



CITY OF DALLAS

September 19, 1996

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Office of the Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: In the Matter of The Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86

Dear Sir or Madam:

Enclosed herewith please find an original and ten copies of the City of Dallas' Comments in response to the Proposed Rulemaking in the above referenced matter. Please file stamp one copy and return to the undersigned in the enclosed envelope. Should you have any questions, I may be contacted at (214) 670-3478.

Sincerely,

Scott Carlson
Assistant City Attorney

Enclosure

- c: Judy Shaw, Acting Director, Equipment, Communications and Information Services
Dan Scrivner, Supervisor of Engineering, Equipment, Communicaitons and Information Services

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**COMMENTS OF
THE CITY OF DALLAS, TEXAS**

**In the Matter of the Development of Operational, Technical, and
Spectrum Requirements for Meeting Federal, State and Local Public
Safety Agency Communication Requirements Through the Year 2010**

WT Docket 96-86

Summary

The City of Dallas has been and continues to be vitally interested in the spectrum needs of Public Safety and submits these comments with that context. In considering the current and future needs of public safety, additional spectrum is absolutely required. While the Commission has proposed a number of measures which will alleviate the current and anticipated future inadequacy, no measure or combination of measures can adequately substitute for additional spectrum. While a possible supplement, commercial services are not a substitute for additional spectrum. Public Safety can not rely upon such services as critical component to meet its wireless needs. The Commission, in addressing and considering future needs, should focus on interoperability from an administrative rather than a technologic standpoint. Much of the technologic requirements were addressed in earlier rulemakings. The definition of public safety must not be expanded. To do so will only exacerbate the problem of too many users and not enough spectrum. The need for additional public spectrum can not be met through a rigid bureaucratic prioritization of public safety needs.

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
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The Development of Operational,)
Technical, and Spectrum)
Requirements for Meeting) WT Docket 96-86
Federal, State and Local Public)
Safety Agency Communication)
Requirements Through the)
Year 2010)

COMMENTS OF
THE CITY OF DALLAS, TEXAS

The City of Dallas ("Dallas") offers the following comments in response to the Notice of Proposed Rulemaking entitled In the Matter of The Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010 ("NPRM").

1. INTRODUCTION

1.1 Dallas is a city with a population of 1,006,877 and encompasses 333 square miles within its boundaries. As measured by industry survey, the public safety communication system of Dallas is the eighth largest in the nation. The system remains at the forefront of technological innovation.

1.2 Dallas employs sophisticated telecommunications technologies in the delivery of services to citizens. As one might expect, the Dallas Police Department and Fire Department make extensive use of telecommunications technologies. Other City departments, not part of public safety but nevertheless vital in discharging the responsibilities of local governments to citizens, also use wireless technologies. While these remarks will center upon public safety, these other uses should not be disregarded in this rulemaking.

1.3 Dallas has been an active participant in the proceedings of the Public Safety Wireless Advisory Committee ("Committee") since inception. Knowing first hand of the public safety problems created by the lack of spectrum and anticipating the demands of future technologies prompted Dallas' involvement in the proceedings of the Public Safety Wireless Advisory Committee since the committee's inception. Dallas has monitored the sale of public spectrum and the proposals for future sales. We offer these comments in an effort to shape those proposals and urge caution for any auction which in turn could compromise public safety.

2. INTEROPERABILITY

2.1 The NPRM and the proceedings of the Committee focus, among other matters, upon interoperability. While interoperability is important and integral to efficient spectrum use, interoperability itself may already be an

issue which the current users of spectrum have already, for the most part, addressed.

2.2 A focus on interoperability is not complete without a corresponding review of public safety agency interaction. Based upon the experiences in Dallas, the limiting factor in interoperability is not technology, but rather clearly defined interacting roles between various cooperating agencies or governments. Those entities who wish to communicate inter-agency do so already. Technological shortcomings do not hinder this communications. There are no advances in technology needed for communications between dissimilar systems, including those on differing bands. Perhaps the method of linking the systems is sometimes cumbersome but the end result is achieved, nevertheless.

2.3 Some guidance regarding interoperability and the need for administrative rather than technological solutions may be gathered from the 1988 National Public Safety Planning Advisory Committee (NPSPAC) proceedings. The 1982 Air Florida crash and the emergency service experiences spurred NPSPAC. That tragedy highlighted the inability of Federal and local Public Safety agencies to communicate. With the ultimate findings, allocation of additional spectrum was conditioned upon interoperability of systems. Certain channels were dedicated to the notion of commonality of use. To that end, NPSPAC developed a process that was made part of the National Plan, and all subsequent licensees of that new

spectrum now have the capability of interoperability, despite the type of system or their location.

