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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

BEFORE THE
Federal Communications Commission
WASHINGTON, D.C. 20554

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

To: The Commission

COMMENTS OF SOUTHERN LINC

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EXECUTIVE SUMMARY

In this proceeding, the Federal Communications Commission seeks comment on means of mitigating harmful interference to public safety licensees in the 800 MHz band. The Commission seeks to resolve such interference with minimum disruption and expense to the 800 MHz band and the licensees that utilize it.

Southern strongly supports the public safety community and believes that steps should be taken to address public safety interference. Southern is highly cognizant of the public safety community's needs, especially given that it provides service to approximately 3,000 public safety entities (for a total of over 30,000 users), including local, state, and federal law enforcement and emergency management agencies. Southern is also the primary mobile communications carrier for five of the major electric utilities in the Southeast: Georgia Power Company, Alabama Power Company, Mississippi Power Company, Gulf Power Company, and Savannah Electric and Power Company. As such, it is keenly aware of how important reliable and interference-free communications are to its public safety and critical infrastructure industry customers.

To alleviate and eventually eliminate public safety interference while minimizing disruption to the 800 MHz band, Southern's proposal is the *only* proposal discussed to date that would *immediately* begin to alleviate public safety interference for the short term *and offers the best solution* for it in the long term. Other proposals which would realign users at 800 MHz would not eliminate or even substantially reduce the types of interference public safety is currently experiencing. Southern's proposal would be implemented in two stages. The first stage would alleviate interference in the short term through a market-based plan that utilizes technical solutions and limited license swaps to address interference problems as they arise. Southern recommends that the Commission put in place rules to obligate licensees to resolve

interference they cause to public safety radio systems. These rules would define harmful interference and events which trigger the obligation to cure such problems as they arise. These would include timetables for prompt resolution and a clear delineation of parties' responsibilities. However, instead of a single government-mandated solution, parties would be able to use a combination of technical adjustments and frequency swaps to alleviate the interference. If an agreed-on solution could not be reached within 60 days, parties would be able to arbitrate the matter and, as a last resort, turn to the FCC for resolution.

The second stage would eliminate interference in the long term through relocating all 800 MHz public safety licensees to the 700 MHz band. The relocation of 800 MHz public safety licensees to 700 MHz offers several clear advantages over any other realignment plan: (1) the plan separates public safety from commercial entities; (2) allows public safety equipment to be built to only "hear" the 700 MHz channels where public safety already has 24 MHz of spectrum allocated to it; (3) offers an additional 20.5 MHz of spectrum for public safety; and (4) provides a funding mechanism through auctioning of vacated 800 MHz public safety spectrum to pay for relocation of public safety. Southern is aware that the Commission will need new legislative authority to accomplish this plan. Southern believes, however, that this can be accomplished, and should be accomplished, to provide public safety with a decisive and effective method of addressing its current problems at 800 MHz.

The Commission should adopt Southern's proposal. If it does not, however, it must bear in mind certain considerations with regard to any plan it adopts. The most important considerations are highlighted here.

Southern's Ability To Remain In The 800 MHz Band Must Be Ensured. Southern provides digital SMR service utilizing the 800 MHz General Category, Lower 800 SMR, Upper 200 SMR, and Business and Industrial/Land Transportation ("I/LT") bands and its system primarily utilizes a low-power, high-site architecture. That combination makes its system unique and, thus, subject to being overlooked by 800 MHz band realignment plans and generically designed

rules. Accordingly, this proceeding could result in Southern being left with an insufficient amount of spectrum, *i.e.*, less spectrum than it currently has (such as in parts of the country where there would not be enough relocation spectrum to accommodate both it and Nextel Communications), with reduced spectral capacity units existing system, or with no precisely defined spectrum home at all. The Commission must prevent such situations from occurring.

Incumbent Licensees Must Be Reimbursed For Forced Relocations. In previous proceedings involving forced relocations, the Commission has ensured that incumbent licensees are reimbursed for their relocation costs. It must be sure to adhere to that policy in this proceeding.

Only Parties That Directly Benefit From Public Safety Licensees' Relocation Should Be Required To Reimburse Their Costs. In past proceedings, the Commission has emphasized the importance of not burdening parties with reimbursing the relocation costs of other licensees if those parties do not benefit from the relocation. In this proceeding, only a handful of 800 MHz licensees have been identified as causing public safety interference, and thus only those licensees would benefit from relocating public safety licensees. Therefore, no other parties should be required to bear the burden of reimbursing public safety licensees' relocation costs.

The Commission also seeks comment on 800 MHz band realignment plans submitted by Nextel Communications ("Nextel") and the National Association of Manufacturers ("NAM"). Southern is opposed to both of those plans because they would do little to alleviate the primary causes of public safety interference, would be enormously costly for all 800 MHz licensees, and contain no reimbursement mechanisms for non-public safety licensees. Southern is most strongly opposed to Nextel's plan, which would involve wholesale realignment of the 800 MHz band, would not provide enough spectrum to accommodate Southern's system, and would require that public safety licensees undertake costly retuning of their current 800 MHz systems. It would also require Southern and other licensees to relocate and thus incur extraordinary hardship and expense. At the same time, Nextel would receive 10 MHz of highly valuable nationwide, contiguous spectrum at 2020-2025 and 2170-2175 MHz without having to bid or otherwise compete for it, and without other parties having an opportunity to even apply for it.

Favoring Nextel with such an allocation would be contrary to the public interest and sound spectrum policy.

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COMMENTS OF SOUTHERN LINC

Pursuant to Section 1.415 of the Rules of the Federal Communications Commission, Southern Communications Services, Inc., d/b/a Southern LINC ("Southern LINC" or "Southern"), by its attorneys, respectfully submits these Comments in response to the Notice of Proposed Rulemaking released March 15, 2002 in the above-captioned matter.[1]

Southern strongly supports the public safety community and believes that steps should be taken to address harmful interference to public safety licensees caused by licensees in the 800 MHz band (referred to herein as "public safety interference"). Toward that end, Southern submits herein a proposal that would alleviate interference in the short term through a market-based plan which utilizes technical solutions and limited license swaps and that would eliminate interference in the long term through relocating all 800 MHz public safety licensees to the 700 MHz band. The first stage of Southern's proposal, the market-based plan, could be implemented quickly and thus *immediately* begin to alleviate public safety interference. The second stage of its proposal, relocation of all 800 MHz public safety licensees to the 700 MHz band, would take

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1 In the Matter of Improving Public Safety Communications in the 800 MHz Band; Consolidating the 900 MHz I/LT and Business Pool Channels, WT Docket No. 02-55, *Notice of Proposed Rule Making*, 17 FCC Rcd 4873 (2002) *("NPRM")*.

longer to implement but would *completely eliminate* interference between low-site CMRS systems and public safety systems. No other proposal discussed to date would immediately alleviate interference nor entirely eliminate it. Moreover, under Southern's proposal, licensees would be held directly responsible for addressing the particular situations where they cause interference; the cost of mitigating the interference would not be passed on to other licensees. With regard to transitioning 800 MHz public safety licensees to the 700 MHz band, the cost of that transition would be significantly covered by auctioning vacated 800 MHz public safety spectrum bands.

