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December 19, 2003

Mr. Michael J. Wilhelm
Legal Advisor
Public Safety & Critical Infrastructure Division
Wireless Telecommunications Bureau
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: WT Docket No. 02-55
Ex Parte

Dear Michael:

Per your request to Lawrence Krevor, Vice President of Government Affairs, Nextel Communications, Inc., the attached document is a summary and clarification of Nextel's statements at the October 21, 2003 *ex parte* meeting among representatives of Nextel and the Wireless Telecommunications Bureau. This summary includes notes taken by Bureau staff who participated in the meeting.

Nextel appreciates the opportunity to summarize and clarify the information Nextel provided at the meeting.

Sincerely,

Regina M. Keeney

Regina M. Keeney
Attorney for Nextel Communications, Inc.

cc: Marlene H. Dortch, Secretary, FCC

Response to Michael Wilhelm, Legal Advisor
Public Safety and Private Wireless Division
Wireless Telecommunications Bureau

Clarification of Nextel's statements at the October 21, 2003 *ex parte* meeting among representatives of Nextel Communications, Inc. and the Wireless Telecommunications Bureau

Set forth below are forty-one statements summarizing the notes taken by Wireless Telecommunications Bureau (the "Bureau") staff on issues discussed at an October 21, 2003 *ex parte* meeting between the Bureau and representatives of Nextel Communications, Inc. By letter dated November 3, 2003, the Bureau requested that Nextel review the statements for accuracy and modify them as necessary to accurately reflect what was said at the meeting. The Bureau also requested Nextel's comments on four additional post-meeting questions. The Bureau noted that Nextel was free to decline to accept this request at its discretion.

Nextel appreciates the opportunity to review the staff's notes on the information Nextel provided at the meeting. Nextel has reproduced each of the Bureau's statements and post-meeting questions below, and respectfully provides its comments, corrections and modifications thereto to most accurately memorialize its representatives' statements at the October 21, 2003 meeting.

1. *Orange County, California has registered 150 complaints about interference to 800 MHz systems. All such interference originated from cellular carriers, not Nextel.*

   Nextel Comment:

   In July 2003, the Orange County Sheriff's Department submitted a report to the FCC that detailed the wide extent of interference being caused by cellular carriers to its public safety radio system. The report estimated that there were 150 A-Band cellular sites within Orange County (AT&T Wireless), calculated by dividing the total of 450 cellular sites amongst the three cellular carriers (including Nextel). Orange County concluded that all 150 A-Band cellular sites contribute to interference to the County on a daily basis, including a total inability to communicate. In addition, the Orange County Report indicated that AT&T Wireless had not been at all responsive in working with the County to attempt to minimize its contributions to the interference.

   Orange County has previously identified both Nextel and AT&T Wireless as contributors to public safety interference at numerous locations in the County. Nextel's reports to the FCC listed 31 specific sites in which the County has reported interference from Nextel.

2. *Nextel spoke with public safety officials who believe there are many more incidents of interference occurring than are reported. This occurs because: (1) dynamic frequency allocation makes interference transient – it may exist during one time of the day and not in another. (2) public safety officers do not always*

know there is a problem – they cannot determine why their radio is not working. (3) There are spikes in network traffic in emergencies that result in large numbers of channels in Nextel and Cellular cells being activated simultaneously – the interference is difficult to replicate under non-emergency situations.

Nextel Comment:

The Bureau's summation accurately describes the view that public safety officials have related to Nextel over the past few years. Nextel also believes that the reports of interference it has supplied in this proceeding vastly undercount the incidence of public safety interference throughout the nation. As previously described, Nextel's database of interference cases are only those that are reported by public safety to Nextel – it does not include those cases that public safety agencies have reported to the other cellular carriers directly or that have not been officially reported to either a commercial carrier or the FCC.

Nextel's experience supports the conclusion that CMRS – public safety interference can be transient based on a number of factors including dynamic frequency allocation and spikes in network traffic. Public safety officers suffer as a result, not realizing that the reason why they cannot make a particular call at a particular time, or fail to receive a dispatch, may be due to CMRS – public safety interference rather than a phone malfunction. These conditions are difficult to replicate in non-emergency situations, thereby suggesting an under-reporting and/or under-estimation of interference.

3. *110 million persons, out of a U.S. population of 280 million (39%) are resident in locations in which Nextel and/or cellular carriers use interference-generating low-site (< 100 feet) cells. [Clarification, please. Was the representation that 110 million persons live in jurisdictions where interference has actually been reported?]*

Nextel Comment:

Yes. Based on May 30, 2003 data, interference incidents have been reported to Nextel in 129 discrete counties. The aggregate population of these counties is 110 million persons (39% of the Nation's 280 million population) who may be impacted by public safety interference. As indicated above, these are only counties in which interference has been reported, and potentially undercounts the actual number of interference cases occurring.

4. *Based on the FCC ULS data base, there are 1580 discrete public safety agencies. [Please clarify that the 1580 agencies are those using 800 MHz channels.]. 155 of such agencies have reported 800 MHz interference. Thus, approximately 10% of 800 MHz public safety agencies have experienced interference in their systems.*

Nextel Comment:

Nextel's May 2003 review of the FCC's Universal Licensing System ("ULS") revealed 1580 discrete public safety agencies in the 800 MHz band. No other spectrum bands were included in calculating the total number of public safety agencies.

