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Secretary
Federal Communications Commission
445 12th St. SW
Washington, DC 20554

RE: WT Docket No. 02-285 RM-10077, Amendment of Sections 90.20 and 90.175 of the Commissions Rules for Frequency Coordination of Public Safety Frequencies in the Private Land Mobile Radio below 470 MHz Band.

Gentlemen:

The comments in this document represent my 18 years experience as a professional in the operational and technical aspects of public safety communications. In my experience, the current public safety frequency coordination process that enables applicants to obtain new authorizations, modify existing radio station licenses and expand as the capacity of their operation grows is burdensome, ineffective in assisting public safety users that rely on frequency coordination to complete their mission, and leads to an insufficient level of spectral efficiency. I applaud the Commission for considering the concept of competitive frequency coordination as part of the solution for improving the public safety frequency coordination process, which assists state and local governments in their public safety mission. The following comments

are my thoughts on areas in which the public safety frequency coordination process should be improved and how these changes will have a positive impact on first responders communication needs.

Competitive coordination and its viability below 512 MHz when compared to competitive coordination in the 800 MHz and 700 MHz band. **The differences between the existing frequency coordination processes above and below 512 MHz are easily identified when looking at competitive coordination below 512 MHz. If the existing competitive coordination in the 700 MHz and 800 MHz bands currently produces an effective result for the end user, then there is a high probability that public safety frequency coordination below 512 MHz can have the same success in a competitive environment. Note one of the major differences in the "exclusive" allocations in 800 MHz public safety is that they adhere to a set of developed "guidelines" that are used by all coordinators when coordinating these channels, which is absent in the Part 90 public safety spectrum below 512 MHz.**

Distance separation and regional planning. **Keeping in mind that interference to users in the 700 and 800 MHz bands is just as damaging to those users as interference is to users under 512 MHz, the exclusive use of certain channels in a given service area leads to effective system implementation. It is evident that the current competitive coordination process works in the 800 MHz band. Requirements of a minimum co-channel distance separation of 70 miles are used extensively with exclusive General Pool allocations, with commission-established engineering parameters in 800 MHz (along with eventual similar parameters to be established in 700 MHz) for distances between 55 and 70 miles (short spacing). This is important because** ***consistent guidelines established allow for a structure to be in place for all licensees and applicants, regardless of discipline.***

Improved filtering in the 800 MHz band. **The improved filtering prevalent in most current 800 MHz equipment has improved performance in the 800 MHz band, improved coordination and minimized the impact of adjacent channel interference in the band. Improved adjacent channel rejection in the 800 MHz band allows for improved adjacent/alternate channel reuse. These technological advancements have led to improved universal coordination standards in the 800 MHz band and better use of the spectrum.**

***Channel pairings*. In addition, both existing 800 MHz and 700 MHz public safety channel assignments are assigned *dedicated channel pairs with established spacing*, which creates a drastically different spectrum environment than exists in public safety channels below 512 MHz that use single, non-paired channels. In addition, the knowledge of standard channel spacing for input/output frequencies assists equipment manufacturers in developing improved features (in-band vehicular repeaters, etc.) for the public safety user they cannot definitively develop in the bands below 512 MHz.**

***Issues*. In 1997, the commission made a positive step in reducing the 20 Private Land Mobile Radio (PLMR) services below 512 MHz into 2 pools. In the same proceeding, the Commission also allowed the Local Government channels to be coordinated by all FCC certified coordinators, "opening" the coordination of these channels. This experiment in competitive coordination has introduced no negative effects to the first responder community. The increase in efficiency that occurred with these local government channels by the commission's decision to open the coordination process cannot be underestimated. In effect, the pending Notice of Proposed Rulemaking (02-285) that is the subject of these comments asks for a similar process, which is to coordinate all public safety channels in a competitive environment.**

The differences between public safety operations on former Local Government radio service channels compared to specific discipline frequencies are negligible While there are some differences in the system development and preferences of specific users (mobile relay operations vs. dispatcher oriented operations), there are not enough drastic differences in how these channels are used between disciplines to allow for the ineffective, channel exclusivity coordination policies in effect. In many instances, different public safety users, who at times work together in a public safety environment, are using channels specific to their discipline in order to cover the same geographic area. In instances such as these, the coordinator channel exclusivity policies in effect can deter users from considering channel sharing. Barriers developed between disciplines can impair interoperable solutions for public safety users.

In addition, in order to obtain the benefit of increased spectral efficiency in the public safety band below 512 MHz, the four FCC certified coordinators should cease using different engineering

standards when coordinating channels within their individual discipline and to coordinate using an established standard accepted by all coordinators.

