

NATIONAL PUBLIC SAFETY PLANNING ADVISORY COMMITTEE

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NPSAC REGION 39
TENNESSEE

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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January 14, 1993

DOCKET FILE COPY ORIGINAL PR 93-58

Ms. Donna Searcy, Secretary
Federal Communications Commission
Washington, DC 20554

Dear Ms. Searcy:

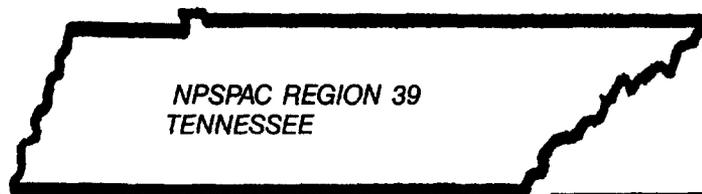
As chairperson of the Region 39 National Public Safety Planning Advisory Committee (NPSAC), I present for your consideration our committee's Frequency Utilization Plan for the State of Tennessee formulated in accordance with FCC Dockets 87-112 and 87-359.

On March 14, 1988, the Region 39 convenor issued a Public Notice that an initial Region 39 planning meeting would be held on May 17 and May 18, 1988 at the Days Inn Executive Center in Nashville, Tennessee. In addition to this notice, letters of invitation were sent to all Tennessee APCO Chapter members, state agency radio users, local government county executives, city mayors and other interested parties who had requested notification. (See Appendix A)

This initial meeting officially established the Region 39 Planning Committee with Joe Gourley elected as chairperson by the quorum. A second meeting with notifications like the first was held on February 6, 1990 at Jack Spence Motel/Hotel, Nashville. At this meeting Joe Gourley resigned and I, David Wolfe, was elected chairperson by the quorum present. Participants at all meetings were representatives from Public Safety Radio Services, Special Emergency Radio Services, federal agencies, and the vendor community. Please note that the federal agency and vendor representatives participated in the committee and sub-committees but did not vote. As chairperson of Region 39, I compiled all the inputs from the Regional Planning Committee members and developed the final draft.

Sincerely,

NATIONAL PUBLIC SAFETY PLANNING ADVISORY COMMITTEE



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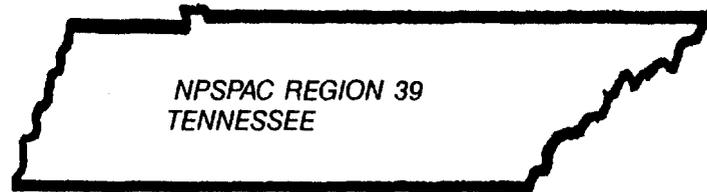
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ITEMS TO CHECK PERTAINING TO THE PLAN REGION 39

- 1) Cover page - identifying the region. Yes.
- 2) Chairperson - name, address, phone number and signature. See page 38.
- 3) Committee members - name, organizational affiliation, address, phone numbers. See page 38.
- 4) Summary of major elements of the plan. Table of Contents.
- 5) General description of how spectrum is allotted among users. See page 5 and Exhibit A.
- 6) Explanation of how the requirements of all eligibles are considered and met. See page 1.
- 7) Explanation of how eligibles are prioritized in areas where not all eligibles may receive licenses. See page 37.
- 8) Explanation of how the plan has been coordinated with adjacent regions. See page 10.
- 9) Description of how the plan puts spectrum to best possible use by:
 - a. requiring system design with minimum coverage areas. See page 8.
 - b. assignment frequencies so that maximum frequency reuse and offset channel use may be made. See page 8.
 - c. making use of trunking. See page 6, 14.
 - d. requiring small entities with minimal requirements to join together on a single system where possible. See page 7, 14.
- 10) Explanation of how interoperability channels are managed. See page 12, 13.
- 11) "Slow Growth" language. See page 16.
- 12) Does the plan refer to Give-Back frequencies? Yes, see page 9.
- 13) Use of the APCO sorting program. See page 10.
- 14) The Appeal Process. See page 37.
- 15) Does the plan provide for regional mutual aid channels, in addition to the five (5) common channels. No.
- 16) Describe the formation of the committee:
 - a. Advertising - attached copies of legal notice, letters to the industry, etc. See Appendix A, B.
 - b. Who could vote and what procedure was used after first meeting? See page 2, 3.
 - c. How was the final plan adopted. Mail Ballot, See page 2.

NATIONAL PUBLIC SAFETY PLANNING ADVISORY COMMITTEE



**PUBLIC SAFETY RADIO
COMMUNICATIONS PLAN**

FOR

REGION 39

THE STATE OF TENNESSEE

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1.0 SCOPE

1.1 Introduction

In December of 1983, the United States Congress directed the Federal Communications Commission (FCC) to establish a plan to ensure that the communications needs of state and local public safety authorities would be met. By their regular means of initiation, the FCC began the process of developing such a

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2.0 AUTHORITY

2.1 Regional Planning Committee

The development of the Public-Safety Radio Communications Plan for Region 39, the State of Tennessee, has followed the requirements of the FCC's Report and Order as issued concerning General Docket 87-112.

