apprehension rate.

Similarly, an officer in need of immediate assistance in a geographically large jurisdiction may be unable to obtain help promptly because his nearest fellow officer on the same frequency is several miles away, and he has no means of communicating directly with closer officers from neighboring jurisdictions. A statewide common channel of communications would alleviate this difficulty. A statewide channel provides a police officer in a rural area who may be far removed from the nearest officer of his agency with communication to another law enforcement official of a different agency who may be in the area but not operating on the same frequency.

3. APCO Petition to the Federal Communications Commission for the Designation of the Frequency 155.475 MHz as a Nationwide Police Emergency Channel.

In transferring a prisoner from one jurisdiction to another, police officers often travel well beyond the range of their own department's radio system. If a problem develops along the way, the officers may find themselves without any means of summoning assistance promptly, unless, by sheer coincidence, they are in the vicinity of a police department utilizing the same radio frequency as their own department.⁴

Any flaw in the police radio communication system decreases the officer effectiveness, and this in turn adversely affects community stability. It is only through eliminating this deficiency in existing law enforcement communications that police effectiveness in serving their community will be improved.

In sum, increased communication capability not only gives the police agency the potential to increase the margin of officer and citizen safety and increase the criminal apprehension rate, but it also carries the potential for these agencies to effectively assist the public during the occurrence of natural disasters. A natural disaster emergency such as the Three Mile Island incident, usually requires the coordinated efforts of a variety of police agencies. If there is no communication, or if there is a breakdown in the communication process, chaos strikes. This chaos can turn agencies into disorganized, repetitive, and useless entities.

IV. Action Taken to Develop Communication Capabilities.

In recognition of the need for a common frequency among law enforcement agencies, the National Advisory Commission on Criminal Justice Standards and Goals had developed the following recommendation regarding the establishment of a common police emergency radio frequency:

*Every state should establish common Statewide police radio frequencies for use by state and local law enforcement agencies during periods of local disasters and other emergencies requiring interagency coordination.*⁵

New Jersey, because of its corridor status between large metropolitan areas, and its own population density, **must** provide its police officers the capability of direct radio communications between the various state and local departments.⁶ The availability of a common emergency frequency would be of major assistance in coordinating police operations throughout the State.

The need for such a common frequency has been recognized within the law enforcement community. The National Advisory Commission on Criminal Justice Standards and Goals include the following recommendations:

- a. *Every state should immediately establish common statewide police radio frequencies for use by state and local law enforcement agencies during periods of local disaster or other emergencies requiring interagency coordination.*
- b. *Every agency should by 1978, have a base station, mobile, and portable radio equipment capable of two-way operation on a common statewide police radio frequency.*
- c. *Every agency should, by 1978, acquire and operate multichannel mobile and portable radio equipment capable of two-way operation on operational frequencies, daily car-to-car tactical frequencies, joint public safety tactical frequencies and statewide tactical frequencies.*⁷

4. APCO Petition, Para. 5

5. National Advisory Commission on Criminal Justice Standards and Goals, *Report on Police*, (U.S. Government Printing Office 1973), p. 558.

6. *Ibid.*

7. *Report on Police*, p. 558.

Several states and other governmental subdivisions have already established emergency police radio networks.⁸ These emergency radio networks have facilitated efficient and effective police response in those states.

In the past, the development of extensive emergency communications networks had been affected by the difficulty in finding radio channels which would be used. All routine traffic (both interagency and intra-agency) and most emergency traffic involving a single agency must be accommodated on other channels. The emergency network must be limited to communications requiring immediate contact with other police agencies where the nature of the emergency is such that the regular channels cannot provide the communications capability necessary to successfully complete the operation.⁹

Fortunately, New Jersey now has access to at least two channels for statewide use. The frequency, 155.475 MHz has been set aside by the Federal Communications Commission as the Nationwide Police Emergency Frequency. Its specific purpose is that it be made available to law enforcement agencies for emergencies only. All states are free to put this channel into operation, but they must first develop a comprehensive statewide plan for utilization.¹⁰ New Jersey also has authorization from the New Jersey State Police to make use of one of the channels allocated for State Police use (154.680 MHz) as a statewide police emergency channel. This document is the plan developed by the New Jersey Statewide Police Emergency Network Task Force to put the proposed system into operation.

8. Some of these states are: Illinois-ISPEN, Wisconsin-WISPEN, Missouri-MULE, California-CLEMARS, and Indiana-ILEEN. Connecticut, New York, Pennsylvania, Delaware and Maryland are presently in the planning and implementation stages of their respective statewide police communication systems.

9. APCO Petition, Para. 27.

10. FCC Rules and Regulations, Section 90.19(e)(14).

APPENDIX B

GOALS AND OBJECTIVES

STATEWIDE POLICE EMERGENCY NETWORK GOALS AND OBJECTIVES

The Goals and Objectives of the New Jersey Statewide Police Emergency Network are as follows:

GOALS:

1. Increase effectiveness of the police officer through improved communications capabilities.
2. Assure greater safety and mobility for the police officer.
3. Enhance public safety in the areas of crime, natural disaster, and other emergency situations.
4. Increase the apprehension of criminals and deter the incidence of crime through the rapid response of police agencies.
5. Provide every police department in the State with the ability to coordinate activities with other departments.

OBJECTIVES

1. Enable a police officer to communicate with any other police officer within his immediate area regardless of agency affiliation as the need arises.
2. Provide each police officer, through dispatcher relays, with the potential to communicate with every other police officer in the State.
3. Enable a police officer traveling outside of the State to communicate with the law enforcement officials of the State within which he is traveling.
4. Facilitate the coordination of multi-jurisdictional and/or multi-agency activities.
This is especially important in situations involving natural disasters, civil defense activities, and civil disorders.

APPENDIX C

TASK FORCE "WHITE PAPER" AND QUESTIONNAIRE



State of New Jersey
DEPARTMENT OF LAW AND PUBLIC SAFETY
STATEWIDE POLICE EMERGENCY NETWORK TASK FORCE

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SECRETARY
LT. RALPH H. NILES
New Jersey State Police
P. O. Box 7068
West Trenton, N. J. 08625
(609) 882-2000

November 21, 1977

Dear Sir:

At the request of the Statewide Police Emergency Network Task Force, I am writing to you concerning its activities. The Task Force, which was established at the direction of Attorney General William F. Hyland, is funded by the State Law Enforcement Planning Agency with the State Police Office of Frequency Coordination serving as the host agency.

The Task Force has been charged with responsibility to explore the need for and feasibility of establishing a Statewide emergency communications network as more fully described in the enclosed White Paper.

We have also enclosed a questionnaire, which is designed to result in a comprehensive survey of existing communications systems, as a necessary first step in the development of our future recommendations. Please be assured that any information will be treated confidentially and used only for statistical purposes. It does not commit you or your organization in any way.

You can surely appreciate the need for the cooperation and assistance of all of our State's law enforcement agencies and I ask, therefore, that you complete and return the questionnaire at your earliest opportunity. The Task Force encourages you to discuss the contents of the White Paper and the questionnaire with other appropriate public officials in your community or agency who you may expect will develop an interest in this project as it progresses.

In the event that you require further aid in answering any of the questions, please contact either your County Criminal Justice Planner or the Office of Frequency Coordination (609-882-1261), as both will be actively participating in the gathering of this essential information.

Thank you very much for your assistance and cooperation in this project of mutual benefit for all of the components of New Jersey's law enforcement community.

Very truly yours,

Dennis L. Bliss
Deputy Attorney General
Chairman

DLB:mr
Enclosure

Statewide Police Emergency Network Task Force

Questionnaire

| | | |
|--|----------------|-----------|
| Name of Organization | | |
| Address | | |
| County | | |
| Telephone Number | Administrative | Emergency |
| Person to be contacted for further information | | |

PLEASE USE SEPARATE SHEETS TO COMMENT ON WHITE PAPER PROPOSAL

Signature of person preparing this report

Date

Return to — Office of Frequency Coordination, Box 7068, West Trenton, New Jersey 08625

SYSTEMS DESCRIPTION

How many channels do you share with other agencies?

Which agencies?

How does your agency handle dispatching? (check ☒)

- ☐ does its own dispatching, independently of other agencies.
- ☐ uses another agencies dispatch service.
- ☐ uses its own and another agencies dispatching service.
- ☐ provides dispatching service for itself and other agencies.
- ☐ has no dispatching service.

How many agencies do you share dispatching with?

Which agencies?

How many civilian dispatchers are employed by your agency?

How many sworn dispatchers?

Do your dispatchers receive any training other than on-the-job? (check ☒)

- ☐ yes
- ☐ no

Do you monitor the transmissions of any other agency? (check ☒)

- ☐ yes
- ☐ no

Which agencies ?

How many mobile units do you have during peak dispatch hours?

Which agencies would you like to have radio contact with?

SYSTEMS ASSESSMENT

What percent of the time does your channel interference (either from within your agency or from other agencies) significantly degrade the effectiveness of your operation? %

Is your present radio communication system adequate to meet your current operational needs?

- ☐ yes
- ☐ no

If no, which of the following are needed to upgrade your system? (check one or more)

- ☐ additional equipment
- ☐ additional communications personnel
- ☐ personnel training
- ☐ improved communications procedures
- ☐ additional or different frequencies
- ☐ technical assistance
- ☐ other

Frequency Inventory

| Receive/Transmit Channels | Receive Frequency (mHz) | Transmit Frequency (mHz) | Interference | Use |
|---------------------------|-------------------------|--------------------------|--|---|
| | | | 1-Acceptable 2-Marginal 3-Unacceptable | P-Police F-Fire A-Ambulance L-Local Government |
| 1 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 2 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 3 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 4 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 5 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 6 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 7 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 8 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 9 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 10 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Receive Only Channels | | | | |
| 1 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 2 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 3 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 4 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 5 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 6 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 7 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 8 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 9 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 10 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

Equipment Inventory

Indicate the number of units currently possessed by your agency in the appropriate squares.
"CTCSS" refers to the "Continuous Tone Coded Squelch System."
"JERK AND PULL UNITS" are those which can be used as either hand-held or mobile transmitter/receivers.

| | | | | | | | | | | | |
|---|-------------|-------------------|-----------------|--------------------|---------------|------------------|---------------|-----------|----------------|---------|-----------|
| | Tone Pagers | Tone/Voice Pagers | Handheld Radios | Jerk & Pull Radios | Mobile Radios | Dispatch Console | Base Stations | Repeaters | Voting Systems | CB Base | CB Mobile |
| Number of units less than 5 years old | | | | | | | | | | | |
| Number of units 5 to 10 years old | | | | | | | | | | | |
| Number of units more than 10 years old | | | | | | | | | | | |
| Number of units having a CTCSS capability | | | | | | | | | | | |
| Overall Performance Assessment | | | | | | | | | | | |
| 1- satisfactory 2- marginal 3- unsatisfactory | | | | | | | | | | | |



STATE OF NEW JERSEY
DEPARTMENT OF LAW & PUBLIC SAFETY

HONORABLE WILLIAM F. HYLAND, ATTORNEY GENERAL

Statewide Police Emergency Network
Task Force

WHITE PAPER
NOVEMBER 21, 1977

Honorable Dennis L. Bliss
Deputy Attorney General
Chairman

Chief Theodore E. Polhamus
Rahway Police Department
Vice-Chairman

Lieutenant Ralph H. Niles
Division of State Police
Secretary

Funded by the Law Enforcement Assistance Administration through the New Jersey State
Law Enforcement Planning Agency.

Lieutenant Martin G. Ficke, Office of Frequency Coordination, Project Director

STATE OF NEW JERSEY
DEPARTMENT OF LAW & PUBLIC SAFETY

Statewide Police Emergency Network Task Force

WHITE PAPER
NOVEMBER 21, 1977

I. INTRODUCTION

In 1975 the State Law Enforcement Planning Agency provided funds in its Criminal Justice Plan to establish a Task Force to study the problems of statewide emergency communications and develop recommendations for programs whose implementation will overcome those problems. Attorney General William F. Hyland has supported and endorsed the creation of the Task Force and directed the Office of Frequency Coordination, Division of State Police to act as host agency. In May of this year, eighteen persons appointed by the Attorney General met and organized as a body to initiate the actions required of the Task Force. The Task Force, representing local, county, state and federal law enforcement agencies and associations, planners, engineers and frequency coordinators has begun studying the needs and problems associated with a statewide project and has been collecting data for the development of recommendations for future direction.

The Task Force has initially identified two priority problem areas:

1. Communications among New Jersey's public safety agencies, especially those in law enforcement, are presently inadequate in circumstances requiring a coordinated response. There are over five hundred local law enforcement agencies, in addition to county, state and federal agencies, working with similar goals and objectives in mind who are incapable, to the detriment of the public safety, of day-to-day communications with each other, except by the telephone.
2. The citizen's ability to efficiently access public safety resources is also inadequate. New Jersey lags in the development of such basic resources as an operational universal emergency telephone number system and has not made effective use of citizen band radio monitoring.

