

reduce interference in that particular situation, but it would not require relocation of public safety licensees in areas where doing so would not be beneficial.

This market-based solution would likely be primarily useful to Nextel, given its status as the main source of public safety interference. That dovetails well with the fact that Nextel has the most spectrum in the 800 MHz band.<sup>50</sup> Given that its spectrum is located in many different portions of the band, it is well-suited to relocating public safety licensees. Nextel is also apparently well-equipped to cover the cost of relocating individual licensees. If its current offer to pay \$500 million towards the general relocation of public safety licensees is bona fide, it can certainly afford to relocate discrete systems on an as necessary, case-by-case basis.

**4. Southern LINC's Overall Plan Alleviates Any Concerns That Short-Term Technical Solutions Will Not Proactively Prevent Interference Before It Occurs**

In their Comments, APCO, the National Association of Counties, the National League of Cities, and the National Association of Telecommunications Officers and Advisors maintain that public safety interference problems must be proactively corrected before they occur, not just after they are discovered.<sup>51</sup> Southern agrees that the Commission should strive for proactive elimination of interference, and for that reason its plan contemplates moving 800 MHz public safety licensees to the Upper 700 MHz band, where they will not be subject to the threat of interference from 800 MHz licensees. That significantly differentiates Southern's plan from proposals to realign the 800 MHz band; realignment provides no assurance of the elimination of

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<sup>50</sup> Nextel states that it "has the largest spectrum position in the 800 MHz Land Mobile Radio band." Comments of Nextel Communications at 2.

<sup>51</sup> Comments of APCO, the National Association of Counties, the National League of Cities, and the National Association of Telecommunications Officers and Advisors at 9-10.

all interference. In fact, there is a substantial likelihood that realignment might provide little or no long-term benefit with regard to eliminating interference.

**C. The Best Means Of Mitigating Public Safety Interference In The Long Term Is Through Relocation Of Public Safety Licensees To The 700 MHz Band**

The Commission can eliminate public safety interference by implementing the second stage of Southern's plan, which would relocate 800 MHz public safety licensees to the Upper 700 MHz band.<sup>52</sup> Relocation of 800 MHz public safety licensees will completely separate them from low-site CMRS systems and enable them to consolidate with the already allocated 700 MHz public safety frequencies. Also, relocation will result in the allocation of an additional 20.5 MHz of spectrum for public safety licensees without taking that spectrum away from any incumbent licensees (given that the broadcast licensees that currently utilize this spectrum are slated to vacate it). Additionally, the plan contains a funding mechanism because the vacated 800 MHz public safety spectrum could be auctioned and the proceeds directed to public safety relocation costs.

**1. Many Commenters Advocate Relocation Of Public Safety Licensees To The Upper 700 MHz Band**

Over twenty commenters support relocation of public safety licensees to the Upper 700 MHz band.<sup>53</sup> This includes many large industry associations, including CTIA, PCIA, ITA, FIT,

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<sup>52</sup> As noted above, auction of the Upper 700 MHz band (Auction No. 31) has been postponed until January 14, 2003, thereby allowing time for any legislative or regulatory changes necessary for enactment of the plan.

<sup>53</sup> Comments of CTIA at 9; Comments of Private Wireless Coalition at 6-11; Comments of The Boeing Company at 17; Comments of Motient Communications Inc. at 16-17; Comments of Bergen County Police Department at 6; Comments of Snohomish County Emergency Radio System at 3; Comments of Madison County East Transit District at 9; Comments of Jamestown Communications and Midwest Management at 6; Comments of Cingular Wireless and Alltel Communications at 16-19; Comments of AT&T Wireless Services at 7-14; Comments of Southern LINC at 27-30; Comments of Skitronics at 40; Comments of Kenwood Communications Corporation at 11-12; Comments of Coupe Communications at 3; Comments of Fisher Wireless Services at 3, 9-10; Comments of Lockheed Martin Corporation at 5; Comments of South Plains Communications at 2;

SBT, NAM, and AAR.<sup>54</sup> It also includes AT&T Wireless, Cingular Wireless, Alltel Corporation, FIRSTCellular, and Nokia.<sup>55</sup> RCC Consultants, an international consulting and engineering firm that works with public safety agencies, critical infrastructure entities, and other radio system operators, contends that relocating public safety licensees to the 700 MHz band is the best solution to the interference problem.<sup>56</sup> Likewise, the Boeing Company characterizes the plan as "[w]ithout question, the simplest and most effective approach that has been developed to resolve interference to Public Safety services in the 800 MHz band."<sup>57</sup> Motient Communications Inc. states that "[o]f the proposals Motient is aware of, the 700 MHz proposal would best meet all the proposed goals of the Commission. . . . Consequently, Motient asks that the Commission give strong consideration to this proposal."<sup>58</sup>