In accordance with the FCC's Report and Order 87-112, the Associated Public-Safety Communications Officers Inc. (APCO) recommended to the Commission the appointment of a "Convenor" for Tennessee Region 39. The Convenor served as the coordinator for the assembly and formation of the planning committee.

Participants in the formation of the Regional Planning Committee represent interested parties from both the Public Safety and Special Emergency Radio Services. A total of seventy two individuals have participated in the development process. The list herein contains the names, organizational affiliations, mailing addresses and phone numbers of all members of the Regional Planning Committee.

The committee was selected by attendance at the planning meetings. Each member of the Committee representing an eligible licensee under the Public Safety Radio Services and the Special Emergency Radio Services was entitled to one vote in all Committee matters. Except as may be provided elsewhere in the Plan, the majority of those present at a scheduled meeting formed a majority for all business. Only the final approval of the plan before submission to the FCC required a vote from more than would be present at a regular meeting. In this case the vote was conducted by mail ballot sent to all those who had participated in the planning process. This way, the finished plan was reviewed and accepted by the widest, within reason, group of public safety/public service users.

2.2 Planning Committee Formation

The process of forming the Planning Committee was conducted in the following steps:

1. Personal interviews were held with the representatives of all major state agency radio users.
2. Presentations concerning the requirements for a regional planning committee were presented and discussed at state organization meetings. At each presentation there was an opportunity for persons to place themselves and/or their agency on the mailing list.
3. A public notice was mailed to each major state agency radio user, those placed on the mailing list, also to state organizations composed of local government level public safety/public service users. Letters were also sent to all members of the Tennessee Chapter of APCO. (See Appendix A).
4. The public notice was sent to all terminals of the Tennessee Information Enforcement System (TIES) for the first planning committee meeting. This first meeting was held at the Days Inn Executive Center, 823 Murfreesboro Road, Nashville, a public facility.

5. The initial chairperson, Joe Gourley, was elected at the first meeting on May 17, 1988. The current chairperson, David Wolfe, was elected at the second meeting at the Jack Spence Motor Hotel, same address, on February 6, 1990.
6. Committee membership was left open to any person or agency that may not have been notified or decided to join the committee later.
7. Vendors participation was encouraged, but vendors were not allowed a vote.

2.3 National Interrelationships

The Regional Plan is in conformity with the National Plan. If there is a conflict between the two plans, the National Plan will govern. It is expected that Regional Plans for other areas of the country may differ from this plan due to the broad difference in circumstance, geography, and population density. By officially sanctioning this plan the Federal Communications Commission agrees to its conformity to the National Plan. Nothing in the Plan is to interfere with the proper functions and duties of the organizations appointed by the FCC for frequency coordination in the Private Land Mobile Radio Services, but it provides procedures that are the consensus of the Public Safety Radio Services and Special Emergency Radio Service user agencies in this Region. If there is a perceived conflict then the judgment of the FCC will prevail.

2.4 Federal Interoperability

Interoperability between the Federal, State and Local Governments during both daily and disaster operations will primarily take place on the five common channels identified in the National Plan. Additionally, with S-160 or equivalent agreements, a licensee may allow Federal use of a non-Federal communications system. Such use, on other than the five identified common channels, is to be in full compliance with FCC requirements for government use of non-government frequencies (Title 47 CFR, sec 2.103). It is permissible for a non-Federal government licensee to increase channel requirements to account for 2-10 percent increase in mobile units, dependent on the amount of Federal Government Agencies involvement in its area, if written documentation from Federal agencies supports at least that number of increased units.

2.5 Regional Review Committee

Upon approval of this Plan by the Federal Communications Commission, a Region Review Committee will be established for the review of applications that do not fall within the stated guidelines provided for in this plan, or for the settlement of disputes concerning this plan and/or its application.

This committee shall be representative of all eligibles within the region. It shall consist of the Local APCO Frequency Advisor for Tennessee, a state agency representative, one representative each from the Police, Fire, EMS, Transportation, Conservation, and Emergency Management services. A minimum representation from other eligibles is also welcome. This committee and its composition will be assured by the Tennessee APCO chapter and other Public Safety organizations. Membership on this committee will be solicited annually. Since this committee

probably will not have regular business, it will be up to the Local APCO Frequency Advisor to notify the committee of problems, conflicts, or when it becomes apparent that spectrum demands will outpace available spectrum. Each member of the committee shall be furnished a copy of this plan upon their appointment or election to the committee.

Working within the scope of this plan, this committee will set policies and procedures to implement and maintain the regional plan. Plan updates shall be accomplished by this committee. All changes or updates to the plan shall be first agreed upon by this committee and then submitted to the FCC for their review and consideration. When approved all changes shall be added to the plan with the appropriate documentation of approval.

This committee shall meet at least once annually to review the implementation of the plan. This review shall consist of examination of all license activity.

3.0 SPECTRUM UTILIZATION

This portion of the Plan provides a basis for proper spectrum utilization. Its purpose is to guide the Local APCO Frequency Advisor and/or the Regional Review Committee in their task of evaluating the implementation of this plan within this Region.

