Before the FCC 02-81
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Improving Public Safety Communications	)	CC Docket No. 02-55
in the 800 MHz Band	)	
	)	
Consolidating the 900 MHz Industrial/Land	)	
Transportation and Business Pool Channels	)	

TO: William F. Caton
Office of the Secretary
Federal Communications Commission
445 12th St., S.W.
Room TW- A325
Washington, D.C. 20554.

COMMENT OF SKITRONICS, LLC

Pursuant to Sections 1.415 and 1.419 of the Rules, 47 C.F.R. §§ 1.415, 1.419, of the Federal Communications Commission (Commission) Skitronics, LLC, hereby files its comment to the Commission's *Notice of Proposed Rule Making* (*NPRM*)[1] in the above captioned matter.

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[1] In the Matter of Improving Public Safety Communications in the 800 MHz Band Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels, *Notice of Proposed Rule Making,* WT Docket No. 02-55, March 14, 2002.

I.
INTRODUCTION AND BACKGROUD.

Skitronics, LLC, owns, and for the past eight years has operated, various specialized mobile radio systems in North Carolina and South Carolina.[2] Skitronics systems are composed of LTR, Motorola Privacy Plus, EDACs and conventional non-interconnected analog technologies. Skitronics has also placed in service a Comspace® DCMA digital site (hybrid FDMA/TDMA technology) which is not interconnected and is not presently capable of interconnection. Skitronics presently only offers traditional SMR mobile dispatch services. Skitronics' services are not marketed to the general public as a telephone service or as an alternative to, substitute for, or

[2]Skitronics also owns EA licenses in the 800 MHz band in West Virginia that have not yet been developed.

competitor with cellular or cellular like telephone services. Skitronics operates 800 MHz systems exclusively. In eight years of operating 800 MHz SMR systems this company has *never* generated an interference problem with another 800 MHz licensee.[3]

Skitronics, LLC, holds licenses in North Carolina, South Carolina and West Virginia. Specifically, Skitronics, LLC, holds a total of thirty call signs constituting 60 lower 800 SMR channels, 151 Industrial/Land Transportation Channels, 25 Business Channels and one general category channel. Skitronics is licensed to operate 257 channels.

See below.

[3]But this company carefully engineers each site and system to comply with the Commission's regulations. On the other hand, we have had to resolve issues where Nextel sites were causing interference on our systems.

Skitronics, LLC, serves a wide range of customers on its 800 Mhz systems. Customers served represent the full spectrum of small business from volunteer fire departments, waste management companies, security firms, utility pipeline companies, engineering companies and medical transport to farmers, hotels, food delivery, taxies, trucking companies and newspapers. A total in excess of 6000 subscriber units are used in North and South Carolina by customers of Skitronics, LLC.[4] All of these end-users would be affected by any re-banding of the 800 MHz band or relocation of present 800 MHz band incumbents. The practical effect of such action, as discussed below, would be the effective elimination of a communications alternative to the customers of companies such as Skitronics by the eradication of hundreds of small businesses presently involved in the provision of SMR services on the 800 MHz band. At root, the *Nextel Proposal*[5] is an attempt by Nextel to eliminate all of its remaining competition it in the area of dispatch radio services while stealing billions in spectrum.

II.
THE EFFECT OF NEXTEL'S RELOCATION SCHEME ON SKITRONICS OPERATIONS

A. PRACTICAL CONSIDERATIONS OF RELOCATING 800 MHZ OPERATORS OR

[4] Skitronics is in the process of developing and building out recently acquired licenses in West Virginia. Skitronics was successful in obtaining EA licenses for portions of West Virginia in Auction 36. In view of the uncertainty of that spectrum being available for any period of time to allow recovery of the capital costs of the development due to this *NPRM*, it is the opinion of this company that the FCC should suspend build out requirements on these and other 800 MHz licenses that were the subject of auctions 34 and 36 until such time as the spectrum relocation issues are finally decided. It should be noted that Skitronics was in process of planning an 800 MHz radio system in West Virginia that would have provided near state-wide coverage for SMR users. That planning will not go forward at this point based on the uncertainty of the spectrum being ultimately available to the company.

[5] The *Nextel Proposal* is a reference to Promoting Public Safety Communications – Realigning the 800 MHz Land Mobile Radio Band to Rectify Commercial Mobile Radio - Public Safety Interference and Allocate Additional Spectrum to Meet Critical Public Safety Needs, Nov. 21, 2001.

REBANDING THE 800 MHZ BAND

1. RELOCATION TO EITHER THE 700 MHZ OR 900 MHZ BAND.

Should the Commission decide to move present 800 MHz SMR operators to either the 700 MHz or 900 MHz bands, and require the moving SMR operator to pay the costs of such relocation, then this company will, effectively, be driven out of business. There are several obvious problems with both the 700 MHz and 900 MHz bands that have been noted in many comments as well as the *NPRM*. Most obvious among those are the fact that there is very little equipment presently available for SMR operations on the 900 MHz band and what there is, is very expensive. To this company's knowledge, there is only one manufacturer – Motorola – in the process of developing any equipment that could be used in SMR operations on the 700 MHz band. Unlike Nextel, SMR operators do not have intimate relationships with companies like Motorola that have a stake in our success so as to motivate them to make economically viable equipment for us. This is already a problem as over the past few years the number of companies manufacturing equipment for SMR operations in the 800 MHz band have declined. One of our main problems is finding inexpensive subscriber units utilizing up to date technology for use on our systems. We consider it highly unlikely that there would be many, if any, companies interested in manufacturing equipment for SMR operations – let alone exploring innovative uses – on the 700 or 900 MHz band.[6]

The second obvious problem that has already been recognized and will not be addressed here in great detail is the fact that the proposed substitute spectrum is presently occupied and is not available for reassignment. It is not known when or if such spectrum will become available.

[6]We are watching the comments filed in response to this *NPRM* with interest to see whether any manufacturers express any interest in entering this area of product development.

