



From the outset the identification of the problems has been difficult. Not until various users began communicating with each other through user groups and industry associations was it realized that the problem was not a local one but rather an epidemic of nationwide magnitude.

Today it is recognized as a serious threat to effective public safety communications and a problem which must be addressed immediately. Coincidental to this realization was the events of September 11<sup>th</sup> which have brought public safety to the forefront in importance and national security.

This response to the NPRM will address specific paragraphs with the opinions of the Telecommunications Section of the City of Fort Lauderdale. Each paragraph number is indicated to the left of the comment.

19. The description of the problem in the NPRM is accurate. The importance of finding a remedy to the problem has to be elevated in magnitude. The FCC has done a good job in bringing this matter to the rule making process with the speed that it has shown. The impetus of the NEXTEL and NAM proposals has focused the problems and it is hoped that these and alternate proposals generated by the NPRM will result in a satisfactory resolution to this problem.
20. Upon reading the proposals from NAM and Nextel and attending industry meetings and conference calls with APCO (Association of Public Safety Communications Officers) it seems that band restructuring is a viable solution to the problem that may benefit all users. Clearly, from industry discussions, meetings and Internet web sites, there will be alternate proposals appearing during the NPRM comment process. These will have to be made public as soon as possible in order to evaluate them during the reply comment period. The City of Fort Lauderdale will not be offering an alternative but will comment on the existing proposals and the other questions presented in the NPRM.
21. The NAM proposal attempts to alleviate the problem by moving public safety to a contiguous band of frequencies.
22. NAM proposes to move the current NPSPAC spectrum users and existing 806 spectrum users to a single contiguous band. The logic seems simple enough. Put more distance between the conflicting users. That is, move the cellular type operations further away to reduce the possibilities of interference. By our estimation, there will still be the same types of interference plus some additional problems. Separation will reduce the noise floor since the cellular, multi-transmitter sites will be somewhat removed. Unfortunately this will not significantly reduce the interference levels. Testing of our own NPSPAC system has demonstrated that the increases in noise floor as well as the receiver overloading problem is present from both the cellular radio systems and the Nextel sites, with the Nextel sites causing the greatest problem.

NAM's contention that the relocation of public safety to the lower portion of the 800 MHz spectrum is additionally flawed in that assignment of frequencies between current users and "transferees" will be difficult if not impossible without extensive changes in the frequency coordination system. Incumbent public safety users, 806 MHz public safety users being relocated and NPSPAC users being relocated will have to vie for available spectrum that will assure adequate channel spacing and geographic spacing to prevent co-channel and adjacent channel interference. This will require development of a much more sophisticated frequency coordination system than is currently in place. NPSPAC licensees are actually coordinated by the local region committees rather than the FCC designated frequency coordinators. These designated coordinators are merely the conduit for the applications and the keepers of the licensing databases. In order for relocation to take place it will be necessary to revise the current method of frequency coordination, perhaps to a concept similar to the region committees. 800 MHz incumbents will have to relinquish their current frequencies and be re-coordinated along with the transferred users.

NAM makes the observation that a benefit of the relocation process is that the public safety spectrum would now be adjacent to the new 700 MHz allocation. While this is true the "benefit" is limited and the reality of available 700 MHz spectrum and equipment is still years away. The systems of current 800 MHz users will receive little, if any, benefit to their existing radio systems from the 700 MHz spectrum. ANY REFERENCE TO UTILIZATION OF THE 700 MHZ SPECTRUM SHOULD BE DISCOUNTED FOR ANY PROPOSED ALTERNATIVES UNTIL SUCH TIME AS THERE IS A DECISION AS TO WHEN THE 700 MHZ SPECTRUM WILL TRULY BE AVAILABLE NATIONWIDE.

Retuning of existing radio systems may or may not be possible. In the case of some current NPSPAC system operators it may not be possible. Older equipment may not have the capability of being retuned without extensive modifications to circuitry. Modulation levels of transmitters will have to be changed. What will be the NEW standard for deviation? Incumbents and other 806 MHz users operate 5 KHz systems while NPSPAC users operate at 4 KHz.

Mixing the NPSPAC standard with the 5KHz deviation standards of existing radio systems in the same spectrum could create more problems. Standards for all channels in a selected 800 MHz spectrum must be changed in order to assure users that all frequencies will be compatible with existing radio deviation capabilities. Users will not be able to mix existing radios on the same system and older 806 MHz radios may not operate properly in a narrower deviation mode.

