

**Region 16 (Kansas)**  
**700 MHz**  
**Regional Planning Committee**

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2019 East Iron Avenue  
Salina, Kansas 67401

June 19, 2007

Office of the Secretary  
Federal Communications Commission  
Marlene H. Dortch, Secretary  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

RECEIVED BY COPY ORIGINAL

Subject: WTB Docket 02-378, Region 16 -- 700 MHz Regional Plan

Dear Secretary Dortch:

Attached please find and accept the original and four copies of the 746-776/796-806 MHz Regional Plan for Region 16 (Kansas) for FCC review and approval. Also enclosed are concurrence letters and letters of dispute resolution from the regions which surround Region 16.

I certify that all meetings, including work group meetings were open to the public. All persons wishing to comment at any meeting were allowed to do so. Decisions were only ratified at full Committee meetings.

If you have any questions, you may contact me at 785-827-3065.

Thank you,

*Randy D. Moon*

Randy D. Moon, Chairman  
Region 16 (Kansas)  
700 MHz Regional Planning Committee

Captain Randy D. Moon  
Troop M Commander  
Kansas Highway Patrol

cc: Jeannie Benfaida

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# **REGION 16 (KANSAS)**

## **Regional Communications Plan**

### **INTRODUCTION AND SUMMARY**

This document consists of the Regional Communications Plan developed for the utilization of 700 MHz frequencies by eligible entities in Region 16 (Kansas). The intent of this plan is the equitable assignment of channels in the 764-776 MHz and 794-806 MHz frequency spectrum to all eligible entities within Region 16 (Kansas), and to establish at the offset the efficient reuse of all 700 MHz frequency spectrum. The plan should be used as a guidebook, to those eligible entities defined by the Public Safety Wireless Advisory Committee (PSWAC) and the National Coordinating Committee (NCC) that apply for channel assignments within the 700MHz spectrum.

Upon receiving approval by the Federal Communication Commission (FCC) of this document, the Region 16 (Kansas) Regional Planning Committee (RPC) will be responsible for conducting annual reviews of system implementations, reviewing and recommending any modifications of the regional plan to the FCC, resolving inter-regional problems that arise, and exercising oversight of the plan.

The authorization document for this Regional Communications Plan is the Federal Communications Commission WT Docket No. 96-86, adopted by the Commission on September 29, 1998. This plan and WT Docket No. 96-86 addresses a wide variety of technical, procedural, and operational consideration for the utilization of the 700 MHz channels by eligible entities. Additionally, WT Docket No. 96-86 legally establishes the authority of the Region 16 (Kansas) Regional Planning Committee to perform the tasks so assigned by this document. Upon acceptance of this document by the FCC, all channels within 764-776 MHz and 794-806 MHz will be available for licensing to eligible entities within Region 16 (Kansas); however, eligible entities within Region 16 (Kansas) requesting usage of any 700 MHz channels may not operate their radio communications equipment until the issuance of a license by the FCC.

In 1993, the U.S. Congress directed the FCC to develop a framework that would ensure that the communications requirements for public safety throughout this country would be met through the year 2010. The Commission set into motion a process that has resulted in the allocation of an additional 24 MHz of bandwidth in the 700 MHz frequency spectrum for utilization by public safety. The newly allocated frequency spectrum is now conditionally available for use by public safety agencies in Region 16 (Kansas), that condition being the acceptance by the FCC of a Regional Communications Plan.

Ms. Liz Phillips with the University of Kansas-Police and a member of the Kansas Chapter of the Association of Police Communications Officials (APCO), was appointed Convener by the Kansas Chapter of APCO to initiate the formation of the Region 16 (Kansas) 700 MHz Regional Planning Committee. Under the direction of Ms. Phillips the initial meeting of the Region 16 (Kansas) Regional Planning Committee for 700 MHz was held in Pittsburg, KS on October 13, 2002.

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Ms. Phillips explained to those attending this initial meeting, the purpose for forming the Regional Planning Committee (RPC) and the need for a Regional Communications Plan. During this meeting it was decided by those attending that the election of officers should take place at the next meeting of the Region 16 (Kansas) RPC.

The second meeting of the Region 16 (Kansas) RPC was then held at the Kansas Highway Patrol Training Center in Salina, KS on November 7<sup>th</sup>, 2002 during which time the convener for Region 16 (Kansas), Ms. Liz Phillips once again explained briefly to those attending the meeting, the purpose for forming an RPC and the importance of developing a Regional Communications Plan. At that time the election of officers was held and completed for the Region 16 (Kansas) RPC and the selection of a date, time and location for the third meeting of the Region 16 (Kansas) RPC was agreed upon.

On Thursday, January 23<sup>rd</sup>, 2003 at the Kansas Highway Patrol Training Center in Salina, KS the Region 16 (Kansas) RPC held its third meeting and started the process to formulate the Regional Communications Plan that would eventually be submitted to the FCC for approval.

### **SECTION 1: REGIONAL CHAIRPERSON**

Captain Randy Moon, Chairman  
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### **SECTION 2: RPC MEMBERSHIP**

The committee membership for Region 16 (Kansas) consists of members from both the public safety and the public service environment. Members include representatives from local government, state government, law enforcement and emergency medical services. A complete listing of participating Regional Planning Committee members for Region 16 (Kansas) is located in Appendix A.

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### **SECTION 3: DESCRIPTION OF THE REGION**

#### **3.1 General Description**

Region 16 encompasses the entire State of Kansas. Within the boundaries of Kansas there are approximately 82,282 square miles that are divided into 105 counties bordered by four states. These bordering states include:

Region 07: Colorado

Region 25: Missouri

Region 26: Nebraska

Region 34: Oklahoma

In addition, Region 52: Texas-Lubbock is located south of the Oklahoma panhandle in close proximity to Region 16 (Kansas).