Nextel's right to the 700 MHz and 900 MHz channels it claims to be ready to relinquish to the Commission for relocation of 800 MHz incumbents is in question.[7]

[7] See, e.g., letter of February 26, 2002, to Michael Powell, Chairman, Federal Communications Commission, from David B. Trego, Vice President, Telecommunication, American Electric Power Service Corporation, p.3 (suggesting that Nextel does not hold licenses in all areas of the country in the 700 and 900 MHz bands); Commentary, Nextel White Paper, Schwaninger & Associates, P.C. in Association with the Trade Group Small Business in Telecommunications, p. 7 (suggesting that Nextel has failed to construct any facilities on either 700 or 900 MHz channels and, therefore, have not perfected their title to those channels).

The third obvious problem regards the fact that bandwidth in the 900 MHz channels is only half that of the bandwidth in 800 MHz channels. Consequently, a one for one license swap in these channels would not be a true like kind exchange. Present 800 MHz licensees would lose half of their present bandwidth. This only seems to be a minor issue if you assume that the 900 MHz channels will only ever be used for SMR radio and that narrowband equipment that is as efficient as present 800 MHz equipment may become available. Both assumptions are flawed. To limit present incumbent SMR operators to SMR only operations in the future is to restrict their ability to change and grow as technology and the industry evolves.[8] And, as noted above, there is very little equipment available for 900 MHz operations, let alone any that is competitive with 800 MHz equipment in terms of efficiency and cost.

This company regards its present bandwidth as its most valuable asset. Although the company is presently engaged only in traditional SMR dispatch services, it is constantly exploring other possible uses of the licensed spectrum available to it. A channel for channel swap into th e900 MHz band would effectively reduce the company's most valuable asset by half and severely restrict potential alternate uses to which the bandwidth might be dedicated by future business and technological development. For example, this company is currently offering AVL services to its costumers that need fleet tracking. It is also exploring data transmission and other options for future development. At present, our channels in the Raleigh, North Carolina, area are operating at nearly full capacity. All the bandwidth we have is necessary to present and future operations.

[8]It should be noted in this regard that the CMRS licenses that such operators obtained either by bidding in the FCC auctions or on the market have no provision in them that would restrict their use to traditional SMR dispatch operations. Such future flexible use is one of the economically advantageous assets of the license.

The final practical difficulty related to band relocation is that relocating the licenses of the thousand plus SMR small business operators to a band which is not shared with a one or more of the major wireless carriers severely deflates the value of the spectrum. We have an unusual situation here. Nextel, over the course of the past ten years has driven up the price of spectrum in the 800 MHz band. In addition to dominating the auctions, Nextel has vigorously pursued spectrum by buying and eliminating competitors and/or their licenses. In spite of this, a little over a thousand operators have managed to survive and compete with this Goliath. In some cases these companies have survived by providing services in areas where Nextel does not operate.[9] In most cases, however, these small businesses have survived by providing better services suited to their customers' needs at prices better than those offered by Nextel. This company competes directly with Nextel in most areas where we provide dispatch services. When Nextel initially debuted their product in our area, we lost customers. We are now recovering the costumers we lost and expanding our business. Now that Nextel has realized that it cannot succeed in eliminating competition by buying their remaining small business competitors, they are attempting to destroy the competition by depriving us of the value of the primary asset we hold: our spectrum licenses. The truly galling thing about this tactic is that we acquired the spectrum licenses at prices inflated by Nextel. Now Nextel proposes stealing billions of dollars worth of spectrum for itself at 2.1 Ghz while leaving the remaining small business operators with spectrum which no longer has any interested purchasers of any consequence because there would be no major wireless carrier operating in the band and/or because of restrictions placed on the remaining licenses.

[9]See, e.g., comments of Western Communications, Inc., WT Docket No. 02-55, April 29, 2002.

This company has few hard assets. It's primary asset is its spectrum licenses. The value of that asset is market determined. Nextel's proposal effectively destroys the market for the asset by removing all liquid players from the market. Nextel, having been frustrated in their attempts to acquire the remaining spectrum at 800 MHz and eliminate the last vestiges of competition, have created a problem (public safety interference) by their sloppy engineering and are attempting to use that problem to achieve what they have not been able to do legitimately: destroy their last remaining competitors and steal the value of their spectrum – if not the spectrum itself.[10]

2. EFFECT OF REMAINING ON 800 MHZ BANDS WITH SECONDARY STATUS.

The *Nextel Proposal* suggests that present 800 MHz operators might be allowed to remain in the 800 MHz band on a secondary basis as an alternative to moving. We do not consider this to be a real alternative. There are several reasons why this is not a viable option.

Relegating present 800 MHz SMR licenses to secondary status has serious implications for our business planning. It, in effect, terminates any plans for growth or expansion of the business as well as presenting serious challenges to continuing current successful business operations. It is not surprising that Nextel would make such an alternative proposal when you consider the anti-competitive heart of the *Nextel Proposal*. This "alternative" in effect says, "OK, if you can't afford the high price to move, stay where you are but the price you pay to do so is to give up any

[10]It is likely that in the event the Commission mandates relocation, most SMR small business operators will be forced out of business. It is likely, in that event, that their spectrum may be reauctioned. Would we be surprised if Nextel ends up with that spectrum – our spectrum – at bargain basement auction prices because we will no longer be around to bid against them?

possibility of future business growth or improvement."

Secondary status makes our ability to use a licensed channel subject to divestment at any time. Given that we do not know how long any channel is going to be available to us, we cannot justify the expense of the capital investment necessary to make such channels operable or even to maintain them at peak operating efficiency. In addition, we are in a very competitive sales environment. We have to be able to promise reliable, *continuous* service to our customers. One of our primary selling points is that our systems have never been off the air for more than 24 hours no matter what the condition – even Hurricane Floyd. We cannot exist if we cannot deliver consistent, continuous, reliable quality service on dedicated clean channels. Without mutually exclusive channels we have no business.