3.1 Region Defined

Region 39 is the State of Tennessee. This region is the result of definition by the Federal Communications Commission because of recommendations made in the National Public Safety Planning Advisory Committee (NPSPAC) plan as submitted and approved and contained in Docket 87-112. For purposes of this plan the State of Tennessee shall be defined as all the lands and waters contained within the boundaries of the State of Tennessee.

3.2 Region Profile (Demographic Information)

The purpose of this section is to provide the basis for the assignment of frequencies, and their reuse. Since the frequency allocation formula used is based on population within a county, it is necessary to provide this information within this plan. Below is the data used in the determination of frequency allocations.

3.2.1 State Of Tennessee Population And Expected Growth Percentage. (See Exhibit A)

The total population of the state is 4,877,185 with about sixty percent urban and forty percent rural residence. The population within developed urban areas is about sixty percent or 2,900,000.

3.2.2 Geographical Description

Geographically, Tennessee is divided into six major natural regions. These areas, east to west, are:

- 1) The Appalachian Mountain region along the North Carolina boarder with Mountain peaks of 3000 to 6000 feet,
- 2) The Great Valley with several long, narrow, even crested ridges running southwest to northeast and elevations of 1200 to 2500 feet,
- 3) The Cumberland Plateau again running from the southwest to the northeast it varies in width from 50 to 70 miles. It covers a total of about 4,260 square miles on a surface that is flat to rolling tableland that rises 800 to 1000 feet above the land on either side.
- 4) The Highland Rim with about 12,650 square miles outlines most of what is known as "Middle Tennessee." In the center of the Highland Rim is the Central Basin. Although the Highland Rim has a peak of over 2000 feet it has an

average altitude of slightly less than 1000 feet. The terrain is "rough plateau" with the roughest parts along the edges of the Central Basin.

- 5) Central Basin is an oval depression that has a gently rolling surface with many small rounded hills that rise 200 to 300 feet above the general level. Terrain varies from about 500 to 1100 feet above sea level.
- 6) The Gulf Coastal Plain of West Tennessee covers all of what is known as West Tennessee with the area from Kentucky Lake and the Tennessee River to the Mississippi River. Generally it is a broad plain whose surface slopes to the west until it ends abruptly at the bluffs overlooking the flood plain of the Mississippi River. Along the eastern edge streams have cut valleys that form a rough topography.

There are ninety five counties in the state with a total land mass of 42,144 square miles. The largest county is Shelby, with a total of 786 square miles. Water areas of significance, are the Mississippi, Tennessee and Cumberland Rivers, Reelfoot Lake (natural), Norris, Watts Bar, Chickamauga, Kentucky and Barkley Lakes (manmade). Tennessee has 477 square miles of water within its' boundaries.

As shown above, the nearly five million population is distributed across forty two thousand square miles of widely varying terrain. This presents some problems in area coverage for radio systems since the entire land area of any given jurisdiction must be covered. The population per square miles in urban areas tends to be dense and in rural areas tends to be sparse. The population distribution and the very diverse geographical features of the state must be carefully considered in communications system planning. All these items were taken under consideration in the allocation plan.

3.3 Usage Guidelines

All systems operating within the Region having five or more channels will be required to be trunked. Those systems having four or less channels may be conventional or trunked.

The FCC, in its Report and Order states, "Exceptions will be permitted only when a substantial showing is made that alternative technology would be at least as efficient as trunking or that trunking would not meet operational requirements. Exceptions will not be granted routinely, however, and strong evidence showing why trunking is unacceptable must be presented in support of any request for exception."

Systems of four or less channels operating in the conventional mode who do not meet FCC loading standards will be required to share the frequency on a non-exclusive basis.

Public Safety communications at the state level, as it affects the Region, will be reviewed by the Committee. State-wide public safety agencies will submit their communications plans for impact approval if they use communications systems within the Region and those portions of systems must be compatible with the Regional Plan. Blocks of ten frequencies have been identified in each of eight state districts for state-wide use.

The next level of communication coverage will be a county/multiple municipality area. Those systems that are designed to provide area communication coverage must prove their need to require such wide area coverage.

This would apply in a situation such as a city requesting coverage of an entire county. Communication coverage beyond the bounds of a jurisdictional area of concern cannot be tolerated unless it is critical to the protection of life and property. If the 800 MHz trunked radio technology is used, the system design must include as many county/multiple municipality government public safety and public service radio users as can be managed technically.

The county/multiple municipality agency(ies), depending upon systems loading and the need for multiple systems within an area, must provide intercommunications between area-wide systems. In a multi-agency environment, a lead agency using the 800 MHz spectrum, which is an agency or organization having primary response obligations in the geographic area, shall be responsible for coordinating the implementation the Common Channels in this band as mandated by the National Plan. Such implementation must be reviewed and approved by the Local APCO Frequency Advisor, and at his/her discretion, the Regional Review Committee.