Although, the State of Kansas contains no mountains it does consist of large rolling hills known as the Flint Hills that run north by northwest from the southeastern corner of the state north toward Nebraska. In addition to this area there is approximately one-third of the northern portion of Kansas that is considered somewhat hilly with respect to the southern part of the state. Moving across the southern part of the state westward from Wichita the terrain is considered flat with only low hills all the way to the border with Colorado. A wide variation exists in altitude throughout the State of Kansas with portions of southeastern Kansas having an AMSL of 800 feet compared to several areas near the Kansas/Colorado border that have a AMSL of nearly 4000 feet.

The State of Kansas (Region 16) has a population of almost 2.7 million people with the largest majority of residents living in the eastern portion of the state. The eastern counties of Wyandotte, Douglas, Johnson, Leavenworth and Shawnee consist of approximately 35.2 % of the states population. In central and south central Kansas the counties of Butler, Ellis, Harvey, Saline and Sedgwick account for another large portion of Kansas residents with almost 25.7 % of the states population. Additionally, in southwestern Kansas the counties of Finney and Ford account for 2.7 % of the states population.

There is a complete alphabetical listing of all counties and major metropolitan areas within the State of Kansas listed in Appendix B. Refer to the map in Appendix C for the location of all counties in Region 16 (Kansas). Population data for each county in Region 16 (Kansas) can be found in Appendix D.

#### **3.2 Existing Interoperability and Mutual Aid Agreements**

At the present time only a few compacts or interoperability agreements are being used by the various public safety entities throughout Region 16 (Kansas). Currently, the Kansas Department of Transportation utilizes shared user agreements with various public safety

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entities across the State of Kansas to provide access to the statewide 800 MHz radio infrastructure. In addition, the Kansas Highway Patrol has implemented across the State of Kansas a number of user agreements with various public safety agencies for use of its operational channel during emergency situations. For a listing of agencies that currently possess user agreements with the Kansas Highway Patrol refer to Appendix E.

The Kansas Highway Patrol has also donated hand held 800 MHz portable radios to any interested law enforcement agency within the State of Kansas to aid in facilitating interoperability communications during emergency situations. Refer to Appendix F for a complete listing of participating agencies.

### 3.3 Interoperability Channel Effect on Existing Plans

The RPC anticipates the addition of the 700 MHz channels and interoperability requirements should have minimal affect on the majority of existing systems being used throughout Region 16 (Kansas). The 700 MHz channels that are being allocated in Region 16 (Kansas) should affect mainly the larger metro areas where current allocation of 800 MHz channels is utilized and any enhancements to radio systems will require access to new spectrum. The 700 MHz Interoperability channels that are becoming available to public safety users in Region 16 (Kansas) will provide additional capabilities that can supplement existing mutual aid and interoperability compacts. Access to this spectrum ultimately provides interoperability solutions to public safety users that may not currently be available.

### 3.4 Public Safety Entities with Jurisdiction within Region 16

The public safety agencies that have jurisdiction within Region 16 (Kansas) include statewide agencies such as the Kansas Bureau of Investigation, Kansas Highway Patrol, and State Fire Marshall's Office. Additionally, various federal law enforcement agencies and military installations are present within the jurisdiction of Region 16 (Kansas). Other entities that provide services within the region include the county public safety agencies, municipal public safety agencies, urban and rural fire departments, and emergency medical services.

### 3.5 Regional Public Safety Entities

**Federal Agencies:** Agencies include federal public safety and military. These include: Federal Bureau of Investigation, Drug Enforcement Administration, Bureau of Alcohol, Tobacco, and Firearms, Housing and Urban Development, United States Marshall Service, military reservations and other federal agencies.

**State Agencies:** Agencies include Kansas Bureau of Investigation, Kansas Highway Patrol, Kansas Department of Corrections, Kansas Department of Emergency Management, and various other agencies.

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**Tribal Lands:** Region 16 (Kansas) currently has established tribal lands with associated political divisions.

**County Agencies:** Primarily consists of the 105 county law enforcement agencies, rural fire and EMS departments, local emergency management agencies, and other public works and public health entities.

**Municipalities:** Include local law enforcement, fire, emergency medical services, local civil defense, public works and 911 Public Safety Answering Point's.

### SECTION 4: NOTIFICATION PROCESS

#### 4.1 Regional Notification Process

In an effort to encourage broad participation from the different public safety entities throughout the region, the Region 16 (Kansas) Regional Planning Committee utilized a variety of methods to announce scheduled meetings. The RPC initiated the process of notifying entities with the use of Federal Communication Commission Public Notices prior to each meeting. In addition, methods for notification included items such as the user group "KS700MHZ" on a list server at Yahoo! Groups on the World Wide Web, notices sent through the Criminal Justice Information System (CJIS) to all public safety entities within the State of Kansas, email notification to county commissions, and newspaper articles. This allowed for the dissemination of meeting information to law enforcement agencies, public safety agencies and the news media throughout Kansas.

At the beginning of this process, the Regional Planning Committee has utilized Yahoo! Group's list server, on the World Wide Web. The "KS700MHZ" users group was established for the explicit purpose of notifying committee members and other interested parties of upcoming meetings and relevant information that pertained to the development of the 700 MHz Region 16 (Kansas) regional plan. As the meetings were held throughout the region, new attendees were encouraged to join the user group in an effort to keep abreast of any developments concerning 700 MHz and the regional plan.

Attached as Appendix G within this document are copies of the notices that were sent and a list of public safety entities that received a copy. Also included as part of Appendix G, are newspaper notifications and the dates they were published, as well as Public Notices issued by the Federal Communication Commission concerning the notification of meetings for Region 16 (Kansas).

#### 4.2 Comment Process.

The Region 16 (Kansas) RPC implemented two methods for obtaining comments and suggestions on the utilization of the 700 MHz frequency spectrum in the region, and the

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process implemented by the RPC to develop a Regional Communications Plan. One method for obtaining comments included the "KS700MHz" user group at Yahoo! Groups on the World Wide Web. This user group would allow anyone to *join and participate in* the development of the Regional Communications Plan. The second process that was implemented to obtain comments included the use of the email address [ks700mhz@da.state.ks.us](mailto:ks700mhz@da.state.ks.us). Four committee members that monitored this email address were able to receive comments or questions from interested parties. Comments or questions received by email could then be presented at the next meeting of the RPC for discussion.