In addition, as noted in previous responses, the calculation of 10% reflects only those agencies reporting interference to Nextel, and does not capture cases that go unreported.

5. *Nextel estimates that approximately 400,000 800 MHz public safety radios are "at risk" for interference. This is based on 3600 discrete frequencies in use in areas where interference has been reported * 124 mobiles per channel = 446,000 radios "at risk."*

Nextel Comment:

This statement is factually accurate. The data supporting this statistic is based on interference cases reported to Nextel as of April 30, 2003. Nextel used 124 mobiles per channel in this estimate, making it a conservative estimate of the number of public safety radios at risk for interference, as further described in response to Item 6, below.

6. *There are approximately 2.6 million 800 MHz public safety radios. Based on 15,565 discrete 800 MHz channels assigned to public safety systems, nationwide, * 167 radios per channel = 2.6 million. This number served as the basis for Nextel's estimates of the number of public safety radios that would have to be retuned or replaced were band reconfiguration accomplished as proposed by the Consensus Parties. Later the estimate of 167 radios per channel was adjusted downward to 128-136 radios, which drops the estimated number of radios to about 2 million; however no adjustment was made to the cost estimates. [The basis of the radios per channel estimate was unstated.]*

Nextel Comment:

Nextel based its original estimate of 167 radios per channel on face-to-face surveys Nextel and APCO conducted with 24 public safety agencies. Since the original survey, Nextel has surveyed more than 20 additional agencies. Based on this larger sample, the Consensus Parties now believe that the average number of user units (radios) per discrete frequency is in the 128-136 radios per channel range.

Although this data indicates that there are two million 800 MHz public safety radios, rather than 2.6 million, Nextel has not reduced its $850 million financial commitment to retuning public safety and private wireless radios. Nextel has not reduced its financial commitment, even though the number of radios requiring retuning may be substantially lower than the commitment

was based on, to provide a greater cushion and greater security as to the adequacy of Nextel's funding support.

7. *"Most" of public safety agencies' radios would have to be "touched" were band reconfiguration accomplished as proposed. [Quantitative value preferred.]*

Nextel Comment:

Nextel and the Consensus Parties believe this to be true, based on the assumption that all public safety radios are programmed to operate on the current Mutual Aid channels, which are likely to be changed as part of 800 MHz realignment. As such, all public safety radios would have to be physically touched to be reprogrammed to operate on the new Mutual Aid channels. Nextel's overall retuning cost estimate assumes that all 2.6 million public safety radios will have to be physically touched twice -- once to tune the radios to a temporary set of control channels, and once again to input the final set of control channels for post-realignment operation. In most cases, this involves reprogramming the radio using a laptop computer; this process takes only a few minutes.

8. *In general, and with the qualification that several independent variables are involved, e.g. co-location, clutter, public safety receiving antenna height; cell transmitting antenna height, public safety signal strength, type of CMRS technology in use, type of public safety technology in use; under the current band structure, a low-site Nextel or Cellular Radio cell will interfere with public safety radios located within a ¼ mile radius of the cell. If cells are collocated, the interference radius would increase.*

Nextel Comment:

The statement is generally descriptive of the spectral allocation basis for CMRS – public safety interference in the 800 MHz band. A low-site base station (generally 100 feet or less above ground) has the potential to interfere with the operation of portable and mobile units operating on a high-site public safety or private wireless system using interleaved or adjacent channels when those mobile or portable units come within about ¼ mile radius of the low-site base station. The probability of interference occurring depends on the relative signal strength of each system; *i.e.,* the weaker the desired public safety transmitting signal and the stronger the undesired CMRS transmission, the more likely that interference will occur. The more channels the CMRS carriers is operating, the larger the number of intermodulation products that can form in the public safety receiver and the more likely it is that one of them will fall on a public safety channel in use in that vicinity.

In other words, not every Nextel or cellular low-site creates CMRS – public safety interference. The aforementioned variables (*e.g.*, clutter, antenna height, signal strength), as discussed further below, can significantly impact the likelihood of interference. The probability of interference to public safety communications

increases, however, when Nextel and a cellular carrier or both cellular carriers are colocated. This is a result of the additional intermodulation combinations that multiple carriers can create.

If the conditions that give rise to interference are present, it occurs within about a ¼ mile radius of the low-site where the relative differential between the desired and undesired signal is greatest. If multiple CMRS carriers are collocated on the same structure, the interference *radius* may or may not increase. If multiple carriers are collocated on nearby structures, again the interference *radius* may or may not increase.

As noted above, the many variables in and dynamic nature of the local RF operating environment make it impossible to reliably and accurately predict where and when CMRS – public safety interference will occur. There are simply too many variables changing from day-to-day and even hour-to-hour at the tens of thousands of CMRS sites throughout the nation to predict and prevent CMRS – public safety interference through best practices and frequency coordination. Even if the effort were limited to the major urban areas, there are too many variable in these dynamic CMRS systems and the dynamics of customer demand to prevent interference through best practices under the existing 800 MHz band allocation. In contrast, realignment will virtually eliminate the conditions that create CMRS – public safety interference so that interference does not occur in the first place.