Public safety and quasi-public safety entities are included among the commenters supporting the relocation of public safety licensees to the 700 MHz band. Bergen County, the largest county in New Jersey, filed comments through the Bergen County Police Department asserting that "[r]elocating public safety to a contiguous band of spectrum must emerge as the Commission's goal."<sup>59</sup> To that end, it argued that the Commission should relocate all public safety licensees, not just those at 800 MHz, to the 700 MHz band.<sup>60</sup> The Snohomish County

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Comments of RCC Consultants at 4-5; Comments of Blooston, Mordkofsky, Dickens, Duffy & Prendergast at 6-10.

<sup>54</sup> Comments of CTIA at 9; Comments of Private Wireless Coalition at 6-11 (PCIA, ITA, AAR, FIT, SBT, NAM, and AAR filed jointly as the "Private Wireless Coalition").

<sup>55</sup> See Letter from Coalition for Constructive Public Safety Interference Solutions to Chairman Michael K. Powell, dated April 26, 2002.

<sup>56</sup> Comments of RCC Consultants at 4-5.

<sup>57</sup> Comments of The Boeing Company at 17.

<sup>58</sup> Comments of Motient Communications Inc. at 16-17.

<sup>59</sup> Comments of Bergen County Police Department at 6.

<sup>60</sup> Comments of Bergen County Police Department at 6.

Emergency Radio System states that "the potential auction revenue generated from vacated 800 MHz spectrum, combined with the clear public benefit of creating a dedicated block of public safety spectrum from 746 to 806 MHz" may warrant giving "serious consideration" to relocation.<sup>61</sup> Also, Madison County East Transit District, a municipal transportation quasi-public safety entity, states that relocation of 800 MHz public safety licensees to the 700 MHz band is "quite attractive and must be seriously considered by the Commission."<sup>62</sup>

Notably, APCO filed an ex parte submission with the Commission on May 2, 2002 in which it supported a delay in the 700 MHz band auctions.<sup>63</sup> APCO stated that one reason it supported delaying the auctions was to give Congress and the Commission sufficient time to explore the possibility of relocating public safety licensees to the 700 MHz band.<sup>64</sup>

## **2. Relocation Of Public Safety Licensees To The Upper 700 MHz Band Is Feasible And Is Not Precluded By The Need For Legislation**

In its Comments, Nextel argues that relocating public safety licensees to the 700 MHz band is not feasible because, according to Nextel: (1) 700 MHz equipment is unavailable; (2) the spectrum is encumbered by broadcast television stations; (3) relocation would require legislative action; and (4) relocation would be expensive for public safety licensees.<sup>65</sup> Nextel's opposition is understandable when this matter is viewed from its perspective. Certainly, under Southern's proposal, Nextel would not get to consolidate its 800 MHz spectrum or trade its scattered 700

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<sup>61</sup> Comments of Snohomish County Emergency Radio System at 3.

<sup>62</sup> Comments of Madison County East Transit District at 9.

<sup>63</sup> Letter from APCO International to Commission Chairman Michael K. Powell dated May 2, 2002, filed in WT Docket No. 02-55.

<sup>64</sup> Letter from APCO International to Chairman Michael K. Powell dated May 2, 2002, at 2, filed in WT Docket No. 02-55. APCO noted that although it thought relocation to 700 MHz warranted consideration, it was not prepared to support such relocation at that time.

<sup>65</sup> Comments of Nextel Communications at ii, 29-31.

and 900 MHz spectrum for 10 MHz of highly valuable contiguous, nationwide 2.1 GHz spectrum. Nor would many of its competitors be forced out of business or severely damaged.

Regardless of Nextel's self-serving goals, its arguments against relocating public safety entities to the 700 MHz band do not stand up to scrutiny. First, with regard to the availability of equipment, wireless equipment manufacturers have been well aware that the Commission allocated 24 MHz of 700 MHz spectrum to the public safety community in 1998.<sup>66</sup> Since that time, manufacturers have been developing equipment for public safety licensees to use on the band. As noted in the trade press last year, equipment currently exists for voice and narrowband applications and equipment for wideband data is in development.<sup>67</sup> For example, Motorola is already shipping public safety radios that can be used in both the 700 and 800 MHz bands.<sup>68</sup> Also, proposals for technology standards for wideband data have been submitted to the Telecommunications Industry Association by both Motorola and Nortel, and prototypes have been field tested in Florida.<sup>69</sup>

With regard to the Upper 700 MHz band being encumbered by broadcast television stations, such stations are presently incumbent on portions of the spectrum primarily in or near certain major metropolitan areas. The broadcasters are not currently required to clear the spectrum until December 31, 2006, and that date may be extended.<sup>70</sup> Southern acknowledges that the potential for broadcasters to remain on the spectrum after December 31, 2006 is a matter

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<sup>66</sup> See *In the Matter of Reallocation of Television Channels 60-69, the 746-806 MHz Band*, ET Docket No. 97-157, *Report and Order*, 12 FCC Rcd. 22953 (1998).