Municipal terminology often differs. To provide a title for the next level of communications the term city is used to define the level below county-wide. City communications for public safety and public services purposes must provide only the communications needed within its boundaries. However, if the total number of radios in service does not reach minimum loading criteria for a trunked system, that city must consider using the next higher system level if 800 MHz trunked radio is available in the area. As those higher level systems reach capacity, the smaller system communicators in public safety and public service must then consider uniting their communications efforts to formulate one large system or forfeit use of the limited 800 MHz spectrum.

Where smaller conventional 800 MHz needs are requested, those frequencies to be used must not interfere with the region's trunked systems. The 800 MHz trunked radio system is to be considered the higher technology at this time and in greater compliance with FCC guidelines. The amount of interference that can be tolerated depends on the service affected. Personal life and property protection shall receive the highest priority and disruptive interference with communications involved in these services in an area shall not be tolerated. Any co-channel interference within an authorized area of coverage will be examined on a case by case basis by the Regional Review Committee.

3.4 TECHNICAL DESIGN REQUIREMENTS FOR LICENSING

3.4.1 Definition of Coverage Area or Area of Jurisdiction

The coverage area shall be that area for which a system is intended to cover with a received signal strength of greater than 40 dBu. This area shall normally represent the boundaries of the County or the incorporated municipality that is applying for license. In regional or area-wide, multi-jurisdictional systems, the coverage shall be that area of all jurisdictions participating in the system combined.

3.4.2 System Coverage Limitations

System coverage shall be limited to the coverage area defined as listed above plus no more than five (5) additional miles in all directions extending from the boundaries of definition. This limitation shall assure maximum frequency reuse. The only

- 4) Open is an area where there are no obstacles such as tall trees or buildings in the propagation path or a plot of land that is cleared of anything for 300 to 400 meters ahead. This would include farm land, open fields, etc.

3.4.4 Annexations And Other Expansions

It is well known that as cities grow, annexations occur. When an expansion of the present city limits of any city currently using an 800 megahertz system within the spectrum as herein specified occurs, it is understood that the existing system may have to be expanded and its range increased. This is a modification and may be permitted. The increased range of the system must be determined at the time of modification to assure non-interference with any other existing system. Where interference is likely, the use of alternative methods of expansion, such as satellite systems, may be necessary. Where more spectrum is not available from the initial allocation, the rules for expansion of initial allocation, as contained in this plan, shall apply.

3.4.5 Coverage Area Description

All applicants shall provide with their applications a map showing the jurisdictional boundaries to be covered by the system, and the calculated system coverage. This map shall display the location of the system transmitter(s), including control stations. It is recommended that a U.S. Geological Survey (USGS) Quad topographical map be used for this purpose. If not available, a high quality locally produced map or a highway map may be substituted. Whatever the type map used, the name of the applicant and the scale of the map shall be displayed on the map.

3.4.6 Reassignment of Frequencies

All agencies participating in the use of the new 800 megahertz spectrum shall prepare and submit a plan for the abandonment of their currently licensed frequencies in the lower bands. These released frequencies shall be available for reassignment to those agencies not migrating to 800 MHz at this time.

These released frequencies shall be returned to the radio service from which it was assigned. These frequencies shall then be available for reassignment by the assignment / coordination criteria in effect for that particular service by the regular FCC authorized coordinator for that service.

Frequencies which are to be abandoned by an agency shall not be handed down to another agency within the respective jurisdiction. Though this may seem a convenient method to reuse existing radio equipment, the reassignment must be handled through the normal process. It is recommended that any jurisdiction wishing to "hand down" frequencies to another agency submit the proper coordination and application forms with the document of release. This will put the applicant in a better posture for reassignment of the frequency in question. It should be noted that though this procedure is followed, there is no guarantee that a particular frequency will be assigned to the returning jurisdiction.

The period allowed for phasing into 800 MHz and out of the lower currently licensed bands will be considered on a case by case basis by the review committee. Generally, one year will be considered acceptable usually, with two years as a maximum. Any agency requiring more than two years shall provide documents stating the reasons for the delay, and give the estimated time of completion.

3.4.7 Unused Spectrum

The frequency sort indicated there were no excess channels.

3.4.8 Adjacent Region Considerations

Coordination with adjacent regions shall be an on-going process until all region plans have been completed. At present, all adjacent regions have been coordinated with and no conflicts have been identified. The adjacent regions with which coordination has been conducted are: Mississippi (Region 23); Alabama (Region 1); Arkansas (Region 4); Georgia (Region 10); Illinois (Region 13); West Virginia (Region 44); Kentucky (Region 17); Missouri (Region 24); North Carolina (Region 31); South Carolina (Region 37); and Virginia (Region 42). (See Appendix C)

As the use of the five National channels is not considered a day-to-day function, the "hard" coordination for these channels is not considered necessary or advisable. The

spectrum efficiency and interference protection. The following narrative describes the factors and process used by the computer program.

3.5.2 Blocked Channels

In the Region there are five mutual aid channels that must be blocked out to prevent the computer from making assignments on these channels. (Since the mutual aid channels are spaced at 0.5 MHz intervals, other Region-wide systems are spaced at 0.5 MHz and placed adjacent to the mutual aid channels. This procedure reduces the impact of blocked adjacent channels by virtue of the fact that the channel plan already has protection spacing on each side of the mutual aid channels.)