3. RELOCATION TO THE 2.1 GHZ BAND.

Nextel is making a naked attempt to steal nationwide spectrum in the 2.1 GHZ band. In its *NPRM*, the Commission raises the possibility that 800 MHz incumbents in addition to Nextel, might be moved to the 2.1 GHz band. At first blush this may seem like a more equitable solution to the problem than relocation of 800 MHz incumbents other than Nextel to the 700 MHz or 900 MHz band or relegating them to secondary status on the 800 Mhz band. If the 2.1 GHz band relocation is done in a manner so as to create a geographical distribution of channels similar to that existing presently at the relevant 800 MHz frequencies, then it would seem that most parties would be in substantially the same position in which they are presently found.[11] One major concern of

[11]This, of course, disregards the position of any present users of the 2.1 GHz spectrum who are, apparently,

this company – the destruction of spectrum value – is ameliorated by this solution.

left out in the cold by the *Nextel Proposal*.

The equitable attraction of this possibility is, however, only superficial. Upon closer inspection the alternative is a non-starter. As with the 700 MHz and 900 MHz proposal, there are severe practical difficulties involved in relocation of 800 MHz incumbents to the 2.1 GHz band. Even worse than the other two bands proposed, there is no equipment available for SMR operations on this band. While we can assume that Motorola would provide equipment for Nextel's cellular type operations should it move to the 2.1 GHz band, where are the manufacturers who might develop all the repeaters, converters, antennas, subscriber units and other equipment that would be necessary for the SMR operators.[12]

An overwhelming problem becomes apparent when we consider the spectrum propagation characteristics at 2.1 Ghz. In the applications we use in environments where we operate we estimate that we will be able to operate at 2.1 Ghz at approximately one-third (1/3) of the efficiency with which we operate at 800 MHz. We presently use high tower sites for our 800 MHz dispatching service and routinely obtain acceptable coverage in an area covering a 113 kilometer radius of our tower site. We estimate that coverage would be reduced to 15 to 20 miles or less at 2.1 GHz due to the propagation characteristics of the band.[13] Consequently, it would be necessary

[12]Consider the economics of the situation. There are only 1,100 business who might be using this equipment. (*NPRM,* Appendix 2, at p. 58.) Where is the opportunity for the manufacturer to recoup even the development costs of researching, designing and engineering equipment for this limited market?

[13]Please note that this is assuming that equipment developed is as efficient as present equipment available for use at 800 MHz – an assumption by no means certain given the amount of time that has gone into development of 800 MHz equipment, the fact that the 2.1 GHz equipment will be first generation models and given that the

for us to more than triple our tower sites, with the attendant capital expenditures, in order to merely maintain our present coverage footprint.

The 2.1 GHz band is, by its propagation characteristics, eminently suitable for a cellular application. It is not, however, a good channel for SMR operations. Spectrum characteristics would result in a tripling of our overhead and capital expenses. That simply is not a viable option for businesses that operate at the margin. The tradeoff might be acceptable if there was a clear path of business development available to small businesses for a practical use of the spectrum for something other than dispatch or other land mobile radio services. However, even if there were such an option, forcing the present 800 MHz incumbents to take that path would leave tens of thousands of businesses that presently rely on 800 MHz SMR in their day to day operations without any radio service – or at least without any viable alternative to Nextel.

B. COSTS OF RELOCATION

1. COSTS OF RELOCATION TO 700 MHZ OR 900 MHZ

manufacturers do not have a compelling economic incentive to compete to develop this equipment.

It is our best estimate that a transition of all of this company's operations to the 900 MHz band would cost between seven and ten million dollars ($7,000,000.00 to $10,000,000.00).[14] Similar assumptions are not possible in regard to the 700 Mhz band because there is only one manufacturer at present developing equipment for this band. Consequently, it is almost impossible to estimate the cost of transition to 700 MHz. History indicates that the introduction of new equipment on newly opened bandwidth is usually much higher than comparable equipment on existing used bands. The multiplier may be as much as double existing prices. If this holds true in regard to the 700 MHz band, we would expect our transition costs to be, at a minimum, double the cost of transition to 900 MHz. Neither option is within the realm of possibility. This company has regularly been denied lines of credit in the six figure area by banks. The idea that this small business can raise the type of sums necessary to transition its operations to a new band is ridiculous. The Commission should be aware that if it adopts a band relocation scheme such as that advanced by the *Nextel Proposal,* it will, in effect, be terminating the existence of most small businesses presently involved in SMR operations.

This company is a privately owned, small, entrepreneurial business. In practical terms that means that the company operates on the margin. The company operates in a niche market and has been successful in that market in that it has survived for eight years and is still providing quality service to an expanding loyal customer base. The niche is 800 MHz dispatch. The competition is Nextel. The company has been successful because it offers better dispatch service than Nextel at

[14] This cost estimation is based upon the assumption that prices for 900 MHz equipment remains available at present prices during the transition period and that the increase in demand from such mandated transition does not drive the prices up – an assumption that may not be reasonable under the circumstances.

a lower price in the areas where we have licenses. But the company operates out of cash flow. It has no real assets other than its channels and its built out systems – most of which have been amortized and had little resale value prior to the Commissions issuance of this *NPRM* and no resale value at all should the channel relocation scheme be adopted by the Commission.

The practical implication of this state of financial affairs is that requiring this company to pay the costs of relocation would be the same as putting the company out of business. The company relies on cash flow to maintain its present systems. Excess cash flow has historically been used to finance the acquisition of additional licenses and the build out of those licenses. There is simply no money available to finance the tremendous cost of building out replacement channels in either the 700 MHz or 900 MHz bands. Even if the present 800 MHz operations were not maintained during any transition period, the amounts presently generated by the present operations is not sufficient to pay the estimated cost of a 700 or 900 MHz build out. And that is without taking into consideration the fact that diverting funds from maintenance of present operations to the build out of new channels in replacement bands would necessarily result in a decrease in revenues from the non-maintained present operations.

Finally, it should be noted that this comes at an economically inopportune time. This country has suffered the business trauma induced not just by the recent recession but also by the fallout from the September 11, 2001, terrorist attacks. Over the course of the past year, this company has laid off close to half its workforce. The *NPRM* came as it appeared that the economy was beginning to recover and the company's cash flow indicated that we might be in a position to again expand operations and workforce. These plans have been stymied by the uncertainty created by the *NPRM*. Disruption of business has already began and it is significant. Promulgation of the

plan would go far beyond disruption: it would destroy our business. We suspect that it would also be the death-knell for the whole segment of American small businesses providing SMR services.