<sup>67</sup> *NCC Panel Looks to Wideband Data for Public Safety at 700 MHz*, *Communications Daily*, Nov. 16, 2001.

<sup>68</sup> Comments of Motorola at 5-6.

<sup>69</sup> *NCC Panel Looks to Wideband Data for Public Safety at 700 MHz*, *Communications Daily*, Nov. 16, 2001.

<sup>70</sup> 47 C.F.R. § 309(j)(14) (Supp. 1998).

that needs to be addressed. To that end, Congress may pass legislation removing the statutory provisions that allow them to remain beyond that date. In fact, AT&T Wireless notes that it and other cellular operators are already pursuing such legislation.<sup>71</sup> Congress demonstrated its sensitivity to the public safety community's wireless needs by allocating 24 MHz of 700 MHz spectrum to it in 1997,<sup>72</sup> and it is even more attuned to those needs now given the heightened emphasis on homeland security and similar issues. That was demonstrated on June 19, 2002, when Congress indefinitely postponed auction of the Lower and Upper 700 MHz bands in recognition of, among other things, the possibility of using the 700 MHz band in a solution to the public safety interference problem.<sup>73</sup> Thus, there is little doubt that Congress will recognize the merits of a plan that eliminates interference to public safety entities in the 800 MHz band and provides them with an additional 20.5 MHz of spectrum.<sup>74</sup>

Additionally, the record is replete with references to how long and arduous a task massive realignment of the 800 MHz band would be.<sup>75</sup> Nextel's conclusion that it could be accomplished in three years<sup>76</sup> is totally unrealistic. Implementation of Nextel's realignment plan would undoubtedly take nearly as long, if not longer, than the four and one-half years it will currently take to reach the December 31, 2006 broadcaster clearance date, and it would not even

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<sup>71</sup> Comments of AT&T Wireless Services at 11.

<sup>72</sup> See Pub. L. No. 105-33, 111 Stat. 251 § 3004 (1997).

<sup>73</sup> 47 U.S.C. § 309(j)(15) (as amended on June 19, 2002); Auction Reform Act of 2002, H.R. 4560, 107th Cong. § 2(4), 3 (2002) (enacted).

<sup>74</sup> For this same reason, promoting necessary Congressional action should also be feasible for the other aspects of Southern's plan that require legislation, such as redesignating portions of the Upper 700 MHz band presently designated for commercial use.

<sup>75</sup> See, e.g., Comments of AMTA at 6; Comments of the International Association of Fire Chiefs and International Municipal Signal Association at 5; Comments of AT&T Wireless Services at 19-20.

<sup>76</sup> Comments of Nextel Communications at 18.

eliminate interference. Accordingly, the possibility of clearing the Upper 700 MHz band in four and one-half years under Southern's plan is worth serious consideration.

Nextel also contends that relocating public safety licensees to the 700 MHz band would be very expensive.<sup>77</sup> However, such relocation is not likely to be much more costly, and it may even be less costly, than Nextel's plan. Motorola has estimated that Nextel's plan could cost public safety licensees up to \$1.5 billion.<sup>78</sup> To achieve meaningful interference reduction, public safety entities would have to implement "complementary solutions" such as purchasing new receivers with narrower passbands.<sup>79</sup> The costs of implementing these complementary solutions are not clearly included in Motorola's \$1.5 billion estimate; if they are not included, public safety licensees may have to incur *additional costs over and above \$1.5 billion*.

Also highly important is the fact that Southern's plan contains a viable funding mechanism that will cover a significant amount of the cost of relocation. Specifically, it contemplates the Commission auctioning the frequencies vacated by public safety, with the auction proceeds dedicated solely for public safety's equipment and relocation expenses.<sup>80</sup> For the amount of public safety licensees' costs that are not recovered through auction proceeds, alternative methods of funding could be explored, such as reimbursement from federal allocations for homeland security. Given the heightened emphasis on homeland security and

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<sup>77</sup> Comments of Nextel Communications at 31.

<sup>78</sup> Comments of Motorola at 25.

<sup>79</sup> Comments of Nextel Communications at 23; Comments of Motorola at 17.