All public safety users currently utilize local Government channels extensively, and when faced with choosing an available Local Government channel versus a discipline specific assignment, users tend to select the channel that has the least fiscal impact on their agency. The user community has identified former Local Government channels as being efficient and cost effective for implementation in their operations. As the costs of coordinator concurrence has increased dramatically in the last several years, the price per channel has risen to the point where it can deter an agency from moving forward with a new application or station modification. The additional coordination costs incurred cause problems in competitive vendor bidding in local communities as the established costs are agreed upon often before the coordination process has begun and spectrum availability has not been investigated. In addition to cost, the additional time the applicant waits for costly concurrence from additional coordinators, *after concurrence has been already received from their original coordinator (*which can take several months) prohibits the applicant from implementing their system changes in an efficient manner. The existence of the PX (Local Government) channels successfully being coordinated in public safety after the re-farming proceeding indicates that placing all public safety channels in an open, competitive coordination environment can lead to improvement in public safety communications.

Many ask if all coordinators are capable of coordinating all frequencies. Some think that only certain coordinators can coordinate certain channels, as if there were some secret procedure that only they can accomplish for their applicants. This argument stems from the coordinators hesitance to lose the leverage they have obtained in the current process that allows them to charge for channel concurrence. Many applicants perceive these additional coordinator concurrence costs as a faulty mechanism established by the coordination community to drain additional money from state and local governments trying to improve their communication capability. In fact, in many areas, the spectrum starved user community perceives this as a "spectrum hostage" policy, where money buys spectrum. I seriously question if the argument to retain current exclusive coordination rights has more to do

with money than differences between public safety users and public safety frequency coordination. *By allowing competitive coordination, the coordinators would have to provide efficient, timely, and most importantly, effective coordination in order to retain applicant's services*. This will provide the opportunity for the applicant to seek the best coordinator to meet their needs, rather than being forced to use a certain coordinator whose services have proven to be insufficient to those needs.

An example of how this can be achieved in the remaining channels below 512 MHz would be for the commission to require "*acceptable engineering practices"* be used by all of the coordinators at all times. This would "raise the bar" of the coordinating effectiveness, and making effective public safety spectrum implemented more efficiently. A situation that needs to be avoided in the future (and occurs today) is when one coordinator does not acknowledge another frequency coordinators use of its proper engineering practices and the implementation is denied or one coordinator ignores the engineering practices of another coordinator when it leads to denial of an application and implements the station anyway, using the argument that they are the exclusive coordinator for that channel and that they know best how it is to be used. The loser in this process inevitably ends up being the applicant in time wasted and monies spent, without achieving the initial goal of additional spectrum capacity.

A competitive process that uses multiple coordinators can be successful if all coordinators use *consistent*, *established best engineering practices*. These practices will allow multiple coordinators to adhere to standard, common criteria while managing both co-channel and adjacent channel multi-discipline interference scenarios.

Lack of standardization between the coordinators regarding co-channel and adjacent channel allocations within a given area along with differing criteria used by coordinators to protect existing stations creates an environment open to harmful interference. While the implementation of service and interference contours have, to some degree, sufficed in other Land Mobile Radio coordination procedures, what is needed to achieve efficient channel implementation is a more *efficient* engineering method of determining co-channel and adjacent interference, which leads to improved frequency usage. The current process has an inherent lack of engineering standardization. An

industry standard for coordination between the different public safety coordinators is necessary for existing frequency coordination procedures, and must be an integral part of any future competitive coordination scenario. I would suggest an engineering standard (more detailed and accurate than current service contours, which are not specific enough for efficient detailed engineering, but are more effective when used for quick general reference of a service/interference area) be developed by an group such as the Land Mobile Coordination Council (LMCC), of which the frequency coordinators are members. Such a group should develop a best practices standard for public safety land mobile operations that leads to increase public safety's ability to implement more effective, timely systems. The LMCC can develop standard engineering practices that all coordinators can acknowledge and accept, thereby allowing consistent public safety frequency coordination across the board.

A recent coordination request to my office from another coordinator indicated an applicant using a discipline specific frequency, which was first adjacent to a channel used by an incumbent Local Government user in the immediate area. The Local Government user had paid additional funds to acquire/implement this "Out of Service" channel, as there was no available Local Government channels open in their area. When an objection was received at the coordinator's main office, I was told there was no way to object to the new channel implementation, as both channels in question were exclusive to the coordinator and that coordinator had the last word on the implementation of those channels. I felt helpless to protect this user and feel interference to the incumbent system is inevitable. Ironically, when this applicant receives interference, the coordinator the victim used originally is perceived by the applicant to be responsible for the failed coordination practice, not the exclusive coordinator implementing potentially faulty engineering practices. In this instance, I had no ability to protect the Local Government user due to *the lack of standardization* between coordinators when implementing adjacent and co channel public safety frequencies.

As an example, all of the FCC certified coordinators are eligible to utilize 700 MHz and 800 MHz public safety frequencies due to standards set by the Regional Planning Committees and the Federal Communications Commission. It is these standards that provide a level

playing field for the coordinators to operate on, enabling different users (applicants of multiple coordinators) to coexist while the Regional Planning Committees effect maximum spectrum efficiency. The exclusive scenario afforded these users, unlike the public safety spectrum below 512 MHz, is due to the standardization of parameters in the coordination process.