2. COSTS OF RELOCATION TO 2.1 GHZ

There is only one way to make the costs of a relocation to 700 MHz or 900 MHz appear reasonable: consider the costs of moving to 2.1 GHz. Given the uncertainties involved in that spectrum and the spectrum propagation limitations, we estimate that it would cost us, at a minimum, four times as much to move to the 2.1 GHz band as it would to move to the 900 MHz band. In other words, somewhere between twenty-eight and forty million dollars. Needless to say, such financing is only available to us in our wildest dreams, and not even there in our sober moments. Multipy this by 1100 (the number of small businesses effected) and, maybe, the government would consider providing unsecured financing in this range to keep a presently viable sector of the small business economy running. We know of no other potential investors who would be interested.

C. PAYMENT OF COSTS OF RELOCATION

We cannot pay the expenses of relocation. Should relocation be mandated by the Commission as a result of this *NPRM*, and should the Commission further mandate that the costs of relocation to be paid by this company, we will have no alternative but to cease operations.

D. TIME NECESSARY TO RELOCATE

Assuming that some source of paying for relocation is found, we estimate that any relocation of our operations to a band other than 800 MHz will take from four to five years to complete after suitable equipment in the relevant band becomes available. More rapid relocation might be possible but only at the price of a significantly higher monetary cost than that estimated in B, above.

III.
THE EFFECT OF NAM/MRFAC REBANDING SCHEME ON SKITRONICS OPERATIONS

The Commission has also taken into consideration a proposed rebanding alternative advanced

by NAM/MRFAC. [15] The proposal creates three separate channel blocks: one for public safety; one for conventional SMR, Business and Industrial/Land Transportation systems; and one for "cellular architecture" systems. "Conventional SMR" is not defined by the *NAM Proposal.*[16] The term is, however, defined by the Commission in the *NPRM* as "SMR stations that do not employ digital cellular architecture configurations."[17] Neither the *NAM Proposal* nor the *NPRM* define "cellular architecture systems." It is presumed for purposes of this discussion that a "cellular architecture system" is one that employs channel reuse on low-tower close proximity sectored-sites.

The impact of this proposal on this business is hard to analyze due to the fact that the

[15] Letter of December 21, 2001, to Michael Powell, Chairman, Federal Communications Commission, from Jerry Jasinowski, President, National Association of Manufacturers and Clyde Morrow, Sr., President MRFAC, Inc. (*Nam Proposal).*

[16] *Id.*

[17] *NPRM, at p.12, note 36.*

proposal is rather underdeveloped. It is not clear, for example, whether the proposal is calling for a ban on all digital development in the proposed conventional SMR, Business and Industrial/Land Transportation band or only a ban of "cellular architecture systems."

Under the definitions of "cellular architecture systems" and "conventional SMR" discussed above, it is not certain how the licenses this company holds would be handled. The company operates one Comspace® digital system. The equipment is digital but it is operated on a convential SMR type basis to provide dispatch service from high-tower sites without channel reuse. That system, while it is digital, is not, in our opinion, a cellular architecture. We are not clear, however, how the Commission would classify the system. Would the channels this licensee holds on which it uses this digital system be placed in the conventional SMR, Business and Industrial/Land Transportation band or in the cellular architecture systems band? Similarly, the company has been considering deploying ESAS systems with FSK digital protocols on some of its licensed bandwidth. Again, it is not clear how such a system/channel would be regarded by the Commission under the *NAM Proposal.* Would changing the type of equipment that we used on a channel require us to reband the channel? What if we converted more channels in the conventional SMR, Business and Industrial/Land Transportation band to a digital system, would we, in effect, be abandoning the channel by causing it to be reclassified and moved to the cellular architecture band?

The development of digital alternatives is essential to the survival of our business. Our channels if the Raleigh, North Carolina, area are, for example, at or near maximum loading capacity using analog equipment. Additional spectrum is not available in this area at anything approaching a price we can afford. Consequently, it is necessary for us to explore digital solutions that allow us to expand the number of voice (or data) paths available per channel.

If the *NAM Proposal* means that our channels would be rebanded to the conventional SMR, Business and Industrial/Land Transportation band and we would be prohibited from employing any digital systems in that band, then the future of this company would be placed in doubt. The first problem would be the elimination of any possibility of growth or innovation in our major markets. A second problem from this possible interpretation of the *NAM Proposal* is that the value of spectrum held by the company would be destroyed for reasons similar to those discussed above in regard to Nextel's relocation proposal.

On the other hand, if this company's channels are reassigned into the cellular architecture systems band they will, presumably, retain much of the economic value that they presently have. However, they may not be usable for the present applications (high-tower SMR dispatch) due to the interference that can be expected to dominate the band from Nextel's operations unless, as part of the rebanding, Nextel is required to clean up their engineering.

IV.
CURRENT DOCUMENTED INTERFERENCE PROBLEMS RESULT PRIMARILY FROM NEXTEL OPERATIONS AND CAN BE REMEDIED BY TECHNICAL SOLUTIONS.

Restructuring the 800 MHz band is not necessary to resolving or mitigating interference to 800 MHz public safety and non-Nextel systems.[18] The present business situation of this company does not allow us the luxury of maintaining an engineering staff that can be tasked to fully develop a spectrum allocation scheme or to do a full engineering work-up of the present interference

[18] It should be stressed that interference is not just a public safety problem. The problems created by Nextel's engineering of Motorola's inferior iDEN® product effects all parties on the 800 MHz band.

problems created by Nextel. We are able to provide a cursory overview of the problems as understood by our limited staff of engineers and technicians, most of whom are former Nextel employees.

A. NATURE OF INTERFERENCE

1. SCOPE AND FREQUENCY OF PROBLEM

The *Nextel Proposal* and the *NPRM* present the problem of 800 MHz interference as if it is so extensive in scope and frequency as to present an emergency situation that must be addressed by rapid, drastic means. However, both the *Nextel Proposal* and the *NPRM* appeal to the APCO's *Project 39* to support the broad generalized statements as to the scope severity of the problem.[19] This view of frequent, extensive interference is not borne out when you look at the raw data upon which the *Project 39* report is based. Nationwide there are tens of thousands of channels operating. But APCO's survey only found 53 specific instances of actual interference.