2.4 A technical solution to interoperability was achieved through NPSPAC. The NPRM fails to note any inadequacies in that result. Yet, the NPRM focuses on interoperability and all the shortcomings resulting from its inadequacies.

2.5 Rather than interoperability among local Public Safety agencies, the real problem is the lack of interoperability among Federal agencies and between those same Federal agencies and other public safety entities. NPSPAC interoperability standards and conditions have existed since 1988. These Federal agencies have yet to avail themselves of this capability. The problem, therefore, is not so much communications between local government agencies but communications between the Federal government and those working with it.

2.6 In conclusion, the City of Dallas strongly supports interoperability. A new technological plan and dedicated spectrum is not necessary to achieve the improvements sought by the Commission. Rather, the solution to the issue of interoperability is primarily administrative. Federal, State and local agencies must join together for the purpose of intercommunications. "Dress rehearsals" of various scenarios involving multi-agency cooperation should be conducted regularly. During those times, allocation of responsibilities could be assumed and communications logistics problems addressed and

resolved. Interoperability, by itself, will not lead to a resolution of these administrative logistical constraints.

3. DEFINITION OF PUBLIC SAFETY

3.1 In light of the current shortfall in public spectrum which prompted the NPRM and the formation of PSWAC, it is inappropriate and counter-productive to expand the definition of Public Safety. The existing definition has served well through the years and Dallas does not believe that it is in the best interests of those activities currently encompassed within definition of Public Safety to expand the definition to include services that have traditionally functioned under other eligibility requirements.

3.2 The Commission has stated throughout the NPRM that spectrum for Public Safety use is and will be in short supply. That short supply will be exacerbated with the addition of other users of the spectrum. With this in mind, Dallas objects to the inclusion of entities, e.g., railroads, petroleum providers, utilities, etc., under the proposed Public Safety "umbrella." Such users have spectrum already. These entities are distinct from traditional Public Safety. While recognizing that each provides indispensable services for the public, each, after all, is a commercial, or "for profit" entity. Yet, why draw the line here? What about grocery stores and hospitals? Indeed, with more users, the need for administrative responses is increased.

3.3 Should interoperability with these entities be required, it should be facilitated by an agreement between them and the affected Public Service agencies, at the discretion of the Public Service agency. It would be the responsibility of the non-public safety entities to provide a frequency or frequencies for interoperability with Public Safety providers during emergency situations, not vice versa. In other words, the non-public safety agencies should adapt and accommodate to the Public Safety agency technology and not the public safety community adapt and accommodate to the requirements of these non-public agencies. Individual Public Safety agencies would be allowed to enter into agreement with the non-public safety users for the use of defined Public Safety frequencies during incidents, but only at the sole discretion of each Public Safety provider.

4. SERVICE FEATURES

4.1 Additional spectrum is absolutely mandatory to meet the current and future needs of the Public Safety community. This need is increased by the proposed expansion of the definition of Public Safety. This assessment is based upon participation in the entire PSWAC and presentations from representatives of the communications industry. While helpful, yet-to-be developed compression schemes and other proposed methods to increase efficiency do not alleviate these needs.

4.2 The Commission has asked for comments about prioritizing needs, based upon the belief that a solution to the shortage of spectrum is to arrange types of Public Safety communications in some sort of hierarchial fashion. Prioritization of Public Safety needs is an unworkable and ill-conceived approach to satisfying our needs for more spectrum. Any and all categories of Public Safety communications should be considered equally; all are necessary for the protection of life and property and must be available at all times.

4.3 Inherently, prioritization involves rating one public safety need as compared to others. To prioritize categories of communications is to essentially say that some communications, i.e., those at the bottom of the priority listing, must not be necessary since under certain circumstances those categories' communications would be (evidently) disrupted in order to accommodate categories with a higher priority. Obviously, Public Safety providers deploy manpower and react to the most critical situations first. This response is individualized, though, and defies rigid, doctrinaire approaches. The NPRM, on the contrary, envisions a strict, rigid response to circumstances. In reality, these circumstances must be addressed on an ad hoc basis.

4.4 While Dallas has and will continue to employ all workable schemes to increase spectrum efficiency, those means along with system sharing will never be able to address the shortage we continue to experience. Additional spectrum is absolutely essential. The inadequacy of current

spectrum can not be overcome by commercial providers and the services which they offer. By their nature, commercial providers cannot meet demand for many reasons, only one of them being that system design and configuration lacks the features necessary for Public Safety.