The Region Planning Committee determined initially that any comments submitted by concerned parties through either process should be brought to the attention of the full committee for discussion. A period of time would be set-aside at the next regularly scheduled meeting for the RPC to discuss the comments and determine an appropriate response or necessary action.

### **SECTION 5: REGIONAL PLAN SUMMARY**

#### **5.1 Region Guidelines and Procedures**

In Region 16 (Kansas) the Regional Planning Committee (RPC) will utilize Robert's Rules of Order when conducting meetings during the development of the regional plan and all subsequent RPC meetings thereafter. Additionally, the adopted Region 16 Bylaws attached as Appendix H within this document will be utilized for the election of officers, committee membership, voting purposes, and the calling of special meetings.

#### **5.2 Applications**

Upon notification by the Federal Communications Commission that the Region 16 (Kansas) Regional Plan has been approved, the RPC will make every effort to notify all interested public safety entities and non-governmental organizations (NGO) within the region that applications in the 764-776 MHz and 794-806 MHz frequency spectrum are now being accepted and considered.

Agencies desiring new, additional or modified spectrum allotments shall submit a request to the RPC Chair in writing, indicating their need for spectrum. The requests will be considered, providing that harmful interference is not caused to any existing users. Requests for 700 MHz channels will be considered on a first come first serve basis with all approved applications being forwarded to the FCC frequency coordinator selected by the applicant. The purpose of the application review by the RPC is to ensure it complies with all elements of the Regional Plan and not a review to ensure the application form meets FCC requirements for filing. Region 16 (Kansas) supports the National Coordinating Committee Pre-Assignment Rules and Recommendations attached as

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Appendix I of this document and will use these guidelines to determine if submitted applications meet the appropriate standards. It is recommended that applicants familiarize themselves with these recommendations prior to submitting applications for Region 16 (Kansas) 700 MHz public safety spectrum and system implementation.

All requests to the RPC for 700 MHz channels shall include the applicant's, FCC Form 601, a short description of their proposed system, and a justification for the spectrum. Documents indicating agency funding to construct a system using these 700 MHz frequencies must also be made available. The RPC Chairperson, or a majority of the members of the RPC, has the authority to request and require engineering studies from the applicant that indicate no harmful interference will be introduced to any existing co-channel or adjacent channel user prior to application approval. Any agency with co-channel or adjacent channel allotments may also request that field tests of signal levels are taken to verify any interference signal levels. Agencies must be prepared to conduct these field tests if a request is made

An agency may protest an approval channel within 30 calendar days. Protests will only be considered if an agency or the Chair can show harmful interference is likely based on the input submitted by the agency requesting the new allotment or the allotment does not conform to plan criteria. If the parties cannot resolve the issues and so inform the Chair within 14 calendar days, then a full Committee meeting will be scheduled to consider and vote on the protest. Absent a protest, the allotment will be approved by the Chair and submitted to the FCC as a plan amendment.

When applying for new 700 MHz channels, the RPC recommends that 700 MHz applicants' work with their neighboring agencies, to promote and continue the establishment of interoperability within their community, and allow for the equitable distribution of existing spectrum allocations to promote efficient frequency use when applying for 700 MHz spectrum. The Region 16 (Kansas) RPC expects applicants to be cognizant of the fact that moving to the 700 MHz band may create a degree of isolation between themselves and neighboring agencies, and the RPC looks forward to working with these applicants on a case-by-case basis on how to maintain spectrum availability in their area, while continuing to promote interoperable communications.

Region 16 (Kansas) encourages small agencies to partner with other agencies in multi-agency or regional systems to promote spectrum efficiency and to ensure that the capacity needs of each agency are met. Loading criteria can also be achieved in multi-agency systems that will allow greater throughput for all agencies involved than that which could be achieved individually.

In the event that more than one application is received at the same time requesting the same channels within an area then the use of the Priority Matrix will be implemented to determine the allocation of the channels. The priority matrix utilized to resolve this allocation of channels will be based on the following criteria:

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- **Service (Maximum score of 350 points)**  
Police, fire, local government, combined systems, multi-jurisdictional systems, etc.)
- **Intersystem and Intra-system interoperability (Maximum score 100 points)**  
How well the proposed level will be able to communicate with other levels of government and services during an emergency on “regular” channels, not the I/O channels. Interoperability must exist among many agencies to successfully accomplish the highest level of service delivery to the public during a major incident, accident, natural disaster or terrorist attack. Applicants requesting 700 MHz spectrum shall inform the region of how and with whom they have been achieving interoperability within their present system.

The applicant shall stipulate how they will accomplish interoperability in their proposed system (gateway, switch, standards based technology, cross-band repeater, console patch, software defined radios, or other means) for each of the priorities listed below:

1. Disaster and extreme emergency operation for mutual aid and interagency communications.
  2. Emergency or urgent operation involving imminent danger to life or property.
  3. Special event control, generally of a preplanned nature (including task force operations).
  4. Single agency secondary communications.
  5. Routine day-to-day non-emergency operations.
- **Loading (Maximum score 150 points)**  
Is the proposed system part of a cooperative, multi-organization system? Is the application an expansion of an existing 800 MHz system? Have all 821 channels been assigned (where technically feasible)? A showing of maximum efficiency or a demonstration of the system’s mobile usage pattern could be required in addition to loading information. Based on population, number of units (if number of units, are they take home, how many per officer), what are the talk groups?
  - **Spectrum Efficient Technology (Maximum score 350 points)**  
How spectrally efficient is the system’s technology? Trunked systems are considered efficient “as well as any technological systems features, which is designed to enhance the efficiency of the system and provide for the efficient use of the spectrum.”