We do not want to be seen as denying that interference has been a problem on the 800 MHz band or that it has the potential to become a much more frequent and severe problem. There has been interference in the past and there is presently interference. It is likely to become more of a problem in the future. The actual facts of record, however, do not justify the panicked approach foisted by Nextel in its White Paper and adopted by the Commission in the *NPRM* in this case. The situation is not such that precipitous action without reflection is necessary. A rush to judgment is

[19] *Project 39, Interference to Public Safety 800 MHz Radio Systems, Interim Report to the FCC,* Dec. 24, 2001. *(Project 39)*

naturally favored by Nextel in the hope that they can pull off this massive spectrum swipe and get the government to wipe out their competitors before anyone notices what is really going on. The reality of the matter, however, is that there is time for reflection and investigation to determine the true nature and extent of the problem as well as to investigate possible solutions to the problem that do not destroy whole segments of American small business enterprise.

2. ROOT CAUSES

Most, if not all, 800 MHz interference is due to Nextel operations. It should be noted here that Southern Linc uses equipment substantially the same equipment as that used by Nextel without creating the problems that Nextel creates. Although Motorola's IDEN® equipment leaves much to be desired, the problem is not the equipment: it is Nextel's utilization of the equipment that creates the problems. The secondary cause of the problem is the Commission's failure to enforce its rules.

The evidence of record is clear. Interference is not a band-wide multi-user problem. Interference is a Nextel-Motorola/iDEN® problem. Where Nextel uses equipment other than Motorola's iDEN® system, it does not cause interference. Where other companies, such as Southern Linc, use the Motorola iDEN® system, there is not interference. Where Motorola's iDEN® system is used by Nextel, interference results.[20] This is the only possible conclusion to be drawn from the *Project 39* evidence.

[20] See Comment of Danny Hampton, WT Docket No. 02-55, for insight into the historical development of Nextel's interference problem as a function of rapid deployment of under engineered equipment and sites due to market pressure.

The initial *Project 39* report to the Commission was made on December 24, 2001. The report contained a summary of the raw data collected by APCO Questionnaire.[21] A review of that raw data reveals that APCO received a total of forty-eight (48) reports of interference. Of those forty-eight reports, the source of the interference had not been identified in six (6) instances. Of those six, one (1) reported that they suspected Nextel to be the source of the interference[22] and one (1) was reported to be under investigation.[23] Other sources reported in the APCO Questionnaire raw data were "other governmental communications systems:" 1[24], and "believed to be Cellular 870": 1.[25] Three (3) made reference to cellular transmission sites as the source of the interference without specifying who was using the sites[26] although one was identified as "possible Nextel and Bell South."[27] One (1) identified "paging/other commercial" as the source of the interference[28] and one (1) identified "New construction" by an unidentified commercial provider.[29] With the exception of one reference to the possibility of a Bell South site being involved in interference, no

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[21] Project 39, APCO Questionnaire Raw Data.

[22] *Id.*, at May 26, 2000 - Orlando, FL.

[23] *Id.*, at May 26, 2000 - Cary, NC. Three reports indicated that the source of the interference was unknown or uncertain: February 22, 2001 - Midland, TX; September 5, 2001 - Memphis, TN; and September 12, 2001 - Monterey Park, CA.

[24] *Id.*, at May 30, 2000 - Baton Rouge, LA

[25] *Id.*, at June 5, 2000 - Howell, MI

[26] *Id.*, at June 6, 2000 - Ft. Lauderdale, FL; June 8, 2000 - Douglasville, GA; and August 23, 2000 - Atlanta, GA.

[27] *Id.*, at June 8, 2000 - Douglasville, GA.

[28] *Id.*, at June 12, 2000 - Auburn and Lewiston, ME

[29] *Id.*, at March 22, 2001 - Dallas Fort Worth Airport.

one who responded to the APCO questionnaire reported any sole identified source of interference other than Nextel.[30]

Of those responding to the APCO Questionnaire, thirty-five (35) clearly identified Nextel as the source of the problem.[31] To be fair, it should be noted that three of those identifying Nextel as the source of the problem also speculated that there might be an additional problem involving another company or another source. One reported a possible source of intereference as "buildings with cell transmitters."[32] One reported Southern Linc as a possible source from colocation of equipment with Nextel[33] and one reported SuperShuttle as a possible source on similar grounds[34].

On March 19, 2002, APCO presented a Six-Month Status Report of the *Project 39*

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[30]Project 39, APCO Questionnaire Raw Data.

[31]*Id.*

[32]*Id.*, at September 30, 2000 - Lahaina and Kihei, HI. The comments make it clear in this instance that the interference is caused by Nextel operations.

[33]*Id.*, at November 9, 2000 - DeKalb County, GA.

[34]*Id.*, at December 6, 2000 - Upland, Ontario, Montclair & Chino, CA.

Technical Committee.[35] This reported listed five (5) new reports of interference that had been received between December 2001 and March 2002. All five (5) of these reports clearly identified Nextel as the source of the interference[36] although two (2) reported that Alltell may also be a source of the interference.[37]

To summarize, to date the evidence of record is that there are 53 documented instances of interference. Seventy-five percent (75%) of those problems are caused in whole or in part by Nextel.

Source	Number	Percentage

[35] Six-Month Status Report of the Project 39 Technical Committee Presented at the APCO Western Regional Conference, Phoenix, Arizona, March 19, 2002. (*Project 39 Six-Month Report*).