5. TECHNOLOGY ISSUES

5.1 Dallas, as well as other Public Safety communities, employs trunking to increase spectrum efficiency. Over the past fifteen years, most agencies seeking additional spectrum and needing more than three channels have acquired trunking systems out of regulatory necessity. Despite the increased efficiency and desirable features of trunked radio, Public Safety remains hampered by the incompatibility of trunked radio systems designed and built by competing vendors. This incompatibility is an obstacle to linking multiple systems for shared, wide-area usage.

5.2 The Commission may have stopped short when it mandated trunking in the 800 MHz spectrum but did not require vendors to develop non-proprietary, open architecture operating systems. Public Safety entities, which universally derive funding from tax based revenues, must procure communications systems based on competitive bidding process. With few exceptions, the deciding factor is the lowest bid, depending on the law, ordinance or statute under which the local government derives its purchase authority.

5.3 The competitive bidding requirements creates a technological hurdle. In considering an area wide system composed of multiple agencies, competitive bidding by each Public Safety entity at different times makes it impossible to guarantee that the same vendor (with each vendor having a proprietary operating system) is selected by every agency operating independently. Even if all agencies except one choose the same vendor, that excepted agency will now have an incompatible system, preventing the mutual use of a multiple, linked, area-wide system.

5.4 Should all the agencies happen to choose the same vendor (a very unlikely scenario), the situation could become monopolistic. Once the system is in place, no other vendor could compete to sell its end user equipment since they have no license for the operating system. Abuses such as price gouging; arbitrary, mandated software upgrades; discontinuance of, or lack of support for equipment and non-committal maintenance and service support have occurred and can be expected to occur in the future.

5.5 If a standard is mandated under this new rulemaking, it is imperative that it result in a complete, all-encompassing open architecture that allows any manufacturer to build equipment compatible with and allowing communications (including feature sets) between all end-user equipment. No aspect, including feature sets of this architecture, must be proprietary. Furthermore, the architecture should be constructed such that

manufacturers cannot include features in their end-user equipment that prove incompatible with other vendors' equipment.

5.6 While receiver standards can be better addressed by equipment manufacturers and frequency coordinators, the Commission should apply any adopted receiver standards to other categories of service that may have spectrum located adjacent to Public Safety frequency spectrum. Any benefit obtained by implementing receiver standards for Public Safety alone would be offset if adjacent channel users in differing categories could successfully argue that they received harmful interference.

6. SPECTRUM ALLOCATION

6.1 The Commission requests comments on spectrum allocation and suggests the use of commercial wireless services as one approach. In general, commercial services are not suited for Public Safety communications and should be employed at the most for administrative, non-emergency purposes.

6.2 The Commission notes that 380-399.9 MHz segment represents a potential source of spectrum. Dallas supports the use of this segment of spectrum. The relative proximity to the 450-470 MHz band and the corresponding ease with which manufacturers could build equipment encompassing both bands, as well as the 470-512 MHz segment.

6.3 The Commission should go one step further and consider allocating the entire 450-470 MHz band to Public Safety. Public Safety already

has a presence in this spectrum segment and the band has attractive propagation characteristics for Public Safety; other users of the band are primarily commercial, i.e. "for profit" enterprises using spectrally inefficient technology, and the vast majority of the systems of those users have been in place long enough to be fully amortized.

6.4 Licensees in the 450-470 MHz band operating businesses for profit should take advantage of commercial wireless services which provide significantly more spectrum efficiency than the antiquated conventional systems currently in use. Since such systems are already amortized, there should be little cost in relocating them to commercial services and with the reorganization of the SMR frequencies at 800 MHz, the users should find no shortage of capacity.

6.5 The Commission notes the exclusivity or leasing of excess Public Safety spectrum in the interest of fostering more efficient use of the spectrum. While Dallas offers no specific comment on this proposal, the Commission should not tie Public Safety spectrum in any way to commercial services.

6.6 NTIA offers massive, shared, narrowband, multi-site trunked radio systems as a viable alternative to allocating spectrum to Public Safety. This approach will only be successful when accompanied by a legally viable procedure to facilitate the implementation and use of such a system. NTIA says that this approach "...would generate a far-reaching change for Federal, State and local public safety agencies." Dallas whole-heartedly agrees but stops

short of declaring this change as beneficial until a review of the needed governing administrative procedure for such a system is complete.