The Task Force is presently undertaking, as its first priority, solving the problem of developing and implementing a Statewide emergency radio system designed to meet the modern interagency communications needs of public safety agencies. It will, at a later time, address the problems of citizen access to public safety resources.

Through its collective expertise, the task force is currently addressing the interagency communications problem by surveying the existing Statewide law enforcement and other communications systems and researching those systems being developed or currently in use in other states which attempt to address the same deficiencies which exist in New Jersey.

This preliminary report, utilizing the information presently available, identifies the need for a statewide emergency radio system and briefly describes one promising model to meet that need. It must be emphasized, however, that this report is an embryo product. Much work yet, remains to be done to flesh out the present bare bones state of this project.

II. THE NEED FOR A STATEWIDE LAW ENFORCEMENT EMERGENCY COMMUNICATIONS SYSTEM

New Jersey Law Enforcement Agencies are confronting a technological crisis. Presently existing law enforcement radio systems simply do not appear to provide an adequate or fully effective means for interagency operational communications. As the most densely populated State, with an increasingly mobile population, New Jersey has developed a demand for an efficient Statewide law enforcement communications network in response to natural disasters or civil disorders (both of which inevitably involve multi-agency response) and criminal activity (especially fleeing criminals who can often pass readily through several counties or municipalities before apprehension is effected). The development of law enforcement communication systems necessary to deal with these situations has just not kept pace with the demand.

Consequently, at every level law enforcement agencies, without the benefit of Statewide Comprehensive Communications planning, have implemented communications systems which are often piecemeal and do not have the capability to interface with those other agencies. These communications tools have as a result, not adequately contributed to the efficiency and effectiveness of coordinated multi-agency police or emergency responses. Some of these systems, although usually adequately addressing local needs, have resulted in the development of significant new problems due for example, to manufacturer-encouraged proliferation of a wide variety of police communications devices, especially mobile radio systems.

In addition, there are only a limited number of broadcast frequencies available for use by police in any given portion of the radio frequency spectrum. As a result, many police departments and other law enforcement agencies have been forced to operate mobile radio systems in the HF, VHF, and UHF frequency bands. To further add to this confusion, the 800 MHz frequency bands will also soon be in use. Unfortunately, the use of multiple portions of the radio frequency spectrum has made interagency mobile-to-mobile and base-mobile communications implausible. The incompatibility of out-of-band police and other law enforcement radios makes efficient coordination of available police manpower and other resources in times of emergency virtually impossible.

The foregoing deficiencies were clearly demonstrated during the planning and implementing of the law enforcement and emergency service responses required during the various bicentennial events held throughout our State during 1976; the energy crisis which developed last winter; and the 1976 Trenton water crisis, which required the coordinated response of New Jersey State, county and local law enforcement, fire, first aid, civil defense and military units, as well as other support agencies from Pennsylvania. The requirements of those events served to illustrate the current inability on the part of law enforcement agencies to adequately coordinate a multi-jurisdictional intrastate response to such ever present potential emergencies as natural disasters, civil disturbances, "hot" pursuits, power blackouts, or other emergencies which spread faster than the coordinated alarm can presently be sounded.

The various present communications systems are also characterized by an absence of adequate provisions for car to terminal inquiries to the New Jersey Criminal Justice Information System, which capability is becoming an increasingly essential field law enforcement tool to deal with mobile offenders.

The need to establish Statewide common radio systems has also been recognized by the National Advisory Commission on Criminal Justice Standards and Goals which offers the following formal recommendation: "... every State should establish common statewide

police radio frequencies for use by state and local law enforcement agencies during periods of local disasters or other emergencies requiring interagency coordination."

New Jersey, because of its characteristic corridor status between large metropolitan areas and its own population density, must provide its police officers with the capability of direct radio communications between Federal authorities, the various neighboring states and its own State, county and local law enforcement agencies.

Therefore, the Task Force is presently exploring the feasibility of various approaches designed to remedy the foregoing problems. Included among these approaches are communications systems presently feasible for future implementation which have been developed or are being implemented in other jurisdictions.

III. WHAT MIGHT A FUTURE STATEWIDE COMMUNICATIONS SYSTEM LOOK-LIKE?

As a result of the present initiatives of the Federal Government, we can anticipate that any system developed for New Jersey could most readily be built around at least four 150 MHz frequencies.

The Federal Communications Commission has reserved one frequency, 155.475 MHz, as a national police emergency channel in order to facilitate the development of a common interstate emergency radio communications system on a national level. As a logical starting point, then, a Statewide emergency radio system could avail itself of that national channel and at least three other frequencies. Of course, additional frequencies (compatible with 155.475 MHz) could also be selected for use in intrastate or local multiagency emergent situations requiring coordinated communications. Therefore, if a Statewide emergency communications network is ultimately recommended which is designed to take advantage of the national system being proposed by the Federal Government it would also be limited to operation in the VHF frequency range.

If a four channel VHF system (compatible with the National Police Emergency Frequency) is ultimately recommended and developed, a mobile radio could normally be tuned to Channel 1, for intrastate statewide emergency traffic; to Channel 2, for direct communication with out of state law enforcement agencies or vehicles while they are in New Jersey. The potential also exists, of course, for a New Jersey police or law enforcement vehicle to travel into neighboring states and always be in contact with local law enforcement authorities through the use of Channel 2. Channels 3 and 4 could be reserved for special assignments or system expansion.

In order to fully implement the foregoing system, every participating law enforcement agency would have a two frequency network base station. Normal intrastate network operation would then be on Channel 1, with the capability of shifting to the National Frequency, if necessary (Channel 2). Strategically located stations could constantly monitor both channels so as to intercept traffic and advise when shifts to the national or intrastate channels are appropriate to meet any emergency requiring coordinated responses.

Such a future system could operate under the guidelines of an Executive Board, composed only of system users who will establish policy and operational guidelines.

Local police departments by participating in a Network of this kind would no longer necessarily have to operate high powered base and mobile units to cover coordinated operations outside of their local jurisdictions. All mobiles would be in constant reach of any participating jurisdiction, through which they travel, and there would be a readily available avenue of communication whenever law enforcement units were required to leave New Jersey. Thus, law enforcement emergency response could be effectively and efficiently coordinated for the first time on an interstate as well as intrastate basis.

The potential for that kind of coordinated emergency response in our increasingly urbanized state and region is so substantial, that no time should be lost in assembling the factual data necessary to fully analyze any attendant problems to developing a coordinated communications system.

A significant part of that task will be the detailed analysis of not only existing radio communications systems, available in the event of emergency, but such hard line telephone communications systems as the National Warning System (NAWAS) which is a "hotline" system for use, at the highest levels of government, as a part of the national civil defense system.

IV. CONCLUSION

In conclusion, even though the Task Force's work is presently only at the conceptual stage, the development and implementation of any statewide system can be seen as a complex and difficult task. Much work remains to be done. Only with the assistance and cooperation of involved federal agencies and every law enforcement agency in our State can the task be accomplished.

It is, therefore, the intention of this Preliminary Report to make the State's law enforcement community aware of the Task Force's existence, its goals and objectives. It is, in our view, essential that constant input be received from that community in order that the development of an optimal statewide police emergency communications network is successful. To that end, this report solicits such assistance.

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New Jersey National Guard

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HOST AGENCY

OFFICE OF FREQUENCY COORDINATION, DIVISION OF STATE POLICE

Staff
James R. Barsuglia
Norman R. Coltri

STATEWIDE POLICE EMERGENCY NETWORK TASK FORCE
NOVEMBER 21, 1977



State of New Jersey, Department of Law and Public Safety
William F. Hyland, Attorney General

APPENDIX D
STATUS OF NEW JERSEY'S POLICE COMMUNICATION SYSTEMS

STATUS OF NEW JERSEY'S POLICE COMMUNICATION SYSTEMS

This appendix summarizes and illustrates the current status of New Jersey's Police communications systems.

The New Jersey Statewide Police Emergency Network Task Force surveyed every police department within the State and compiled the results so an analysis could be made of its present communications systems. (Appendix C presents the questionnaire used in this survey.) The descriptions presented are necessarily general, for New Jersey's police communications systems are in a constant state of flux. The following pages describe the State's law enforcement communications systems as they exist today. Also included is a description of the steps taken by other states to develop and implement their statewide police emergency communications systems. Special attention is focused on states bordering New Jersey so that the network developed would have the ability to interface communications across state lines.

New Jersey State Police

The New Jersey State Police is organized into five Troops. These Troops cover the northern, central, and southern portions of New Jersey, the Garden State Parkway and the New Jersey Turnpike. In total, the New Jersey State Police make use of some 1300 vehicles.

Troops A, B and C have the capability to communicate directly with each other. Each troop maintains its own operating frequency and every police vehicle is equipped with the frequencies for the other two troops. Thus, if a troop car leaves its area of the state, it is able to communicate with the troop barracks and cars in the area where it is located.

Vehicles assigned to Troops A, B or C are unable to communicate directly with Troop D (New Jersey Turnpike) nor Troop E (Garden State Parkway) since each of these two troops maintains its own communications system. The vehicles and stations in Troops D and E, however, do possess the common frequency of 154.680 MHz. While it is not utilized as a main working channel, communications do exist between all Troops on this channel.

There is no Statewide provision for communications with the local police departments in the State. However, there is a degree of communication through cross banding. Therefore, while these five troops have the ability to communicate and coordinate among themselves, they lack the ability when the need arises to communicate totally with local police departments.

Atlantic and Cape May Counties

Atlantic and Cape May Counties have jointly developed a regional communications network that encompasses the local police departments in both counties. This network, the Atlantic Cape Communications Enforcement Support System (A.C.C.E.S.S.), utilizes two channels which are common to every police department in the two-county area. Approximately 250 police mobiles can utilize these two channels which are used for coordinated activities.

Cars in each county make use of a different third channel to communicate with a central base in Atlantic City for information search and data access.

The fourth channel in each mobile is delegated to local police dispatch. This "channel" encompasses 14 different frequencies throughout Atlantic and Cape May Counties which form 14 smaller networks within the larger A.C.C.E.S.S. system. These smaller nets serve the function of enabling police departments to utilize a common working channel and to perform their daily duties without interfering with all of the 38 police departments on the areawide frequencies.

Bergen County

Bergen County makes use of two types of police communication systems. The first is the normal police system used by the municipal police departments for the operation of their daily activities.

Additionally, Bergen County has planned and is beginning to implement a countywide police communications system. This is an emergency system, and it includes each of the

73 organized police agencies within the County. Base stations are located at every dispatch point and mobile radios or monitors installed in police vehicles. Bergen County also anticipates providing its neighboring counties and the Port Authority with base stations so that it may communicate across County lines when the need arises.

Burlington County

Burlington County has 39 police agencies which operate about 300 police mobiles. Some of these departments maintain their own dispatching services, while the remainder are served by the County Central Dispatching. All operations in the County are on several UHF frequency assignments. Most of the individually dispatched agencies have separate UHF frequencies, however, all agencies share zone and countywide common channels. Burlington County Police Agencies have the ability to intercommunicate among themselves on these channels. County Central Communications can provide coordination for emergency activities countywide.

Camden County

Camden County has 39 police agencies which operate a total of 600 police mobiles during peak hours. With the exception of the City of Camden, Cherry Hill, Pennsauken and the Delaware River Port Authority, which each maintain their own working frequencies, all agencies in the County operate on two common radio frequencies. Approximately one-half of these departments are dispatched through the Camden County Police and Fire Dispatch Center. The Center utilizes two mobile relay systems which are compatible with the channels used by the other half of the agencies providing their own local dispatch.

Cumberland County

Cumberland County has 9 police agencies and 60 police mobiles operational during peak dispatch hours. It is divided into three primary dispatching zones. These zones are centered around the Millville, Bridgeton and Vineland police departments. All police departments within each zone have individual dispatching services and they use the zone radio frequencies as their primary operating frequency.

In addition to zone radio frequencies, all police agencies share 156.210 MHz as another working frequency and 155.730 MHz - 154.950 MHz as a data retrieval frequency. The data retrieval terminal is located at Vineland and all dispatchers and mobiles have access to it. Thus, this frequency may be used as a common mode of communications for all Cumberland County mobiles when they are outside of the range of their normal operating frequency but still within the County.

Essex County

There are 26 law enforcement agencies in Essex County operating approximately 365 mobiles during peak dispatch hours. These agencies use 11 working channels. The County has a radio hot-line system which interconnects all municipal dispatchers within county borders. A dial up system allows the individual activation of the northern, central, and southern sector of the County or all points simultaneously.

Gloucester County

The 27 police agencies in Gloucester County use the countywide frequency of 158.970 MHz for law enforcement radio communications. Approximately 120 mobiles operate together in the County during peak dispatch hours. This situation causes severe overcrowding. Therefore, in order to ease this congestion, most police agencies use a local government or police channel as a supplement to the workings of the countywide police frequency.