These Region-wide blocked channels are identified by FCC channel number, tabulated and they become input to the computer program.

3.5.3 Transmitter Combining

The computer program is designed to provide a minimum frequency separation between any two channels assigned to the same eligible at the same site. This separation is provided to enable more efficient combining of multiple transmitters to a single antenna. These separated blocks of frequencies also have a maximum size. That is, if the eligible has more frequencies than the maximum size of the combining block, then a second compatible block is created, and so on. Each of these parameters is adjustable in the program on a global basis. The default parameters chosen are 0.25 MHz minimum spacing and five channel blocks.

3.5.4 Special Considerations

There are licensees in the 806-821/852-866 MHz spectrum who plan to expand existing systems into the 821-824/866-869 MHz bands. Some existing radio units are unable to operate on 12.5 KHz separated carrier frequencies. The result is that these radios can only operate on "even" FCC numbered channels in the 821-824/866-869 MHz band. The computer program is able to take this into account when making assignments.

3.5.5 Protection Ratios

There are two interference protection ratios built into the computer program. One is for the co-channel case, the other is for the adjacent channel case. The ratios provide 35 dB Desired/Undesired signal ratio for co-channel assignments, and 15 dB Desired/Undesired ratio for the adjacent channel case. These ratios provide an acceptable probability of interference for Public Safety Services.

4.0 COMMUNICATIONS REQUIREMENTS

4.1 Common Channel Implementation

The implementation of the International Common Channels must follow the guidelines as set forth by the Federal Communications Commission by the approval of the National Plan. These five common channels are accessible by all levels of government and shall be used according to the provisions of the National Plan. All mobile and portable equipment must be equipped to operate in the "talkaround mode" when required on the International Channels.

The International calling channel (821/866.0125 MHz) shall be implemented as a full mobile relay. Wide area coverage transmitters will be installed where applicable within a system. Large system users (5 channels or more) of 800 MHz shall be required to monitor this channel at all times. The area of coverage for this channel shall be equal to the area covered by the licensed system. This may or may not require the use of satellite receivers/cell extenders within the area to meet this requirement.

The four International Tactical (ITAC) Channels will be assigned State-wide, for use as needed by all eligible licensees. These channels are to be used according to the National Plan and in compliance with the regulations as set forth by the Federal Communications Commission. Operation on these channels require no special licensing for mobiles and portables, only that the users be eligible for licensing on the other Public Safety 800 MHz channels as specified in section 90.616 (a) of the FCC Rules and Regulations.

4.1.1 Areas of Operation

The common channels shall be available for use throughout the Region. Base and control transmitters must be individually licensed and operated only from locations approved by the Regional Review Committee.

4.1.2 Operation on The Common Channels

Normally, the five interoperable channels are to be used only for activities requiring inter-communications between agencies not sharing any other compatible communications system. Interoperable channels are not to be used by any level agency for routine, daily operations. In major emergency situations, one or more ITAC channels may be assigned by the primary Public Safety Agency within that area of operation. The primary Public Safety agency in each county, if not defined elsewhere in the plan, shall be the County Sheriff's Department or Public Safety Department or the lead agency, which may be any agency licensed to operate in this spectrum, or "on-scene" commander. The primary Public Safety agency shall be the city level Public Safety Department in situations that occur within the corporate limits of that city. These primary agencies will assign one or more of the ITAC channels for use according to need during each special situation requiring the use of these channels.

Participants in the interoperable channels include those agencies of Federal, State, and Local government providing life saving emergency communications services. Police, Fire, EMS (providers of Basic and Advanced Life support services) and

Emergency Management will be the primary using agencies. If radio channels are available, other services provided in the Public Safety Radio Services and the Special Emergency Radio Services also may participate to the extent required to insure the safety of the public. These agencies include the Transportation Department, Public Service Commission, Forestry, Wildlife and other special service agencies not normally involved in day-to-day public safety operations.

4.1.3 Operation Procedures

On all Common Channels, plain English will be used always, and the use of unfamiliar terms, phrases, or codes will not be allowed.

4.1.3(I) International Calling Channel (ICALL):

The ICALL channel shall be used to establish contact with other users in a particular Region that can render assistance at an incident. This channel shall not be used as an ongoing working channel. Once contact has been established between agencies, an agreed upon ITAC or mutual aid channel shall be used for continued communications.

4.1.3(II) International Tactical Channels (ITAC-1 - ITAC-4):

These frequencies are reserved for use by those agencies involved in inter-agency communications. Incidents requiring multi-agency participation will use these frequencies as directed by the control agency assuming responsibility for an incident or area of concern. These frequencies may be subdivided according to function in an incident or by geographical location in response to an incident. It is recommended that the following assignments for ITAC-1 through ITAC-4 be used when possible.

| | |
|--------|----------------------------|
| ITAC-1 | Law Enforcement |
| ITAC-2 | Fire Services |
| ITAC-3 | Emergency Medical Services |
| ITAC-4 | Command and Control |

4.1.4 Coded Squelch

All equipment capable of operating on the five (5) common channels shall be equipped with the National Common Tone Squelch of 156.7 Hz. Mobile relays on these channels, if authorized, may use additional tone or digital squelch codes for selecting individual mobile relay stations, provided the National Common Tone Squelch Code is used on the output. If such an arrangement is used, provision also must be made for certain centralized, high level sites to be activated by the 156.7 tone to ensure emergency access by transient units.