The *NPRM* seeks comment on band realignment proposals from the National Association of Manufacturers ("NAM") and Nextel Communications, Inc. ("Nextel") for mitigating public safety interference.[2] It also contains an example of another possible band realignment plan, as proposed by the Commission.[3] Southern strongly opposes all of these plans because they would do little to alleviate the primary causes of public safety interference, would be enormously costly for all 800 MHz licensees, and contain no reimbursement mechanisms for non-public safety licensees. Also, more specifically for Southern, the plans would not provide enough spectrum in the 800 MHz band for both Southern and Nextel in certain areas where they compete with each other, and they may not even provide an 800 MHz spectrum home for Southern at all. Because fully- functional equipment for Motorola's Integrated Digital Enhanced Network ("iDEN") technology, the technology platform Southern uses, is manufactured only for the 800 MHz band (specifically 851-866 MHz paired with 806-821 MHz), forcing Southern to relocate out of the band could force it out of business.

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2 *NPRM* at ¶¶ 21-25.

3 *NPRM* at ¶ 26.

I. INTRODUCTION

A. Background Of This Proceeding

Beginning around 2000, the Association of Public-Safety Communications Officials International ("APCO") began collecting reports on instances of interference to public safety licensees operating land mobile radio systems in the 800 MHz band. The reports indicated that interference was primarily being caused by 800 MHz licensees employing a more frequency intensive, low-site build-out architecture, principally Nextel. In response to initial concerns, the Commission organized the Commercial/Public Safety Interference Task Force in April 2000 to identify the scope and causes of this interference. In December 2000, it published a document for preventing and mitigating public safety interference entitled *"Best Practices Guide."*[4] It also conducted a survey of 800 MHz public safety licensees wherein it sought to determine which were experiencing interference, and it published the survey responses in November 2000.[5] At the time of publication, APCO had received thirty-six responses.[6]

In August 2001, APCO created Project 39 and charged it with determining short-term, mid-term, and long-term solutions to the public safety interference problem. Project 39 published a report entitled *"Interference to Public Safety Radio Systems; Interim Report to the FCC"* in December 2001. It also published a follow-up report entitled *"Six-Month Status of the Project 39 Technical Committee Presented at the APCO Western Regional Conference"* on March 19, 2002.

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4 The *Best Practices Guide* was recently supplemented by an *"Interference Technical Appendix (Issue 1.41)"* published by Motorola in February 2002 *("Interference Technical Appendix")*.

5 Commercial/Public Safety Interference Task Force, *Special Assignment Technical Report: 800 MHz Interference Survey Response* (November 2000).

6 Since November 2000, APCO has received additional reports, bringing the total number of reported incidents to about ninety.

On November 21, 2001, Nextel filed its *White Paper* with the Commission.[7] In the *White Paper*, Nextel purports to provide a solution to the public safety interference problem.[8] The proposal, however, would involve wholesale realignment of the 800 MHz band and, additionally, would require that public safety licensees undertake costly equipment upgrades.[9] It would also require Southern and Business, I/LT, and conventional SMR licensees to relocate[10] and thus incur extraordinary hardship and expense. At the same time, Nextel would receive 10 MHz of highly valuable nationwide, contiguous spectrum at 2020-2025 and 2170-2175 MHz (referred to herein as "2.1 GHz spectrum").[11] Moreover, as noted above, the proposal would have dire implications for Southern.

The Commission initiated the present rulemaking to explore options for resolving the public safety interference problem. Southern strongly supports resolution of the problem and is pleased to take this opportunity to offer an equitable solution.

B. Background And Interest Of Southern LINC

Southern operates a digital 800 MHz SMR system that utilizes Motorola's Integrated Digital Enhanced Network ("iDEN") technology to provide both dispatch and interconnected service with the same handset. Its service territory covers 127,000 square miles in Georgia, Alabama, the southeastern quarter of Mississippi, and the panhandle of Florida, and it serves over 250,000 customers. Southern offers the most comprehensive geographic coverage of any mobile wireless service in Alabama and Georgia, serving the extensive rural territory within its

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7 Nextel Communications, Inc., *Promoting Public Safety Communications* (filed Nov. 21, 2001) *("Nextel White Paper")*.

8 *Nextel White Paper* at 4.

9 *Nextel White Paper* at 28-32.

10 *Nextel White Paper* at 28-30.

11 *Nextel White Paper* at 29.

footprint as well as major metropolitan areas and highways corridors. Furthermore, it serves areas of Florida and Mississippi that are not served by any other advanced wireless dispatch provider. In part because of this expansive and reliable coverage, its service is widely used by public utilities, public safety agencies, school districts, local governments, emergency services such as ambulance companies, and a wide variety of commercial entities. For example, Southern is the primary mobile communications provider for, and is thus heavily relied upon by, the Southern Company's utility operating companies - Georgia Power Company, Alabama Power Company, Mississippi Power Company, Gulf Power Company, and Savannah Electric and Power Company. It also provides wireless communications for approximately 3,000 public safety entities, for a total of over 30,000 public safety users.[12]

Although Southern is a CMRS provider, it is substantially different from other CMRS providers in that its system is truly effective in meeting the mobile communications needs of utilities and public safety entities. These needs, of course, are of paramount importance. For utilities, the importance of mobile communications was recently documented in the National Telecommunications and Information Administration's report to Congress entitled "Current and Future Spectrum Use by the Energy, Water, and Railroad Industries."[13] With regard to public safety entities, the importance of reliable mobile communications is, of course, the basis for this rulemaking.

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12 This includes entities eligible for licensing in the Commission's Public Safety Radio Services as well as federal government entities ("public safety entities").