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- **System Implementation factors (Maximum score 100 points)**  
The applicant will be required to demonstrate funding and provide documentation demonstrating the planning process for the proposed system. Is the proposed system being installed as a slow growth system (within the next five years) or is this system ready to be installed now? Documentation must be provided to the Regional Planning Committee from the agency planning to implement a system demonstrating funding for the project has been secured.
- **Geographic Efficient (Maximum score 100 points)**  
The ratio of subscriber units to area covered and the channel reuse potential for any proposed system will receive a high score. Systems that are covering large geographic areas will have greater potential for channel reuse and will therefore receive a high score.
- **Givebacks (Maximum score 200 points)**  
The Regional Planning Committee will consider the number of channels being given back by an applicant and the availability of these channels to be reused by other potential applicants.

The current 700MHz frequency allotment list is based on an assumption that the systems will be engineered on an interference-limited basis not a noise floor-limited basis. Agencies are expected to design their systems for maximum signal levels within their coverage area and minimum levels in the coverage area of other co-channel users. Coverage area is normally the geographical boundaries of the agency(s) served plus a three-mile area beyond.

Systems should be designed for minimum signal strength of 40 dB $\mu$  in the system coverage area, while minimizing signal power out of the coverage area. TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dB $\mu$ , or greater, signal in all systems coverage areas. This may require patterned antennas and extra sites compared to a design that assumes noise limited coverage.

If at any time a system is allocated channels within Region 16 (Kansas), but the system cannot be developed within the agreed upon guidelines (slow growth), the channels will be returned to the county pool allotments they originated from and again be available to other agencies in the region.

It is the recommendation of the Region 16 (Kansas) 700 MHz Regional Planning Committee that any public safety entity within a county requesting through the application process utilization of any 700 MHz narrowband general use channels be encouraged to coordinate with the Region 16 (Kansas) 800 MHz Regional Planning Committee to determine availability of any 12.5 KHz channels in their area of operation.

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### **5.3 Guidelines and procedures for protection of incumbent TV/DTV stations within the region or near the region's border during the DTV transition period.**

Region 16 (Kansas) currently consists of a limited number of incumbent TV/DTV broadcasters in the 764-776 MHz and 794-806 MHz frequency bands. To ensure these broadcasters are protected, any applicants within Region 16 (Kansas) requesting to operate a system within the service area of the incumbent TV/DTV must adhere to the requirements of §90.545 in the Federal Communication Commission Code of Federal Regulations CFR 47 Part 90. Additionally, the applicant will be responsible for adhering to the provisions of the National Communications Committee (NCC) document Appendix J "DTV Transition."

### **5.4 Interoperability Plans and Requirements**

It is the intentions of the Region 16 (Kansas) RPC to implement and utilize the Interoperability Channels as recommended by the National Coordination Committee (NCC), and will use the guidelines in Appendix K as a template to determine if an application submitted to the RPC meets the Region 16 planning standards. Presently, Region 16 (Kansas) does not have a comprehensive interoperability plan that is developed and accepted by all applicable parties.

Region 16 (Kansas) public safety users require effective command, control, coordination, communication and sharing of information with many criminal justice and public safety agencies. Numerous incidents annually require some form of mutual aid and coordinated response. The more critical the incident is the greater the need for interoperable communications.

The public safety community requires interoperable communications that provides the ability to communicate and share information as authorized when it is needed, where it is needed, and in a mode that allows users to effectively utilize it.

As an effort to initiate multi-jurisdictional interoperable communications within Region 16 (Kansas) the deployment of two mobile communication trailers utilizing 800 MHz mutual aid channels in conjunction with the ACU1000 audio switch was implemented in 2004 to provide the necessary cross-band radio communications.

### **5.5 Bylaws.**

During the initial stages of the planning process, the Regional Planning Committee discussed, revised and adopted a set of Bylaws that it felt served the best interests of Region 16 (Kansas). As referenced earlier, the Bylaws for Region 16 (Kansas) are attached as Appendix H in this document.

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### **5.6 Spectrum utilization agreements with other regions.**

Counties or other geographic subdivisions within 70 miles of the Regional border need to share spectrum with the adjacent Region(s). The appropriate ratio of channels shall be allotted to counties in adjacent Regions based upon each county's population. A 25 kHz building block will be used to distribute spectrum between the Regions. A description of the demographics of the affected border areas shall be included.

The requirements for adjacent Region concurrence will require a waiver if the adjacent Region has not yet formed. The Region filing the plan must use the pre-planning procedure. The waiver request must be filed concurrently with the plan, and contained in the cover letter.

### **5.7 Pre-coordination method**

The Region 16 (Kansas) RPC intends to utilize the "Computer Assisted Pre-coordination Resource and Database system" (CAPRAD) developed by the National Law Enforcement and Corrections Technology Center. The pre-packed channel assignments within the CAPRAD system will be utilized in addition to the systems notification process. The RPC will adhere to the NPSTC 700MHz general use channel sort, as shown on the CAPRAD database and Appendix L of this document. Region 16 will participate in the CAPRAD database, and keep the Regional Plan and current frequency allotment/allocation information on the database.

### **5.8 Frequency coordination database and flowchart.**

It is the intentions of the Region 16 (Kansas) RPC to implement and adhere to the standards that have been currently developed in the 700 MHz Public Safety Frequency Coordination database and application flowchart. However, the Region 16 RPC has the authority to change the original frequency allotment if needed.

In order to keep the frequency allotments within Region 16 current, an annual review of the allotments can be made at one of the scheduled RPC meetings, and recommended changes to the plan can be voted on if needed. The majority of members in attendance at a meeting of the RPC must approve any changes to the Regional allotments. If plan modifications are approved, the Chairperson will, if necessary, obtain adjacent Region approval and file a plan amendment indicating the approved changes with the Federal Communications Commission.