9. *Current interference is approximately equally divided between third-order intermodulation and OOBE. OOBE is less likely in the presence of strong public safety signals; more likely when the signals are weak.*

Nextel Comment:

The root causes of the interference cases reported to Nextel are divided approximately equally between 3rd-order intermodulation products and OOBE. In some cases, both intermodulation and OOBE are present. Either interference mechanism, intermodulation or OOBE, is less likely to occur when there is a strong public safety signal; the weaker the public safety signal, the more difficult it is to resolve interference from either cause.

10. *A received signal power of -85 or -90 dBm is regarded as "weak" by David Maples.*

Nextel Comment:

The accuracy of this statement is dependent on the type of system and the environment involved in a given case. A public safety or private wireless signal strength at the point of desired reception of -85 to -90 dBm is certainly adequate for a noise-limited voice system design using 25 kHz channels in an environment that contains no other noise sources other than the inherent thermal noise of the

receiver. While that environment may have existed in the past, it is increasingly rare today, particularly in urban and suburban areas. The typical urban environment today contains an ever-increasing number of potential IM contributors and noise sources, not all of which are related to CMRS operations. In such an environment, an -85 to -90 dBm signal may be weak relative to the overall environment and thus susceptible to interference. As noted above, the probability of interference is higher the greater the differential between the desired signal and other radio emitters in the local environment; *i.e.,* the stronger the desired signal, the more resistant it will be to interference from these other signal sources – including CMRS operations.

11. *Denver generally has a "good" public safety signal. Application of "Best Practices" over a two-year period removed harmful interference from most of the system control channels; voice channels, however, remain affected by intractable harmful interference. This remaining interference will be abated only if the affected channels are moved from their present spectrum into spectrum licensed to Nextel.*

Nextel Comment:

This statement is essentially correct. Over the past two years, Nextel has reduced intermodulation interference on the *control channels* in Denver's public safety radio system. Doing so, however, has come at the expense of Nextel's channel flexibility, customer capacity and efficient operation. Interference still exists on certain Denver control channels from intermodulation products formed by the combination of Nextel's and AT&T Wireless' co-located or near co-located operations.

Despite more than two years of best practices efforts, however, Denver is still experiencing interference on its voice channels. Nextel cannot mitigate its contribution to this interference without band realignment. Nextel and Denver have agreed to a pilot spectrum exchange consistent with the Consensus Plan to expedite some relief for Denver.

12. *The interference abatement process involves the following steps: (1) measure interference levels (2) verify the source(s) of interference (3) determine and implement the necessary changes (4) re-measure to assure problem is solved.*

Nextel Comment:

A fundamental first step for interference mitigation not addressed by this statement is to first obtain the cooperation of all the licensees involved, including the party being interfered with. Following that, the steps are (1) measure the desired signal and all other potential interference contributors, (2) analyze the composite signal environment measured against the performance characteristics of the receivers in question, (3) determine the root causes of interference, (4) identify and implement proposed changes to correct the problem, and (5) validate that the changes have mitigated the problem. Typically a site mitigated this way

must remain under "active management" indefinitely; *i.e.,* a relatively static RF environment, to prevent channel changes by any party that could cause the reoccurrence of CMRS – public safety interference. As demand grows, Nextel is finding it increasingly difficult to mitigate interference through maintaining a static RF environment.

13. *Nextel will file a copy of the interference "How To" guide in the docket. (This has been accomplished.)*

    Nextel Comment:

    Done.

14. *Nextel has documented approximately 800 interference cases. Few (5%-10%) have been solved; recurrent interference is common because of the non-static R.F. environment, e.g. the use of dynamic channel allocation by cellular carriers.*

    Nextel Comment:

    This statement accurately reflects the discussion at the October 21 *ex parte* meeting.

15. *Currently the NPSPAC channels – allocated years after the public safety interleaved channels – are not heavily used. However, most new public safety systems must use the NPSPAC channels because other 800 MHz channels have been exhausted.*

    Nextel Comment:

    The NPSPAC channels are not "as" heavily used as the interleaved channels. This is due to both the NPSPAC's later allocation, as well as the region-by-region coordination process that the Commission required to make the most efficient use of the NPSPAC spectrum. *See* Section 90.16 of the Commission's Rules.

    As a result, the public safety community has been planning and deploying 800 MHz public safety systems since the NPSPAC channel block was allocated to public safety use in 1986. Different states (or regions) are at different points in that process. Many states (Ohio, Pennsylvania and Michigan) are deploying new statewide systems on the NPSPAC channels today. The Consensus Parties believe that CMRS – public safety interference will increase as new NPSPAC systems are implemented due to their adjacency to Nextel in the upper-200 SMR band and to the Cellular A-Band carriers.

    In most markets the original allocation of 70 public safety pool channels has been exhausted. Public safety also occupies channels in the 1-150 channel block at 800 MHz; these channels were the first 800 MHz spectrum allocated for land mobile radio use in the 1970's and public safety operators were eligible to apply for them.