6.7 NTIA notes that barriers exist to band sharing between Federal and non-Federal users. Dallas agrees with this contention. Having said this, Dallas reiterates that the barriers are administrative, have developed over the years and are somewhat arbitrary. Technologically, there is no reason for the barriers to exist.

7. COMMERCIAL SERVICES

7.1 In the strongest manner possible, Dallas objects to reliance upon commercial services to address the needs for additional Public Safety frequency spectrum. Commercial services lack the reliability and coverage characteristics which are necessary to address Public Safety requirements in a city the size of Dallas. The systems are designed for dissimilar purposes with different requirements. All that is in common is the ability to communicate with and among others who have the same technology. The differences render commercial services an adjunct to Public Safety technology but not a replacement or foundation for traditional Public Safety technological use.

7.2 Design Goals

Public Safety When a system is designed and constructed for Public Safety communications, the design goals are to provide reliable communications in a defined geographic area,

continuously over time and adequate for communications among a set number of users.

Commercial Services Commercial systems are designed to cover most of an area, most of the time. Access to a calculated portion of their total subscriber base at any time is considered acceptable. As a corollary, the blockage of communications to a certain percentage of the subscribers' call attempts is also acceptable.

7.3 Poor Coverage

Public Safety Should an area of poor coverage be determined in a Public Safety system, it is addressed and all steps necessary to remedy the problem are taken.

Commercial Service With a commercial service provider, areas of poor coverage are examined for potential revenue. If the revenue does not appear to be justify the expense, the coverage will not be enhanced.

7.4 Traffic Loading

Public Safety Traffic loading is determined by worst-case scenario. The system is designed to accommodate all users involved in responding to large-scale incidents.

Commercial Service Providers size the capacity of their system to provide access to a certain percentage (never 100 percent) of their subscribers on the so-called "busy hour" of an average day.

There is no consideration given to situations that may cause an unusually high concentration of users in a given geographic area, e.g. events deemed newsworthy by the media. Dallas Public Safety agencies have experience blockage of cellular telephone use during critical incidents. A concentration of users in the area of the incident exceeds the capacity of the system. Compounding the problem, savvy users, such as representatives of the news media, will make continuous attempts to access the system. Once successful, the connection, remains open for the duration of the incident depriving others in this concentrated area of valuable capacity.

7.5 Single Site Dependence An inherent weakness in cellular telephone is its dependence on a single site for system control. Should an incident occur that encompasses and disables this main site, there will be no further communications until the incident is brought to a conclusion and the site restored.

7.6 For Profit Nature Commercial services are ill-equipped to form the backbone of Public Safety technology for another reason. Minimization of costs and maximization of profits motivates these concerns. With this focus, such enterprises will minimize their capital costs. They will locate facilities in those areas which provide the highest revenue. This focus does not provide the reliable, universal coverage demanded by Public Safety. Areas

underserved are just as susceptible to Public Safety needs as those areas which receive greater service.

7.7 Dallas has over eight years experience with the widespread deployment of cellular telephones in emergency response vehicles. We state unequivocally that commercial service in general, and cellular telephone in particular are not suited for public safety applications. It is our experience that the service is adequate only for non-emergency administrative purposes, e.g. calling complainants for additional information, returning phone calls, etc.

7.8 The Commission seeks comments on restricting the types of uses permitted on Public Safety frequencies and structuring the rules to provide incentives to move to commercial services. The Commission should abandon this line of reasoning entirely. If Public Safety will not be accommodated with the amount of additional spectrum it has identified as necessary, it will be of the utmost importance to have total and complete flexibility in the use of the spectrum that is received.

7.9 Other than for purely administrative purposes, no viability in the use of commercial services to alleviate the spectrum shortage of Public Safety exists. DALLAS URGES THE COMMISSION, IN THE STRONGEST TERMS, TO ABANDON ANY CONSIDERATION OF COMMERCIAL SERVICES AS A MEANS TO ALLEVIATE THE SHORTAGE OF PUBLIC SAFETY SPECTRUM AND TO MAKE NO REQUIREMENTS IN THIS OR ANY FUTURE PROCEEDING THAT PUBLIC SAFETY EMPLOY COMMERCIAL SERVICES.

8. FUNDING MIGRATION

8.1 Dallas agrees with the Commission assessment regarding the substantial financial requirements inherent in a migration to new spectrum and the significant obstacle that this expense poses to Public Safety. One solution proposed is the auction of vacated spectrum. The proceeds would either fund the migration, or finance the relocation costs of the incumbent Public Safety licensees, much in the same manner as was done with the incumbent licensees of 2 GHz microwave radio.