## **SECTION 6: INTEROPERABILITY CHANNELS**

The ability for agencies to effectively respond to mutual aid requests directly depends on their ability to communicate with each other. This Plan seeks to facilitate the communications necessary for effective mutual aid. As part of the Region 16 (Kansas)

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700 MHz plan the Regional Planning Committee (RPC) recognizes the necessity for a statewide interoperability plan to be established and implemented to meet the needs of Kansans during emergency situations as well as normal daily occurrences. The State of Kansas is subject to a variety of potential incidents including, *natural disasters (floods, tornadoes, ice storms, range fires, etc.)*, radiological incidents, terrorist activities, agri-terrorism, and natural or manmade bio incidents.

Currently, the Kansas Highway Patrol oversees responsibility for the interoperability channels within the State of Kansas. At the present time the Kansas Highway Patrol is coordinating with the Region 16 (Kansas) RPC for administration of these channels.

The narrowband voice & data interoperability channels (sixty-four at 6.25 kHz bandwidth) are defined on a nationwide basis. Appendix M shows the designation of these channels as defined by the 700 MHz National Coordination Committee (NCC). These channels shall maintain the same usage within each region and across regional borders. They have been sub-divided into different service categories. Region 16 (Kansas) will utilize the ANSI/TIA 102 Series standards (Project 25) as the Digital Interoperability Standard for the conventional-only mode of operation on narrowband voice and data interoperability channels. There are 2 Calling channel sets and 30 Tactical channel sets. Channel Sets are comprised of two 6.25 kHz channels each.

The Tactical channel sets are subdivided into the following recommended categories:

- 4 for Emergency Medical Services
- 4 for Fire Services
- 4 for Law Enforcement Services
- 2 for Mobile Repeater operation
- 2 for Other Public Services
- 12 for General Services
- 2 for Data

### 6.1 Calling Channels

The RPC will define when and where the two calling channels are to be used. These calling channels, which appear in the Table of Interoperability Channels as "7CALLA" and "7CALLB" must be monitored, as appropriate, by licensees who employ interoperability infrastructure in the associated channel group. When calling channels are integrated into infrastructure, their coverage must at least match the coverage of the other interoperability channels in the system. In addition to the usual calling channel functions, the calling channels may be used to notify users when a priority is declared on one or more of the tactical interoperability channels. 700 MHz General Use channel licensees will be responsible for monitoring interoperable calling channels. Refer to Appendix M of this document for the "Table of Interoperability Channels."

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### 6.2 Tactical Channels

All Interoperability channels, except as otherwise provided, shall be used for conventional-only operation. Normally, users will 'call' a dispatch center on one of the "Calling Channels" and be assigned an available tactical channel. Deployable narrowband operations (voice, data, and trunking) shall be afforded access to the same pool of channels used for similar fixed infrastructure operations. In the event of conflict between multiple activities, prioritized use shall occur.

### 6.3 Encryption

Use of encryption is prohibited on calling channels and permitted on all other interoperability channels. A standardized encryption algorithm for use on the interoperability channels must be TIA/EIA IS AAAAA Project 25 DES encryption protocol.

### 6.4 Deployable Systems

Region 16 strongly supports use of deployable systems, both conventional and trunked. Deployable systems are prepackaged systems that can deploy by ground or air to an incident to provide additional coverage and capacity on designated 700 MHz interoperability channels and/or agency specific General Use Channels. This will minimize the expense of installing extensive fixed infrastructure in areas while still providing mission critical functionalities as the Region recognizes the difficulty of providing complete coverage in all areas due to financial, demographic and geographical constraints.

Agencies should have conventional deployable systems capable of being tuned to any of the FCC designated/NCC recommended interoperability tactical channels. Those agencies that are part of a multi-agency trunked system and commonly provide mutual aid to each other are encouraged to have trunked deployable systems that operate on the tactical channels designated by the FCC for this use. It is expected that the tactical channels set aside for trunked operation will be heavily used by deployable systems. Therefore, the tactical channels cannot be assigned to augment general use trunked systems.

General Public Safety Services Channels labeled 7TAC05 through 7TAC15, 7TAC35 through 7TAC45, or both, shall be made available for "deployable" equipment used during disasters and other emergency events that place a heavy, unplanned burden upon in-place radio systems. The RPC shall consider the need for both "deployable trunked" and "deployable conventional" systems and make those channels available to all entities within Region 16 (Kansas) as determined.

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### 6.5 Trunking on the Interoperability Channels

*Trunking the Interoperability channels on a secondary basis shall be limited to operation on eight specific 12.5 KHz channel sets, divided into two subsets of four 12.5 kHz channels. One subset is defined by 7TAC05 through 7TAC11 and the other by 7TAC35 through 7TAC41.*

Any licensee implementing base station operation in a trunking mode on Interoperability Channels shall provide and maintain on a continuous (24 hr x 7 day) basis at its primary dispatch facility the capability to easily remove one or more of these interoperability channels, up to the maximum number of such trunking channels implemented, from trunking operation when a conventional access priority that is equal to or higher than their current priority is implemented.

Region 16 (Kansas) RPC shall review and limit the number of interoperability channels that may be integrated into any single trunked system for routine use, so as to ensure that those channels do not become such an integral part of the trunked radio system operation that it becomes politically and/or technically impossible to extract them from the trunked system in the event of an emergency/incident having higher priority.

The Region 16 (Kansas) RPC shall establish the following guidelines for I/O channel allocation on single trunked systems:

For systems having 10 or fewer "general use" voice paths allocated, one (1) trunked Interoperability Channel set is permitted. For systems having more than 10 "general use" voice paths allocated, two (2) trunked Interoperability Channel sets are permitted. The Region 16 (Kansas) RPC will consider allotting additional Interoperability Channel set(s) for trunked systems having more than 20 "general use" voice paths allocated upon a showing of need and upon a determination that assignment of the Interoperability Channel set(s) will not adversely impact availability of those channels to other trunked and/or conventional radio systems in the area (e.g. a single consolidated trunked system servicing all public safety agencies in an area might satisfy this criterion). The maximum number of Interoperability channel sets for trunked systems permitted for use by an individual licensee is four.