Hudson County

There are 15 organized police agencies in Hudson County with a mobile fleet of 365 vehicles operating during peak dispatch hours. The County utilizes a dial-up hot line to connect all municipalities. The dispatchers alone are able to communicate, for the hot line system is structured around telephone utilization rather than radio communications.

There are 14 frequencies used for daily operations in Hudson County. Six of these frequencies are utilized solely by Jersey City. The remaining 8 frequencies comprise networks used by the other police agencies in the County. There is no single frequency in Hudson County which would enable all police agencies and police mobiles to communicate.

Hunterdon County

Hunterdon County has a countywide communications system. There are 23 police agencies within the County, and together they operate 60 mobiles during peak dispatch hours. The central dispatch station has contact with all police agencies within the County and provides total dispatching services for each of them, enabling all agencies to intercommunicate.

In addition, Hunterdon County is the only New Jersey County that has a countywide 911 public access system. This system enables citizens throughout the County to directly communicate with the central dispatching station and request assistance.

Mercer County

There are 15 organized police agencies in Mercer County and a minimum of 109 police vehicles operating during peak dispatch hours.

Trenton and adjoining municipal police departments monitor one another, but do not use common working frequencies. The mobiles do possess each other's working frequencies, however, and they may communicate with each other's dispatchers when necessary.

Mercer County is currently in the process of implementing a countywide radio communications system. This system uses a common radio channel (453 MHz) which will be available to all dispatchers and cars within the County. Use of this system will not be restricted solely to emergency operations, but, will provide a second channel to all police agencies during times of primary overload due to special events and other activities.

Middlesex County

There are 30 organized police agencies and 305 police mobiles operational in Middlesex County. The County makes use of a hot line system to interconnect some of the police agencies within its borders. (458.475 MHz) Many of the remaining agencies use common frequencies as working channels and as a method to intercommunicate with each other. There are approximately 10 frequencies in addition to the Middlesex County Hot Line System in use by police department throughout the County.

Monmouth County

There are 54 police agencies in Monmouth County with 295 mobiles operating during peak dispatch hours. The County uses two countywide communication networks operated by Monmouth County Police Radio. The first of these networks uses the frequency 154.875 MHz to coordinate police activities with the County Radio. Some small police departments use this frequency as a primary working frequency and are dispatched by the County Radio. Also, several police departments in Monmouth County maintain it in their mobiles to facilitate police coordination. The second network operated by Monmouth County Police Radio is a base-to-base system. It is used primarily as a hot line system throughout the County.

Most of the police agencies in the County maintain their own communication system independent of the countywide communications effort. There are approximately 23 different frequencies used in addition to the countywide communication systems which provide individual communication capability to the police agencies in Monmouth County.

Morris County

All police departments within Morris County make use of the Morris County Crime Alert Radio System. (158.895 MHz) This system enables participating police agencies to communicate with one or all other police agencies in the County.

Morris County also utilizes a variety of local radio networks which encompass the 42 police departments and 280 police mobiles in the County. Many departments maintain their own dispatching services and they share the same frequency for commonality and communication capabilities.

Ocean County

Ocean County has 35 organized police departments which operate approximately 285 mobiles during peak dispatch hours. These police agencies communicate through two county wide frequencies (37.18 MHz, 37.24 MHz) operated by the County Sheriff's office and local dispatch points. Because of the large number of agencies using these frequencies, overcrowding exists.

In addition to the County network, there are 12 smaller networks in the County.

Passaic County

Passaic County's 20 police agencies share 19 frequencies with a fleet of approximately 200 mobiles operating during peak dispatch hours. The County also has a radio hot line system which interconnects all agency dispatch points. This system allows the dial up activation of individual sectors in the County or all points simultaneously.

Salem County

Each of the 15 police agencies in Salem County share the single countywide frequency of 156.210 MHz as a common radio channel. Many of the agencies utilize this common channel for a primary working frequency. Several agencies are in the process of moving this primary activity to other channels while maintaining the common channel. There are approximately 25 cars operating in the County and all are able to communicate through the common channel.

Somerset County

Somerset County has 22 police departments and 130 mobiles operating during peak hours. There are 5 networks, each using a different frequency. The Somerset County Park Police monitor all networks, and in turn, all departments cross monitor the park police frequency. Receivers at the local agencies may be activated singularly or totally from the park police communications center. Cross monitoring also exists with the Somerville State Police. The County Park Police provides dispatch services for six local police departments.

Sussex County

Sussex County police departments do not participate in a county communications system. There are 17 police departments within the County and 40 mobile operating during peak dispatch hours. Some police agencies share common frequencies and have formed 5 small networks, but there is no organized means of intercommunication between these networks. A large area within Sussex County has no local police agency and is dependent on the State Police for primary police coverage.

Union County

Union County has 25 organized police agencies with 180 mobiles operational during peak dispatch hours. The County uses a radio hot line system which enables all Union County law enforcement dispatchers to communicate in times of emergency. There are 7 local multi-department networks. Six departments in the County maintain their own frequency without any tie to their neighboring agencies except through the hot line system.

Warren County

Warren County is attempting to organize an interagency police communications system. Implementation of the County system has been delayed to allow for the development of SPEN.

There are 23 police departments within Warren County and approximately 40 police mobiles operational during peak dispatch hours. Some of these police agencies presently share six working frequencies and thus have a limited ability to communicate with neighboring agencies. There is a large area of Warren County which is dependent on the New Jersey State Police for primary police coverage.

Other New Jersey State Agencies

In addition to the New Jersey State Police, the State's primary law enforcement agency, there are other State agencies which have law enforcement powers. Among these agencies are:

- Alcoholic Beverage Control Officers
- Bureau of Parks
- Campus Security Officers
- Department of Defense
- Department of Law & Public Safety
- Fish & Game Law Enforcement
- Marine Police
- Prison Correction Officers
- Tax Special Investigation Officers

Additionally, there are several State Agencies whose primary mission is to respond to natural and/or man-made disasters, civil defense activities and other emergency situations. Major among these are: The Bureau of Forestry, Bureau of Hazardous Substances Control, Bureau of Radiation Protection, Bureau of Air Pollution Control, Emergency Medical Services and the Department of Transportation.

The successful pursuit and accomplishment of the missions of these agencies depend to a large extent on the degree of communications available to them.

While several agencies within the State have specific assigned frequencies, the need for radio-frequency spectrum management forces much channel sharing among State agencies. Unfortunately, the lack of coordination and consideration for expansion in earlier days has resulted in unintegrated and fragmented networks.

There are three extensive State microwave systems controlled and operated by the N.J. Turnpike, Garden State Parkway and the Public Broadcasting Authority. Also, New Jersey State agencies use approximately 35 local simplex systems, 10 statewide systems and 8 statewide repeater systems. Finally, there are approximately 1600 mobiles operated by the various agencies within the State.

N.Y. - N.J. Port Authority

The N.Y. - N.J. Port Authority has jurisdiction over all tunnels and bridges between New York and New Jersey. It also polices three airports: Kennedy International, Newark and La Guardia. The tunnels, bridges and airports operate on UHF for radio communications and are individually dispatched. The 7 dispatch points tie into a central police desk which exerts command and control authority over all of them.

There are 124 vehicles used by the Port Authority police. Approximately 55 of these are delegated to activities and functions occurring in New Jersey.

The N.Y. - N.J. Port Authority maintains a working relationship with many of its adjoining agencies and municipalities and can respond to calls of distress from neighboring jurisdictions.

Delaware River Joint Toll Bridge Commission

The Delaware River Joint Toll Bridge Commission is responsible for almost all bridges between New Jersey and Pennsylvania from Trenton north to the New York State line.

There are 6 toll bridges operated by the Delaware River Joint Toll Bridge Commission. The remaining bridges except for the Dingman's Ferry Bridge are tax supported, but they remain under the jurisdiction of the Commission. All bridges are patrolled. These patrol units communicate on the frequency of 158.895 MHz and are dispatched from a control center in Morrisville, Pennsylvania.

Although the Joint Toll Bridge Commission participates in blockade plans with Hunterdon County and Bucks County, it possesses few communication links with its neighboring agencies. The Commission conducts limited monitoring of the transmissions of its neighboring agencies, and cannot directly communicate with them except through public telephone lines.

Delaware River Port Authority

The Delaware River Port Authority has jurisdiction over four bridges spanning the Delaware River between New Jersey and Pennsylvania. These bridges, all located south of Trenton, are the Walt Whitman, the Commodore Barry, the Benjamin Franklin, and the Betsy Ross Bridges. The Walt Whitman and the Commodore Barry Bridges share one UHF frequency while the Benjamin Franklin and Betsy Ross Bridges share another. The command cars and the central dispatch point maintain both frequencies.

All of the bridges are dispatched locally. However, a central dispatch point may simultaneously or individually contact a vehicle on either channel. The central dispatch point also maintains direct telephone communications with Philadelphia police department and Camden City police. This interconnection provides some coordination and cooperation between agencies.

The Delaware River Port Authority maintains 23 police vehicles to service the four bridges. In 1977, approximately 900 requests were received from other police agencies to stop and hold persons attempting to cross the bridge and approximately 60% of these requests resulted in apprehension. Moreover, many of the requests submitted were too late since the suspect vehicle passed through the bridge gates before the notification was received.

Port Authority Transit Company (PATCO)

The Port Authority Transit Company is an extension of the Delaware River Port Authority and it employs a number of law enforcement personnel. These personnel patrol the trains and maintain surveillance of the transportation platforms in order to assure the safety of the citizens using this transit system. PATCO officials carry portable radios in their operations and utilize the 500 MHz (UHF) frequency range.

Burlington County Bridge Commission

The Burlington County Bridge Commission has jurisdiction over the Tacony Palmyra and the Burlington Bristol Bridges. Both bridges are dispatched from the Tacony Palmyra Bridge and are tied into the Burlington County Police Radio Network (500 MHz). The bridge police operate 7 vehicles on the bridges and they utilize UHF radio frequencies. Each car possesses the Burlington County Police Radio Network frequencies plus their own working frequency.

The Burlington County Bridge Police maintain a direct telephone to the Philadelphia police department, enabling them to coordinate all cooperative law enforcement activities. They make use of the local telephone service in order to communicate and coordinate with the Bristol Township police department.

OTHER STATES

In 1976, the Federal Communications Commission, in response to a petition presented by the Associated Public Safety Communications Officers, Inc. (APCO), designated a common nationwide channel for emergency law enforcement activities. Many states throughout the nation immediately began to plan and implement systems structured around this frequency (155.475 MHz).

New Jersey and its adjoining states have all addressed the question of statewide police communications. The following pages illustrate the steps taken by New Jersey's neighbors to design and implement police communication systems, and the role 155.475 MHz has played in the structuring of these systems. Also included is a table listing those states throughout the nation which have made progress in the development of the statewide use of 155.475 MHz, the Nationwide Police Emergency Frequency.

New York

The State of New York rests along New Jersey's entire northern border. Law enforcement officials within the State have recognized the growing need for an effective statewide police communications system in New York. Thus, they formed the New York Statewide Law Enforcement Telecommunications Committee (NYSLETC). This committee developed a

plan for police communications throughout the State which makes full use of the Nationwide Police Emergency Frequency (155.475 MHz).

The New York Plan anticipates the installation of base stations at strategic locations throughout New York to assure statewide radio coverage. All law enforcement agencies are encouraged to participate in the network and install the NYSLETC frequencies in their mobiles.

All base stations are to be licensed to the New York State Police. The mobile radios shall be licensed to the State Police on 155.475 MHz and to the individual user on the remaining frequencies.

The New York Statewide Law Enforcement Telecommunications Committee has completed its communications plan and submitted it to the Federal Communications Commission for approval.

Connecticut

The Connecticut Justice Commission recently developed and released a comprehensive police communications plan for the State of Connecticut (1977). In this plan they address the topic of Statewide Police Communications. In order to facilitate such communication, Connecticut law enforcement agencies will continue to participate in a presently established statewide base-to-base hot line system. They will expand this statewide communication ability to police mobiles by installing the Nationwide Police Emergency Frequency (155.475 MHz) in every police mobile in the State. Cross patching capabilities in selected base stations will enable the vehicles to communicate with base stations throughout the State. By doing this, they are assuring communication capability to all police vehicles wherever they may travel throughout Connecticut.

Pennsylvania

Pennsylvania, New Jersey's neighbor to the west, has developed a statewide police communications system that is structured around the Nationwide Police Emergency Frequency of 155.475 MHz.

Since the State Police already maintains statewide radio coverage through their normal communication system, they plan to implement the emergency network by installing base stations on the new frequency in every State Police Station. By doing this, the State of Pennsylvania shall achieve immediate statewide coverage on the Nationwide Police Emergency Frequency. All base stations on the Pennsylvania system are licensed to the State Police and operated by State Police personnel. All mobile radios are licensed to the individual users.