13 Marshall W. Ross and Jeng F. Mao, *Current and Future Spectrum Use by the Energy, Water, and Railroad Industries*, U.S. Department of Commerce, National Telecommunications and Information Administration (Jan. 30, 2002) (available at http://www.ntia.doc.gov/reports.html).

In terms of its 800 MHz spectrum, the majority of Southern's channels are in the interleaved portion of the Business and I/LT bands (site-based). Southern's remaining channels are in the General Category, Lower 80, and Upper 200 SMR portions of the band in which it has both Economic Area ("EA") and site-based licenses. Despite Southern's large presence in the 800 MHz band, only one public safety agency has reported either directly to Southern or in APCO reports that Southern may be causing interference to its system. That agency, DeKalb County Public Safety, states that sites utilized by Nextel and Southern appear to be causing interference to its 800 MHz radio systems. Southern is currently investigating whether it is actually a contributor to DeKalb County Public Safety's problem, and if it is, Southern will work with DeKalb County to alleviate any interference it may be causing.

The continued viability and growth of Southern LINC is vitally important to all of its current customers. To that end, Southern is committed to continuing to provide an advanced communications system that meets the unique needs of public utilities, law enforcement, emergency management agencies, local governments, and other critical infrastructure, public safety and government entities. In addition to providing highly reliable and comprehensive coverage, Southern also offers functionality highly sought after by the public safety community such as interoperability.[14] It is also, of course, committed to continuing to provide outstanding service to commercial customers. To accomplish those goals, however, Southern's spectrum holdings must be maintained, and it must not be burdened with the massive costs and disruptions that would be caused by a large-scale 800 MHz band realignment.

Southern is highly interested in this proceeding because all of its operations are located in the 800 MHz band, specifically 851-866 MHz paired with 806-821 MHz. Its concerns are

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[14] Southern LINC offers interoperability through the use of talkgroups on common fleets and through the ability to make private dispatch calls across fleets.

heightened by the fact that Nextel's and NAM's realignment proposals do not appear to accommodate its system at all because neither plan provides enough spectrum for both Southern and Nextel to relocate within the 800 MHz band. Additionally, Southern would not clearly fit into the CRMS classification in Nextel's plan, which could leave Southern with no 800 MHz spectrum home.

To the extent the NAM and Nextel plans would require Southern to retune within the 800 MHz band, retuning could be highly problematic or even impossible. Given the size of Southern's system (127,000 square miles, approximately 500 base stations) and its number of subscribers (over 250,000), retuning would almost certainly require it to incur enormous costs. Among other things Southern's base station equipment would have to be modified or replaced, and all of the handheld units issued to Southern's customers would need to be reprogrammed, which would require Southern to install new software in each individual unit.

C. Southern LINC Strongly Supports The Public Safety Community

Southern's support for the public safety community is unwavering. As explained above, Southern provides mobile communications service to approximately 3,000 public safety entities (for a total of over 30,000 public safety users), including local, state, and federal law enforcement and emergency management agencies. Additionally, the utilities, local governments, and school districts it serves perform quasi-public safety functions. Thus, Southern fully understands the public safety community's needs and concerns.

Southern also understands the need to mitigate public safety interference in the 800 MHz band. Its own system has been identified in only one instance as a possible cause of such interference, and it is working diligently to determine whether it is indeed a contributor to the interference. Also, if other interference situations possibly involving Southern arise in the future, it will, if necessary, promptly work to resolve them. In the meantime, Southern agrees that steps

need to be taken to mitigate public safety interference, both for the short term and long term. Therefore, it sets forth herein a two step proposal for addressing public safety interference.

II. NATURE OF THE INTERFERENCE PROBLEM

The interference problems at issue in this proceeding are complex, highly technical, lacking an impartial and objective systemic analysis, and not widely understood throughout the industry. Through the efforts of the Commercial/Public Safety Interference Task Force, Project 39, and certain public organizations and private companies, an informal body of knowledge has been compiled on the subject. This body of knowledge provides an anecdotal understanding of the causes of public safety interference in a relatively small number of discrete interference incidents, which points to what the likely causes of such interference may be on a more universal basis. It also provides some understanding of the means of alleviating or eliminating the interference, but that understanding is not definitive.

Because the technical implications of a solution as drastic as rebanding are not well understood, the Commission does not have a rational basis to order a full scale 800 MHz realignment that could cost 800 MHz users billions of dollars. What is clear is that realignment of users within the 800 MHz band will not "cure" the causes of public safety interference that are known today. Further, technical solutions that could be used instead of a cost prohibitive realignment plan have not been fully explored and identified. Accordingly, at this point the Commission should immediately implement the short-term solution proposed herein, which is a market-based plan that utilizes technical solutions and limited channel swaps to resolve interference incidents on a case-by-case basis. These immediate steps will alleviate interference, and the Commission can begin the process of eventually implementing the long-term solution of relocating 800 MHz public safety licensees to the 700 MHz band. In contrast to plans that

advocate realignment of the many existing 800 MHz licensees, this solution offers true prospects for protecting public safety systems from interference from low-site CMRS.

A. Current Understanding Of The General Causes Of Interference

The co-existence of public safety and other licensees in the 800 MHz band has not traditionally been a problem. Although public safety and other licensees have shared the band on an interleaved basis since 1982,[15] reports of interference to public safety entities did not arise until the past several years.[16] The reason these incidents have occurred (as limited as the number of reported incidents has been) has been ascribed to several changing factors involving the radio frequency environment in which public safety entities operate.

1. Differences Between Public Safety Systems And Low-Site CMRS Systems

As noted in the NPRM, public safety systems are typically designed to provide extensive coverage with a single transmitter or relatively few transmitters.[17] They utilize high site base stations and only minimal frequency reuse. The signal picked up by public safety mobile units is thus strongest when they are near the transmitter and becomes weaker the farther they move from it. As such, the design of many public safety mobile units contemplates their biggest problem as being thermal noise as a function of distance, and the mobile units are primarily designed to overcome that problem. Hence, public safety systems have been characterized as "noise limited systems."

In contrast, some "low-site CMRS" systems utilize many low site base stations to blanket geographical areas with strong signals, and they employ significant frequency reuse. Multiple

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15 *NPRM* at ¶ 7.

16 *See Best Practices Guide* at 6.

17 *NPRM* at ¶ 11.

base stations ensure that customers are never far from a base station so long as they are in the carrier's coverage area, generally ensuring a continually strong signal as the customer travels throughout the area. (Southern's system is primarily a low-power, high-site system and thus is not wholly encompassed by the term "low-site CMRS."). The design of low-site CMRS systems contemplates their biggest limiting factor as being inter-system interference. Because of this attribute, low-site CMRS systems have been characterized as "interference limited systems."