16. *There will be an increase in interference when cellular carriers – freed of the obligation to provide analog service – make increasing use of digital technology. An analog signal poses less of an interference threat than a digital signal because: (1) carrier is present only when a call is in progress; and (2) the energy dispersion in an analog FM signal is directly related to speech characteristics which have a low duty factor. In digital systems – including Nextel's – carrier is constantly present and there is no direct relationship between energy dispersion and voice characteristics.*

Nextel Comment:

The downlink carriers in most digital systems are active more of the time than is the case in the analog world, specifically because each carrier is carrying multiple conversations, and the probability of all conversations starting and ending simultaneously is very low. In some digital systems the carrier is active continuously, but may adjust total power up and down as traffic loads or required range changes. Nonetheless, the basically one-for-one relationship between active calls and active carriers that exists in the analog cellular world is becoming less and less true with the increasing use of digital CMRS systems.

To clarify further, an analog signal poses less of an interference threat than a digital signal because the spectral energy distribution in the FM sidebands is directly related to voice energy, which has a significant peak-to-average ratio. As a result, the long-term distribution of the energy in the FM (analog) signal is mostly clustered close to the carrier frequency. In a digital system, on the other hand, there is no such direct relationship between the voice energy and the resultant energy distribution in the digital signal. In the digital signal, the spectral energy distribution may be essentially constant across a significant portion of the assigned channel. Since the width of an IM product works out to be the sum of the widths of the contributors, the IM products formed by multiple such signals can occupy more than a single channel.

As carriers deploy different digital technologies, the bandwidths of their channels vary greatly (*i.e.*, GSM technologies operate at 200 kHz and CDMA technologies at 1.25 MHz). This variance in technologies and channel widths also needs to be taken into consideration when determining interference contributions. If an IM analysis is done without taking into account the relationship between the bandwidths of IM contributors and the resultant bandwidth of an IM product, it is possible to fail to identify IM products that can cause interference to a desired signal.

For example, assume a desired channel center frequency of 856.3125 MHz, and an IM analysis that shows that the center frequency of an IM product will fall on 856.3375 MHz. Under normal circumstances the adjacent-channel rejection of a target receiver tuned to the desired frequency 856.3125 MHz would probably cope with the adjacent-channel IM product (a formal analysis would show whether or not this was the case). However, if the IM product contributors have bandwidths such that the product bandwidth is 75 kHz, then a significant amount

of the energy in the product will fall within the desired channel. Whether or not this energy is significant or not then becomes a function of how long it is present on the desired frequency. If the IM contributors in this case were both FM signals, the contributor bandwidths would change constantly and over the long term would be quite small; therefore, the amount of energy that the IM product would deposit in the desired channel would vary over time and would be very small to non-existent. If, however, the contributors were digital signals with essentially constant bandwidths, then the energy deposited on the desired channel would be present essentially continuously, thus increasing the probability of (and likely severity of) public safety interference.

17. *There are approximately 17,000 Nextel cell sites in the U.S. This figure does not include cell sites operated by Nextel affiliate or partner companies. [The latter number is relevant and should be supplied.]*

Nextel Comment:

Nextel will end 2003 with approximately 17,500 sites on the air and Nextel Partners will contribute 3,600 additional sites for a grand total of approximately 21,100 sites. For 2004, Nextel plans on adding approximately 1,500 - 1,750 sites, while Nextel Partners will add roughly 200 sites, bringing the total to almost 2,000 additional sites for 2004. Using rough approximations, Nextel will have approximately 23,000 sites on-air by the end of 2004.

18. *Nextel anticipates adding 4500-6000 new sites within a year [Please clarify; was the period one year or three years?] Most of these sites will be added to expand system geographic coverage, not to increase subscriber capacity by, e.g. cell-splitting. Subscriber capacity demands will be met by conversion to a vocoder that provides six voice paths per 25 kHz channel.*

Nextel Comment:

Consistent with Nextel's response to the preceding item, the correct period for adding these sites is three years, not one year. The statement is otherwise accurate.

19. *800 MHz interference will increase as public safety agencies reach saturation in the 450 MHz band and must meet increased demand by implementing 800 MHz systems. New York City, for example, currently is operating with overloaded 450 MHz systems and must implement 800 MHz systems to expand user capacity. There is likely a relationship between growth in number of subscribers and increased instances of interference, however the relationship is unlikely to be linear. Most new public safety systems are likely to use channels in the NPSPAC band segment.*

Nextel Comment:

This statement is accurate in that 800 MHz interference will increase as public safety agencies build out new 800 MHz systems, regardless of the spectrum they are migrating from or whether these are totally new systems. This migration is being driven not only by the need to obtain relief for overloaded or obsolete non-trunked systems, but also by the desire to foster greater capability for interoperability. The prediction that most public safety system growth is likely to occur on the NPSPAC channels is correct given, as noted above, the exhaustion of the lower 70 public safety channels.