At the present time, the Pennsylvania System is awaiting funding to install its base stations. They are encouraging the local police departments to license and begin operations of their mobile radios on this frequency. Several departments have implemented this frequency and are presently using it for intercommunication and emergency situations among police departments.

Delaware

The State of Delaware is in the process of coordinating all law enforcement agencies in the State by providing a common statewide police radio frequency. Most local police departments presently operate on high band. The State Police use low band, however, they anticipate a switch to high band in the very near future. The Delaware Plan for the statewide coordination of police services includes the implementation of 154.860 MHz in every police department within the State. This will be done through the assistance of a LEAA Grant.

At the present time all of the mobile units and approximately 60% of the State's law enforcement dispatch centers have already joined the system and are operating on the statewide frequency.

The selection of a statewide high band frequency has given Delaware the ability to expand its system at a later date to include the Nationwide Police Emergency Frequency of 155.475 MHz in its System. It is anticipated that the State Police will form the backbone system on the National Frequency.

By doing this, Delaware may then join the ranks of those states throughout the nation that have addressed the topic of nationwide police communications.

Maryland

At the present time, the State of Maryland has entertained few plans for the implementation of the Nationwide Police Emergency Frequency (155.475 MHz) as a statewide emergency frequency. The Division of State Police currently uses this frequency as an operational channel. The Maryland Department of Public Safety is now in the process of conducting a Statewide Communications Study. This study is almost completed, and it is anticipated that the question of utilizing the Nationwide Police Emergency Frequency for their law enforcement agencies will be addressed after the status of the State's communications systems is fully determined.

Nationwide Use of 155.475 MHz

The following pages provide a table illustrating the activity of states throughout the country in the development of the Nationwide Police Emergency Frequency. This table is taken from "155.475 MHz Status Report," *APCO Bulletin*, (August, 1979), p. 32-33.

| STATE | NLEEC Operational | Agencies State | Operating Local | Itinerant | Message Traffic Authorized* Mutual Aid | Other Public Safety | Has other Mutual Aid Channels | State Emergency on other Bands | Acronym of Plans |
|-------|--------------------------|---|---|-----------|---|---------------------------|--|---|------------------------|
| AL | None | Daily use by ASP until new frequency is found | | | | | | | |
| AZ | 1983 | yes | yes | yes | no | | | | |
| AR | Planning | | | | | | | | |
| CA | yes | | | yes | yes | yes | yes | | CLEMARS |
| CO | Beginning implementation | | | yes | yes | | | | |
| CT | Pending | M | M | yes | yes | | yes | | |
| DE | no | | | | | | | | |
| DC | no | | | | | | | | |
| FL | no | | | | | | | | |
| GA | 1980 | Keyed to Alabama frequency move | | | | | | | |
| ID | no | | | | | | | | |
| IL | yes | yes | yes | yes | yes | yes | | | ISPERN |
| IN | yes | yes | | | | | | | |
| IA | yes | M | yes | | | AMB | | | |
| KS | Planning | M/POE/Interstate | | yes | | | | | |
| KY | Planning | | | | | | | | |
| LA | none | yes | yes | | | | | | |
| ME | Planning | M | M | yes | yes | yes | | 154.695 | |
| MD | Planning | | | | | | | | |
| MA | Pending study | | | | | | | | |
| MI | no | | | | | | | | |
| MN | yes | | yes | yes | yes | AMB | | 155.865 | MEPSS |
| MS | no | | yes | yes | | FR/AMB | | | |
| MO | yes | yes | yes | yes | yes | FR/AMB | | | |
| MT | no | | | | | | | | |
| NB | Planning | yes | yes | yes | yes | | | | |
| NV | no | | | | | | | | |
| NH | yes | MRO | yes | yes | yes | | | | |
| NJ | Pending | yes | yes | yes | | yes | | 154.680 | SPEN-2 |
| NM | no | | | | | | | | |
| NY | Pending | yes | yes | yes | yes | | | | NLERC |
| NC | Planning | | | | | | | | |
| ND | yes | yes | | | | AMB | | | |
| OH | 1985 | Daily use by OH State Patrol | | | | | | 154.935 | LEERN |
| OK | yes | yes, beginning | | | | | | | |
| OR | yes | yes | yes | yes | yes | | | 460.500 465.500 | OPEN |
| PA | Pending | | | | | | | | |
| RI | no | Cross monitor on RISPERN | | | | | | 155.190 | RISPERN |
| SC | no | | | | | | | | |
| SD | Planning | | | | | | | | |
| TN | yes | yes | | | | | | | |
| TX | no | | | | | | | 155.370 | |
| UT | yes | Salt Lake City area | | | | | | | |
| VT | yes | R | R (mobiles leaving state given NLEEC portables) | | | | | | |
| VA | no | | | | | | | | |
| WA | no | Daily use by WSP until 1985 | | | | | | 155.370 | LERN |
| WV | Planning | | | | | | | | |
| WI | yes | yes | yes | yes | | AMB | | | |
| WY | no | | | | | | | | |
| AK | no | | | | | | | | |
| HI | | | | | | | | | |
| PR | | | | | | | | | |

SYMBOLS

AMB Ambulance
BS Base Stations
FR Fire/Rescue
M Mobiles
MRO Mobile Receive Only
NA Not Answered
POE Port of Entry
R Receive Only
UNK Unknown
* See individual state plan

APPENDIX E
PROPOSED SYSTEM

**STATEWIDE POLICE EMERGENCY NETWORK
PROPOSED SYSTEM**

Definitions

| | |
|-------------------------------------|--|
| APCO | Associated Public Safety Communications Officers, Inc. |
| FCC | Federal Communications Commission |
| SPEN | Statewide Police Emergency Network |
| Agency Base Station | A limited coverage low power base station located at the dispatch point of each participating agency. |
| Control Station | One of several high power stations operating on the State and National Emergency Channels. These stations would provide coverage where there are no Agency Base Stations. |
| Eligible Agencies | <p>SPEN 1 thru SPEN 3 - Those agencies providing law enforcement services as determined by the Attorney General and are authorized by the Federal Communications Commission to use the frequencies assigned to SPEN.</p> <p>SPEN 4 - Those agencies providing a public safety function which must at times communicate with law enforcement agencies throughout the State in coordination of emergency activities.</p> |
| Emergency | A spontaneous situation, occurrence or event which has a direct and immediate effect on the health, safety or general welfare of the public. |
| Emergency Network | The system of base and mobile stations operating on statewide and national channels for the purpose of providing common communication between agencies. |
| Nationwide Police Emergency Channel | SPEN 2 - This channel, 155.475 MHz, was established by the Federal Communications Commission to be used as a common channel for all police agencies throughout the nation during emergency situations. |
| Statewide Control Center | The radio dispatch point providing statewide operational control over the SPEN System. This station will monitor and service the national channel and provide compliance monitoring for the system when the system is fully implemented. |
| Statewide Police Emergency Channel | SPEN 1 - This channel, 154.680 MHz, is a common statewide frequency available to each base station and mobile unit during emergencies involving different agencies. |
| Participating Agencies | Those eligible agencies approved by the Executive Board to operate on approved frequencies with a base, mobile or both. |

It is the recommendation of the New Jersey Statewide Police Emergency Network Task Force that the following Statewide Police Emergency Network, hereinafter identified as SPEN be adopted:

- A. The system will be built in the 154-155 MHz frequency spectrum.¹
1. The frequency 154.680 MHz shall be utilized as a common frequency available to each base station and mobile unit in the State during emergencies involving different agencies. All alarms would be transmitted on this frequency. Vehicles traveling within the State would use this frequency for continuous radio coverage.
 2. The frequency 155.475 MHz is reserved by the FCC as a Nationwide Police Emergency Frequency. It will be used to communicate with surrounding states. New Jersey vehicles traveling outside of the State would use this frequency. Activities within the State involving mobile units of other states would also use this common frequency. This frequency may also be used as an alternative statewide frequency when 154.680 MHz is currently occupied by an emergency.
 3. This will be an additional common frequency (154.725 MHz.) for use during non-emergency activities involving two or more agencies who do not share a radio system. This frequency shall be used primarily as a coordinative, special purpose method of direct intercommunications between State, County and Municipal law enforcement agencies. It should also be used for routine operations requiring coordination between two or more agencies sharing different operational frequencies.
 4. This frequency (153.785 MHz) shall be used primarily as a coordinative, special purpose method of direct intercommunications between State, County and Municipal public safety agencies. It will provide an interface between law enforcement agencies and other public safety organizations.
- B. The System will eventually have every participating police mobile unit equipped with a separate four channel VHF radio dedicated exclusively to SPEN.
- C. The System, when fully implemented, will provide for a two frequency Agency Base Station at the dispatch point of each participating police agency.
- D. There will be several high powered Control Stations which will provide total radio coverage of the State.
- E. When complete, the System will include a Control Center located in the State Capitol area. A microwave backbone system will interconnect Control Stations and the Statewide Control Center. The microwave system will be capable of expansion to provide additional system usage beyond those recommended here.

1. Alternative frequencies have been considered and found to be inadequate to meet the goals and objectives of the Task Force.

SPEN 1

The frequency 154.680 MHz was licensed by the New Jersey State Police in 1964. It is the only VHF frequency presently licensed for use throughout the entire state of New Jersey that is compatible with the Nationwide Police Emergency Frequency. It is one of ten VHF frequencies, set aside by the Federal Communications Commission for exclusive use by State Police Agencies.² (The present national frequency of 155.475 MHz was previously one of these State Police Channels.) On behalf of the citizens of New Jersey, the New Jersey State Police has requested from the FCC that the licensed use of this frequency be expanded to include the total law enforcement community of this State.

SPEN 2

The proposed use of the Nationwide Police Emergency Frequency provides New Jersey with a common communications link with its neighboring states. This link extends not only to those law enforcement agencies which lie in neighboring states, it also includes those agencies which have bi-state authority such as the N.Y.-N.J. Port Authority Police and the Delaware River Port Authority. The SPEN System's use of 155.475 MHz fulfills the New Jersey law enforcement community's obligation to provide radio coverage to out-of-state itinerant law enforcement vehicles while they are within New Jersey. Equally well, New Jersey's neighboring states have made reciprocal commitments to provide radio coverage to New Jersey mobiles while within their areas.

The proposed use of the Nationwide Police Emergency Frequency is in compliance with FCC Rules and Regulations. The Commission, in establishing this frequency, requires that a plan be submitted before it can be licensed for use.³ This document fulfills that obligation.

The implementation of this network will provide for a police mobile to travel beyond its normal radio coverage area and still be in contact with other agencies participating in the System. In addition, local police departments will realize future monetary savings by eliminating high powered radio equipment which had been necessary to provide coverage outside of their local jurisdictions.

Some of the communications equipment presently in use by law enforcement agencies can be modified to meet some of the requirements of this plan.

SPEN 3

This radio channel, 154.725 MHz, is proposed for law enforcement use only. It will be available for non-emergency activities involving agencies who do not share any other common channels. The use of the channel would be on a planned basis where the necessary portable base equipment could be installed prior to the activity. It would also be used to relieve a continuing emergency from SPEN 1 once the necessary base could be established. There would not be a permanent base operation on SPEN 3. Some examples of the use of SPEN 3 are: large parades, rallies, disturbances or extended spontaneous emergencies.

SPEN 4

It is necessary to have a link between law enforcement and other public safety services. SPEN 4, 153.785 MHz, provides this common radio channel. It is to be used as an emergency coordination channel between services. Portable base stations will be available on this channel to allow for coordinated control from an EOC during an emergency. The New Jersey Emergency Medical Services Communications Plan - 1980, provides for the allocation of this frequency as Channel 4 in all EMS Units.

2. FCC Rules and Regulations, Section 90.19(e)(12).

3. FCC Rules and Regulations, Section 90.19(e)(14).

APPENDIX F

BYLAWS

CREATION OF THE SPEN EXECUTIVE BOARD

In all other states that have developed a statewide system similar to SPEN, a group of people representative of the total law enforcement community was formed to tend to the administration and operational needs of the network. The ideal situation appears to be an Executive Board consisting of system users equally representative of Local, County and State levels of government.

It is recommended that an Executive Board be created from members of the New Jersey law enforcement community to administer the SPEN System. The proposed bylaws of this Executive Board are as follows:

BYLAWS

A. Name and Purpose

1. The Executive Board of the New Jersey Statewide Police Emergency Network (SPEN) is hereby established to exercise general supervision of SPEN; to establish and implement rules and procedures necessary to control operations and utilization of the System; and to act upon applications for entry to, or withdraw permission for utilization of, the System. In addition, it shall be the responsibility of the Executive Board to recommend System improvements, to develop and evaluate implementation schedules and to consider funding options to expand the System's potential operating capabilities.

B. Membership

1. The Executive Board shall be composed of representatives of New Jersey's law enforcement community. Its membership shall consist of representatives from Local, County and State level law enforcement agencies appointed by the Attorney General.