The difference in public safety and low-site CMRS system design results in what is known as a near-far problem: When public safety mobile units are a significant distance from their base stations but close to a low-site CMRS base station, the relatively weak public safety signals are competing with strong low-site CMRS signals.[18] If there is a possibility of interference occurring, this near-far radio frequency environment makes it more likely that interference will, in fact, manifest against the public safety licensee.

2. Lack Of Frequency Selectivity By Public Safety Receivers

Many public safety receivers are designed to hear broadly across the 800 MHz band, including frequencies outside of the 800 MHz public safety spectrum allocations, *i.e.*, from 835-850 and 869-885 MHz.[19] On the other hand, this lack of frequency selectivity makes them more cost effective, as public safety users can utilize a single radio for multiple systems that operate on different frequencies. On the other hand, it exposes the receivers to intermodulation products and receiver overload problems. When public safety mobile units are in areas with a significant amount of low-site CMRS signals, and those signals are significantly stronger than the public

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18 *NPRM* at ¶ 15; *Best Practices Guide* at 6-7.

19 *NPRM* at ¶ 15. These receivers, for example, have a 50 MHz wide 3 dB passband (835-885 MHz).

safety signals, the open-ended nature of the public safety receivers subjects them to potential interference.

3. Proximity Of Public Safety Channels To CMRS Channels

The *NPRM* largely focuses on the fact that 800 MHz public safety channels are adjacent to CMRS channels.[20] Nonetheless, the Commission must bear in mind that although 800 MHz public safety and low-site CMRS licensees have both been permitted on the 800 MHz band since 1974, and have been interleaved since 1982, no problems were reported until the past several years.[21] Thus, while frequency proximity can be a factor in public safety interference, it is only one small factor among many factors in the complex 800 MHz radio environment. Simply re-shuffling the 800 MHz band will not "cure" or even significantly mitigate interference problems.

B. Current Understanding Of The Specific Causes Of Interference

In the NPRM, the Commission notes that the *Best Practices Guide* "describes the causes of CMRS interference to public safety systems as falling into four major categories: intermodulation, receiver overload, transmitter sideband noise, and effects due to the transition from analog to digital modulation."[22]

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20 *See, e.g., NPRM* at ¶¶ 15 and 20.

21 *See Best Practices Guide* at 6.

22 *NPRM* at ¶ 15. For the fourth item, "transition from analog to digital modulation," the *Best Practices Guide* does not make clear that it is a specific technical cause of interference. Rather, it is a factor that may increase the likelihood of either intermodulation, receiver overload, or transmitter sideband noise.

1. Intermodulation

Project 39 identified intermodulation as the predominant cause of interference to public safety entities in the 800 MHz band.[23] Intermodulation occurs due to the interaction, or mixing, of two or more different frequencies that creates a third frequency known as an intermodulation product.[24] The type of intermodulation identified in public safety interference situations reviewed to date is "in-receiver" intermodulation. With that type, two or more undesired frequencies, which are within the passband of the receiver, mix in the receiver and create an intermodulation product. If the intermodulation product falls on the signal the public safety unit desires to receive, communications can be degraded.

An 800 MHz intermodulation product may consist of a frequency that is not adjacent to the frequencies that mixed to create it; rather, it may occur farther away from those frequencies.[25] *Accordingly, as discussed further below, intermodulation cannot be solved by simply realigning the 800 MHz band to eliminate adjacent channels between commercial carriers and public safety entities.*

2. Receiver Overload

Receiver overload can occur when a receiver amplifies a signal it is receiving.[26] Receivers usually amplify desired signals, but in the process, they also amplify any other

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23 Project 39 Interim Report to FCC on Interference to Public Safety 800 MHz Radio Systems, RoxAnn Brown, Chairperson, at 3 (Dec. 24, 2001); *see also* Six-Month Status Report of the Project 39 Technical Committee Presented at the APCO Western Regional Conference, at 5 (Mar. 19, 2002).

24 *Best Practices Guide* at 8.

25 See generally *Best Practices Guide* at 8.

26 *Best Practices Guide* at 8.

frequencies that are within the passband of the receiver. If those other frequencies are already strong, amplification of them can overload the receiver.

Receiver overload can be manifested in three ways: receiver desensitization, receiver blocking, and local oscillator interference.[27] Receiver desensitization occurs when a strong undesired signal reduces the gain of the amplifying stages of the receiver, thus hindering the ability of the receiver to properly receive the desired signal. Receiver blocking occurs when a very strong undesired signal(s) blocks reception of the desired signal. Local oscillator interference occurs when noise from the local oscillator combines with a strong undesired signal, thus causing the undesired signal to backfill on the desired signal and produce an effect similar to noise.

3. Transmitter Sideband Noise

Transmitter sideband noise is caused by sideband energy, which is a byproduct of frequency modulation.[28] Sideband energy is produced on frequencies above or below the frequency on which the transmitter is transmitting. If sideband energy in a particular area is stronger than the public safety signal in that area, the sideband energy can overpower the public safety signal and cause interference.

The FCC strictly limits the amount of allowable sideband emissions.[29] Like the other forms of public safety interference, transmitter sideband noise was not reported as a problem until fairly recently. It is not a major cause of public safety interference.

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27 *Best Practices Guide* at 8-9.

28 *Best Practices Guide* at 9.

29 *See* 47 C.F.R. § 90.210 (2001).

III. SOUTHERN LINC'S PROPOSAL

Instead of a massive realignment of the 800 MHz band, Southern recommends that the Commission adopt a two-step approach to promptly solving public safety interference situations. The first step is implementation of a plan whereby licensees would be required to use technical solutions and limited channel swaps to alleviate or eliminate interference on a case-by-case basis. This type of approach has already been shown to be successful. The second step is to relocate all public safety licensees in the 800 MHz band to the 700 MHz band, which is the best way to entirely eliminate interference between low-site CMRS systems and public safety systems.

A. A Market-Based Approach To Resolving Interference Problems Is Preferable Because Realigning The 800 MHz Band Will Not Solve The Interference Problem

One of the most glaring deficiencies with proposals to resolve public safety interference by realigning the 800 MHz band is that none of the plans will result in more than an insignificant reduction of public safety interference. A realignment of the 800 MHz band among existing licensees would significantly mitigate only one of the prime interference suspects: transmitter sideband noise. Intermodulation, which Project 39 considers to be the predominant cause of public safety interference,[30] would not be resolved by band realignment. Likewise, receiver overload, which is responsible for three subcategories of interference - receiver desensitization, receiver blocking, and local oscillator interference - also would not be resolved.