<sup>80</sup> A similar approach has already been proposed in the bill for the Wireless Technology Investment and Digital Dividends Act of 2002, in which proceeds from the auction of spectrum reallocated from the federal government to the private sector for advanced wireless services would be used to fund the reallocation of incumbent government licensees. Wireless Technology Investment and Digital Dividends Act of 2002, H.R. 4641, 107th Cong. § 202 (2002).

similar issues, Southern is confident that Congress or the appropriate federal agency would see fit to assist with necessary funds.

**3. Relocation Of Public Safety Licensees To The Upper 700 MHz Band Will Eliminate Public Safety Interference Now And Guarantee Against Its Recurrence In The Future**

Numerous parties agreed with Southern that relocation of 800 MHz public safety licensees to the Upper 700 MHz band will completely eliminate public safety interference. For example, Kenwood Communications Corporation, a large manufacturer of wireless telecommunications products and systems, notes that "it is generally agreed that moving [public safety licensees] to 700 MHz would in fact solve the interference problem."<sup>81</sup> Many associations concur with that, as shown by comments jointly filed by PCIA, ITA, FIT, SBT, NAM, and AAR.<sup>82</sup> Carriers that expressly voiced their agreement with the effectiveness of relocation of public safety to 700 MHz include AT&T Wireless, Cingular, and Alltel.<sup>83</sup> The City of Portland notes that public safety interference "cannot be eliminated permanently while both Nextel and public safety are licensed in the same spectrum using current technology."<sup>84</sup>

In stark contrast to the effectiveness of relocation of public safety licensees to the Upper 700 MHz band is the concept of realignment of the 800 MHz band. Nextel, the primary proponent of realignment, admits in its Comments that realignment alone will not eliminate interference.<sup>85</sup> It suggests that its realignment plan be bolstered with spectrally inefficient guard

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<sup>81</sup> Comments of Kenwood Communications Corporation at 11.

<sup>82</sup> Comments of Private Wireless Coalition at 7.

<sup>83</sup> Comments of AT&T Wireless at 8; Comments of Cingular and Alltel at 18.

<sup>84</sup> Comments of City of Portland at 6.

<sup>85</sup> Comments of Nextel Communications at 22 n.57.

bands and burdensome new operational requirements.<sup>86</sup> NAM and MRFAC, the signatories to one of the realignment plans contained in the *NPRM*, likewise concede that "reports from equipment manufacturers indicate that re-tuning alone will not redress the most frequent and pervasive cause [of interference]; namely, intermodulation."<sup>87</sup> Motorola states in no uncertain terms that rebanding proposals "need to be augmented with other remedies because rebanding alone will not completely eradicate the potential for intermodulation interference to occur throughout the 800 MHz band."<sup>88</sup>

In addition to curing present interference problems, relocation of public safety licensees to the Upper 700 MHz band is a superior proposal because it will prevent interference from arising from future technologies that are already near deployment. AT&T Wireless asserts that if all the Commission does is realign the band and institute "complementary solutions," future technology will bring licensees right back to this same point: "As public safety and other licensees expand their service or upgrade technology to meet growing demands, interference problems will reemerge as the congested 800 MHz band becomes even more crowded . . . ."<sup>89</sup> Southern agrees with this point. Along those same lines, keeping both public safety and non-public safety licensees in the 800 MHz band may preclude non-public safety licensees from

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<sup>86</sup> Comments of Nextel Communications at 22-25. Nextel's proposed operational requirements would require public safety licensees to narrow the passbands on their receivers (which could require the purchase of new receivers) and increase the strength of their base station signals. The requirements would also require CMRS providers to adhere to stricter out-of-band emissions limits, which could necessitate across-the-board modifications of all existing facilities.

<sup>87</sup> NAM and MRFAC Comments at 3-4. NAM and MRFAC are now members of the Private Wireless Coalition, which filed Comments advancing a modified form of NAM's and MRFAC's original plan.

<sup>88</sup> Comments of Motorola at 17.

<sup>89</sup> Comments of AT&T Wireless at 18-19.

implementing more efficient or otherwise beneficial new technologies for fear of causing interference to public safety entities. Further, it will preclude those public safety licensees that wish to move to more modern technologies from doing so on their current spectrum holdings - in spite of conclusions just emerging that it is these types of advanced technologies that will be crucial for the public safety community in a world where terrorism is among one of the primary concerns.