4.2 Network Operating Methods

Communications systems on ITAC-1 through ITAC-4 will be implemented by agencies who volunteer on a distributed coordinated basis. Every primary geographic section of the Region is intended to be covered by at least one ITAC channel. In many areas

the common channels will be used on a mobile to mobile talk-around basis. Mobile relays on ITAC-1 through ITAC-4 will be on a limited coverage design to allow reuse of the channel several times within the Region and in adjacent regions. Since Region 39 probably will not have many stationary ITAC Channel stations, the implementation of mobile relays or repeaters is strongly encouraged. This will fill an "on-scene" requirement for most multi-agency response situations. Adjacent region coordination will be via existing mutual aid coordination procedures with the requesting region establishing the tactical frequency assignment.

4.3 Requirements For Trunking

All systems operating in the Region having five or more channels will be required to be trunked. Those systems having four or less channels may be conventional. It is strongly suggested that any entity licensing three or more repeaters use trunking.

The FCC in its Report and Order states: "Exceptions will be permitted only when a substantial showing is made that alternative technology would be at least as efficient as trunking or that trunking would not meet operational requirements. Exceptions will not be granted routinely. Strong showing that trunking is unacceptable must be presented in support of any request for exception."

4.4 Channel Loading Requirements

An agency/jurisdiction requesting a single frequency to replace a frequency currently in use that will be turned back for reassignment will not be required to meet loading requirements to obtain the new frequency. However, if the single frequency is not loaded to more than fifty units within three years after the license is granted, the frequency will be available for assignment to other agencies on a shared basis in the event that other frequencies meeting the criteria for assignment are exhausted. Shared use of a frequency is not interference free. Users of single frequency systems may be required to provide the Regional Review Committee "confirmation of loading" for mobiles and portables for validating system loading. This exception shall apply to agencies having only one system and a single frequency. Agencies/jurisdictions requesting multiple frequencies or employing trunking technology shall comply with the loading standards as outlined below or provide a "Traffic Loading Study" that meets the criteria as outlined below.

4.4.1 Loading Tables

| EMERGENCY | | NON-EMERGENCY | |
|-----------|---------------|---------------|---------------|
| CHANNELS | UNITS/CHANNEL | CHANNELS | UNITS/CHANNEL |
| 1 - 5 | 70 | 1 - 5 | 80 |
| 6 - 10 | 75 | 6 - 10 | 90 |
| 11 - 15 | 80 | 11 - 15 | 105 |
| 16 - 20 | 85 | 16 - 20 | 120 |

Agencies requesting additional frequencies must show loading of 100 percent or greater on their existing system. Should a demand for frequencies exist after assignable frequencies become exhausted, any system having frequencies assigned under this plan four or more years previously and not loaded to at least seventy percent will lose operating authority on several frequencies to bring the system into compliance with the 70 percent loading standard. Frequencies lost in this manner will be reallocated to other agencies to help satisfy the demand for additional frequencies.

4.4.2 Traffic Loading Study

Justification for adding frequencies, or retaining existing frequencies, can be provided by a traffic loading study instead of loading by number of transmitters per channel. It will be the responsibility of the requesting agency to provide a verifiable study showing sufficient airtime usage to merit additional frequencies. A showing of airtime usage, excluding telephone interconnect air time, during the peak busy hour greater than 70 percent per channel on three consecutive days will be required to satisfy loading criteria.

4.4.3 Slow Growth

All systems in the 821 - 824 / 866 - 869 Mhz band under this plan will be slow growth in accordance with section 90.629 of the commission's rules.

4.5 Use of Long Range Communications

During incidents of major proportions, where Public Safety requirements might include the need for long-range communications in and out of a disaster area, alternate radio communications plans are to be addressed by Primary Public Safety agencies within this sub-region. These agencies should integrate the appropriate interface to the long distance communications providers. Such long distance radio communications might be amateur radio operations, satellite communications and/or long range emergency preparedness communications systems, any of or all of which should be incorporated as part of the communications plans of those lead agencies. They then could provide the means to communicate outside the area for themselves and the smaller agencies who might need assistance. Instances as addressed in the National Public Safety Planning Advisory Committee's Plan, such as earthquakes, hurricanes, floods, widespread forest fires, or nuclear reactor problems could be a cause for such long-range communications needs.

4.6 Expansion of Existing Systems

Existing systems that are to be expanded to include the frequency bands of 821-824/866-869 MHz will have the mobile radios "grandfathered," if they are modified in conformance with the Memorandum Opinion and Order, FCC Docket 87-112. Primarily this involves reducing the modulation to +/- 4 KHz. Existing base stations in the frequency bands 806-821/851-866 MHz may not be used in the frequency bands 821-824/866-869 MHz.