Intermodulation interference cannot be solved by realignment proposals because they do not acknowledge the true nature of the problem. The majority of public safety intermodulation interference in the 800 MHz band is formed in the public safety receiver. If occurs when undesired signals are read by the receiver and, inside the receiver, mix to form an additional

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30 Project 39 Interim Report to FCC on Interference to Public Safety 800 MHz Radio Systems, RoxAnn Brown, Chairperson, at 3 (Dec. 24, 2001).

undesired signal. This new undesired signal (otherwise known as an "intermodulation product") appears on the same frequency as that of the public safety signal. Therefore, it interferes with the public safety receiver's ability to receive a desired public safety signal because its greater strength overrides the public safety signal. The interference is essentially a function of three things: (1) the public safety receiver being able to read the undesired signals; (2) the undesired signals being very strong at the location in which they are received; and (3) the desired signal being relatively weak at the location in which it is received. Whether public safety channels are interleaved with or otherwise adjacent to commercial channels has no direct impact on any of those items.

Nextel, for one, acknowledges that realignment alone will not alleviate intermodulation interference. It proposes that, in addition to the expense of realignment, public safety entities be required to incur the additional expense of modifying their receivers, or buying new receivers, so that they will read a much narrower portion of the 800 MHz band (*i.e.*, have a more limited passband), in turn reducing the likelihood of receiving undesired frequencies in the first instance.[31] Realigning the band to contain all the public safety channels in a discrete portion of it would provide the opportunity for public safety receivers to have a more limited passband. Receivers with a more limited passband present a trade-off for public safety, though, because such receivers would have additional attenuation, which could result in reduced coverage by existing systems. Thus, at best, realignment would mitigate intermodulation interference at the expense of diminishing the public safety entity's coverage area.

With regard to receiver overload interference, it cannot be resolved by band realignment for the same reasons as those for intermodulation interference. Receiver overload stems from

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[31] *Nextel White Paper* at 32.

unwanted signals being read by the receiver. A public safety receiver with a wide passband is capable of reading undesired signals regardless of whether they are interleaved or otherwise adjacent to the desired public safety signal. The only way to prevent that is to narrow the passband, but this suffers from the problems described in the foregoing paragraph.

B. Preferred Immediate Solution: Utilizing A Market-Based Plan Based On Technical Solutions

In contrast to band realignment, the Commission can readily craft and quickly implement a market-based solution that will protect public safety licensees from harmful interference, permit flexibility in accommodating disparate radio systems in the 800 MHz band, and minimize detrimental impacts on other users of the band.

1. Principles That Should Be Used In Crafting Public Safety Interference-Reducing Rules

If the Commission adopts rules to resolve public safety interference, it should incorporate the following key principles: (1) define harmful interference and the events that would trigger a resolution procedure; (2) clarify the rights and responsibilities of each party; (3) avoid limiting or mandating possible remedies; (4) ensure prompt resolution of public safety interference complaints with only minimal Commission involvement; and (5) avoid impacting licensees not directly involved in the interference problem. Each of these principles is discussed herein.

2. Rules Should Define Harmful Interference And Triggering Events

For purposes of resolving conflicts between stations licensed under Part 90, "harmful interference" is defined as "any emission, radiation, or induction, which specifically degrades, obstructs, or interrupts the service provided by such stations."[32] This definition is a functional one that is not dependent on any arbitrary signal levels or carrier/interference ratios. While

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[32] 47 C.F. R. §90.7 (2001).

additional certainty would be provided by such standards, they are not necessary to resolve complaints between licensees. Rather, the first step in resolving interference is to define triggering events that would establish the responsibility of the interference-causing licensee to cooperate with the public safety licensee to resolve the interference.

3. Rules Should Clarify Rights And Responsibilities Of Each Party

In the 800 MHz band, resolution of interference problems is the responsibility of the specific licensees causing and receiving the interference. Under FCC Rule Section 90.173, "all applicants and licensees shall cooperate in the selection and use of frequencies in order to reduce interference" through mutually satisfactory arrangements.[33] If the licensees are unable to reach an agreement, however, the Commission "may impose restrictions[,] including specifying the transmitter power, antenna height, or area or hours of operation of the stations concerned."[34] Section 90.403(e) contains a similar rule on interference mitigation, requiring all licensees to "take reasonable precautions to avoid causing harmful interference."[35] As a last resort, the Commission has noted that it may relocate the interfering licensee.[36]

In short, in the 800 MHz band, the interfering party has the primary responsibility to prevent the occurrence of harmful interference. If interference does occur, however, the Commission's Rules set forth the appropriate order of interference mitigation: (1) mutual agreement between the affected licensees; (2) imposition of technical restrictions on the

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33 47 C.F.R. § 90.173(b) (2001). The *Best Practices Guide* also counsels licensees to collaborate and share responsibility for avoiding interference.

34 *Id.*

35 *Id.* § 90.403(e).

36 *See* In re Application of American Television of Utah, Inc., File No. BPCT-790822KE, *Memorandum Opinion and Order*, 1984 FCC LEXIS 1530, *5 (1984).

licensees; and (3) relocation of the offending licensee. Neither Section 90.173(b) nor Section 90.403(e) requires third-party licensees to participate in interference mitigation.

Nextel's status as a primary source of interference in the 800 MHz band is well documented in reports by public safety agencies and anecdotal evidence.[37] Any rules that are adopted in this proceeding should ensure that only the parties causing the interference to public safety licensees are obligated to participate in the solution.

4. Rules Should Not Attempt To Limit Or Mandate Possible Remedies

Significant effort has gone into determining technical solutions to public safety interference. The *Best Practices Guide* and *Motorola's Interference Technical Appendix* contain numerous technical solutions that can either alleviate to an acceptable level or even completely eliminate interference in specific situations. The Commission should not mandate or prohibit any particular interference-reducing measures. A summary of the technical solutions that can be employed against each type of interference problem is set forth below.

a. Solutions For Interference Caused By Intermodulation

APCO has reported that intermodulation is the predominant cause of interference to public safety entities in the 800 MHz band.[38] Several steps have been identified to alleviate or eliminate interference caused by intermodulation. Any of these steps taken alone can significantly alleviate or eliminate interference. Motorola has stated that, in some cases, simply sweeping a transmitter's antenna system or checking the tuning on the combiners to ensure that

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37 *See also* Allyson Vaughan, *FCC Tackles 800 MHz Interference Problems*, Wireless Week, Mar. 18, 2002 (citing Tom Sugrue, Chief of the Wireless Telecommunications Bureau, as agreeing that the cause of the interference is "more on the Nextel side").