20. *The "time-to-cure" interference cases can range from weeks to months. As an estimate, and assuming cooperation of involved carriers, the information necessary to determine the cause and solution of an interference problem can be determined within two to three weeks. Obtaining and installing the necessary components can require from six-weeks to two and a half months.*

Nextel Comment:

This statement is accurate with the following clarification. Hardware or system configuration changes can typically be implemented at a site from between six weeks to two and a half months, as stated above. That does not always mean, however, that interference is "cured." The effectiveness of such changes depends, of course, on the cause or causes of interference at the particular site. Even where effective in mitigating the complained of interference, subsequent changes by any CMRS carrier or the public safety agency can obviate the effectiveness of the "cure."

Moreover, Nextel is finding situations where mitigation is not possible without completely shutting down the involved cellular site or relocating it. Relocating such a site, however, may simply shift the problem to a different location. This type of situation is being reported at both new interference sites and previously mitigated areas. In these situations, 800 MHz realignment offers the only solution to CMRS – public safety interference.

21. *Nextel incurs significant cost in keeping potentially interfering sites under "active management." A rough approximation of Nextel's costs in abating interference in a single instance is $ 10,000.00. If additional equipment is required, e.g. automatically tunable cavity combiners, the cost can increase by $25,000. Interference cases are growing more complex and costly.*

Nextel Comment:

Nextel's experience is that investigating and temporarily mitigating interference at a site costs Nextel approximately $10,000 per incident. Installing autotune combiners or different antennae can increase the cost significantly; particularly where such measures are needed at more than one sector in a sectorized base station site. Finally, as the number of interference cases increase, we expect them

to become more complex and more costly to mitigate and to maintain in active management.

22. *In San Diego and Anne Arundel County, Best Practices have been diligently applied but were not able to abate all instances of interference. The only feasible remedy is band reconfiguration or interim "channel swaps" with Nextel.*

Nextel Comment:

Nextel has implemented "Best Practices" in both San Diego and Anne Arundel County in an attempt to mitigate CMRS – public safety interference on a site-by-site basis. Even with the full cooperation of all contributors and impacted parties, "Best Practices" have not been effective in mitigating – even for the short term -- all instances of interference. For example, Anne Arundel County has detailed in this proceeding the extensive use of Best Practices over the past three years, and yet at least 17 interference locations still exist in the County. Similar results can be found in Denver, Miami and San Diego.

Interim channel swaps will not solve the CMRS – public safety interference problem. The NPSPAC channels cannot be swapped out on a channel-for-channel basis given the careful coordination of NPSPAC assignments within each of the NPSPAC Planning Regions pursuant to the Commission's Rules. Channel swaps with the cellular carriers would create new interleaving of public safety and cellular channels in the currently exclusive cellular spectrum allocations, thereby creating new interference situations; the same would be true of swapping NPSPAC channels (or lower public safety channels) into the upper 200 contiguous channels assigned to Nextel.

As discussed in the October 21, 2003 *ex parte* meeting, Nextel and Anne Arundel County have agreed to a spectrum exchange to enable the County to access channels at locations where none are available today, to use in its new, multi-site public safety communications system. Fortunately, the exchange does not involve the NPSPAC channels. The exchange highlights the importance of adopting the Consensus Plan to make additional 800 MHz channels available for public safety; absent Nextel's cooperation, no spectrum was available for the County to improve its communications system. The County's enhanced system will provide its first-responders with additional coverage and capacity; it will not, however, eliminate the County's interference problems. A coordinated realignment of the 800 MHz band is necessary to accomplish that goal.

23. *Anne Arundel County is an "aberration" to the extent that it represents the only time that Nextel has swapped channels with a public safety licensee. Addressing interference in Anne Arundel County, including consultant fees, has cost "hundreds of thousands" of dollars. [More refined number is needed.] A similar swap may be made in Denver.*

Nextel Comment:

As described above, Anne Arundel County is not a spectrum swap intended to resolve interference –it is to enable an improved public safety communications system.

To this point, the only swap that Nextel has agreed to with a public safety licensee in an attempt to address interference is a recently signed agreement with the City of Denver. The swap is consistent with the Consensus Plan and has been a valuable exercise for identifying, cataloging and planning the scope of work necessary to retune a large, complex metropolitan public safety communications system. The City of Denver has filed the scope of work in this proceeding. Denver experiences interference on a daily basis despite the use of "Best Practices."

The City of Denver has spent approximately $130,000 in staff and engineering resources attempting to mitigate 800 MHz interference. *See Letter from Alan Tilles, Counsel to the City and County of Denver to John Muleta, Chief, Wireless Telecommunications Bureau, WT Docket 02-55 (November 7, 2003).* Anne Arundel County estimates that it has spent "hundreds of thousands of dollars of its own money and employee time" on interference mitigation efforts over the past several years. *See Anne Arundel County Application for Review, WT Docket 02-100 at page 6 (August 6, 2003).*

24. *Nextel staff devoted to interference management: Sandy Edwards, 10-15 FTEs and local technicians.*

Nextel Comment:

More than 20 local technicians are involved in interference management; the number varies with the location, incidence and difficulty of mitigating interference. This number is in addition to 10 – 15 corporate employees working on interference management.