**4. Relocation Of Public Safety Licensees To The Upper 700 MHz Band Will Provide The Public Safety Community With 20.5 MHz Of Additional Public Safety Spectrum**

In addition to eliminating public safety interference, Southern's plan will provide the public safety community with an additional 20.5 MHz of spectrum. This is more than the public safety community would receive under any other plan. Moreover, relocation to the Upper 700 MHz band will result in additional spectrum without taking it away from any incumbents; the broadcasters currently occupying the band are already required to vacate it by December 31, 2006 (subject to being permitted to stay under certain conditions).<sup>90</sup>

The large amount of additional 700 MHz spectrum that public safety entities would receive under Southern's plan, combined with the fact that they already have 24 MHz of 700 MHz spectrum, would enable tremendous flexibility of use. Public safety licensees could, for example, use the spectrum to augment their existing systems' regular, day-to-day capabilities. CTIA suggests that it could be used, in part, to create a wireless emergency network with both dispatch and interconnect capabilities.<sup>91</sup> Additionally, AT&T Wireless envisions the public safety community using the increased capacity for broadband services and enhanced

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<sup>90</sup> 47 C.F.R. § 309(j)(14) (Supp. 1998).

<sup>91</sup> Comments of CTIA at 9.

interoperability.<sup>92</sup> Boeing observes that the consolidated spectrum could facilitate Priority Access Service and other homeland security needs.<sup>93</sup>

President Bush's recent proposal for the Department of Homeland Security highlights the importance of public safety entities having additional spectrum for interoperability. The bill for the Homeland Security Act of 2002 envisions creating "comprehensive programs for developing interoperative communications technology, and helping to ensure that emergency response providers acquire such technology."<sup>94</sup> Also, a White House document detailing the proposal expressly emphasized interoperability, stating that "[i]t is crucial for response personnel [from different organizations] to have and use equipment and systems that allow them to communicate with one another. The current system has not yet supplied the emergency response community with the technology that it needs for this mission."<sup>95</sup> Giving public safety entities access to the large amount of additional 700 MHz spectrum that Southern's plan would provide would be a major step toward achieving this broad interoperability.

As noted by American Electric Power Company, the provision of additional spectrum to public safety entities is tangential to the elimination of interference.<sup>96</sup> Nonetheless, the additional spectrum Southern's plan would provide, in combination with all the other aspects of the plan, give it a significant edge over other proposals. In contrast, Nextel's provision of additional spectrum would occur only through a very heavy-handed and burdensome band realignment process that would displace thousands of existing licensees at great cost.

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<sup>92</sup> Comments of AT&T Wireless at 11.

<sup>93</sup> Comments of The Boeing Company at 19.

<sup>94</sup> Homeland Security Act of 2002, 107th Cong. § 501(7) (2002).

<sup>95</sup> Proposal for Department of Homeland Security at 12, available at <http://www.whitehouse.gov/deptofhomeland/toc.html>.

<sup>96</sup> Comments of American Electric Power Company at 4.

### **III. IF THE COMMISSION REBANDS AT 800 MHz, ANY PLAN MUST NOT IMPOSE UNNECESSARY OR INEQUITABLE HARDSHIP AND EXPENSE ON LICENSEES**

As discussed above, Southern does not support rebanding at 800 MHz as an effective solution to interference. Nevertheless, Southern is aware that several parties submitted rebanding proposals in the comment round. Southern is also aware that, in the reply comment round, Motorola, the Private Wireless Coalition, and possibly other parties are likely to submit realignment plans. Southern will comment directly on these or other plans that may be formally submitted through reply comments.<sup>97</sup>

Many of the plans submitted in the comment round contemplate realignment of the 800 MHz band, removal of SMR licensees with cellular architectures from portions or all of the 800 MHz band, and other highly objectionable and inappropriate actions. Rather than address each plan individually, set forth below are objectionable components of these plans and why the Commission should not implement the components in any form, either through wholesale implementation of a commenter's plan or as part of a Commission-designed plan.

#### **A. Realignment Of The 800 MHz Band Will Impose Great Expense Upon Licensees Without Resolving The Public Safety Interference Problem**

Parties advocating realignment of the 800 MHz band promote various forms of further separating or revising the 800 MHz allocations for public safety, B/ILT, high-site SMR licensees, and "cellular-like" SMR licensees. While these plans have their differences, they all have one overriding characteristic in common: They are exercises in futility.