23. The Nextel Proposal offers a contiguous 20 MHz block of spectrum for public safety and a contiguous 16 MHz block of spectrum for CMRS users. They also suggest that a 2 MHz guard band be created between public safety and CMRS systems. This would result in a significant increase to public safety spectrum which is desperately needed. We agree with Nextel that digital SMR transmitters would not interfere with base stations. The guard band concept may present a greater benefit than the spectrum loss when weighing the interference potential
24. On its surface it appears that Nextel's assertion that their band plan will eliminate interference will work. We, like many other local governments, do not have the technical analysis capabilities to prove their assertions. Under present circumstances this realignment of spectrum appears to be a logical step. Whether interference will be "eliminated" has yet to be determined. From our empirical data of actual field testing it appears that relocation would certainly reduce the potentials of interference and significantly reduce the existing interference problems in Fort Lauderdale.
25. If public safety users are to receive contiguous spectrum the only logical method to obtain it is to relocate existing Business, SMR and I/LT incumbents to other frequencies. We raise the question at this point as to how this would be accomplished and who would pay for it. While Nextel has stated that they would contribute to relocation of public safety users, there has been no discussion of how commercial users would be compensated or subsidized if they were required to move. This question will remain as one of the significant ones until the NPRM process is completed. The most significant aspect of this part of the Nextel proposal is that it will double the available spectrum for public safety. The need for this spectrum expansion has been cited many times by many officials, agencies and organizations.
26. The FCC's suggestion that the interference caused by interleaving can be solved by removing public safety from the interleaved spectrum addresses only one small part of the problem. Interleaved channels cause problems due to adjacencies and intermodulation. These would be reduced for the small number of users that utilize this portion of the spectrum. The majority of the interference problems would not be addressed by this proposal. The problems caused by signal overload and noise (near-far interference) will still not be solved. The City of Fort Lauderdale does not have the expertise to provide alternatives to this highly technical problem. Organizations such as APCO which represent our public safety communicators can provide a much better set of alternatives.
27. Frequency coordination in itself will not eliminate intermodulation interference. Intermod products are formed by so many mathematical combinations of carriers that it would present a technical nightmare to use this as a licensing criteria. Without knowing all possible co-located frequencies,

receiver frequencies, IF frequencies, oscillator frequencies, etc. the chances of using IM as a criteria are limited. We do not believe Nextel's assertion that intermodulation "is the primary interference mechanism." In the case of the City of Fort Lauderdale it has been demonstrated that the primary problem is signal overload. We do agree that the characteristics of receivers does play a part in the interference process. The ability of a receiver to reject intermodulation interference and adjacent channel signals plays a significant role in the performance characteristics in high field environments. With the proliferation of co-located sites with many transmitters it is also possible that intermodulation products may actually be produced "on-frequency", in which case there is no practical solution. Will moving cellular architecture radio system far outside the 800 MHz spectrum help? Intuitively the answer is yes. This will reduce intermodulation products as well as the high signal fields currently seen in the 800 MHz spectrum.

28. The concept of relocation will certainly provide an opportunity to increase spectrum efficiency – but at what cost. Any relocated user would be required to replace equipment. We argue that the cost would not be incrementally minimal as the FCC suggests but rather would present a major impact on users. Replacement of existing wideband systems will require both infrastructure replacement and subscriber equipment replacement. While the system operators may be able to pay for such a replacement what will the individual subscribers do? They have a large capital investment in radios that will require replacement en-masse as a system is changed.
29. The need for additional public safety spectrum has been discussed "ad nauseum" in many venues. It is clear that much more spectrum is required for public safety users. While the 700 MHz band offers some resolution to the problem that solution is still years away for most jurisdictions due to the rulings allowing TV stations to remain on the air. The Nextel proposal offers an immediate solution to the spectrum problem while the NAM proposal barely addresses it. We believe that the current 800 MHz database is accurate. Creating a plan that would implement narrow band technology in the 800 MHz spectrum will certainly provide more efficient spectrum use. We are concerned, however, that the time that it will take to develop such a plan would offset any gains in the final resulting spectrum. As we have seen in 700 MHz there is yet to be any practical radio equipment produced due to the lack of availability of the spectrum and the technical constraints of narrowband technology. Creating another audit, similar to the current one below 512 MHz, will further delay the process. Much of public safety is licensed in the NPSAC band. The region committees have reliable databases for licensees and frequency allocations. The frequency coordinators should have accurate records for all other licensees in the 800 MHz spectrum.
30. As demonstrated by the events of September 11<sup>th</sup> we agree that a need for additional interoperability channels exists. The FCC's dedication of five