5.0 IMPLEMENTATION AND PROCEDURES

5.1 Notification

Several methods of notification were used to invite interested parties to participate in the development of this plan. Initially, personal contact was made by the "convenor" to all of the major State agency communications users in the State of Tennessee. Announcements were made at various group meetings such as the Tennessee Chief's of Police Association, the Tennessee Fire Chiefs Association, the Emergency Management Association of Tennessee, the Tennessee Sheriff's Association and the Tennessee Association of Rescue Squads.

Several announcements were printed on the Tennessee Information Enforcement System (TIES). Letters of invitation were sent to all APCO Chapter members, and state agency radio users. Local government county executives, city mayors, and other interested parties who had requested notification were also sent letters of invitation. (See Appendix A)

During the initial meeting and second meeting, names, addresses and telephone numbers of those individuals present who wished to either participate in the planning process, or who wanted to be kept informed on the progress of the planning effort were taken. These individuals or agencies were sent all announcements for meetings and bulletins of progress.

When the work on the plan was completed, a final planning committee meeting was called. This meeting was held at the Brentwood Tennessee Holiday Inn on December 14, 1992. Each member of the planning committee was presented with a draft copy of the plan for study. A copy of the final draft was mailed to each member of the committee not present at the meeting. Each plan contained a ballot for voting on the acceptance of the plan.

A public notice was placed in the Tennessean Newspaper and the Nashville Record (See Appendix B) announcing the final meeting. A public notice was placed in the Tennessean Newspaper and the Nashville Record announcing the completion of the plan and the intention to file with the Federal Communications Commission.

These announcements were also run over the Tennessee Information Enforcement System (TIES) computer network. (See Appendix B)

5.2 Frequency Allocation Process

The method used for "packing" Region 39 was the APCO computerized method. The approximate geographical location for the center of each county, in latitude and longitude, was provided along with the approximate radius to cover the county lines. Along with this information, a list of frequencies to block along the adjacent region's border was included. The actual assignment of frequencies is for three (3) channel-pairs per county.

This allocation is the minimum and only applies to counties with a population of 25,000 or less. One additional channel is allocated for each additional 25,000 of population. The state of Tennessee has reserved ten channels in each of eight state

districts. There remains a reserve pool of seventy-one (71) channels for future assignment.

5.3 Frequency Allocation Table

Below is the data, or packing plan generated by APCO via the computerized packing program. The first section is county by county information provided, followed by the packing plan. The plan took adjacent regions into consideration, in addition, letters of concurrence were sent. (APPENDIX C)

NPSPAC, REGION 39 SITE SELECTION TABLE

All Environment Types - 2

| SYS NO | SYSTEM NAME | SITE | SITE COORDINATES | | NO. OF CHANS | RANGE (MI.) |
|--------|------------------|------|------------------|-----------|--------------|-------------|
| | | | LATITUDE | LONGITUDE | | |
| 1 | ANDERSON COUNTY | A | 36-09-08 | 84-17-13 | 3 | 7.0 |
| | | B | 36-10-02 | 84-04-56 | | |
| | | C | 36-01-18 | 84-12-55 | | |
| 2 | BEDFORD COUNTY | A | 35-26-55 | 86-33-06 | 3 | 7.5 |
| | | B | 35-36-06 | 86-32-24 | | |
| | | C | 35-33-53 | 86-20-00 | | |
| | | D | 35-26-05 | 86-23-01 | | |
| 3 | BENTON COUNTY | A | 36-16-56 | 88-01-30 | 3 | 6.5 |
| | | B | 36-08-53 | 88-02-42 | | |
| | | C | 36-03-45 | 88-06-24 | | |
| | | D | 35-55-52 | 88-08-02 | | |
| | | E | 35-53-30 | 88-01-28 | | |
| 4 | BLEDSOE COUNTY | A | 35-38-32 | 85-11-28 | 3 | 7.5 |
| | | B | 35-42-13 | 85-03-58 | | |
| | | C | 35-33-36 | 85-18-15 | | |
| | | D | 35-28-28 | 85-13-34 | | |
| 5 | BLOUNT COUNTY | A | 35-35-52 | 83-59-44 | 4 | 9.5 |
| | | B | 35-45-56 | 84-00-42 | | |
| | | C | 35-41-36 | 83-48-03 | | |
| 6 | BRADLEY COUNTY | A | 35-13-18 | 84-50-21 | 3 | 9.0 |
| | | B | 35-05-09 | 84-52-27 | | |
| 7 | CAMPBELL COUNTY | A | 36-29-50 | 84-07-26 | 3 | 9.5 |
| | | B | 36-22-19 | 84-04-17 | | |
| | | C | 36-20-05 | 84-14-33 | | |
| 8 | CANNON COUNTY | A | 35-44-02 | 86-05-24 | 3 | 7.5 |
| | | B | 35-52-05 | 86-02-20 | | |
| 9 | CARROLL COUNTY | A | 36-02-48 | 88-32-18 | 3 | 8.0 |
| | | B | 36-03-19 | 88-18-36 | | |
| | | C | 35-53-27 | 88-19-58 | | |
| | | D | 35-53-23 | 88-35-06 | | |
| 10 | CARTER COUNTY | A | 36-23-54 | 82-02-43 | 3 | 8.0 |
| | | B | 36-13-01 | 82-05-23 | | |
| | | C | 36-19-11 | 82-14-18 | | |
| 11 | CHEATHAM COUNTY | A | 36-07-17 | 87-06-02 | 3 | 6.0 |
| | | B | 36-13-36 | 87-04-33 | | |
| | | C | 36-20-09 | 86-59-40 | | |
| | | D | 36-22-13 | 87-09-41 | | |
| 12 | CHESTER COUNTY | A | 35-17-53 | 88-45-14 | 3 | 5.5 |
| | | B | 35-23-31 | 88-44-32 | | |
| | | C | 35-25-46 | 88-36-50 | | |
| | | D | 35-31-19 | 88-34-37 | | |
| | | E | 35-25-51 | 88-26-10 | | |
| 13 | CLAIBORNE COUNTY | A | 36-30-18 | 83-28-49 | 3 | 8.0 |
| | | B | 36-31-40 | 83-50-52 | | |
| | | C | 36-28-13 | 83-38-16 | | |