[36] *Id.*

[37] *Id.*, at pp. 8-9

Nextel Alone	33	62.2
Nextel "and"[38]	7	13.2
TOTAL NEXTEL	40	75.4

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Source	Number	Percentage
Nextel and "potential cellular," "Unidentified," "buildings with cell transmitters,"Southern Linc, and SuperShuttle	1 each	9.4
Nextel and Alltel	2	3.77

In addition, it should be noted that in the remaining 24.6 percent of documented instances of reported interference Nextel is not ruled out as the source of the interference with the possible exception of the one instance where the source is identified as "other governmental."[39] It is the opinion of this company that an investigation of the 13 unresolved instances of reported interference will reveal that Nextel is wholly or partially responsible for the interference in most, if not all, of the thirteen cases. The question, then, is why is Nextel's misconduct (at worst) or sloppy engineering (at best) resulting in this *NPRM* which amounts to the creation of a monopoly, the possible government assisted theft of a valuable public asset (at the 2.1 GHz band) and the destruction of an entire segment of American small business? When has it ever been the American way to create a problem and then use the problem that you have created to destroy your business competitors while stealing public property? And when did the government of the people, by the people and for the people allow itself to become an aider and abettor of such a scheme?

Even more illumination is available from a review of whether the interference complained of in the APCO raw data has been resolved and the comments related to the instances of interference reported. Only five (5) of the reported instance of interference had been resolved. One (1) reported instance had resolved without any action.[40] All four remaining resolved instances involved Nextel. In Warren, MI, Nextel reportedly installed a BDA in new construction close to the Police Department's main trunking site. Nextel's BDA radiated a "walking carrier" which interfered with the Police Department's analog control channel. The problem was resolved when,

[39] And even in this instance, Nextel cannot be reliably ruled out as the source of the interference without investigation as Nextel does provide services to some governmental entities. Consequently, the "other governmental" source referred to in the report may actually be a system owned, operated or maintained by Nextel.

[40] *Id.*, at May 26, 2000 - Olathe, KS.

according to the APCO raw data, "FCC field engineer unplugged offending unit."[41]

In Livonia, MI, a Nextel transmitter was causing wide band noise in Consumer Energy Company's EDACS trunked system. Nextel installed a cavity-type combiner to eliminate the wide-band noise. The solution worked.[42]

In West Chester, PA, Nextel's equipment was interfering with the county-wide emergency services 800 MHz trunked system. The interference was verifyed by FCC representatives and resulted from Nextel's use of adjacent channels. The APCO raw data reports that Nextel cooperated with the West Chester county authorities and changed the frequencies they were using thereby completely resolving the interference problem.[43]

[41] *Project 39 Six-Month Report, at p. 9.*

[42] *Id., at p. 8.*

[43] Project 39, APCO Questionnaire Raw Data, at May 30, 2001 - West Chester

In Seattle, WA, it was reported that a Nextel site was creating interference on a part of the county-wide emergency services system. The comment says: "Nextel reduced power, removed some frequencies, changed antennas, and up-tilted the new antennas. This made the 2-block area around the site usable for our users again."[44]

This data can be summarized quite simply: When Nextel tries to fix a problem, they have been successful. Additional insight into this aspect of the problem may also be gleaned from some of the comments made in the APCO raw data by reporters whose interference problems had not been resolved:

[44] *Id.,* at June 12, 2000 - Seattle, WA.

- Largo, FL, for example, reports a continuing problem with Nextel generated interference. In their description of the resolution of the interference and descriptive narrative of the problem, the Pinellas County Government, Radio Division, reports: "The interference is addressed on a case by case basis with the provider. They will usually change the frequencies at the site to reduce the interference.... This is an ongoing process of contacting Nextel each time we have interference. It sometimes causes a Public Safety issue where the radios go out of range. *Nextel has one engineer to work all of the area."* [Emphasis added.] Where Nextel addresses the problem, they fix it. But in order to address the problem, Nextel has to staff with engineers trained to work in these areas. Here is a major source of the interference issue: Nextel has created the problem by sloppy engineering and by refusing to provide sufficient service engineering staff to deal with the problems they have created. Now, instead of correcting the problem they have created by properly engineering their sites, they attempt to use the problem to steal a major segment of bandwidth.[45]
- In Fort Lauderdale, the Broward County Telecommunications was able to identify one unnamed company causing interference "but they have done nothing to relieve the problem." There is, presently, no mechanism to require those causing interference to correct the problems they are creating. This is a major regulatory oversight. The solution to interference problems is not the destruction of segments of American small business and the creation of monopolies, but rather rational

[45] *Id.,* at May 30, 2000 - Largo, FL.

regulations that require those who create problems to correct them.[46]

- Nextel was notified of the problems created by their location of control channels in close proximity to control channels used by the City of Savannah, GA. At the time the raw data was reported to APCO, however, nothing had been done about the problem.[47]
- In Southern California the West End Communications Authority reported that Nextel had partially resolved interference problems they had created by installing bi-directional amplifiers and raising their tower height at two of six site locations causing interference. The process took eighteen months. Again, this is a reflection of the lack of commitment on the part of Nextel to cleaning up their own mess and a lack of any regulatory mechanism to force them to do so. [48]

3. POTENTIAL SOLUTIONS

[46] *Id.,* at June 6, 2000 - Ft. Lauderdale, FL

[47] *Id.,* at June 9, 2000 - Savannah, GA.

[48] *Id.,* at December 6, 2000 - Upland, Ontario, Montclair & Chino, CA

Intermodulation interference can be eliminated by prohibiting cellular architecture systems licensees from using frequencies at the same site that would generate intermodulation products falling on a frequency used by public safety. Technical modifications to public safety receivers could be used to eliminate intermodulation interference.[49] Signal field maximum limitations should be imposed. Receiver overload would be minimized by the intermodulation solutions discussed above and by the out-of-band emissions solutions discussed below. Receiver overload problems not remedied by the foregoing solutions are susceptible to site modification solutions. Transmitter sideband noise interference can be solved by site engineering and hardware modifications.

More stringent limits on out-of-band (OOBE) emissions of Nextel transmitters should be imposed. This company does not have, at present, the engineering resources to be available to suggest specific Nextel Carrier values, aggregate OOBE limits on all transmitters at a given site, or a method for calculation of OOBE. We would be glad to undertake development of such specific criteria for the Commission on a contract basis. We estimate that we could bid such a contract at $15,000.00. We are of the opinion that any such OOBE values and limits should only be applied retroactively where it is known that OOBE is creating interference with other band incumbents.