channels in the VHF spectrum and four pairs in the UHF spectrum will help to some degree. Relocation of the NPSPAC spectrum will have a major impact on existing interoperability plans. Today, virtually all 800 MHz users, whether NPSPAC or other spectrum, utilize the five NPSPAC interoperability channels as part of their current operational protocols. It is imperative that additional spectrum for interoperability be made available. If the NPRM results in relocation of other users out of 800 MHz then one of the first priorities should be to assign additional interoperability channels in the re-allocated spectrum. We also believe that it should be an FCC requirement that all public safety radios be required to have capability of operating on 800 MHz interoperability channels.

31-37 Relocation of users is the primary consideration of both the Nextel proposal and the NAM proposal. Nextel proposes major changes while NAM proposes minimal changes. Both agree that some form of relocation provides a practical resolution of problems. We believe that the Nextel proposal is far more advantageous to public safety. Nextel also addresses the costs of relocation while NAM does not. The offer of Nextel to provide \$500 million is a start. Based upon industry discussions it is clear that this amount is far from sufficient to pay the relocation costs. No definite method of funding the balance has been provided by Nextel. Again, from CMRS industry meetings and reports it is clear that the industry does not want to fund the costs of public safety moves. This problem is sure to develop further as reply comments are received.

The FCC should carefully consider moving any additional non-public safety users into the new 700 MHz spectrum. To do so may create the same problems that exist in the 800 MHz spectrum, if not from IM problems then certainly to signal overload issues.

39-47 Relocation costs are the leading topic of industry and public safety discussions related to this NPRM. Without repeating all of the comments of others we will address only our own concerns regarding costs. The City of Fort Lauderdale's radio system is now more than 8 years old. Even though it is a NPSPAC radio system the infrastructure, by current standards, is already obsolete. By our estimates a relocation will cost as much as a system replacement, or roughly \$ \$5,000,000 to 7,000,000 for infrastructure. This is due to the fact that our older equipment is not capable of being retuned and would require replacement. Like any other relocated NPSPAC system it is likely that all antenna systems including antennas and combiners will also require replacement due to the wide variation in frequencies.

Many of the subscriber radios used by public safety can be retuned. However, our lower tier radios used by the other local government agencies on the radio system will require replacement as they are already at the end of their manufacturing and serviceability life cycle.

Rather than phasing out these older radios as they fail we would have to replace them all at once. The phase out process has little budgetary impact as these radios would continue in use over the next three to five years. A wholesale replacement due to relocation will cost the City in excess of \$500,000.

Local governments project capital spending many years in advance in order to develop funding methods. The radio systems purchased have anticipated life expectancies that last for up to fifteen years. No plans for capital cost additions (or changes) have been made for our radio system. Relocation without total reimbursement will put a severe financial burden upon the citizens of any government that is forced into a move.

The Fort Lauderdale radio system was purchased because the NPSPAC spectrum became available. The licensing was done in good faith that this would be a radio system that would serve the citizens for many years into the future. Forcing relocation without reimbursement at this time will create major funding problems.

Should the funding for relocation become available it is essential that it be administered effectively. A process must be developed that will allow for payments to be made expeditiously and equitably to all validated system operators. While we have no recommendations at the present time it seems logical that that a method of agreement as to what qualifies for payment must be developed. Additionally, it must be determined as to whether payments will be made to pay for relocation or reimburse expenses after the fact.

Who will pay the costs of relocation? Nextel has offered \$500 million and suggests that the radio industry pay the remaining costs. No definitive cost estimates have been made as yet by either the government or industry but the consensus is that the costs will be considerably higher. We take no position on the matter of where the funds come from but reiterate the fact that full costs must be paid to any public safety systems that are impacted by any new rules.

One possible course of action would be for the FCC to assess all users a fee based upon the needs of public safety and homeland security. A fund thus established could be used to pay for the public safety costs.

48-61 How feasible is a relocation plan? The descriptions of the various bands and technologies as listed in the NPRM make it appear that all of these spectrum segments are viable for relocation. We question whether this is true. Propagation changes as frequencies increase make for the requirements of more sites and different technologies for equipment. What equipment is currently available or will be manufactured in a reasonable time frame has yet

to be determined. Certainly FCC approval procedures for new products will have to be addressed if changes are to be made in an expeditious manner.