25. *The State of Florida, Phoenix, Denver, Anne Arundel County and the Commonwealth of Pennsylvania have incurred significant consultant fees in attempts to abate interference. [Details would be very useful. We have requested Denver to provide its data.]*

Nextel Comment:

See the response to Item 23. Nextel is not aware of any publicly available information regarding the interference-related expenditures of the other jurisdictions identified above. The Consensus Parties have described, however, the significant burdens that 800 MHz interference imposes on public safety agencies. *See, e.g., Ex Parte* Submission of the Consensus Parties, WT Docket No. 02-55, at 16-17, 21-26 (Aug. 7, 2003).

26. *Nextel was successful in the band reconfiguration associated with moving incumbents out of the Upper 200 channels. Only a small number of incumbents*

(five or six) refused to come to the table to agree on the details of relocation. Nextel has alleged bad faith refusal to negotiate and the cases currently are before the Enforcement Bureau.

Nextel Comment:

This is an accurate statement. Nextel is in the process of attempting to resolve three cases of incumbents who have refused to agree on the details of relocation.

27. *The Balanced Approach parties' proposal would result in the Commission having to address relocation disputes if they are not resolved otherwise within sixty days. The Commission lacks the resources to adjudicate these disputes.*

Nextel Comment:

This statement is accurate. *See* Proposal of United Telecom Council and Cellular Telecommunications & Internet Association ("UTC/CTIA Proposal"), attached to Letter from Diane Cornell, CTIA, to Marlene Dortch, FCC Secretary (June 11, 2003) and Letter from Jill Lyon, UTC, to Marlene Dortch, FCC Secretary (May 29, 2003). *See also Ex Parte* Submission of the Consensus Parties, WT Docket No. 02-55, at 33 (Aug. 7, 2003) (pointing out that the Commission's adjudication of interference disputes on a case-by-case basis would lead to a quagmire of such complaints, delaying efforts to mitigate interference while putting public safety personnel at risk and burdening FCC staff).

28. *Band Reconfiguration would be accomplished in four steps: (1) data collection; (2) clear nation-wide systems; (3) clear channels 1-120 (current General Category); (4) clear and relocate NPSPAC channels.*

Nextel Response:

This is an accurate description of the overall sequence of actions involved in 800 MHz Realignment as set forth in the Consensus Plan.

29. *If band reconfiguration is accomplished pursuant to the Consensus Proposal, Nextel would incur approximately $ 150 million to reconfigure its own systems, e.g. move service temporarily to 900 MHz to allow the NPSPAC channels to be moved to 806-809 MHz.*

Nextel Response:

This statement is incorrect. The $150 million estimate in this statement is for the costs of purchasing and installing filters at Nextel base stations to eliminate OOBE below 861 MHz, as required by Appendix F of the Consensus Plan. Eliminating interleaving and relocating all high site licensees below 861 MHz makes it possible to use these filters to eliminate OOBE as a CMRS – public safety interference source.

Nextel will incur substantial additional costs beyond the OOBE filtering expense to reconfigure and relocate its own systems; these costs are currently estimated to be at least $400 million.

30. *Nextel's reconfiguration of its own systems will reduce its channel capacity temporarily; however, grade of service will not deteriorate because Nextel has equipped or will equip its subscribers with dual band (800/900 MHz) handsets and will have provided subscribers with radios that will operate both with the currently used vocoder, providing four voice-paths per 25 kHz channel. A new vocoder that will provide six voice-paths per 25 kHz channel. [Please clarify. In terms of POTS type channels (vs. dispatch) does the current iDEN equipment support three conversations per 25 kHz (x2) channel, or four?] Nextel will complete network configuration to support the new vocoders by the end of the first quarter of 2004.] Nextel's ability to accommodate the temporary reduced channel capacity rests on the proposition, above, that grade of service may be maintained using the new 6:1 vocoders. However, projected subscriber demand will continue to increase to the extent that full advantage will have been taken of the 6:1 vocoders. In that instance, it would be difficult for Nextel to maintain grade of service while the NPSPAC channels were relocated. In sum, there is a finite window of approximately three and a half to four years in which Nextel can accomplish band reconfiguration without impairing service to its subscribers.*

Nextel Comment:

The statement is generally accurate. To clarify, however, Nextel's current iDEN technology supports three voice-paths per 25 kHz channel for interconnect service (or six voice paths per 25 kHz channel for dispatch service). A new vocoder has been introduced that supports six voice-paths per 25 kHz channel for interconnect service; this capability is expected to be deployed in Nextel's network by the end of the 1st quarter 2004.

The new vocoder provides much of the increased capacity necessary to accommodate Nextel's temporarily reduced spectrum position during 800 MHz realignment; however, Nextel will still have to invest in additional infrastructure to implement 900 MHz spectrum while it reduces its 800 MHz position. Additionally, new capacity sites will need to be added at 800 MHz in those locations in which the new vocoder and/or 900 MHz does not provide sufficient capacity to meet subscriber demand.

31. *Band reconfiguration can be accomplished within forty-two months. The peak of the time vs. cost curve will arrive well into the process. Relocating NPSPAC will be the last, and most costly, event in the process.*

Nextel Comment:

The statement is accurate. As the 1-120 band is cleared within a NPSPAC region, NPSPAC relocation can begin. Some NPSPAC regions will be relocated well

within the 42-month period, with relocation beginning as early as 21 months into the process.