Interference due to transition from analog to digital modulation are largely due to the increase in power used to generate digital signals. Lower power could be used on digital equipment could be used by requiring the simple modification to Nextel subscriber units of using improved,

[49]But see discussion, *infra,* of the more equitable solution of requiring Nextel to use more efficient vocoding technology in their subscriber units.

currently available, vocoding technology. Requiring Nextel to improve the technology used in their subscriber units makes a lot more sense than requiring public safety to improve the receiver capabilities in their units. Requiring public safety to improve their receivers, as suggested by Nextel, leaves Nextel's interference to disrupt the operations of other users of the 800 MHz band. By requiring Nextel to use efficient, economical, available technology in their subscriber units, they can lower their peak envelope power requirements and, thereby, diminish or eliminate the interference Nextel is imposing on all users of the band. This solution places the cost on the one causing the problem, not the victims of interference generated by Nextel's poor engineering and Motorola's inferior equipment.

Reconfiguration of the 800 MHz band would not significantly reduce interference. The problem is Nextel's sloppy engineering and poor utilization of inferior equipment. Moving present users is likely to only move the problem.[50] A true solution requires dealing with the technical issues that lie at the root of the problem. Future problems can be dealt with by technical solutions, careful frequency coordination and enforcement of existing Commission rules. For example, 47 C.F.R. §90.173(b) provides that:

[50]For example it is entirely possible to foresee continued interference at with public safety uses at 800 MHz if Nextel relocates to 2.1 Ghz. Suppose another user colocates equipment operating at 1.3Ghz? Where will the intermodulation interference fall?

> all applicants and licensees shall cooperate in the selection and use of frequencies in order to reduce interference and make the most effective use of the authorized frequencies. Licensees of stations suffering or causing interference are expected to cooperate and resolve this problem by mutually satisfactory arrangements. If the licensees are unable to do so, the Commission may impose restrictions including specifying the transmitter power, antenna height, or area or hours of operation of the stations concerned. Further use of any frequency at a given geographical location may be denied when, in the judgment of the Commission, its use at that location is not in the public interest; the use of any frequency may be restricted as to specified geographical areas, maximum power, or such other operating conditions, contained in this part or in the station authorization.[51]

Similarly, 47 C.F.R. §90.403(e) provides that:

> licensees shall take reasonable precautions to avoid causing harmful interference. This includes monitoring the transmitting frequency for communications in progress and such other measures as may be necessary to minimize the potential for causing interference.

It is suggested that the Commission should enforce its rules. If such enforcement does not correct the problem of interference on the 800 MHz band, then the Commission might appropriately consider other solutions to the problem. The approach presently being taken, however, makes a travesty of law and justice. The Commission is a law enforcement agency. The rules have simply not been enforced against Nextel. When a law enforcement agency chooses not just to ignore a law breaker's actions, but actually works with the law breaker to further the law breaker's schemes, something has gone fundamentally wrong. Nextel has admitted that it is causing interference in the 800 MHz band. The first step towards solving this problem is for the Commission to enforce

[51]For an example of what may well be an instance of efficient application of this rule, *see* text accompanying footnote 41, *supra.*

its rules.[52]

4. COSTS OF SOLUTIONS

[52]These rules have been enforced by the Commission against other licensees. *See, e.g.,* Lund Partnership, Inc., WPMZ742 and Fisher Wireless Services, Inc., WPLZ806, Public Notice DA 01-2818, December 4, 2001. Why haven't these rules been enforced against Nextel?

Nextel has proposed paying $500,000,000.00 to assist public safety to move their channels. By most estimates this figure does not come close to even approaching the true cost of any of the various relocation or rebanding schemes that have been advanced. This appears to be an attempt by Nextel to limit the amount of damages for which they may be liable as a result of their generation of interference in the 800 MHz band.[53] The solutions suggested in the discussion, *supra,* would not only be significantly less than those which would be incurred by relocating or rebanding, they would be equitably allocated to those creating the situations that generate the expense.

We suggest that all the present interference could be corrected by technical engineering solutions presently available at a price far less than $500,000,000.00. In fact, we are so confident in this regard that we are willing to accept a contract from Nextel to correct every reported instance of Nextel interference with public safety communications for the next ten years for $50,000,000.00 per year. We would also consider an alternative contract with a five year term at $100,000,000.00 per year. We would provide the engineering consulting service necessary nationwide to deal with correcting Nextel generated interference with public safety operations for that sum under an acceptable contract. And, at those prices, we would be willing to guarantee that we would resolve every instance of Nextel generated interference with public safety communications from intermodulation, receiver overload or transmitter sideband noise.

Promotion of market forces solutions is preferable to imposed limitations on competition that would prohibit the development of new technologies and approaches to solving interference problems. At its heart, the *Nextel Proposal* is very anti-competitive. The *NAM Proposal* is not

[53] *But see Broadcast Corporation of Georgia (WVEU-TV),* 96 FCC 2d 901 (1984).

much better in this regard and would also end competition and small business innovation in the area of SMR communications. Small competitive business has historically been a major source of technological and business innovation. Many times the future of an industry is incubated in small businesses. Rather than seeing the problem presented by 800 MHz interference as a reason to destroy small businesses and award a monopoly to the originator of the problem, the problem should be seen as an opportunity to encourage innovation, business and competition. One way to do that is to leave the channel allocation as is and require technological solutions to the problems. This would promote the creation of businesses geared to solution of those problems. This would encourage businesses to compete for the task. Those with the most efficient and effective solutions would be successful. The cost of such an approach would be significantly less than any channel relocation scheme both in terms of monetary outlay and effect on the economy. The true cost of the band clean up would be borne by those causing the interference who could contract with innovative businesses to find solutions. The only reason this has not been the case in the past is that there has been no requirement that those causing interference fix their problems. *The Commission has not enforced its rules*. Enforcing the Commission's rules to require those causing interference to clean up there mess actually creates economic benefit by the promotion of business opportunity. efficiency and technological innovation through competition.