The band realignment proposals will impose great expense, disruption, and hardship upon licensees but will not resolve public safety interference. The inability of band realignment

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<sup>97</sup> If the Commission decides to consider adopting a band realignment plan, it should issue a Further Notice of Proposed Rulemaking seeking comment on the details for actually implementing that plan. At this stage, it is impossible for parties to meaningfully comment on the crucially important details for any particular plans.

to resolve interference was explained in detail in Southern's Comments.<sup>98</sup> Even Nextel's massive realignment plan will still require ancillary measures, at additional cost, to approach true interference resolution. (Certain of those ancillary measures are not even technically defined at this time and will require further investigation and development.) As Motorola states, rebanding proposals "need to be augmented with other remedies because rebanding alone will not completely eradicate the potential for intermodulation interference to occur throughout the 800 MHz band."<sup>99</sup> Likewise, Fresno Mobile Radio states that no rebanding plan that leaves public safety entities on spectrum in proximity to CMRS licensees will eliminate harmful interference.<sup>100</sup> RCC Consultants, an international consulting and engineering firm that works with public safety agencies and other radio system operators, similarly asserts that "[r]estructuring only the 800 MHz band cannot provide a long-term solution to the problem."<sup>101</sup>

Nextel's plan is representative of various proposed realignment plans in terms of why realignment will fail to resolve public safety interference. Intermodulation is one of the primary causes of public safety interference.<sup>102</sup> Nextel asserts that by relocating the NPSPAC licensees outside the 856-871 MHz range, its proposal would significantly lower the probability of Nextel-based intermodulation interference to public safety licensees.<sup>103</sup> However, as demonstrated by Motorola, a simple review of the standard intermodulation calculations indicates that Nextel-

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<sup>98</sup> Comments of Southern LINC at 14-16.

<sup>99</sup> Comments of Motorola at 17.

<sup>100</sup> Comments of Fresno Mobile Radio at 4.

<sup>101</sup> Comments of RCC Consultants at 2.

<sup>102</sup> 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).

<sup>103</sup> Comments of Nextel Communications at 20.

based 3<sup>rd</sup> Order intermodulation products would continue to fall down the band to 853 MHz and Nextel-based 5<sup>th</sup> Order intermodulation products could fall down the band to 845 MHz. Accordingly, *Nextel-based intermodulation products would continue to impact the entire range of Nextel's proposed public safety block at the lower end of the 800 MHz band.* This conclusion is supported by the comments of American Electric Power Company.<sup>104</sup> They are also supported by the comments of the American Petroleum Institute, which, using this same analysis, concluded that rebanding would not even make "a substantial dent in the interference problem."<sup>105</sup> In addition, as broader band technologies are implemented within the 800 MHz band, the spread of intermodulation interference will become even wider. For example, Nextel has already begun to implement transmitters that utilize four contiguous 25 kHz frequencies, as opposed to a single 25 kHz frequency. These types of technology changes, coupled with the continuous expansion of CMRS service in terms of more sites and additional capacity, will create intermodulation products that impact an ever increasing number of public safety licensees.

Nextel's plan and the other realignment plans also would not eliminate receiver overload, which is also considered a primary cause of public safety interference.<sup>106</sup> Like intermodulation interference, receiver overload interference stems from unwanted signals being read by the receiver. A public safety radio with its existing receiver passband will continue to be capable of reading Nextel's signals even if its system is in a separate portion of the 800 MHz band.

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<sup>104</sup> Comments of American Electric Power at 13.

<sup>105</sup> Comments of American Petroleum Institute at 5.

<sup>106</sup> *See, e.g.*, Comments of Verizon Wireless at 4-5; Comments of Cingular Wireless and Alltel Communications at 4-5.

**B. The Commission Must Not Adopt A Plan Under Which Southern And Other Incumbent Licensees Might Lose Spectrum, Capacity, Or Functionality**

In addition to the foregoing general concerns with the proposed realignment plans, Southern is greatly troubled by ramifications that the plans could have for it in particular and to other non-Nextel commercial incumbent licensees. All of Southern's operations are located in the 800 MHz band, with channels in the site-based interleaved B/ILT portion of the band and the General Category, Lower 80, and Upper 200 SMR portions of the band (in which it has both Economic Area and site-based licenses). Southern provides digital interconnected and dispatch service over Motorola's Integrated Digital Enhanced Network ("iDEN") technology, utilizing both high-site and low-site antennas.

**1. Realignment Of The 800 MHz Band May Not Leave Enough Spectrum For Southern And Other Incumbent Licensees**

Realignment of the 800 MHz band would not necessarily leave enough spectrum for incumbent licensees. Many of the plans contemplate Nextel moving out of the portion of the band below 861 MHz and relocating to approximately 861-869 MHz. The NPSPAC public safety licensees, currently at 866-869 MHz, would be relocated to a portion of the band below 861 MHz (generally to 851-854 MHz, which is currently the General Category portion of the band). To make room for the NPSPAC licensees, incumbent non-public safety licensees in the portion of the band to which the NPSPAC licensees are moving would themselves have to relocate. In most plans, the theory is that they would relocate to the channels below 861 MHz vacated by Nextel. Thus, to make these plans work, Nextel will have to vacate at least as much spectrum as the relocating non-public safety licensees will need. The problem is that under some plans, Nextel might *not* vacate enough spectrum to accommodate the non-public safety licensees. These licensees could literally be left with nowhere to go; they would lose spectrum, which could severely impact their systems or even cause them to shut down.