32. *Nextel has virtually exclusive use of 816-821 MHz nationwide. Forty percent of its network uses channels below 816 MHz.*

Nextel Comment:

The statement is accurate.

33. *Information on the ease, or not, of retuning is contained on the slides provided by Nextel at the time it conducted its "hands-on" retuning demonstration.*

Nextel Comment:

The statement is accurate. Nextel filed the slides referred to above with its *ex parte* filing on the "hands-on" demonstration.

34. *Nextel will file an estimate of the "social cost" of interference to 800 MHz public safety systems.*

Nextel Comment:

On November 20, 2003, Nextel submitted an expert report by Dr. Kostas Liopiros entitled "The Consensus Plan: Promoting the Public Interest – A Valuation Study." *See* Letter of Lawrence R. Krevor, Nextel, to Marlene Dortch, FCC Secretary, WT Docket No. 02-55 (Nov. 20, 2003) ("Liopiros Report").

Dr. Liopiros observes that interference to public safety systems operating in the 800 MHz band is a widespread problem and imposes enormous social costs by threatening the lives of first responders and the public they serve. This interference also hampers the ability of public safety personnel to respond effectively to reports of criminal activity, fires, and other emergencies. By remedying the interference problem and providing additional spectrum to meet critical public safety communications needs, the Consensus Plan will provide substantial and recurring public benefits. This will save lives, the true value of which cannot be quantified in monetary terms. Liopiros Report at 8-10.

As explained in Dr. Liopiros's report, the Consensus Plan will also provide large, ongoing public benefits by helping police, fire fighters, and other emergency personnel to respond more effectively and efficiently to emergencies. Studies have shown that the United States sustains well over $1 trillion a year in economic losses from crimes and fires. If improved public safety communications reduced this societal loss by a mere one-tenth of one percent, the nation would save over $1 billion every year. The present value of this benefit would be enormous – on the order of billions of dollars. *See* Liopiros Report at 10.

35. *The governments cost of dealing with crime, terrorism and fire, but not including natural disasters, is $ 1 trillion annually. Nextel has not assigned a value to a human life.*

Nextel Response:

Dr. Liopiros's report cites to studies that estimate that the societal losses resulting from crime, fire and terrorism exceed $1 trillion per year. While Nextel has not attempted to assign a monetary value to a human life, such valuation is included in some of the sources. *See*, e.g., John R. Hall, Jr., "The Total Cost of Fire in the United States," National Fire Protection Association (2003) (Estimating that the total dollar equivalent for all deaths and injuries due to fires in the United States in 2001 was $41.7 - $56.5 billion)." One human life lost to CMRS – public safety interference is one too many.

36. *In a survey, seventy-five percent of respondents believed that government should protect the public against crime and adequately pay first responders.*

Nextel Comment:

The statement is accurate. The survey was performed by Luntz Associates and is attached to Dr. Liopiros's report.

37. *There would be little benefit to Nextel in consolidating its 800 MHz spectrum in a contiguous spectrum block at 816-824 MHz. The iDEN technology adequately handles non-contiguous spectrum. It has demonstrated the lack of benefit to OET.*

Nextel Comment:

All licensees in the 800 MHz band, including Nextel, will benefit from the Consensus Plan because it addresses the underlying cause of CMRS – public safety interference by separating high-site, high-power public safety and private wireless systems and low-site cellular systems into separate spectrum blocks. This will greatly benefit public safety systems. It will also benefit Nextel by remedying CMRS – public safety interference, thereby eliminating the need to maintain case-by-case mitigation techniques that, as discussed above, are less effective and impose substantial operational burdens on Nextel's CMRS network.

Nextel has used iDEN® technology to build a very successful CMRS network that uses non-contiguous spectrum channels to serve millions of customers. As other parties have observed, because iDEN® is specifically designed to operate on non-contiguous channels, contiguous spectrum currently offers no inherent capacity advantage for iDEN® systems. *See* Letter of Allan Tilles, Counsel to ARINC, WT Docket No. 02-55 (April 21, 2003). This should not obscure the fact, however, that Nextel has contiguous spectrum in the upper 200 SMR channel block (10 MHz) which provides Nextel the flexibility and capability of introducing a broad range of technology options.

38. *Nextel bought the upper 200 channel band segment so that it would have the contiguous spectrum required by broadband technology.*

Nextel Comment:

The statement is accurate.

39. *Nextel projects the following developments in the future: (1) there is a high probability that the number of public safety systems will increase; (2) public safety systems will be designed for more robust coverage; (3) there will be a significant increase in the number of Cellular and Nextel subscribers; and (4) Cellular A Band licensees will convert from analog to digital technology, raising the potential for interference.*

Nextel Comment:

With respect to the first point, Nextel believes that there is a high probability that the number of public safety systems *in the 800 MHz band* will increase over time as public safety systems using other bands look to 800 MHz for advanced equipment and interoperability with other jurisdictions.