C. Term of Appointment

1. Membership on the Board shall be for a term of two (2) years. Initial appointments shall be for a period terminating on December 31, 1981.
 - a. All members of the Board shall continue in office until their successors are appointed.
 - b. Whenever a vacancy, other than routine expiration of term of appointment, arises on the Board due to resignation, death, or for any other reason, the Secretary will notify in writing the Attorney General and request that another member be appointed to serve out the remainder of the unexpired term.
 - c. A member may be relieved of Board membership upon written request to the Board Secretary and acceptance of the Executive Board. The vacancy shall be filled by appointment by the Attorney General.
 - d. A member of the Board may, when circumstances require, designate in writing an alternate to attend a meeting of the Board. An alternate member shall have all of the rights and duties of the appointed members while acting in that capacity.

D. Members Absences

1. Whenever a member of the Board or his designated alternate fails to attend three (3) consecutive regular meetings during his current term without excuse, it shall be the duty of the Secretary to submit to the Attorney General a written memorandum of the attendance record of such member and his membership on the Board shall be deemed terminated. The Attorney General shall then appoint a new member to fill out the unexpired term.

E. Officers

1. The Board shall elect from its own members a President, a Vice-President and a Secretary. Terms of office shall be for one year, which may be renewed.

2. In the absence of the President, the Vice President or the Secretary, in that order, will act in that capacity.
3. In the absence of the President, Vice President and Secretary, a temporary Chairperson will be selected by the Board.

F. Additional Officers

1. The Board is empowered to create and fill through appointment such additional offices, from its own membership, as it deems advisable for the proper functioning of its activities.

G. Nomination and Election of Officers

1. The nomination and election of officers shall be held at the first quarterly meeting of each calendar year. Each nomination shall be seconded to be placed on the ballot, and elections shall be by written ballot unless there is no contest for the office.

H. Meetings

1. Regular meetings of the Board will be quarterly or as called by the President.
2. Written notice of all regular meetings will be mailed so as to be received by members at least two weeks prior to the meeting date if possible.
3. Special meetings may be called by the President or upon the written request of three (3) members of the Board. Notice of special meetings is to be by personal telephone confirmation, or personally acknowledged radio or teletype contact, or by mail, provided notice is given 72 hours prior to the meeting date.
4. All meetings and notices thereof shall be conducted in accordance with the provisions of the open public meetings act (P.L. 1975 c.231) and any amendments thereto.
5. A quorum shall consist of not less than four (4) members.
6. When a quorum is present, a majority vote shall be sufficient for action of the Board.
7. Robert's Rules of Order shall prevail.

I. Duties of President

1. It shall be the responsibility of the President to call all meetings; set the agenda for meetings; preside at meetings; appoint subcommittees when and as required; and carry out general chairperson responsibilities.

J. Duties of Vice President

1. It shall be the responsibility of the Vice President to assume the duties of the President in his absence. Also, he shall perform other duties assigned by the President.

K. Duties of Secretary

1. It shall be the responsibility of the Secretary to send members notices of all meetings, regular and special; keep minutes of all such meetings; and send copies of the minutes to the members and anyone else designated by the Board.
2. He shall further maintain any other Board record required by the Board.

L. Subcommittee Membership

1. The President of the Board can appoint members of the Board and professional and/or technical personnel to sub-committees for special projects or studies. Subcommittees are authorized to appoint professional and/or technical personnel to their committees as advisors as required.

APPENDIX G

SYSTEM ADMINISTRATION

DAILY SYSTEM ADMINISTRATION

The SPEN Executive Board is the body that is responsible for making policy decisions determining the future direction that the SPEN System will take. It does not perform the task of overseeing the daily System operation, however. A full time Administrative Staff is necessary to fulfill this function. The Executive Board shall meet quarterly. The Administrative Staff must operate daily.

The Associated Public Safety Communications Officers, Inc. recommends that a State Agency assume the responsibility for the operation of statewide emergency communications systems.¹ It is therefore suggested that the New Jersey State Police be assigned the responsibility to operate SPEN.

The responsibilities of the Administrative Staff would be as follows:

1. Act as a liaison between the SPEN Board and the SPEN System.
2. When directed, represent the Executive Board.
3. Prepare quarterly reports as necessary for the Executive Board.
4. Maintain a liaison with neighboring states. Note the status, progress and interfacing capabilities of their respective systems.
5. Prepare grant applications for future funds.
6. Manage the disposition of funds and budgeting.
7. Prepare bids. Assist in bid evaluation. Prepare equipment requisition.
8. Process SPEN System applications, coordination forms and subsequent FCC licensing.
9. Conduct statistical work and data gathering with respect to the SPEN System.
10. Perform first line supervision of the System's operation. Assure conformance to operational guidelines and prepare reports to the Executive Board keeping them abreast of the situation.
11. Conduct field work, system design, system implementation, interference problems, etc.

1. "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," *APCO Bulletin*, March, 1976, p.20.

APPENDIX H LICENSING THE SYSTEM

LICENSING THE SYSTEM

The Federal Communications Commission is the exclusive licensing authority of all radio frequencies in the United States other than Federal Government frequencies. Therefore, all users of SPEN radio frequencies must be licensed by this Federal Agency.

Users of SPEN radio frequencies must make application to the Federal Communications Commission for use of these frequencies. Normal frequency coordination procedures will be followed as detailed by FCC Part 90.175. The New Jersey Police Frequency Coordinator (APCO) will recommend power levels, antenna heights and other necessary limitations which are needed to insure that the new station would not cause harmful interference to other users in the State or in surrounding States. The Frequency Coordinator, where appropriate, will include in his recommendation to the Federal Communications Commission comments concerning the applicant's intentions to operate in conformance with the New Jersey Statewide Police Emergency Network Plan as filed.

The Federal Communications Commission has developed specific rules and regulations pertaining to two frequencies which shall be used for SPEN:

1. **154.680 MHz** is * * * "reserved primarily for assignment to state police licensees. Assignment to other police licensees will be made only where the frequency is required for coordinated operation with the state police system to which the frequency is assigned." 90.19(e)(12)
2. **155.475 MHz** is * * * "available nationwide for use in police emergency communications networks operated under statewide law enforcement emergency communications plans." 90.19(e)(14)

In order to permit SPEN participants to use these frequencies, the Frequency Coordinator will include in the application to the Federal Communications Commission a copy of a letter from the Superintendent of the New Jersey State Police requesting local, county and state police use of these frequencies in the SPEN System. (See letter of the Superintendent of the State Police attached.)

It is the applicant's responsibility to file the necessary forms with the Federal Communications Commission and the New Jersey APCO Police Frequency Coordinator for a modified or new license operable on the SPEN Radio System.

Although individual agencies in the State will be issued base and mobile licenses to operate on SPEN channels, such use must be in conformance with the operational policies and procedures of the State Plan. It is recommended that all licenses issued for use on SPEN frequencies by the FCC shall contain the special condition that its use must be in accordance with the State Plan. Nonconformance to the SPEN Plan will be reported to the Federal Communications Commission, and it will follow its normal procedures for dealing with any such violation.



Office of the Superintendent

*State of New Jersey
Department of Law and Public Safety
Division of State Police
Post Office Box 7068
West Trenton, New Jersey 08625
January 18, 1979*

Mr. William J. Tricarico, Secretary
Federal Communications Commission
Washington, D.C.

Dear Mr. Tricarico:

The New Jersey Statewide Police Emergency Network Task Force has developed a plan for statewide emergency police communications. This plan, submitted on behalf of all the law enforcement agencies of the State of New Jersey, establishes the use of the Nationwide Police Emergency Frequency (155.475 MHz), and additionally recommends the establishment of a statewide intersystem police emergency channel.

In order to be most beneficial, it is required that the New Jersey Statewide intersystem frequency be capable of operating in the same equipment, as an additional channel, as the Nationwide Police Emergency Frequency. The Task Force, in cooperation with the New Jersey Police Frequency Coordinator, concluded that the only possible VHF police frequency available for this purpose is 154.680 MHz. This channel is currently licensed and used on a statewide basis by the New Jersey State Police.

The New Jersey State Police concurs with this conclusion and welcomes the addition of all law enforcement agencies in New Jersey on this channel.

It is requested that the Commission waive 90.19 (d) (12) which limits the use of this channel, when assigned for coordination purposes with other agencies, to coordination with the State Police system to which the frequency is assigned. Its use in New Jersey would require that coordination among police agencies other than the State Police be authorized. This action would allow communication by all law enforcement agencies in the state and greatly enhance the SPEN System's operation. The New Jersey State Police would continue to be the substantial user of this frequency. All requests for this channel should be coordinated by the New Jersey Police Frequency Coordinator. Issued authorizations for use should limit the use of 154.680 MHz to compliance with the State Plan by "Special Condition".

Sincerely,

Clinton L. Pagano
Clinton L. Pagano, Colonel
Superintendent

If

APPENDIX I JOINING THE SYSTEM

JOINING THE SYSTEM

All prospective users must make formal application to join and operate on the SPEN System.

The application should be submitted to the SPEN Administrative Staff for presentation to and approval by the Executive Board. It is recommended that a portion of the application consist of an agreement between the participant and the SPEN Executive Board as follows:

1. The applicant agrees to operate and maintain its radio equipment in accordance with the Rules and Regulations of the Federal Communications Commission and SPEN Policies and Procedures established by the Executive Board. In the event of any violation by an applicant of such rules, regulations, or of any other law respecting the operation of such equipment, the SPEN Executive Board may terminate this agreement at any time.
2. The applicant agrees to indemnify and save harmless the SPEN Executive Board, its officers and employees against any and all liability arising out of its use and operation of its radio equipment.
3. In order to assure the availability of the SPEN System in times of emergency, absolute adherence to the Policies and Procedures established by the SPEN Executive Board is required. Any negligent, unlawful, willful or continued misuse of the SPEN System will result in the termination of this agreement by the SPEN Executive Board. Notification may also be given to the Federal Communication Commission that the licensee is no longer compliant with or operating under the Statewide Plan.

In addition to this agreement, the application should consist of a form supplying sufficient information containing such information as required by the SPEN Executive Board.

The SPEN Administrative Staff will present this application to the Executive Board for review of the agency's eligibility for membership, and, if appropriate, issue a letter of certification to the New Jersey Police Frequency Coordinator. The Frequency Coordinator would then process the prospective member's license application.

APPENDIX J SYSTEM STANDARDS

SPEN SYSTEM STANDARDS

Network Utilization

SPEN has been developed for radio communications of an emergency nature which cannot be accommodated through existing communication channels. This system is an emergency system, and is to be utilized as a supplement to normal law enforcement communications. It may only be used when different agencies operating on different radio frequencies must communicate or when equipment failure renders the normal systems inoperable.

SPEN Radios

SPEN mobile radios have four (4) channel capability, SPEN 1/ SPEN 2/ SPEN 3/ SPEN 4. SPEN 1 will have the highest priority.

Agency Base Stations are two channel units operable on SPEN 1/ SPEN 2. They are low power and only cover the immediate vicinity of the jurisdiction. Thus, alarms are not heard in areas beyond the affected zone.

A cache of SPEN 3/ SPEN 4 portables and base stations will be available for immediate and temporary assignment to any State, County or Municipal public safety agencies for emergency purposes. Individual agencies, however, may at their own expense, and with the written approval of the Executive Board, install permanent Agency Base Stations on SPEN 3 and/or SPEN 4.

The Statewide Control Center will operate high power base stations, with the ability to monitor and transmit throughout the entire State.

SPEN Channels

SPEN will use 155 MHz channels and utilize the Nationwide Police Emergency Frequency (155.475 MHz) as a part of its overall system.

Channel Utilization

- SPEN 1 154.680 MHz** is to be used as a common frequency available to each base station and mobile unit in the State during emergencies involving different agencies. Vehicles traveling within the State will use this channel for continuous radio coverage.
- SPEN 2 155.475 MHz** is the Nationwide Police Emergency Frequency. It will be used to communicate with neighboring states. New Jersey vehicles traveling outside of the State would use this channel. Activities within the State involving mobile units or other states will also use this common channel. This channel can also be used as an additional channel in New Jersey when SPEN 1 is in use.
- SPEN 3 154.725 MHz** is an additional common channel for police use only during non-emergency activities involving two or more agencies who do not share a common radio system. This channel shall be used primarily as a coordinative, special purpose, method of direct intercommunications between State, County and Municipal law enforcement agencies. It shall also be used for routine operations requiring coordination between two or more agencies sharing different operational frequencies.
- SPEN 4 153.785 MHz** is a common channel for the use of all eligible public safety agencies including fire, emergency medical services and civil defense. It will be used primarily as a coordinative, special purpose method of direct intercommunications between State, County and Municipal public safety agencies. It will provide a tactical interface between law enforcement agencies and other public safety organizations.