The channels (two 6.25 KHz pairs) in Reserve Spectrum immediately adjacent to the 7TAC channels where secondary trunking is permitted [(21, 22), (101, 102), etc. are available for secondary trunking, but only in conjunction with the adjacent Interoperability 12.5 kHz channel pair in a trunked system and will be administered by the RPC. The Region 16 (Kansas) RPC may elect to permit 25 KHz trunking on interoperability channels. If the RPC allows this, the Reserve Spectrum guard channels would become part of those trunking channels. The RPC will consider the impact on the channels adjacent to these 25 kHz trunking channels prior to making a decision to allow 25 KHz trunking on these interoperability channels. Additionally, the RPC will consider

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*the impact to the ability of these 25 kHz trunking channels to be immediately reverted to 12.5 KHz conventional interoperability use.*

### **6.6 Standard Operating Procedures on the Trunked I/O Channels for I/O Situations above Priority Level 4**

The safety and security of life and property determines appropriate interoperable priorities of access and/or reverting from secondary trunked to conventional operation. In the event secondary trunked access conflicts with conventional access for the same priority, conventional access shall take precedence. Access priority for "mission critical" communications will be assigned as follows:

1. Disaster and extreme emergency operations for mutual aid and interagency communications;
2. Emergency or urgent operation involving imminent danger to life or property;
3. Special event control, generally of a preplanned nature (including Task Force Operations);
4. Single agency secondary communications.

[Priority 4 is the default priority when no higher priority has been declared.]

For those systems employing I/O channels in the trunked mode, the RPC will establish interoperability talk groups and priority levels for those talk groups so that it is easy for dispatch to determine whether the trunked I/O conversation in progress has priority over the requested conventional I/O use. The RPC shall also determine whether a wide-area I/O conversation has priority over a local I/O conversation.

### **6.7 Standardized Nomenclature**

Region 16 (Kansas) shall utilize the standardized nationwide nomenclature established by the NCC. It is recommended that all 700 MHz public safety subscriber equipment using an alphanumeric display, show the established label/s defined in Appendix M, when the radio is programmed to operate on the associated 700 MHz channel set. The Table shows the recommended label for equipment operating in the mobile relay (repeater) mode. When operating in direct (simplex) mode, it is recommended that the letter "D" should be appended to the end of the label.

### **6.8 Data Only Use of the I/O Channels**

Narrowband data-only interoperability operation on the Interoperability channels on a secondary basis shall be limited to two specific 12.5 KHz channel sets. One set is defined as 7DTAC17 and the other as 7DTAC47.

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### **6.9 Wideband Data Standards**

Within the 12 MHz of spectrum designated for high capacity, wide bandwidth (50 to 150 KHz) channel usage, there are eighteen 50 KHz (or six 150 KHz) channels designated for wideband interoperability use as determined by the RPC.

TIA has developed a wideband data interoperability standard based on 50 KHz channel bandwidth, TIA-902, which is pending FCC approval. The RPC shall also consider applications for aggregation of data channels up to 150 kHz. Each county within Region 16 shall be allotted, at a minimum, 150 kHz of contiguous bandwidth. If one entity exhausts the spectrum resources within the county, thus precluding assignment to other interested agencies, that agency must demonstrate its willingness to cooperate with the precluded agencies within the county to provide access its facilities for throughput. In such situations, each agency shall internally negotiate costs without mediation by the Regional Planning Committee. The final implementation budget, as well as the abridged loading figures shall be forwarded to Region 16 prior to adding the new users. The ranking criteria for each allocated 50 KHz General Use Wideband data channel in Region 16 will be developed in accordance with NCC Implementation Subcommittee Guidelines. Applicants will be required to provide the Regional Planning Committee with their identified wideband needs so the region can determine the number of wideband data channels needed.

Each county within Region 16 shall be allotted, at a minimum, 150 kHz of contiguous bandwidth. If one entity exhausts the spectrum resources within the county, thus precluding assignment to other interested agencies, that agency must demonstrate its willingness to cooperate with the precluded agencies within the county to provide access its facilities for throughput. In such situations, each agency shall internally negotiate costs without mediation by the Regional Planning Committee. The final implementation budget, as well as the abridged loading figures shall be forwarded to Region 16 prior to adding the new users. The ranking criteria for each allocated 50 KHz General Use Wideband data channel in Region 16 will be developed in accordance with NCC Implementation Subcommittee Guidelines.

Applicants will be required to provide the Regional Planning Committee with their identified wideband needs so the region can determine the number of wideband data channels needed.

### **6.10 State Interoperability Executive Committees**

The Region 16 (Kansas) 700MHz interoperability channels have been assigned to the Kansas Highway Patrol for administration. The Kansas Highway Patrol and the State of Kansas, has opted to coordinate with the RPC to plan and administer the interoperability channels, in lieu of establishing a State Interoperability Executive Committee. Administering these channels through the RPC will insure regional representation from state, county, and local governments, with additional representation from special districts

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and federal agencies, as appropriate. The RPC communicates to and represents all disciplines, in which case emergency medical, fire, general government, law enforcement, and transportation agencies from each level of government have equal opportunity for representation and input.

It is the intentions of Region 16 (Kansas) to utilize the National Incident Management Plan and the corresponding Incident Command System (ICS) for incident management within the region.

The RPC will oversee the administration and technical parameters of the infrastructure for the interoperability channels within Region 16 (Kansas).

The templates for a *Memorandum of Understanding* for operating the 700 MHz Interoperability Channels and a *Sharing Agreement* can be found in Appendix N. The MOU shall be typed on appropriate RPC letterhead and the Sharing Agreement on appropriate agency letterhead.