Nextel opines, based on discussions with public safety officials, that first-responders desire improved in-building coverage and that achieving this goal will mean, in some cases, a more robust public safety infrastructure. It will also mean increased demand and increased 800 MHz spectrum congestion. While some public safety operators are likely to increase signal strength or take other steps to make their coverage "more robust," there is no way to forecast the overall signal coverage of public safety radio systems nationwide. Public safety operations are affected by budgetary trends and public sector resource constraints, and it is not certain that the federal government or state and local governments will make the investments necessary to realize a net increase in public safety radio coverage.

The last two points in Item 39 are accurate.

40. *The Commonwealth of Pennsylvania has told Nextel that the comments it filed in this proceeding were intended only to raise questions concerning band reconfiguration and should not be construed to mean that the Commonwealth opposes band reconfiguration.*

Nextel Comment:

The statement is an accurate reflection of the oral comments of Commonwealth officials to Nextel. Commonwealth officials indicated that their comments were intended to express various concerns about 800 MHz realignment, most of which have been addressed through subsequent filings in this proceeding.

41. *In a post-meeting conversation between Nextel engineer David Maples, and Ziad Sleem and Michael Wilhelm of the Wireless Bureau, Mr. Maples stated that*

Nextel transmitters remain operating at full power even when there are no calls in progress. The full power operation is needed for the handsets to maintain synchronization with the system clock that determines time slots in the TDMA system.

Nextel Comment:

To clarify, Nextel's control channel transmitters operate at full power all the time (as is common with most trunking and cellular systems that use dedicated control channels). Although control channel signaling does not use every timeslot in the iDEN carrier, Motorola's technical design keeps the control channel carrier on the air constantly to maintain handset synchronization with the system (network) clock and to facilitate cell-to-cell handover measurements.

The remaining (non-control channel) transmitters also operate at full power regardless of whether they are handling call traffic. Nextel has asked Motorola to design system modifications that would shut down or reduce power on traffic channel carriers when not in use.

Additional Post-Meeting Questions

1. *Can Nextel approximate the average long-run cost for each instance of interference listed in Attachment B to its filing, "CMRS-Public Safety Interference Cases Reported by Public Safety Agencies?" The information would be most useful if it addressed all costs: labor, administrative, equipment, etc.*

Nextel Response:

Nextel cannot approximate the average long-run cost for each instance of interference listed in Attachment B to its filing "CMRS-Public Safety Interference Cases Reported by Public Safety Agencies." A key variable in the long-run cost of each instance of interference is the duration of carriers' mitigation efforts. The longer Nextel and other carriers are compelled to actively manage the threat of interference at a particular location, the greater the long-run cost of that case of interference. Under the case-by-case, Best Practices approach, it is impossible to estimate how long such mitigation will be required at these interference sites, although it appears, in many instances, that such mitigation will have to be continued indefinitely. In contrast, Consensus Plan realignment can be accomplished within forty-two months, resulting in the certain elimination of virtually all CMRS – public safety interference in the 800 MHz band.

2. *Does Nextel have a more recent version of the spreadsheet referenced in the previous categories? Can Nextel approximate the total instances of interference encountered in 2002, including instances that may have been encountered but not reported?*

Nextel Response:

Nextel is in the process of updating the spreadsheet referenced in the previous categories and will have the update information available shortly for the Commission.

3. *Can Nextel estimate the increase in interference as a function of time both in terms of an average value and a likely range of values?*

Nextel Response:

The Consensus Parties and Nextel have submitted data showing that CMRS – public safety interference has been increasing at an alarming rate, notwithstanding the use of Best Practices mitigation techniques over the past several years. *See Ex Parte* Submission of the Consensus Parties, WT Docket No. 02-55, at 24-26 (Aug. 7, 2003); Letter from Robert S. Foosaner, Nextel, to Marlene Dortch, FCC Secretary, WT Docket No. 02-55, at 4-7, App. A & B (May 16, 2003); Letter from Regina Keeney, Counsel to Nextel, to Marlene Dortch, FCC Secretary, WT Docket No. 02-55, Attachment at 5 (Oct. 31, 2003).

4. *In the study of social costs of interference to be filed by Nextel it would be useful if the costs were expressed temporally, e.g., per month, quarter, year, etc. The estimates should present costs pre- and post-rebanding, with an explanation why a given cost would increase, decrease or disappear under each scenario; i.e., a presentation of the difference in social costs when interference is addressed only by Best Practices vs. the social costs when interference is addressed by band reconfiguration, with residual interference addressed by Best Practices.*

Nextel Response:

It is difficult to quantify the social costs of the 800 MHz interference problem, although these costs clearly are substantial. As described in the response to Item 34, Nextel has submitted the Liopiros Report, which describes these social costs along with the substantial, recurring benefits of remedying the interference problem through the Consensus Plan. Nextel has also submitted a study by Dr. Gregory Rosston that provides an economic evaluation of the various proposals for resolving the 800 MHz interference problem, including a proposal to address the problem through many of the same case-by-case mitigation techniques that have been used during the past several years. As Dr. Rosston's report explains, these mitigation techniques impose substantial spectrum inefficiencies and rely on an obsolete "command and control" method of spectrum management.