Nextel has made it clear that they would like to move to the 2 GHz spectrum as part of their proposal. From a technical aspect this seems like a good choice. They would no longer create any problems as a cellular type carrier adjacent to the public safety and other “push to talk” users. They will develop their technology to be compatible with this new spectrum. We leave the issue of spectrum auctions and spectrum assignments to others to discuss.

62. The question of primary or secondary status is significant. The question that arises from letting an incumbent remain in a non-interference basis is; what happens if, initially there is no interference noticed but after a time it is proven that the incumbent is creating interference? Will being classified as a secondary user remove them from the affected frequency? Will there be spectrum available for them to relocate to if other users have already moved. The best choice, we believe would be not to allow a secondary use status in any relocation plan.
  
- 63-66 We believe the implementation schedules proposed by Nextel are not satisfactory for local government users. As previously stated any large-scale system changes will require significant funding. Local government funding plans cannot generally provide capital funds in less than a multi-year process. Mandating specific relocation times in anything less than a three to five year period would be difficult if not impossible for local governments. Of course, if an individual agency were able to react quicker they should be given the opportunity to move at their own pace.
  
67. Based upon the reasons for the NPRM and the urgency required to enact these changes we believe that fees for relocation to new spectrum should be waived. As an alternative, perhaps these fees could provide the basis for funding the relocation costs of public safety.
  
- 68-72 As previously stated we believe that frequency coordination methods will have to be changed dramatically if they are to be effective. The complexity of relocating NPSPAC to the general category or moving users to 900 MHz or 700 MHz will generate highly complex matrices when developing schemes to accommodate incumbents and transferees. The current public safety NPSPAC licensees were all “coordinated” not by FCC frequency coordinator organizations but rather by 52 region committees who were intimately familiar with the local requirements of each applicant. If incumbents and NPSPAC licensees must now share the same spectrum they must all comply with standards similar to those developed for NPSPAC with regard to

coverage contours and frequency reuse. Geographic concerns will have to become a significant factor when coordinating all of the relocated systems.

The region committee process has been extremely successful in maximizing the use of the PNPSAC spectrum. It would be counterproductive not to implement a similar process if a new 800 MHz spectrum is to be implemented.

The current region committees operate as volunteer organizations and receive no funding assistance. If they were to participate in a mass relocation effort they would have to be supplemented with additional help and be properly funded. For the initial time period of mass relocation it could be a full time job for some of these region committees.

Nextel's proposal suggests that each of the current four frequency coordination groups, the NPSPAC regions and the 700 MHz spectrum RPC's be represented in a "consolidated" Public Safety Special Coordinator group that would perform the coordination. While we believe that the concept is correct it may be difficult to implement. Since the RPC's are volunteer agencies and their members work for various government entities it may be difficult to have regular representation on one committee made up of both full time and part time participants. The issue will require further study.

73-75 Based upon testing of currently available radio products it appears that some standards may have to be imposed upon the radio manufacturers in order to minimize interference. Our own testing of new Motorola XTS-3000 series radios as compared to the MTS-2000 series we currently have in the field has demonstrated that the new radios do reject interference better. We believe that some improved receiver standards should be implemented.

Transmitters must also be looked at as far as out of band emissions are concerned. In the case of the Fort Lauderdale radio system it appears that the OOB mode is most affecting our radios. The increase in local noise levels around Nextel and cellular type sites is causing our radios to desense on receive. When this occurs the radio no longer hears its control channel and it will then neither receive nor transmit.

The FCC suggests that more robust signals would benefit public safety. This is certainly true. The problem lies in the fact that many radio systems, especially those licensed in the NPSPAC spectrum are geographically constrained and the increases in power could create problems with adjacent channel and co-channel users. While relocation and re-coordination will probably minimize this problem it must still be considered as a potential weakness.

Likewise the FCC references reducing the power of CMRS systems in the vicinity of public safety systems. As a public safety system operator we concur with this idea. In fairness to the CMRS users though, it may not be practical especially in an urban environment where more powerful signals or more sites are needed for building penetration. The proliferation of sites would probably create a similar problem to public safety if this scenario occurs.

The City of Fort Lauderdale takes no position on the subsequent issues referenced in the Notice of Proposed Rulemaking. We look forward to seeing the responses to this Notice and the follow up of reply comments. We believe that the responses will provide many other options for solving the interference problem and reply comment period will be filled with more effective ways to resolve the problem of interference.