38 Project 39 Interim Report to FCC on Interference to Public Safety 800 MHz Radio Systems, RoxAnn Brown, Chairperson, at 3 (Dec. 24, 2001).

they are operating in accordance with specifications will address interference problems.[39] A further step would be for the licensee to decrease the power at which it transmits its signal, thus decreasing the strength of the intermodulation product and making it less likely to overpower the public safety signal.[40] Licensees can also attempt to avoid transmitting on frequencies known to result in harmful intermodulation products.[41]

On the other side of the equation, there are steps that a public safety licensee experiencing interference could take to increase its resistance to intermodulation interference. For example, the public safety licensee could increase the strength of its signal, thus making it less susceptible to being overpowered by an intermodulation product.[42] The licensee could also utilize receivers that have intermodulation specifications of 75 dB or higher, which are much more immune to interference caused by intermodulation than receivers with less than 75 dB of intermodulation rejection.[43]

b. Solutions For Interference Caused By Transmitter Sideband Noise

Interference-causing licensees can undertake several technical solutions to alleviate or eliminate interference caused by sideband energy. As with intermodulation interference, they can inspect their equipment to ensure that it is operating in accordance with specifications[44] and, if necessary, decrease the power at which they transmit their signals.[45] They can also undertake

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39 *Interference Technical Appendix* at 44.

40 *Id.*

41 *Id.*

42 *Id.*

43 *Id.*

44 *Id.* at 43.

45 *Id.*

modifications of the transmit antennas, such as increasing the center of radiation so as to increase local site isolation.[46] A similar effort would be to change the antenna in some manner, including changing the antenna pattern or eliminating down-tilt, such that the signal level is reduced in the immediate area of a site.[47] Additional filtering of the digital transmitter may also reduce the amount of sideband energy; there are reportedly a variety of filters that licensees can use for this purpose.[48]

In some situations, licensees can alleviate or eliminate transmitter sideband interference by using cavity combiners instead of hybrid combiners to reduce the amount of sideband energy.[49] In fact, Frontier Radio Communications, a company that designs, sells, installs, and services digital wireless communications equipment, recently stated that it "[does] not allow systems with hybrid combining at our sites because they don't protect other users."[50] Frontier Radio stated that it recently resolved an 800 MHz interference problem caused by Nextel at the Las Vegas Convention Center by replacing a hybrid combiner Nextel was using with "a newer type of combiner" (Frontier Radio did not provide further details on the type of combiner).[51]

Public safety licensees, for their part, can alleviate or eliminate transmitter sideband interference by increasing the strength of their signals, making them less vulnerable to being overpowered by sideband energy.[52]

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46 *Id.*

47 *Id.*

48 *Best Practices Guide* at 13.

49 *Interference Technical Appendix* at 43-44.

50 *Id.*

51 Roger Combs, *Nextel Interference: A Transmitter-Filtering Issue?*, RadioResource Magazine, April 2002, at 10 (Letter to the Editor).

52 *Interference Technical Appendix* at 43.

c. Solutions For Interference Caused By Receiver Overload

Interference-causing licensees can alleviate or eliminate interference caused by receiver overload by decreasing the power at which they transmit their signals, consequently making the signal less likely to be over-amplified in the public safety receiver.[53] A licensee can also reduce its signal level by virtue of the local antenna pattern by increasing the height of its antenna site, altering its antenna radiation pattern, and utilizing antennas with tighter beam-width.[54]

5. Rules Should Ensure Prompt Resolution Of Public Safety Interference Complaints With Resort To The Commission Only In Egregious Situations

Due to limited Commission resources, a framework for resolving interference complaints should, to the extent possible, minimize the need for Commission involvement. A market-based solution should create the opportunity and incentive for parties to eliminate harmful interference, with recourse to the Commission only in the most egregious situations.

6. Rules Should Avoid Impacting Licensees Not Directly Involved In The Interference Problem

In the *White Paper*, Nextel is ambiguous on the point of whether technical approaches to resolving public safety interference will be effective. It represents that it has considered a variety of alternatives to band realignment as a means of resolving interference.[55] With regard to these alternatives, Nextel concludes:

> None of these alternatives effectively achieves the essential public interest objective of correcting the fundamental cause of CMRS - public safety interference at 800 MHz *while making a significant amount of near-term spectrum available for enhanced and expanded public safety communications networks.*[56]

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53 *Best Practices Guide* at 12.

54 *Best Practices Guide* at 12.

55 *Nextel White Paper* at 30-31.

56 *Id.* at 31 (emphasis added).

On its face, this provision reveals that Nextel rejected the use of alternatives to realignment in part because they do not also involve additional spectrum for public safety. The Commission should not let the issue of allocating additional spectrum to public safety unduly cloud the issue of public safety interference resolution. Resolution of public safety interference does not necessarily require disruption to other licensees in the 800 MHz band, and the Commission should adopt rules that impact only those entities that are causing or experiencing interference.

7. Recommendations

Applying the foregoing principles, Southern recommends adoption of the following market-based approach.

a. Establish Threshold Parameters To Facilitate The Identification Of Facilities That Might Be Causing Interference To Public Safety Systems

One of the challenges facing an entity experiencing interference is identifying the actual cell site or sites which are transmitting frequencies that cause the interference. Identification is particularly problematic in the case of systems such as Nextel's, which utilize multiple cell site transmitters within a small geographic area. One method of helping to identify potential interference sources would be to require all licensees operating digital systems between 851 and 880 MHz (cell site transmit) to register with a national database the locations of all transmitters with antenna heights of 200 feet AGL or less.[57] Because this database would not be used for frequency coordination, *per se*, the only fields which would be required in the database would

[57] An alternative approach would be to develop a database of sites at which a calculated or measured field strength exceeds certain levels within a fixed distance from the antenna structure. However, this approach to identifying potential interference sources would require uniformity in the means used to calculate or measure field strength. It would also be difficult to administer and enforce.

be: (1) licensee name; (2) licensee contact information; and (3) geographic coordinates of the antenna structure. Further, to ensure that the database would only be used for purposes of interference resolution, it should be administered solely by an independent third party such as the Commission or a frequency coordinator. Information about transmitter locations should be given only to public safety entities that suspect interference. Additionally, the Commission should impose a penalty for failing to register the coordinates of a cell site.