Channel Monitoring

SPEN 1 Each agency with base station facilities will monitor SPEN 1. This will ensure communications with other base stations as well as mobiles traveling through the agency's area. In addition, high priority alarms will be received immediately. Agency Base Stations will be of low power and will only cover the immediate vicinity of the jurisdiction. Thus, alarms will not be heard in areas far removed from the affected zone. Any station which must shift from SPEN 1 to another channel for any reason must notify the Statewide Control Center¹ of the switch so that any future alarms may be relayed.

The Statewide Control Center will act as a network control and monitor SPEN 1 for emergency traffic. It will provide service to New Jersey mobiles on SPEN 1 who are not in the coverage area of an Agency Base Station.

Every mobile unit shall monitor SPEN 1.

SPEN 2 The Statewide Control Center will continuously monitor SPEN 2 to assist out-of-State mobiles operating within New Jersey.

An Agency Base Station will operate on SPEN 2 if an operation is taking place in its jurisdiction which involves police mobiles from other states operating on the National Frequency.

Mobile units shall operate on SPEN 2 when they are cooperating with out-of-State mobiles operating in their jurisdiction or when SPEN 1 is occupied by another emergency.

SPEN 3 A participating agency and mobile may operate on SPEN 3 when necessary to coordinate law enforcement activities within its jurisdiction which involves multi-agency mobiles.

SPEN 4 A participating agency and mobile may operate on SPEN 4 when they must coordinate activities with other public safety agencies within their jurisdiction. (e.g., Fire, EMS, Civil Defense, etc.)

Message Priority

Law enforcement agencies participating in the system shall monitor the traffic on the system prior to transmitting and shall comply with the following message priority schedule. Users must relinquish the channel for higher priority messages.

1. **EMERGENCY** - Radio traffic dealing with an emergency situation including two or more law enforcement agencies operating on different operational frequencies.
2. **FLASH MESSAGES** - All points broadcast for serious crimes and wanted persons.
3. **ITINERANT** - Essential radio traffic relating to an official function of an agency's mobile unit moving through another department's area which is on a different radio frequency.

4. TESTING.

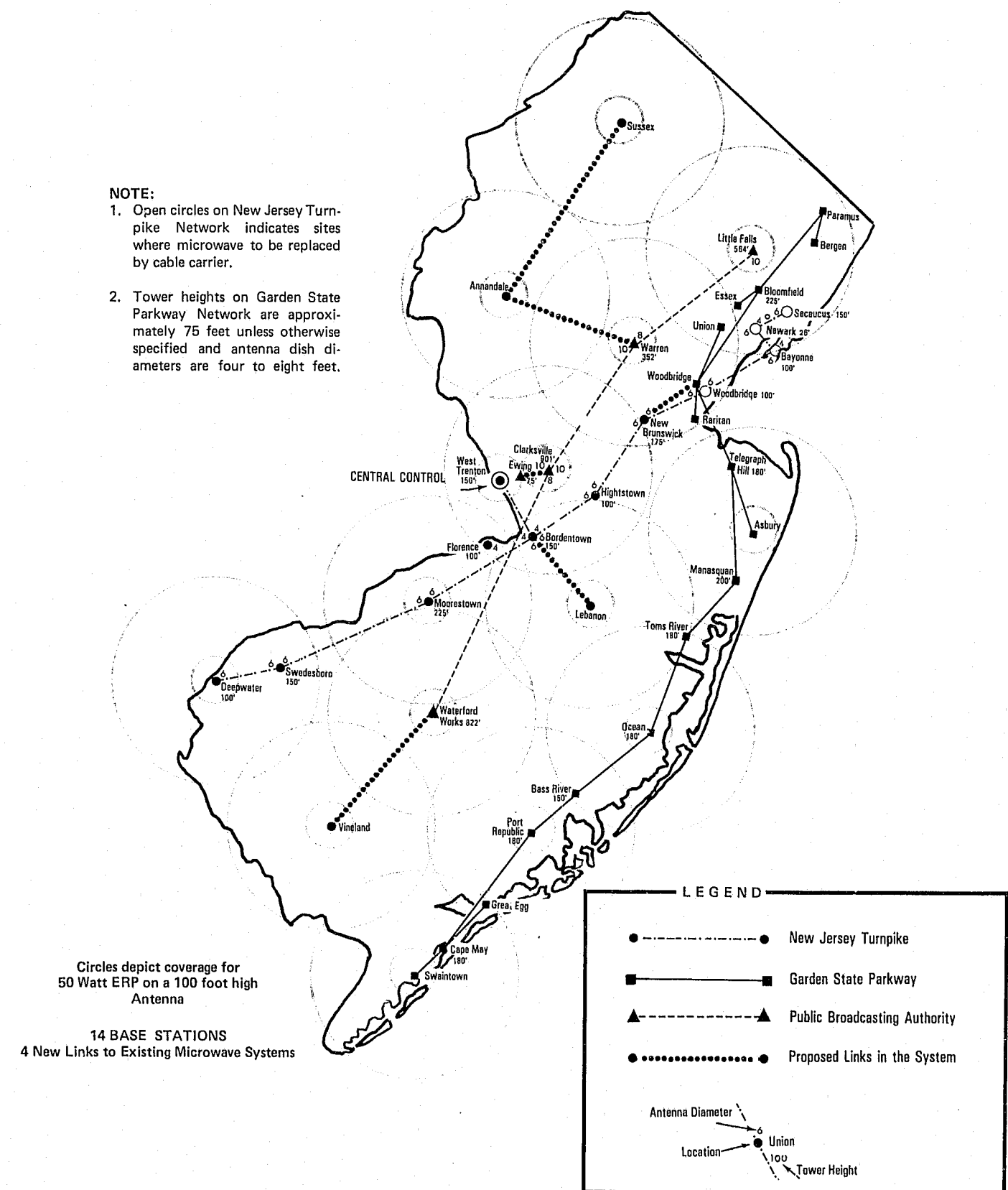
Base Station Monitoring

Agency Base Stations will be monitored at the Statewide Control Center. This is to ensure that every Agency Base Station has the potential for immediate communication through the Control Center with every other Agency Base Station within the State.

The Statewide Control Center will report noncompliance of the operating policies and procedures to the SPEN Executive Board.

1. The Statewide Control Center will not be installed until the last phase of System Implementation.

A POSSIBLE CONFIGURATION FOR A NEW JERSEY MICROWAVE SYSTEM



Until such time as a Control Center can be established, the monitoring will be accomplished by local control of the radio equipment. High power base stations will be established at locations to provide statewide coverage. These base units will be monitored by local agencies as part of their participation in SPEN.

STATEWIDE CONTROL CENTER

This plan has suggested that a statewide control center be constructed to monitor the activity of the entire SPEN system. The preceding illustration pictures the tentative location of the base station microwave links that would provide statewide coverage. These base stations are located throughout the state in such a way as to take maximum advantage of existing microwave sites and to limit new construction costs.

TECHNICAL SUBCOMMITTEE REPORT DETERMINATION OF FREQUENCY TO BE USED BY SPEN SYSTEM

The Technical Subcommittee of the N.J. Statewide Police Emergency Network Task Force met on February 9, 1978. Those members present were Captain Amme, Mr. Barsuglia, Mr. Beveridge, and Lt. Niles. Mr. Beck and Mr. Coltri also attended the meeting.

The Technical Subcommittee of the New Jersey Statewide Police Emergency Network has discussed and analyzed each frequency available in New Jersey for use by the SPEN system. The advantages and disadvantages of each frequency have been illustrated and are presented forthwith:

800 MHz

Advantages

1. The 800 MHz provides the availability of frequencies.
2. There is a common statewide channel available.
3. This frequency is conducive to satellite communications.

Disadvantages

1. At present, there is no formalized frequency assignment procedure.
2. The direct mobile-to-mobile communication range is severely limited without the use of repeaters, mobile relays, or satellites.
3. If a repeater breaks down, the entire system within that area becomes inoperable.
4. There exists a very limited supply of off-the-shelf equipment. Thus replacement and repairs may be costly and time consuming.
5. At the present time, there is limited production of portable radios with 800 MHz capability.
6. This frequency is incompatible with the nationwide frequency. (155.475 MHz) It is also incompatible with the planned police emergency networks of surrounding states, for they have planned their systems around the Nationwide Frequency.

470 - 512 MHz

Advantages

None

Disadvantages

1. There are no channels available in the northern part of New Jersey.
2. The assignment of these frequencies is restricted to areas that rest within a fifty (50) mile radius of New York City and Philadelphia.
3. These two areas are incompatible with each other.
4. The direct mobile-to-mobile communication range is severely limited without the use of repeaters or mobile relays.
5. This frequency is incompatible with the Nationwide frequency. (155.475 MHz) It is also incompatible with the planned police emergency networks of surrounding states, for they have planned their systems around the Nationwide Frequency.

Note: This committee is aware that Bergen County is installing a system on this frequency in every local police agency throughout the county for the purposes of interconnection. This committee also recognizes the fact that this system cannot be expanded statewide since Federal Communications Commission's (FCC) rules and regulations prohibit the use of these frequencies outside of the 50 mile radius of New York City.

453 - 460 MHz

Advantages

1. This frequency provides the possibility for statewide use.

Disadvantages

1. The direct mobile-to-mobile communication range is severely limited without the use of repeaters or mobile relays.
2. This frequency is incompatible with the nationwide frequency (155.475 MHz) It is also incompatible with the planned police emergency networks of surrounding states, for they have planned their systems around the Nationwide Frequency.

Note: Although as a result of the White Paper questionnaire it is apparent that the majority of police vehicles in New Jersey routinely operate in the 453 - 460 MHz band, these channels are not available for any further use due to high radio traffic.

155 MHz

Advantages

1. There are presently two frequencies available for statewide use. (154.680 and 155.475)
2. 155.475 MHz is a frequency specifically allocated by the Federal Communications Commission as a Nationwide Police Emergency Frequency.
3. There exists reliable mobile-to-mobile communication capabilities without the use of repeaters or mobile relays.
4. Pennsylvania, New York and Connecticut are in the process of developing and implementing the nationwide frequency in statewide systems.
5. There currently exists a statewide base system that could form the nucleus of a statewide system on 154.680 MHz in New Jersey. (e.g., State Agencies, N.J. Parkway, N.J. Turnpike, and State Prisons)
6. The possibility exists of acquiring a third and fourth statewide channel in this frequency band.

Disadvantages

1. 155.475 MHz cannot be licensed until a statewide plan is filed with the Federal Communications Commission.

30 - 50 MHz

Advantages

1. Four frequencies are presently available for statewide use.
2. All military equipment is capable of operating on this frequency.
3. There exists reliable mobile-to-mobile communication capabilities without the use of repeaters or mobile relays.

Disadvantages

1. This frequency is incompatible with the nationwide frequency. (155.475 MHz) is also incompatible with the planned police emergency networks of surrounding states, for they have planned their systems around the nationwide frequency.
2. Portable radio capability is not as efficient as the portable radio performance in other frequencies.
3. This frequency is susceptible to long range skip interference.

For the reasons herein stated, the Technical Subcommittee of the New Jersey Statewide Police Emergency Network Task Force unanimously recommends that the 155 frequency band is the frequency range that is most practical for SPEN utilization.

If for some reason that has been overlooked by this committee, it becomes impossible to implement the 155 range, 30 - 50 MHz is the most feasible alternative. 453 - 460 MHz is the third choice, and 800 MHz ranks last.

NEW JERSEY SPEN BASE AND MOBILE RADIO FEATURES

SPEN Base and Mobile radios will be specified so as to reflect top line equipment with respect to operational performance, ease of maintainability and reliability factors.

BASE STATIONS (AGENCY)

- Frequencies, two (2) (with one receiver).
- DC Remote control.
- Tone squelch with automatic disable on Channel 2 (155.475 MHz).
- Time out timer.
- Adjustable transmitter power output level (10 to 35 W max).
- Desk-type remote control (Color RED) with telephone type microphone with tone squelch disable on hanger.
- Unity gain antenna.

MOBILE UNITS

Particular operational features for mobile units are to include the following:

- Frequencies, four (4) with priority scan. Scan scheme shall be two-channel scan with priority following selected transmitter channel as follows: Channel 1 & 2, Channel 1 & 3, Channel 1 & 4.
- The radio will have a minimum of four (4) to a maximum of six (6) channels to allow for future system expansion.
- Tone squelch reverting to standard squelch on Channel 2.
- Power output - - 25 Watt minimum.
- Time out timer.
- Noise blanker (optional).
- Trunk mount.
- Separate speaker.
- Receiver channel spacing 15 KHz (optional).
- Squelch preset by technician behind panel (optional).
- Lamps to be wired such that when receive only power lead is active lamps are not lighted.
- Special color microphone (RED)
- Control head must clearly show active channel being received
- Antenna, 3db gain.
- Equipment to be purchased without installation or maintenance. A one-year warranty on parts to begin 30 days after delivery is to be included.