### 6.11 Minimum Channel Quantity

The minimum channel quantity for Calling and Tactical channel sets requires 8 I/O channel slots in each subscriber unit. Including direct (simplex) mode on these channel sets, up to 16 slots in each radio will be programmed for I/O purposes. Backbone issues are deferred to the RPC. Subscriber units, which routinely roam through more than one jurisdiction up to nationwide travel will require more than the minimum channel quantity. The calling channel sets (7CALLA and 7CALLB) shall be implemented in all voice subscriber units in repeat-mode and direct (simplex) mode. Direct mode is permitted in the absence of repeat operation or upon prior dispatch center coordination. If the local Calling channel set is not known, 7CALLA shall be attempted first, then 7CALLB. Attempts shall be made on the repeater mode first then on the direct (simplex) mode.

A minimum set of Tactical channels shall be implemented in every voice subscriber unit in the direct (simplex) mode. Specific channel sets are shown below (The RPC may exceed this minimum requirement.)

- 7GTAC13 & 7GTAC43 channel sets
- 7MTAC25 & 7MTAC55 channel sets
- 7OTAC33 & 7OTAC63 channel sets

**NOTE:** Selection of the above TAC channels based on revised Table of Interoperability Channels. Channel labels are a compromise between 4<sup>th</sup> R&O and IO-0062D-20010118. Voice subscriber units subject to multi-jurisdictional or nationwide roaming should have all I/O voice channels, including direct (simplex) mode, programmed for use.

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### 6.12 Direct (Simplex) Mode

In direct (simplex) mode, transmitting and receiving on the output (transmit) side of the *repeater pair for subscriber unit-to-subscriber unit communications at the scene does not* congest the repeater station with unnecessary traffic. However, should someone need the repeater to communicate with the party who is in direct mode, the party would hear the repeated message, switch back to the repeater channel, and join the communications. Therefore, operating in direct (simplex) mode shall only be permitted on the repeater output side of the voice I/O channel sets.

### 6.13 Common Channel Access Parameters

Common channel access parameters will provide uniform I/O communications regardless of jurisdiction, system, manufacturer, etc. Thus, the Calling and TAC channels (all of them) should include a common Network Access Code (NAC) as the national standard. The secondary, trunked I/O channels would be excluded in the trunked mode. However, when reverted to conventional I/O, the common NAC would then apply. This national requirement should apply to base stations and subscriber units. This should apply to fixed or temporary operations. This should apply to tactical, vice, or other mutual aide conventional I/O use. Common channel access parameters for all voice I/O shall utilize the default values (ANSI/TIA/EIA-102, BAAC-2000, approved April 25, 2000) provided in every radio regardless of manufacturer. Any common channel access parameters not provided shall be programmed accordingly. These parameters include the following:

- P25 Network Access Code - \$293 (default value)
- P25 Manufacturers ID - \$00 (default value)
- P25 Designation ID - \$FFFFFF (designates everyone)
- P25 Talk group ID - \$0001 (default value)
- P25 Message Indicator \$000000...0, out to 24 zeros (unencrypted)
- P25 Key ID - \$0000 (default value)
- P25 Algorithm ID - \$80 (unencrypted)

Any deviation from \$293 will not be permitted unless the RPC can demonstrate in Plan amendment through the FCC-approved process that the intent of \$293 will be preserved on ALL conventional voice I/O channels – transmit and receive.

## SECTION 7: ADDITIONAL INTEROPERABILITY SPECTRUM

The Region 16 (Kansas) RPC has determined at the present time a necessity to set aside additional interoperability spectrum to meet regional needs is not required. In the future as 700 MHz systems are implemented the regional planning committee may address the addition of selected channels for interoperability purposes if deemed necessary; however, any channels allocated in the future as additional interoperability spectrum would be

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required to adhere to the same requirements as National Interoperability Channels. In addition, the Region 16 (Kansas) Regional Planning Committee would submit a request for amending the regional plan to the Federal Communications Commission for review and approval.

### **SECTION 8: GENERAL USE SPECTRUM ASSIGNMENT**

#### **8.1 General Use Narrowband Channels**

It is the intentions of the Region 16 (Kansas) Regional Planning Committee to assign the narrowband general use 700 MHz channels allocated by the Federal Communications Committee as they were initially packed in the CAPRAD database. The packing of the 700 MHz channels across the nation were based on county-wide populations and hypothetical coverage predictions that should enhance the ability of the Region 16 (Kansas) Regional Planning Committee to allocate channels more efficiently to those qualified public safety entities throughout the region. The packing of the narrowband general use channels on a national level should also enhance the ability of the committee to coordinate channel usage along the borders with adjacent regions and resolve any conflicts that may arise.

Assignment of the 700 MHz narrowband general use channels in Region 16 (Kansas) are shown in Appendix L. As public safety entities make application for usage of the 700 MHz narrowband general use channels, the Regional Planning Committee will ensure that channel assignments are maintained and updated within the CAPRAD database. This will assist both Regional Planning Committees in adjacent regions and frequency coordinators stay current on the narrowband general use channel assignments in Region 16 (Kansas).

#### **8.2 General Use Wideband Channels**

As with the general use narrowband channels allocated by the Federal Communications Commission there were also a number of general use wideband channels allocated. These general use channels were made available in 50 KHz bandwidths that could be combined to allow 50 KHz, 100 KHz, or 150 KHz bandwidths depending on the needs of the requesting applicant.

Within Region 16 (Kansas) public safety entities recognize the advantages of these bandwidths and the emerging technologies that will be available in the future to meet their needs. Although, very few applicants are anticipated to request these channels throughout the region, the Region 16 (Kansas) Regional Planning Committee has determined that there should be wideband general use channels allocated to each county.

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To maintain consistency throughout the region, channels were grouped together in 150 KHz bandwidths and assigned to each county based on population. This method enabled *allocation of three 50 KHz channels minimum in low population counties and nine 50 KHz channels in the highest populated counties.*

The allotment of channels per county within Region 16 (Kansas) has been inputted into the CAPRAD database and assignments of the channels when requested will be maintained as with the general use narrowband channels.