8.2 Dallas encourages modifications to the proposal. First and foremost, the rules regarding the relocations and negotiations must be firmly established prior to any transition. Once established, the rules must set the foundation upon which the parties negotiate their agreements. Changes in the underlying rules after negotiations are begun disrupt all parties. Without such assurance, parties will hesitate to enter into agreements or finalize agreements thinking a better deal may await the resolution of a petition for reconsideration or further notices of proposed rulemaking. Perhaps, the Commission, in promulgation of its rule, should limit any modifications for two years.

8.3 A tremendous amount of technical and administrative overhead underlies negotiations for spectrum relocation. Many Public Safety agencies lack the technical expertise to guide them through the process, and even some that do have the expertise will wish to avail themselves of private

sector consultants. For these reasons, incumbents must be allowed to negotiate for certain costs, including their own staff time and fees for outside engineering and consultants, in addition to direct system replacement costs.

8.4 Attention must be paid to the definition of "comparable system" if this is included in the wording of the rules governing the negotiation process. Obviously, an incumbent with a VHF conventional system operating on a 30 KHz channelization scheme will not be relocated to a similar system. Yet if the new licensee wishes to offer, and has the latitude to insist that the incumbent take a cash settlement based strictly on "comparable system", the incumbent will find that this settlement will be severely short of funding the types of systems, e.g. narrowband, digital trunked systems, foreseen to be mandated by these proceedings.

9. IMPROVING PUBLIC SAFETY SPECTRUM ADMINISTRATION

9.1 Dallas supports allocating responsibility for the database to the frequency coordinator. As it stands now, the database is rife with errors and suffers severely from being out of date. Dallas' experiences with frequency coordination done by APCO have been positive. While the fees seem somewhat excessive, the City believes that APCO does an exemplary job in providing an excellent frequency coordination service.

9.2 The Commission should not adopt any changes which would hamper APCO. Issuing authorization prior to frequency coordination is

"putting the cart before the horse" and is sure to open a Pandora's Box of problems, harmful interference and finger pointing. The Commission should give this particular proposal no consideration. The Commission seems to believe that this proposal will somehow streamline the application process and implies that frequency coordination is at fault for slowing it down. To the contrary, frequency coordination is completed expeditiously. Rather, the license issuance process could be enhanced to avoid the months delay.

10. COMPETITION IN THE SUPPLY OF GOODS AND SERVICES

10.1 A serious problem facing Public Safety today is the lack of competition in the supply of goods and services. As noted by the Commission, two suppliers control the vast majority of the market. As mentioned earlier in these Comments, proprietary equipment, incompatible with that of other manufactures effectively limits competition.

10.2 Even though there is competition during the initial procurement of the system (and this competition is, at best, limited) once the system is in place, the owner is at the mercy of the supplier from that point forward, i.e. future equipment is "sole source". For example, in response to the requirement for spectrum efficiency which resulted in the advent of trunked radio, each manufacturer of trunked radio developed a proprietary protocol, effectively eliminating competing manufacturers from offering compatible equipment.

10.3 To compound matters, the tremendous market potential for mass produced consumer wireless equipment has attracted the bulk of attention from existing and potential manufacturers and eroded research and development funding for Public Safety products. Vendors have made it evident to Dallas representatives that any future strides in Public Safety communications will have to be some outgrowth or adaptation of cellular radio or PCS technology.

10.4 True competition will only occur with the implementation of an operating system that is open architecture and can be reasonably licensed by any vendor. A standard of the type that defined cellular radio would be a good example. Further, the system must be such that equipment manufactured by any vendor will always have the ability to communicate with that of any other vendor. Developing and implementing an open communication standard for the infrastructure will do little good to further competition if vendors are allowed to provide end-user equipment with "feature sets" that limit those radios to communications only among the same vendor's equipment. Even with the advent of such a standard, manufacturers will be reluctant to risk research and development funds to further advancements in Public Safety communications, given the relatively small size of the Public Safety market when compared to the consumer wireless market.

11. CONCLUSION

Dallas appreciates the opportunity to submit these comments. In considering the current and future needs of Public Safety, additional spectrum is absolutely required. No substitute exists. While the Commission has proposed a number of measures which will alleviate the current inadequacy, no measure or combination of measures can adequately substitute for additional spectrum.

Respectfully submitted,



Scott Carlson
Assistant City Attorney
City of Dallas