APPENDIX K
OPERATING PROCEDURES

**STATEWIDE POLICE EMERGENCY NETWORK
OPERATING PROCEDURES**

- I. Introduction**
 - A. Goals and Objectives
- II. System Description**
 - A. Network Design
- III. General Procedures**
 - A. Channel Utilization
 - 1. Channel 1
 - 2. Channel 2
 - 3. Channel 3
 - 4. Channel 4
 - B. FCC Rules and Regulations
 - C. Use of Codes
- IV. Agency Base Station Procedures**
 - A. Station Identification
 - B. Records
 - C. Channel Monitoring/Utilization
 - 1. Channel 1
 - 2. Channel 2
 - 3. Channel 3
 - 4. Channel 4
 - D. Message Transmission
 - 1. Message Relay
 - 2. Message Priority
 - E. Message Format
 - 1. Flash
 - 2. Itinerant
 - 3. Testing
 - F. Acknowledgement to Messages
 - G. Flash Message Updates
 - 1. Format
- V. Mobile Unit Procedures**
 - A. Mobile Identification
 - B. Channel Monitoring/Utilization
 - 1. Channel 1
 - 2. Channel 2
 - 3. Channel 3
 - 4. Channel 4
 - C. Message Transmission
 - 1. Emergency
 - 2. Flash
 - 3. Itinerant
 - D. Message Format
- VI. Statewide Control Center**
 - A. Channel Monitoring/Utilization
 - B. System Monitoring

OPERATING PROCEDURES

I. INTRODUCTION

Certain portions of the following Operational Procedures Section of the proposed SPEN Plan may seem to be redundant or repetitive of what has already been noted. This has been done purposely to allow user agencies to extract this section from the Plan and to utilize it as a complete Operational Procedures Manual for the radio operator. When approved, this section will be reproduced separately and distributed to all using agencies.

Goals and Objectives

SPEN's goal is to enhance the law enforcement community's ability to provide prompt and timely delivery of public safety services. Its major objective is to enable every police officer in New Jersey to be able to directly communicate with every other on-duty police officer in the immediate area regardless of agency affiliation. SPEN provides expanded police radio communication both within New Jersey and outside of its borders by making use of the Nationwide Police Emergency Frequency of 155.475 MHz. The result is increased police effectiveness through increased communication capabilities and greater personal safety and freedom of movement to all who use the system.

II. SYSTEM DESCRIPTION

SPEN (Statewide Police Emergency Network) is a radio system comprised of base stations and mobile units. SPEN is designed to link all police departments in New Jersey and its surrounding states together through common radio frequencies. The use of SPEN Channels 1, 2, and 3 is restricted to law enforcement officials. The use of Channel 4 is available to the other public safety agencies in New Jersey for the purpose of coordinating activities.

The major aim of SPEN is to ensure that each police dispatch point has a SPEN base station and every police mobile unit has a SPEN mobile radio. A Statewide Control Center is also planned which will monitor emergency activities throughout the State and assist in the coordination of activities when needed. This Statewide Control Center will also communicate with out-of-State mobiles traveling within New Jersey.

In order to link all police agencies into SPEN, base units with SPEN 1 and SPEN 2 capability are located at each dispatch point. SPEN Mobile Radios are installed in each car, both marked and unmarked. These mobile radios are equipped with four channels: SPEN 1, SPEN 2, SPEN 3, and SPEN 4.

During the initial stage of System implementation, mobile equipment already in use may be modified to operate on either SPEN 1 or SPEN 2 without the addition of a second radio to the vehicle. Any agency may partially implement the SPEN System with the approval of the Executive Board.

For efficient operation in the Network, it is necessary for Agency Base Stations to operate on SPEN 1 and SPEN 2. Individual agencies, however, may at their own expense, and with the approval of the Executive Board, install permanent base stations on SPEN 3 and/or SPEN 4. A supply of four-frequency SPEN portables and base stations are available for immediate and temporary assignment to any State, County, and Municipal public safety agency upon request for approved purposes.

III. GENERAL PROCEDURES

Channel Utilization

SPEN 1 - 154.680 MHz

This channel is the Statewide Police Emergency Channel. It is used as a common frequency available to each base station and mobile unit in the State during emergencies involving different agencies. All alarms are transmitted on this channel. Vehicles traveling within the State shall utilize this channel for continuous radio coverage.

SPEN 2 - 155.475 MHz

This channel is the Nationwide Police Emergency Channel. It is used to communicate with surrounding states. New Jersey vehicles traveling outside of the State would utilize this channel. Activities within the State involving mobile units of other states will operate on this common channel. This channel can also be used as a statewide channel when SPEN 1 is currently occupied by an emergency.

SPEN 3 - 154.725 MHz

This is an additional common channel for use during non-emergency activities involving two or more agencies who do not share a common radio system. This channel shall be used primarily as a coordinative, special purpose method of direct intercommunications between State, County and Municipal law enforcement agencies. It shall also be used for routine operations requiring coordination between two or more agencies sharing different operational frequencies.

SPEN 4 - 153.785 MHz

This channel shall be used primarily as a coordinative, special purpose method of direct intercommunications between State, County and Municipal public safety agencies such as Fire, EMS, and Civil Defense. It will provide an interface between law enforcement agencies and other public safety organizations.

FCC Rules and Regulations

All FCC Rules and Regulations must be adhered to in the operation of the SPEN System.

Use of Codes and Signals

Transmission over the emergency network must be in Plain English using the Associated Public Safety Communications Officers Phrase Word Brevity Code where appropriate:

| Phrase Word | English Meaning | Phrase Word | English Meaning |
|--------------------|---|---------------------------|--|
| Use Caution | Caution: dangerous condition is suspected to exist. | Disregard (Recall) | Cancel your present assignment. |
| Unreadable | Radio signal is too weak to receive. | Off Radio | Unit is not capable of being contacted by radio, but may be "available." |
| Out of Service | Unit, vehicle or person is not working. | On Radio | Unit is capable of being contacted by radio, but not necessarily "available." |
| In Service | Unit, vehicle or person is working but not necessarily "available" or "on radio." | Responding | Unit is enroute to assigned location. |
| Available | Unit is in service ready to accept assignment, not necessarily by radio. | Under Control | Situation is under control when no further assistance is anticipated. |
| Not Available | Unit cannot accept another assignment, but may be "on radio." | Telephone (No. or person) | Call by telephone specified number or person |
| Prepare to Copy | Dispatcher is about to give lengthy message. | Priority | When transmitted, means that the following transmission must have immediate attention. |
| Go Ahead | You have been given clearance to transmit your message. | In Pursuit | Unit is chasing a vehicle and requires assistance from other units. |
| Roger (Received) | Message received and understood. | Traffic Stop | Unit is going to stop a motorist. |
| Say Again (Repeat) | Repeat your message. | Help Officer | Help me quick (emergency). |
| Stand By | Stop transmitting and wait for further instructions. | Affirmative | Yes |

Other terse phrases may also be used where appropriate.

IV. AGENCY BASE STATION PROCEDURES

Station Identification

Policy: Federal Communication Commission regulations require that a base station identify itself by its FCC assigned call sign. In addition, base stations will identify themselves by the agency name.

Procedure: 1. Identify self by saying: "(Agency name, FCC call sign).
Example: Jonesville KEO201.

Records

Policy: Each base station shall maintain a radio log.

Procedure: 1. Log signature of operator on duty at all times.
2. Include FCC required information, i.e., tower light information and radio maintenance.
3. Maintain record of messages generated into the system. This must be in the form of dispatch cards or page line activity record.
4. Base stations with tape recording capability may tape the activities of the system. This does not eliminate the requirement for written records of SPEN transmission.

Channel Monitoring/Utilization

Policy: Every dispatch point shall maintain and operate a SPEN base station.

Procedure: 1. Operate on SPEN 1 when necessary to coordinate emergency activities with other law enforcement agencies within the State. Monitor SPEN 1 on a continuous basis to receive alarms from other law enforcement agencies within the State.
2. Operate on SPEN 2 if an operation takes place in the jurisdiction which involves police mobiles from other states operating on the national frequency (SPEN 2).
3. Operate on SPEN 3 (if available) when necessary to coordinate law enforcement activities within the jurisdiction which involve multi-agency mobiles.
4. Operate on SPEN 4 (if available) to coordinate activities with other public safety agencies within the jurisdiction. (This channel shall be used primarily as an interface with the law enforcement and public safety agencies within New Jersey.)

Message Transmission

Policy: Agencies operating on each channel shall monitor the traffic prior to transmitting and shall comply with the following message priority schedule. SPEN shall not be used for traffic involving a single agency or traffic between agencies sharing the same operational frequency.

Message Priority: 1. Emergency
2. Flash Message
3. Itinerant
4. Testing

Procedure: 1. Monitor traffic for message priority.
2. Transmit message when there are no higher priority messages being relayed.

Definitions:

1. **Emergency** - A spontaneous situation, occurrence or event which has a direct and immediate effect on the health, safety or general welfare of the public.
2. **Flash Message** - Information broadcast across the SPEN System alerting law enforcement personnel to an emergency situation, noting that their assistance may be required.
3. **Itinerant** - Message broadcast on SPEN involving mobiles from different jurisdictions or states who are out of reach of their normal communications systems and are in need of information or assistance.
4. **Testing** - Determination if the SPEN equipment is operational.

Message Format

Policy: SPEN shall make use of message formats so as to provide uniformity and increased communications capabilities throughout the State. These message formats will follow the new preferred structure as outlined in the APCO Standard Operating Procedure Manual.

- Procedure:
1. Flash messages
Tone. All police stand by for a flash message, this is (Agency name). (Pause). Attention all police, (message), (repeat message). (Agency call sign).
Example: Tone. All police stand by for a flash message, this is Jonesville P.D. (Pause) Attention all police. Armed robbery, Joe's Deli, 74 West Main Street at 1252 hours. Proceeding South on U.S. 322. Last seen at milepost 21. 1974 Chevrolet, blue, N.J. registration unknown. Two males, age mid 20's. (Repeat message). KEO201.
 2. Itinerant
To call: (Agency name, Car number) this is (Agency name, Agency call sign).
Example: Smithville car 202, this is Jonesville KEO201.
To acknowledge: (Agency name, Car number) go ahead (Agency name, Agency call sign).
Example: Smithville 202, go ahead Jonesville KEO201.
 3. Testing
(Agency name) this is (Agency name, Agency call sign) testing on SPEN 1.
Example: Smithville, this is Jonesville KEO201 testing on SPEN 1.

Acknowledgement to Messages

Policy: In some instances, a transmitting station may request acknowledgement to a message from a limited number of agencies.

- Procedure:
1. Acknowledge by saying: "(Agency name), O.K."
Example: Jonesville, O.K.

Flash Message Updates - Format

Policy: Repeat full, original message with additional information on all updates.

- Procedure:
1. Message update
Tone. All police stand by for additional information on (describe incident). This is (Agency name). (Pause). Attention all police, (original message plus new information), (repeat message). (Agency call sign).
Example: Tone. All police stand by for additional information on the armed robbery at Joe's Deli. This is Jonesville P.D. (Pause). Attention all police. Armed robbery, Joe's Deli, 74 West Main Street at 1252 hours. Proceeding South on U.S. 322. Last seen at milepost 21 at 1258 hours. 1974 Chevrolet, blue, N.J. Registration 123-ABC. Believed to be enroute to XYZ City. Two males, age mid 20's. (Repeat message). KEO201.

V. MOBILE UNIT PROCEDURES

Mobile Identification

Policy: Mobile units will identify themselves by using their agency name and vehicle number when transmitting to other mobile units or base stations.

- Procedure:
1. Identify by saying: "(Agency name, Car number)."
Example: Jonesville 121.

Channel Monitoring/Utilization

Policy: Mobile radios are to be operated in accordance with FCC and SPEN regulations.

- Procedure:
1. Monitor SPEN 1, the Statewide Police Emergency Channel when the system is fully operational. Operate on SPEN 1 to communicate with base and other mobile units within the State. SPEN 1 is used to receive alarms and to request assistance on an emergency basis.
 2. Operate on SPEN 2 when:
 - a. Cooperating with out-of-state vehicles.
 - b. Operating in other states.
 - c. SPEN 1 is occupied by another emergency.
 3. Operate on SPEN 3 when necessary to coordinate law enforcement activities which involve multi-agency mobiles.
 4. Operate on SPEN 4 to coordinate activities with other public safety agencies. (This channel shall be used primarily as an interface with the law enforcement and public safety agencies within New Jersey.)

Message Transmission

Policy: Mobiles operating on each channel shall monitor the traffic prior to transmitting and shall comply with the following message priority schedule. SPEN shall not be used for traffic involving a single agency or for traffic between agencies sharing the same operational frequency.

- Message Priority:
1. Emergency
 2. Flash Message
 3. Itinerant

- Procedure:
1. Monitor traffic for message priority.
 2. Transmit message when there are no higher priority messages being relayed.