In order to establish basic responsibilities for interference resolution, the Commission's rules could require that any licensee of a digital 800 MHz system with a low-site transmitter(s) (*i.e.*, 200 feet AGL or less) and located within one mile of the location at which interference is experienced would have an obligation to eliminate that interference or demonstrate that it is not causing the interference. In this manner, a public safety licensee could more readily identify potential interference sources and would have rights to compel their cooperation. Likewise, public safety licensees would have a responsibility to cooperate with the potential interference-causing licensee.

b. Clarify Responsibility Of Interfering Licensees To Eliminate Interference To Public Safety Systems

Once the potential sources of harmful interference to a public safety system are identified, the rules should establish the responsibility of the licensee or licensees determined to be causing the interference to take steps to eliminate it. At the same time, the public safety licensee should have a corresponding obligation to cooperate with the interferor in implementing the most cost-effective solution. Such a corresponding obligation is necessary to eliminate the potential for an interference case to be used as an opportunity to compel system "upgrades" or additional benefits that go beyond what is necessary to resolve the interference.

c. Establish Timeframes To Ensure Prompt Resolution

Interference should be corrected promptly. To ensure prompt resolution, Southern recommends that the Commission establish specific timeframes within which parties must respond. For example, to ensure prompt initiation of discussions, the rules could provide that a licensee which is identified as a potential source of harmful interference must communicate with the public safety licensee within ten business days of receiving a written notice from the public safety licensee. Such notice should generally describe the nature of the interference and the location in which it is occurring.

Further, to ensure that the parties work promptly toward a solution, the rules should provide that either party may initiate binding arbitration, as described below, if an agreement is not reached within sixty days after the public safety licensee's written notice of interference. To the extent the parties are working cooperatively toward a solution, arbitration would not be necessary. However, the availability of this option will give either party a right to seek a final resolution of the issue if the voluntary negotiations are not proceeding at a suitable pace.

d. Allow Parties To Use A Range Of Options To Resolve Interference

As noted above, a number of different techniques have been identified to resolve public safety interference at 800 MHz. Moreover, as more experience is gained in analyzing these cases, additional solutions will undoubtedly be found. Therefore, the rules should not arbitrarily limit the types of solutions that parties may employ in resolving these cases, but should allow a range of options.

To the extent a change of frequency would mitigate the interference, the parties should be permitted to enter into a voluntary agreement providing for relocation of the public safety licensee's radio system to other frequencies in the 800 MHz band or another band. The Commission should liberally waive the eligibility rules to permit relicensing of systems as part of

a voluntary frequency swap with a public safety licensee to resolve an interference case.[58] Voluntary frequency swaps with non-public safety licensees should also be permitted to resolve public safety interference disputes. However, it should be made clear that licensees who are not causing or receiving interference are under no obligation to negotiate or engage in arbitration.

e. Adopt Procedures For Third-Party Arbitration Of Disputes To Minimize Commission Involvement

Alternative dispute resolution procedures, such as arbitration, could be used to resolve interference disputes efficiently. The Commission has previously found that the use of alternative dispute resolution procedures "help resolve disputes in a timely fashion" if negotiations between the parties fail.[59] It has even adopted a policy statement which "supports and encourages the use of alternative dispute resolution procedures in its administrative proceedings."[60] The Commission has previously used arbitration to resolve disputes concerning the price of home run wiring[61] and a competitive local exchange carrier's requests for interconnection, services, and network elements.[62] Congress has also strongly supported the use of alternative dispute resolution procedures to resolve administrative proceedings.[63]

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58 Waiver of eligibility should be limited to resolving a *bona fide* interference case, and not for a wholesale reallocation of channels.

59 In the Matter of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, PR Docket No. 93-144, *Second Report and Order*, 12 FCC Rcd 19080, 19125 (1997).

60 47 C.F.R. § 1.18; *See also* In the Matter of Use of Alternative Dispute Resolution Procedures in Commission Proceedings in which the Commission is a Party, GC Docket No. 91-119, *Initial Policy Statement and Order*, 6 FCC Rcd 5669 (1997).

61 47 C.F.R. § 76.804(a) (2001). Home run wiring is wiring for a phone system in which each phone on the network is directly connected to the central switching equipment.

62 47 C.F.R. § 51.807 (2001).

63 *See* Pub. L. 101-552, 104 Stat. 2739 (Nov. 15, 1990), reauthorized under Pub. L. 104-320, 110 Stat. 3870 (Oct. 19, 1996) (codified as amended at 5 U.S.C. §§ 571-583).

Arbitration is an efficient and effective method for resolving disputes without overburdening the Commission's resources. Procedural rules could be tailored to promote quick resolution by experts with an understanding of the specific issues associated with the resolution of interference. For example, the arbitration rules for the pricing of home run wiring provide that the parties must select an arbitrator within seven days.[64] Similar deadlines in this context could permit interference disputes to be resolved promptly.

Arbitration would also encourage parties to resolve their differences through negotiations. The prospect of arbitration will provide an incentive for the parties to explore the circumstances surrounding the cause of interference within a definite period of time. This process is also likely to promote settlements, as the parties examine the basis for their claim. To provide an additional opportunity for settlement, the Commission could also provide a period for the parties to negotiate after the arbitration hearing. For example, the arbitrator would not be permitted to issue a decision until a few days after the hearing.[65]

Additionally, arbitration would conserve the resources of both parties because arbitration procedures could be designed to be faster and more streamlined than the Commission's regular procedures. Efficiency in resolving disputes is particularly important to public safety licensees who often have a limited budget. In addition, the Commission's resources will be conserved. The Commission can limit its role by implementing regulations that govern the appeal process and the standard of review. Regulations can also ensure that arbitration is conducted efficiently by regulating: (1) how an arbitrator is selected; (2) how the arbitration hearing is conducted; (3) when the decision will be issued; and (4) that parties must participate in good faith.

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64 47 C.F.R. § 76.804(a)(3) (2001).

65 *See, e.g.*, 47 C.F.R. § 51.807(d)(3) (2001) (arbitrator not permitted to issue decision for fifteen days).

f. Use Of Arbitration Should Be Mandatory Before Either Party May Appeal To The Commission

Allow either party to appeal an arbitrator's decision to the Commission, and impose the burden on the appealing party to overcome the arbitrator's recommendation.