Southern is particularly concerned with the various band realignment plans that have been floated because there is not enough spectrum in certain areas of the country to accommodate both it and Nextel. For example, in Birmingham, Southern has approximately 10 MHz of non-encumbered 800 MHz spectrum and Nextel has approximately 15 MHz of non-encumbered 800 MHz spectrum, for a total of 25 MHz. Thus, in band realignment plans which contemplate commercial carriers moving to the 16 MHz of spectrum at 861-869 MHz, there would not be enough spectrum to accommodate both Southern and Nextel in Birmingham. There could be similar shortfalls in every area that Southern and Nextel (and its affiliate Nextel Partners) both serve.

Southern's concern that realignment plans do not recognize the limited availability of spectrum in certain areas of the country was heightened by the Commission's recent response to a Congressional inquiry into the current licensees in the 800 MHz band and their respective spectrum allotments.<sup>107</sup> Although some of the data suggests that vacant spectrum is available in many markets, the analysis used for the Congressional response would not be appropriate for assessing whether all dislocated licensees could be accommodated in a band realignment. Southern is continuing to review the data submitted to Congress, but notes the following general points:

- The information provided by the Commission is of limited utility for purposes of examining realignment plans because it is premised on very broad assumptions regarding the manner in which spectrum is allocated. In fact, the Commission indicated that this analysis is not a substitute for frequency coordination, stating that nothing it contains "is meant to indicate whether interference among licensees is likely to occur."<sup>108</sup>

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<sup>107</sup> Letters dated July 26, 2002 from Chairman Michael K. Powell to Representatives Billy Tauzin, Fred Upton, and Vito Fossella.

<sup>108</sup> Exhibit 1, p. 1 to letters dated July 26, 2002 from Chairman Michael K. Powell to Representatives Billy Tauzin, Fred Upton, and Vito Fossella.

- Spectrum counts provided by the Commission only take into account site-specific licenses. This results in an undercounting of licensees that hold Economic Area ("EA") licenses, but do not have an underlying site-based license. Non-Nextel EA licensees, such as Southern, may be significantly underrepresented due to this discrepancy.
- In some areas of the country, if more than one licensee is on the same frequency, the frequency is counted more than once. This results in an overcounting of the amount of spectrum that is being used in some areas.

Accordingly, if the Commission realigns the band in reliance on those counts, it may unexpectedly find that there is not enough spectrum in certain areas to accommodate all the licensees contemplated by its realignment plan. Southern therefore urges the Commission to evaluate realignment plans based on whether every dislocated licensee would be able to secure adequate replacement spectrum that will provide comparable service.

In addition to the foregoing, the realignment plans proposed by commenters do not necessarily contain 800 MHz spectrum allocations into which Southern's distinctive system would clearly fit. For example, in Nextel's plan, it's not clear whether Southern would be eligible for spectrum in the proposed allotment for "Low-Power, Low-Site Digital SMR." Artificially prohibiting certain technologies ("no cellular-like networks") and system configurations ("no low-site antennas") from certain portions of the 800 MHz band could lead to Southern being defined-out of certain bands or being designated to operate in bands with restrictions that would be completely unworkable for its present or future system configurations.

## **2. Realignment Of The 800 MHz Band May Diminish The Capacity Of Southern And Other Incumbent Licensees**

Southern's system operates on interleaved, non-contiguous 800 MHz spectrum and is specifically designed to take advantage of the channel configurations offered by that spectrum. As such, it would not be able to maintain the same amount of capacity if it were relocated on a 1:1 channel basis to non-interleaved or contiguous spectrum. Rather, if Southern were relocated

to a block of spectrum with contiguous channels, it could only maintain its current capacity if it were given substantially more channels. However, the plans currently before the Commission do not appear to contain any provisions for giving relocated incumbent licensees additional channels to insure that their capacity is not reduced.

An example of the foregoing is found in certain rural areas covered by Southern. In those areas, Southern operates on non-contiguous channels and uses cavity combiners to increase its system's coverage and capacity. Relocating it to contiguous spectrum in these rural areas would reduce the capacity currently provided by its network or force the multi-million dollar replacement of its cavity combiners along with redesign of a substantial portion of its network.