- Definitions:
1. **Emergency** - A spontaneous situation, occurrence or event which has a direct and immediate effect on the health, safety or general welfare of the public.
 2. **Flash Message** - Information broadcast across the SPEN System alerting law enforcement personnel to an emergency situation, noting that their assistance may be required.
 3. **Itinerant** - Message broadcast on SPEN involving mobiles from different jurisdictions or states who are out of reach of their normal communications systems and are in need of information or assistance.

CONTINUED

1 OF 2

Message Format

Policy: SPEN shall make use of message formats so as to provide uniformity and increased communications capabilities throughout the system.

- Procedure:
1. Use standard phrase words. **Do not use codes or signals.**
 2. Identify self by agency name and car number.
 3. Provide information updates as soon as practical.
 4. During chase, only the lead car will transmit, giving location and pertinent details.
 5. Message format - Examples:
 - a. (Agency name, car number) in pursuit. Proceeding west on Smith Highway, milepost 21. Blue Chevrolet, 1974. Request assistance.
 - b. (Agency name, car number) motor vehicle stop. Smith Highway, milepost 23. Request assistance.

VI. STATEWIDE CONTROL CENTER

Channel Monitoring/Utilization

Policy: The Statewide Control Center shall act as network control and monitor the operations and activities of the SPEN System.

- Procedure:
1. Monitor SPEN 1 for Emergency traffic. Provide coverage for New Jersey mobiles who are not in the coverage area of an agency base station.
 2. Provide continuous monitoring of SPEN 2 to assist out-of-state vehicles operating within New Jersey.

System Monitoring

Policy: The Statewide Control Center will provide system monitoring of SPEN.

- Procedure:
1. Monitor activities of SPEN 1 and SPEN 2.
 2. Direct agency base stations to switch from SPEN 1 to SPEN 2 when a situation warrants to assist out-of-state vehicles in New Jersey.
 3. Conduct enforcement monitoring.
 4. Report noncompliance of operating policies and procedures to the SPEN Executive Board.

APPENDIX L IMPLEMENTATION SCHEDULE

NEW JERSEY SPEN IMPLEMENTATION SCHEDULE

The N.J. SPEN System, when fully operational, should allow intercommunication between all law enforcement officers of the State. This schedule is designed to permit the maximum utilization of the system during the implementation process. The schedule is constructed so that the equipment could be distributed to permit utilization by the greatest number of officers. Additionally, initial activities address the necessity for primary statewide coverage of the Nationwide Police Emergency Channel. (155.475 MHz)

This schedule has been developed from information presently available to the Task Force. If, at a later date, the information and status of New Jersey's communications systems change, so too may this schedule.

Promulgation of this schedule should not affect or limit the ability of individual agencies to participate in the system through local funding. Participation in the system, however, must be under the authority of the Executive Board.

The implementation of SPEN should begin with Phase A, followed by Phase B and then Phase C.

Phase A. Base Station Implementation

The first phase allows immediate intercommunication between the various agency dispatch points. A two-frequency base radio unit is proposed at each dispatch center in accordance with a specified priority.

In order to immediately obtain effective statewide coverage of the Nationwide Police Emergency Channel, it is recommended that Steps 1, 2, and 3 in Phase A be implemented together. These three steps, when implemented, would provide a minimum standard for the operation of SPEN. The remaining steps would create a more comprehensive system and be built around the ground-work laid by Steps 1, 2 and 3.

Phase A implementation would be as follows:

- Step 1. Major Agency Coverage Qty = 74
All county level agencies, large cities with 150 or more police personnel, and interstate agencies with law enforcement personnel.

The initial installation of radio equipment at these agencies provides a useful first step of the SPEN system. Intercommunication between counties and major cities would provide basis for utilization of the network. Many of these agencies currently do not have the ability to rapidly communicate outside of their normal area. Interstate agencies such as the New York and Pennsylvania Port Authorities, when equipped with SPEN radios, provide the ability to isolate the state on all but the northern border. A sufficient number of agencies could be operational under this step to provide a backbone network for law enforcement emergencies and disaster communications.

- Step 2. State Police Coverage Qty = 25
All State Police dispatch points.

The State Police maintain several dispatch centers throughout the State. Providing base radio equipment at these points will expand the initial statewide coverage of the SPEN network radio channels and establish communications between major agencies and the State Police.

Step 3. Field Support Qty = 5 base; 50 portables
Provide 50 personal portable units and 5 portable four-frequency base stations to be used throughout the state.

Portable equipment strategically located in N.J. would permit all law enforcement agencies immediate access to SPEN for emergencies before the system was fully implemented. Because of the large amount of equipment to be installed by SPEN, the implementation schedule would necessarily span a number of stages. Portable equipment would fill the gaps left in the system until full implementation was completed. The portable bases would vary slightly from the permanent two-frequency bases. Like the SPEN mobile units, they would be equipped with four frequencies. These portable units would be made available to agencies when the need arises to coordinate special activities on the additional frequencies. The personal portable units would be made available to those mobiles not yet equipped with SPEN radios operating in multi-jurisdictional activities. They would also be provided to mobiles leaving New Jersey so that they would be able to communicate with law enforcement officials in states operating on the Nationwide Police Emergency Channel.

Step 4. Regional Coverage Qty = 65
All regional (multiple agency) law enforcement dispatch centers.

There are a variety of regional police radio networks within New Jersey. Providing each of these networks with one SPEN base station would bring SPEN utilization to the local level. Those municipalities belonging to a regional network would now be afforded access to the system and be able to communicate to all those agencies presently participating in SPEN.

Step 5. Expanded Local Coverage Qty = 72
All municipalities that are not part of a county or regional network.

Once the regional networks are incorporated into SPEN, it becomes necessary to include municipal police departments that are not associated with any network. After these agencies have SPEN bases installed, all municipalities within New Jersey would have access to SPEN's systems of statewide communications.

Step 6. Complete Interagency Communication Qty = 287
All remaining law enforcement dispatch centers.

Step 6 would succeed in providing complete localization of dispatcher services in SPEN. Upon completion of this step every police dispatch point in New Jersey would have a SPEN base. This would provide immediate access to the system and eliminate the need for one dispatcher to relay to another dispatcher before it is broadcast his message to another dispatcher before it is broadcast on SPEN. This immediate relay would save much time in message transmission and increase the effectiveness of the total police community participating in the system.

TOTAL QTY = 523 permanent bases
Phase A 5 port 4-freq bases
50 personal portables

Phase B. Mobile Radio Installation

Phase B will permit mobile-to-mobile communications regardless of the agency affiliation of each mobile unit. Four-frequency mobile radios will be distributed in the following manner:

Step 1. Initial Mobile Communication Qty = Approx. 700
Install one SPEN mobile unit per law enforcement agency. All large police departments that operate in mobile zones, districts or tactical groups (such as the State Police) shall be provided with one mobile radio per zone, district or tactical group.

This step would provide participating police agencies with the ability to directly coordinate multi-agency mobile unit activities. The need would no longer exist for mobile units of different agencies to relay messages through their respective dispatchers in order to relay emergency messages. Each agency would now be able to use the SPEN mobile radio as a communication link with other police agencies when the operational need arises.

Step 2. Complete Mobile Communication Qty = Approx. 5000
et seq. Repeat Step 1 until all authorized vehicles are completely equipped.

The completion of this step would give all participating agencies full operational capacity of the SPEN system. It would not be until this step is completed that SPEN could claim to be a fully implemented and operational system.

TOTAL QTY = Approx. 5700
Phase B

Phase C. Statewide Control Center Implementation

Phase C will implement a statewide control point which will monitor the Nationwide Police Emergency Frequency and oversee the daily operations of SPEN. It's implementation is contingent upon obtaining approval of the agencies concerned.

Step 1. Tie the 3 existing (Garden State Parkway, N.J. Turnpike, Public Broadcasting Authority) microwave systems together.

- Join GSP and TPK at closest point (Woodbridge) using 2 GHz link.
- Join TPK and PBA at West Trenton using 2 GHz link.

Step 2. Add 14 channels to existing systems all terminating at a central point. (West Trenton, State Police Division Headquarters).

- Add 4 channels to TPK system.
- Add 6 channels to GSP system.
- Add 4 channels to PBA system.

Step 3. Add 3 new microwave links to existing systems. This step will require the installation of 7 new microwave towers, 7 equipment shelters, 8 path surveys, and 7 frequency search hops. (Quantities may vary).

- Add link from Bordentown to Lebanon.
- Add link from Waterford to Vineland.
- Add link from Sussex to Annandale to Warren.

Step 4. Add Master Control and remote alarm panel from service channels at at least 30 locations of the microwave systems.

PROPOSED STATEWIDE EQUIPMENT NEEDS

PHASE A
Steps 1-5

The SLEPA has appropriated \$400,000 in its 1979 Plan for SPEN implementation. It is anticipated that these five steps can be implemented with this proposed funding in 1980.

| | | |
|--------------------------|--|-----------------|
| 1. Major Agency Coverage | 74 units @ \$1500/unit | \$ 111,000 |
| 2. State Police Coverage | 25 units | 37,500 |
| 3. Field Support | 5 port 4-freq bases 50 personal portables | 7,500 50,000 |
| 4. Regional Coverage | 65 units | 97,500 |
| 5. Exp. Local Coverage | 72 units | 108,000 |

Steps 5-6 Some support may be available from SLEPA for steps 5 & 6, but consideration should be given to other funding sources, including local support in 1981.

| | | |
|----------------------|-----------|---------|
| 6. Complete Coverage | 287 units | 430,500 |
|----------------------|-----------|---------|

Total Phase A: \$842,000

PHASE B
Step 1

The SLEPA could consider this cost (\$700,000) in the development of its 1980 Plan. However, this funding would not be available until 1981 and it would depend on LEAA approval.

| | | |
|--------------------------|------------------------------------|-----------------------|
| 1. Initial Communication | Approx. 700 units @ \$1000/unit | Approx. \$ 700,000 |
|--------------------------|------------------------------------|-----------------------|

Step 2

The 5,000 units listed represent an estimate of the number of police units now in service. This total includes all police units. Priority consideration would be given to patrol units, which would substantially reduce this estimated cost (\$500,000). In addition, local support could be obtained in subsequent years for this effort.

| | | |
|---------------------------|------------------------|----------------------|
| 2. Complete Communication | Approx. 5,000 units | Approx. 5,000,000 |
|---------------------------|------------------------|----------------------|

Total Phase B: \$5,700,000

The above figures represent an 8 step process that can be implemented in various segments as outlined above.

The cost figures presented in this schedule are derived from the current market price of radio equipment. They were supplied to the Task Force by members of the Technical Subcommittee.

PHASE C: Statewide Control Center

This Phase of the system has been assigned a secondary priority and will be completed based on the funding available after Phase A and Phase B are completed and upon approval of microwave system availability.

| | | | |
|---------|------------------------|-----------|-----------|
| Step 1. | Hardware | \$ 40,000 | |
| | Installation | 5,000 | |
| | Optimization of System | 2,000 | |
| | Contingency Costs | 3,000 | |
| | Total: | | \$ 50,000 |

| | | | |
|---------|------------------------|-----------|-----------|
| Step 2. | Hardware | \$ 30,000 | |
| | Installation | 4,000 | |
| | Optimization of System | 3,000 | |
| | Contingency Costs | 3,000 | |
| | Total: | | \$ 40,000 |

| | | | |
|---------|-----------------------------------|-----------|-----------|
| Step 3. | Microwave Towers @ \$15,000 each | \$105,000 | |
| | Equipment Shelters @ \$7,000 each | 49,000 | |
| | Path Surveys @ \$1,000 each | 8,000 | |
| | Frequency Search @ \$500 each | 3,500 | |
| | Contingency Costs | 10,500 | |
| | Total: | | \$176,000 |

| | | | |
|-----------------|--------|--|-----------|
| a. Channel Link | | | |
| Radios | 13,000 | | |
| Channel | 12,000 | | |
| Antenna System | 2,000 | | |
| Order Wires | 1,500 | | |
| Installation | 2,500 | | |
| Contingency | 2,000 | | |
| | Total: | | \$ 33,000 |

| | | | |
|-----------------|--------|--|-----------|
| b. Channel Link | | | |
| Ditto Above | 33,000 | | |
| | Total: | | \$ 33,000 |

| | | | |
|---------------------|--------|--|-----------|
| c. Two Channel Link | | | |
| Ditto Above twice | 66,000 | | |
| | Total: | | \$ 66,000 |

| | | | |
|---------|--------------|-----------|-----------|
| Step 4. | Hardware | \$ 45,000 | |
| | Installation | 2,000 | |
| | Contingency | 3,000 | |
| | Total: | | \$ 50,000 |

Total Phase C: \$448,000

| | |
|---|-----------|
| Annual Maintenance and Repair cost per year (This covers only the cost to keep the system operating and does not include dispatching) | \$ 60,000 |
|---|-----------|

END