Public Safety State Plans.

One of the concerns among the public safety frequency coordination community is that large, statewide systems using specific coordinator frequencies need exclusive coordinators to retain effective systems. It has been my experience that the lack of state plans (or lack of availability of state plans) for public safety users (ex. wide area Forestry/Conservation and Highway users) is causing radio stations operating as a part of larger state systems to be perceived as stand alone, individual sites. While it is true that a site that operates in a larger network has to be viewed differently by the coordinator than an independent site, what's needed to protect these large area systems is to make available documentation of these state plans to ALL coordinators for review. For example, as someone in Missouri who coordinates eight (8) adjacent state borders, I would be more effective if I could view, when needed, a current statewide plan established for Highway users in Oklahoma, or Forestry users in Iowa. Without those plans being available, I'm forced to view these "State of" sites as independent of any statewide system based on a lack of information to draw any other conclusion.

I would recommend that plans for statewide systems currently in effect be developed and contain site information, call signs and frequencies (as well as designations of input/output frequencies) used to allow out of state coordinators to provide these systems the best protection possible. The creation of the plans should be the responsibility of the state or wide area agency that utilizes and maintains the system, wishing to have the sites within the system viewed as part of a larger network. If changes are made, the plan on file should be updated and always reflect accurate correct frequency and site use. The agency responsible for the accuracy of these plans will be the user who wishes to identify their wide area system to all coordinators. It should be possible for these plans accessible to other coordinators.

Perhaps the plans can be posted on public safety coordinator websites for viewing by other coordinators. This posting of statewide plans will assist all coordinators in protecting statewide systems, while continuing to effectively coordinate local government users. The current lack of the availability of these state plans is an impediment to efficient spectrum implementation and leads to spectrum "warehousing" by wide area state users who indicate they use all of the channels assigned to that discipline when in reality they use a fraction of the channels, leaving little room for growth for local users in their state.

In addition, the posting of these plans will make wide area agencies aware of the differences between states implementing similar channels. For example, since public safety spectrum below 512 MHz does not utilize dedicated channel pairings as in 800 MHz, many state agencies find their adjacent states using common frequencies in different applications, increasing the potential for adjacent state interference. Often, a state is using frequency X as a mobile input (MO), while their immediate adjacent state uses the same channel as a base output (FB2). This allows the station output to be received at the receiver of the adjacent state, impairing mobile input traffic. The availability of channel plans to coordinators for statewide systems is an excellent opportunity to reduce this inter-state interference potential, while opening a dialogue between state systems for future implementations or changes. An overall increase in communication will assist wide area system implementers to build effective systems and improve system's co-channel use.

The CAPRAD database, created and supported by the National Public Safety Telecommunications Council (NPSTC), will address a similar need for increased communications between regions as it retains 700 MHz public safety plans and changes to those plans will be sent to all pertinent adjacent states for concurrence. This is a tool that will improve communication between adjacent regions/states, and also provide the resource to the user so they can review and open a dialogue on the proposed change to the initiating party.

I would urge the commission to review the potential of this database and research if this type of tool can benefit public safety coordination in bands outside of the 700 MHz band.

<u>Narrowband operations below 512 MHz and Limitation (footnote standardization for inter-system sharing channels) standards</u>

Narrow banding **As it will have a tremendous impact on the public safety frequency coordination process, I recommend the commission review its decision to provide a mandatory date for narrow banding public safety spectrum below 512 MHz. This is the final piece left from the original re-farming docket, and while many agencies still utilize 25 KHz channels (emission designators 20K) in their existing equipment, they do have the capabilities to operate with reduced emissions. Without a mandatory date that makes 25 KHz operation secondary to 12.5 KHz operation, licensees see no need to migrate to a reduced emission, which affects spectrum availability and reuse in their respective area.**

Footnotes **The use of footnotes indicating specific limitations on certain Part 90 public safety frequencies has been used effectively in the past. Recently, Part 90 frequencies designated with limitations 15 and 19 (inter-system sharing in the fire and police disciplines) have been applied for by other public safety disciplines for operations outside of their intended discipline. This inevitably disrupts on scene interoperability operations between police and fire agencies attempting to perform their mission. I recommend the existing limitations be retained and the language on the limitation re-written in a consistent manner to declare the channels are to be used for inter-system sharing and interoperability in their respective discipline, and use outside of the declared discipline is prohibited. This is particularly important, as the eventual implementation of narrowband spectrum below 512 MHz will introduce (and make more prevalent) several more of these inter-system sharing channels to disciplines of public safety. And, while limited to 11K emission, these channels should be viewed by the end user as an increased resource and be able to provide the same interoperable**

service to each discipline specific end user as the frequencies allowed 20 K emission currently provide (ex. 154.165, 154.280 and 154.295).
The National Coordination Committee's Interoperability Subcommittee Working Group 3 Rules, Policy and Spectrum Planning is working with the NCC Steering Committee to promote and develop interoperability to all public safety.

Respectfully,

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