### **3. Realignment Of The 800 MHz Band May Decrease The Functionality Of Southern's System**

As noted above, Southern provides service over Motorola's iDEN technology platform. Southern takes full advantage of iDEN's range of functions, providing its customers with digital interconnected voice, digital dispatch, paging, and data services (including wireless Internet features). Many of its customers (many of which are public safety entities) have come to depend upon its full range of functions. For example, 700 and 900 MHz frequencies cannot be integrated into an 800 MHz fully functional iDEN platform. Thus, relocating Southern from its current spectrum could result in it losing much of the functionality of its system.

Additionally, if Southern is forced to relocate a substantial portion of its system, it could be forced to undertake the exceedingly expensive and cumbersome task of revising its control channel list and reprogramming its mobile phones. In a CMRS system, several of the licensee's channels are assigned as "control channels" and used by each base station to log subscribers onto the network if those subscribers are powering "on" from an "off" status or if they are reentering the coverage area while "on" and experiencing no service. In addition, the handsets continually

monitor the control channels for critical operational information, including for purposes of determining the optimal base station with which to interact. For each licensee, a list of its control channels is programmed into all of its handsets. Accordingly, if an extensive relocation forces Southern to change numerous of its control channels and hence revise its control channel list, it would have to undertake the massive task of reprogramming at least 175,000 handsets, and possibly 275,000. This could not be done remotely; Southern would have to physically obtain and work on each handset.

**C. Relocation Costs Should Not Be Imposed On Licensees That Are Not Causing Significant Amounts of Interference**

A principle of any realignment plan must be that the cost causer must pay. There is almost unanimous support for this concept among commenters. Some realignment proposals single out CMRS licensees to bear the majority of the expense, disruption, and hardship of realignment, even suggesting that such licensees would have to do the most relocating, bear their own costs of relocation, and reimburse the relocation costs of other types of licensees.<sup>109</sup> Certain realignment plans also ban cellular-like SMR licensees from certain portions of the 800 MHz band or even from the entire band. Such measures are clearly inequitable because Nextel is the only 800 MHz CMRS licensee causing a significant amount of public safety interference. Most 800 MHz licensees cause no public safety interference, while a handful cause very small amounts that they claim can be remediated on a case-by-case basis.<sup>110</sup> For example, Southern is a cellular-like SMR licensee that comprehensively covers a 127,000 square mile service area, yet

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<sup>109</sup> Nextel makes much of the fact that it is willing to pay \$500 million for public safety relocation costs. The fine print on this offer shows what Nextel is really paying for, *i.e.*, their offer is contingent on receiving 10 MHz of spectrum at 2.1 GHz as part of the deal. The true "cost" to Nextel is very little since the 10 MHz of spectrum could easily be sold at auction for substantially more than \$500 million.

<sup>110</sup> See Comments of AT&T Wireless Services at 6-7.

only one public safety licensee has indicated Southern may be causing interference to its system, and that complaint has not been confirmed.<sup>111</sup>

As vividly illustrated by the comments, the cost of relocation for non-public safety licensees, to say nothing of the system disruptions and other burdens, could be massive; Motorola found that the total cost could reach \$2.4 billion.<sup>112</sup> Viewing the cost on a licensee-by-licensee basis gives, perhaps, an even better idea of the tremendous hardship that relocation would impose. For example, relocation costs for a small company in Texas, with just three sites, would be approximately \$1.2 million; costs for Island SMR, with only ten sites, is estimated to be over \$7 million; Entergy Corporation, with 170 sites, states that its costs could reach \$100 million.<sup>113</sup>

The profound inequity of forcing relocation costs (and burdens) on licensees that are causing either no or very little interference to public safety licensees, and would thus not benefit from relocation, is readily apparent. Licensees could be forced to abandon their systems, companies could be forced into bankruptcy, and small business owners with deep personal investments could actually lose their homes.<sup>114</sup> As noted above, Verizon Wireless states that, with regard to Nextel's realignment plan in particular, it is "amazed that Nextel would have the

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<sup>111</sup> DeKalb County Public Safety states that sites utilized by Nextel and Southern appear to be causing interference to its radio system. Southern is currently investigating whether it is actually a contributor and, if it is, it will alleviate any interference it may be causing.

<sup>112</sup> Comments of Motorola at 25.

<sup>113</sup> *See, e.g.*, Comments of Bosshard Radio Service at 3; Comments of Island SMR at 2; Comments of Entergy Corporation at 22.

<sup>114</sup> Skitronics, an operator of SMR systems in North Carolina and South Carolina, asserts that the practical effect of the realignment contemplated by Nextel's plan would be "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* is an attempt by Nextel to eliminate all of its remaining competition in the area of dispatch radio services . . . ." Comments of Skitronics at 4.