| SYS NO | SYSTEM NAME | SITE | SITE COORDINATES | | NO. OF CHANS | RANGE (MI.) |
|--------|-------------------|------|------------------|-----------|--------------|-------------|
| | | | LATITUDE | LONGITUDE | | |
| 14 | CLAY COUNTY | A | 36-33-47 | 85-44-04 | 3 | 5.5 |
| | | B | 36-33-30 | 85-37-45 | | |
| | | C | 36-29-20 | 85-32-23 | | |
| | | D | 36-33-05 | 85-28-13 | | |
| | | E | 36-34-07 | 85-20-41 | | |
| 15 | COCKE COUNTY | A | 36-00-54 | 83-09-23 | 3 | 8.5 |
| | | B | 35-50-05 | 83-12-10 | | |
| | | C | 35-53-56 | 83-00-51 | | |
| 16 | COFFEE COUNTY | A | 35-32-13 | 85-59-25 | 3 | 7.0 |
| | | B | 35-23-40 | 85-58-49 | | |
| | | C | 35-25-23 | 86-10-02 | | |
| | | D | 35-35-49 | 86-09-15 | | |
| 17 | CROCKETT COUNTY | A | 35-45-39 | 89-00-54 | 3 | 6.0 |
| | | B | 35-47-17 | 89-07-39 | | |
| | | C | 35-54-05 | 89-11-23 | | |
| | | D | 35-49-12 | 89-16-23 | | |
| 18 | CUMBERLAND COUNTY | A | 36-02-23 | 84-57-20 | 3 | 10.0 |
| | | B | 36-00-37 | 85-07-04 | | |
| | | C | 35-54-41 | 84-50-55 | | |
| | | D | 35-51-14 | 85-06-01 | | |
| 19 | DAVIDSON COUNTY | A | 36-07-07 | 86-39-06 | 20 | 8.5 |
| | | B | 36-06-38 | 86-54-29 | | |
| | | C | 36-16-03 | 86-48-18 | | |
| 20 | DECATUR COUNTY | A | 35-28-00 | 88-07-14 | 3 | 7.0 |
| | | B | 35-36-10 | 88-07-01 | | |
| | | C | 35-45-17 | 88-05-41 | | |
| 21 | DEKALB COUNTY | A | 36-01-40 | 85-57-43 | 3 | 7.0 |
| | | B | 36-01-36 | 85-47-00 | | |
| | | C | 35-55-18 | 85-51-07 | | |
| | | D | 35-55-07 | 85-43-55 | | |
| 22 | DICKSON COUNTY | A | 36-13-37 | 87-26-17 | 3 | 8.0 |
| | | B | 36-13-07 | 87-15-48 | | |
| | | C | 36-03-16 | 87-17-12 | | |
| | | D | 36-04-37 | 87-27-20 | | |
| 23 | DYER COUNTY | A | 36-07-34 | 89-29-07 | 3 | 8.0 |
| | | B | 36-06-52 | 89-15-55 | | |
| | | C | 35-59-16 | 89-18-28 | | |
| | | D | 36-00-39 | 89-34-34 | | |
| 24 | FAYETTE COUNTY | A | 35-05-54 | 89-31-49 | 3 | 9.5 |
| | | B | 35-05-38 | 89-18-57 | | |
| | | C | 35-17-16 | 89-19-17 | | |
| | | D | 35-17-40 | 89-30-17 | | |
| 25 | FENTRESS COUNTY | A | 36-25-29 | 84-49-50 | 3 | 9.0 |
| | | B | 36-26-53 | 84-58-28 | | |
| | | C | 36-15-31 | 85-00-10 | | |
| 26 | FRANKLIN COUNTY | A | 35-05-10 | 85-59-03 | 3 | 8.0 |
| | | B | 35-15-06 | 86-09-41 | | |
| | | C | 35-13-03 | 86-00-45 | | |
| | | D | 35-05-01 | 86-12-39 | | |