V.
SPECIFIC RESPONSE TO IRFA ANALYSIS – ANY OF THE RELOCATION PLANS PROPOSED IGNORES SMALL BUSINESS AND EFFECTIVELY ENDS COMPETITION IN THE SMR RADIO BUSINESS BY THE ELIMINATION OF SMALL BUSINESSES.

The Commission has requested specific comments in regard to the IRFA analysis attached to the *NPRM*. It should be apparent from the preceding discussion that our opinion is that the Commission has, so far, totally disregarded small business in its consideration of the issues presented in the *NPRM*. The Commission indicates that it has considered two "significant alternatives" in reaching the approach it has proposed in the *NPRM*.: 1) allowing small business licensees to remain on public safety channels on a secondary basis or 2) relocating licensees within the 800 MHz band as proposed by NAM. As discussed above[54] neither of these "alternatives" presents the effected small businesses with any option other than stagnation and slow death or immediate business failure. The real legal alternative was not even considered by the Commission: enforcing its existing rules against Nextel to require the use of technical solutions to specific discrete instances of interference. If the Commission goes forward with channel relocation it may or may not cure the interference problems. It will decimate small business. On the other hand, if the Commission goes forward with a plan that requires the interference to be corrected on a case by case basis, it is possible that the problem can be eliminated while promoting small businesses and competition. Should such an approach not bear fruit within a reasonable period of time, then the Commission always has the option to return to the possibility of relocating channels. On the other hand, if the relocation scheme is carried forward the chances are very good that it will generate a thousand small business failures. And it may well not correct the problem. The option of preserving small business, competition and a technical fix would then no longer be available to the Commission. Reason, equity and, yes I will be so bold as to say it, even justice, requires the Commission to move deliberately and carefully in this matter so as to preserve the chance for small

[54] See Section I, *above.*

businesses to continue to be in business. It requires that more research into the nature and extent of the problem be conducted, and that reasonable attempts be made to correct the problem with available technology, before anything so drastic and irrevocable as channel relocation be undertaken.

We do not address what this proposal would do to small nonprofit or governmental entities although we suspect that the effect would not be good. We are primarily concerned with the effect of the proposal on businesses such as ours. We are a small business within the meaning of the RFA.[55] We have six employees at this point – at the end, hopefully, of the post-September 11 business contraction. According to the *NPRM*, there are 1,099 other licensees who are small businesses such as we are. It is suggested that these licensees are primarily responsible for the provision of 800 MHz dispatch SMR to countless businesses and government entities across the width and breadth of this country. It is further suggested that most of these businesses would be forced out of business by any channel relocation scheme, including any scheme that relegates these licensees to secondary status on the 800 MHz band. We cannot be so presumptuous as to claim to speak for all such small business licensees. But we have been authorized to say by most of the small business SMR operators in our region that they join with us in the conclusion that any of the relocation schemes proposed would mean the end of their SMR dispatch radio business and in sections III, IV, V and VI, of this filing.[56]

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[55] 5 U.S.C. $601 *et seq.*; *NPRM*, p 58.

[56] Specifically, the following businesses have authorized us to include them herein:

Sea Coast Communications, Inc. Paul Holliday, Pres. 1027 So. Kerr Avenue Wilmington, NC 28403	RCS Communications Group Donald L. Shipton 800 Megahertz Drive Winston Salem, NC 27107

Waccamaw Wireless, LLC
Darrell Doyle, Manager
PO Box 1301
Conway, SC 27528

RF Concepts
James White
106 Aurora Lane
Huntersville, NC 28078

Southern Communications, LLC
Allen Smith, Manager
3269 US 70 West
Goldsboro, NC 27530

Finally, we think that it should be noted that the Commission, to date, has apparently not given any consideration whatsoever to the most rational proposal so far presented to them in regard to this problem. That proposal is found in *Promoting Public Safety Communications: Stopping Commercial Mobile Radio Service Interference to Adjacent Channel Licensees,* Dennis C. Brown, December, 17, 2001. We believe that this document which was filed with the Commission is part of the record herein so we will not reiterate the proposal contained therein at length.[57] Suffice it to say at this point that Mr. Brown's free market approach to this problem is the only solution proposed to date that approaches a win-win type of situation. It is also the only alternative offered to date that allows small businesses the possibility of continued profitable operation.

VI.
PUBLIC SAFETY AND THE NEED FOR MORE SPECTRUM.

We are not opposed to public safety entities receiving more spectrum *if it is needed.* However, to date, we have not seen evidence of any drastic, immediate need for more spectrum that would justify the relocation schemes advanced in connection with the *NPRM*. A careful survey of public safety needs should be undertaken. If it proves necessary to assign addition spectrum to public safety, we suggest that they be assigned as much spectrum in the 700 MHz band as may be necessary to meet their needs. To the extent that there is more bandwidth available in the 700 MHz band than is necessary to meet public safety's projected needs, we suggest that public safety be moved the 800 MHz band to vacated broadcast bandwidth as it is vacated. The move should be paid for by the auction of the abandoned 800 MHz channels. This structure would assure public safety of adequate bandwidth, only minimally disrupt present channel allocation and finance any relocations of public safety users. In the alternative, the proposal advanced by Dennis Brown discussed *supra,* provides the best possible solution for obtaining such additional spectrum with the least disruption to existing users and the least impact on small businesses.

Respectfully submitted,
Skitronics, LLC.

[57] This assumption is based on *NPRM*, at p. 26, note 117.

By: */s/Dan L. Hardway*

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Dated: May 2, 2002

cc: Senator Jesse Helms
Senator Robert C. Byrd
Senator Jay Rockefeller
Senator John Edwards
Senator Christopher Bond
Senator George Allen
Senator Tom Harkin
Senator John Kerry
Senator John McCain
Senator Sam Brownback
Congresswoman Shelly Capito
Congressman Alan Mollohan
Congressman Nick Rahall
Congressman Bob Etheridge
Congressman David Price
Congressman Sam Graves
Congressman Todd Akin
Congressman Pat Toome
Congressman Mike Pence
Congressman John Thune
Congressman Bill Shuster
Congressman Roscoe Bartlett
Eric Minge