C. Preferred Long-Term Solution: Relocation Of All 800 MHz Public Safety Licensees To The 700 MHz Band

The Coalition for Constructive Public Safety Interference Solutions ("Coalition"), of which Southern is a member, submitted to the Commission on April 26, 2002, a letter and accompanying documentation in which it outlined its plan to reallocate 700 MHz spectrum currently specified for commercial usage (777-792 MHz and 747-762 MHz) to public safety. The Coalition consists of organizations that collectively represent the interest of commercial radio service providers, manufacturers, and America's leading industrial enterprises in spectrum-related matters. Southern endorses the arguments raised in this letter in favor of postponing Auction Nos. 31 and 44 so that the 700 MHz spectrum can instead be allocated to public safety.

The relocation of all 800 MHz public safety licensees to 700 MHz offers several clear advantages over any form of realignment of current 800 MHz licensees in eliminating interference and addressing the needs of public safety. First, the plan separates public safety from low-site CMRS entities, placing public safety into its own band while leaving low-site CMRS carriers in the 800 MHz band. With a band plan consisting solely of 700 MHz frequencies, vendors of public safety radio equipment can build new receivers with low attenuation (or insertion loss) that "hear" only those frequencies, eliminating the ability of public safety radios to hear transmissions from 800 MHz licensees. This change in frequency allocation, and corresponding change in public safety radios, is essential to eliminating the types of interference experienced by public safety entities today.

Second, the existing requirement to auction the 700 MHz frequencies for commercial use may pose the potential to exacerbate further the interference between public safety and CMRS systems. If 700 MHz public safety handset receiver design requires a passband similar in size to the 50 MHz passband used in 800 MHz public safety handset, such receivers would be able to hear the CRMS frequencies at 700 MHz, replicating the problem that public safety currently reports at 800 MHz. While the Commission did establish and previously auction guard bands at 700 MHz with rules intended to minimize interference resulting from their use, those guard bands may provide little to no protection against intermodulation or desensitization interference within the public safety receivers if those receivers are designed with a wide-front end that encompasses CMRS frequencies at 700 MHz. To restate this point differently, this plan would enable the Commission to avoid, several years in the future, the recreation at 700 MHz of the 800 MHz public safety interference problems.

Third, if the Commission also seeks to provide additional spectrum to public safety as part of this particular proceeding, this plan offers public safety additional spectrum, providing it with a net spectrum gain of 20.5 MHz.[66] Furthermore, since requirements for broadcasters to vacate this spectrum currently exist (although greater certainty on the timing needs to be mandated), the Commission is not punishing any existing licensees by providing public safety with additional spectrum, unlike the steps contemplated in other 800 MHz rebanding plans. Again, if the Commission also seeks to provide additional spectrum to public safety as part of this proceeding, this 700 MHz plan also offers a greater amount of additional spectrum to public safety than other plans contemplate.

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66 Public safety has already been allocated to receive 24 MHz in the 700 MHz band. This plan allocates an additional 30 MHz to public safety entities. When the 9.5 MHz of spectrum that public safety would vacate at 800 MHz is taken into account, it experiences a net gain of 20.5 MHz in available spectrum.

Fourth, depending upon the precise spectrum needs of public safety, a portion of the additional spectrum to be allocated away from commercial use could be dedicated to homeland security and/or critical infrastructure spectrum needs. The spectrum needs of critical infrastructure entities have been thoroughly discussed in the National Telecommunications and Infrastructure Administration's report,[67] and in some areas, this additional spectrum may allow for some room to meet these needs as well.

Fifth, relocating public safety from 800 MHz to 700 MHz creates the opportunity for a funding mechanism for that relocation. The Commission could auction the frequency bands to be vacated by public safety, and the funds raised at auction could be dedicated solely for public safety's equipment and relocation expenses. While Southern does not believe that this auction would raise all of the necessary funds, it would raise some funds and would do so in a fashion that is not punitive to other 800 MHz licensees.

Southern recognizes that implementing this plan is complex and requires action by not only the Commission, but also by the U.S. Congress. The Commission will need to act quickly to postpone Auction Nos. 31 and 44. Legislation will be required to reallocate the spectrum from commercial to public safety use. Additional funding mechanisms for public safety's relocation beyond using 800 MHz auction revenues will need to be explored. Nonetheless, this plan offers the best prospects to date for eliminating public safety interference. Southern urges the Commission to act with boldness and foresight and to avoid falling into the trap of thinking that realignment of the existing 800 MHz licensees will somehow be easier, simpler, and more effective at resolving public safety interference. The short-term market-based incentive plan

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67 Marshall W. Ross and Jeng F. Mao, *Current and Future Spectrum Use by the Energy, Water, and Railroad Industries*, U.S. Department of Commerce, National Telecommunications and Information Administration, at 3-3 (Jan. 30, 2002) (available at http://www.ntia.doc.gov/reports.html).

Southern proposes will provide immediate relief on a case-by-case basis, while adoption of this 700 MHz plan presents the opportunity to take decisive and effective steps to completely eliminate public safety interference.

IV. ANY BAND REALIGNMENT PLAN ADOPTED BY THE COMMISSION MUST ACCOUNT FOR CERTAIN CONSIDERATIONS

The Commission should adopt Southern's solution consisting of a market-based plan for the short term and relocation of public safety licensees to the 700 MHz band for the long term. If, however, the FCC does not accept that solution and instead considers adopting a different plan, it must take the following important considerations into account to help ensure that the plan it implements is equitable.

A. Southern LINC's Ability To Remain In The 800 MHz Band Must Be Ensured

Southern has site-specific and EA-based spectrum holdings in all non-public safety 800 MHz land mobile frequency bands, primarily in the interleaved Business and I/LT pools. Also, its system covers a wide geographic area, encompassing both urban and rural areas. While the design of its system yields significant benefits for its subscribers, its unique features could possibly be overlooked by the Commission when designing regulations for generic CMRS systems in the 800 MHz band. That leads to the following serious concerns in the present proceeding:

> **1. No Appropriate Spectrum Category for Southern's System.** Concern that the Commission may adopt a realignment plan, such as Nextel's, that does not have a spectrum category into which Southern would clearly fit, thus resulting in Southern being left without a spectrum home. For example, in Nextel's plan, Southern would not clearly be included in the proposed spectrum allotment for " Low-Power, Low-Site Digital SMR."