Assignment of the 700 MHz wideband general use channels in Region 16 (Kansas) are also shown within Appendix L. As public safety entities make application for usage of these 700 MHz wideband general use channels, the Regional Planning Committee will ensure that channel assignments are maintained within the CAPRAD database. As discussed previously, this will assist both Regional Planning Committees in adjacent regions and frequency coordinators stay current on the wideband general use channel assignments in Region 16 (Kansas). Region 16 will be the final authority on the approval of applications for 700 MHz General Use channel allocations.

### 8.3 Narrowband Low Power Channels

The FCC in the 700 MHz band plan, set-aside channels 1 - 8 paired with 961 – 968 and 949 – 958 paired with 1909 – 1918, for low transmit power on-scene incident response purposes, using mobiles and portables, subject to Commission approved RPC Regional Plans. Channels 9 – 12 paired with 969 – 972 and 959 – 960 paired with 1919 – 1920 are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP). These channels may operate using analog operation.

To facilitate analog modulation, this plan will allow aggregation of two 6.25 KHz channels for 12.5 kHz bandwidth. On scene temporary base and mobile relay stations are allowed (to the extent FCC rules allow) antenna height limit of 6.1 meter (20 feet) AGL (Above Ground Level). However, users are encouraged to operate in simplex mode with the least practicable amount of power to reliably maintain communications whenever possible.

This plan does not limit use to analog only operations and channels are intended for use in a wide variety of applications that may require digital modulation types as well. The use of EIA/ TIA-102, Project 25 Common Air Interface is required when using a digital mode of operation. In its dialog leading up to CFR §90.531 allocating the twenty-four low power 6.25 kHz frequency pairs (of which eighteen fall under RPC jurisdiction), the Federal Communications Commission (FCC) suggested that there is a potential for multiple low power applications, and absent a compelling showing, a sharing approach be employed rather than making exclusive assignments for each specific application as low power operations can co-exist [in relatively close proximity] on the same frequencies with minimal potential for interference due to the 2 watt power restriction.

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Whereas advantages exist in not making assignments, the reverse is also true. If, for example, fire fighters operate on a specific frequency or set of frequencies in one area, there is some logic in replicating that template throughout the Region for firefighter equipment. If there are no assignments, such a replication is unlikely. In seeking the middle ground with positive attributes showing up both for assignments and no assignments, we recommend the following regarding assignments associated with the eighteen (18) low power channels for which the Regional Planning Committee has responsibility:

- Generic - Channel #'s 1-4 and 949-952 are set aside as generic 2 watt channels for use by public safety agencies operating within Region 16, and the complementary mobile channels # 961-964 and 1909-1912 are set aside as 2 watt generic mobile channels also for use by public safety agencies likewise operating within Region 16.
- Fire/ EMS/ Consequence Management - Channel #'s 5-8 are designated as Fire Protection/Emergency Medical and Consequence Management 2 watt channels for licensing and exclusive use by the Fire/Emergency Medical disciplines, and the complementary mobile channel #'s 965-968 are set aside as Fire/Emergency Medical and Consequence Management 2 watt mobile channels also for licensing and exclusive use by the Fire/Emergency Medical disciplines.
- Law/ Crisis Management - Channel #'s 953-956 are set aside as Law Enforcement/Crisis Management 2 watt channels for licensing and exclusive use by the Law Enforcement discipline, and the complementary 2 watt mobile channel #'s 1913-1916 are set aside as Law Enforcement/Crisis Management mobile channels also for licensing and exclusive use by the Law Enforcement discipline.
- Multidisciplinary Joint Public Safety Operations - Channel #'s 957-958 are set aside as Multidisciplinary Joint Public Safety Operations 2 watt channels for licensing and the complementary 2 watt mobile channel #'s 1917-1918 are also set aside as Multidisciplinary Joint Public Safety Operations Channels for use by political subdivisions and public safety agencies operating under a unified command at a common incident for the express mission of safety of life, property or environment.

Simplex operations may occur on either the base or mobile channels. Users are cautioned to coordinate on scene use among all agencies involved, particularly when the use of repeater modes is possible at or in the proximity of a common incident. Users should license multiple channels and be prepared to operate on alternate channels at any given operational area. The RPC recommends that all 700 MHz users and applicants have **the capability to access ALL** of the thirty-two (32) NCC approved interoperability channels

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*in both duplex and simplex modes. Under no circumstances may a user claim a channel as exclusively theirs.*

### **SECTION 9: EXPLANATION OF HOW NEEDS WERE ASSIGNED PRIORITIES IN AREAS WHERE NOT ALL ELIGIBLES COULD RECEIVE LICENSES**

The same priority matrix described in Section 5.2 of this document will be utilized to resolve the allocation of channels and determining priorities when everyone's needs in a specific area cannot be met. This priority matrix is based on the following criteria:

- Service (Maximum score of 350 points)  
Police, fire, local government, combined systems, multi-jurisdictional systems, etc.)
- Intersystem and Intra-system interoperability (Maximum score 100 points)  
How well the proposed level will be able to communicate with other levels of government and services during an emergency on "regular" channels, not the I/O channels. Interoperability must exist among many agencies to successfully accomplish the highest level of service delivery to the public during a major incident, accident, natural disaster or terrorist attack. Applicants requesting 700 MHz spectrum shall inform the region of how and with whom they have been achieving interoperability within their present system.

The applicant shall stipulate how they will accomplish interoperability in their proposed system (gateway, switch, cross-band repeater, console patch, software defined radios or other means) for each of the priorities listed below:

1. Disaster and extreme emergency operation for mutual aid and interagency communications.
  2. Emergency or urgent operation involving imminent danger to life or property.
  3. Special event control, generally of a preplanned nature (including task force operations).
  4. Single agency secondary communications.
  5. Routine day to day non-emergency operations.
- Loading (Maximum score 150 points)  
Is the proposed system part of a cooperative, multi-organization system? Is the application an expansion of an existing 800 MHz system? Have all 821 channels been assigned (where technically feasible)? A showing of maximum efficiency or a demonstration of the system's mobile usage pattern could be required in addition to loading information. Based on population, number of