RCC's study of potential interference to the City's new 800 MHz radio system[2] discovered that potential sources of interference in Philadelphia are in the upper SMR frequencies and Cellular A/B with receive signal levels almost double (if not more than double) the Public Safety system.

A Comparison between Nextel and NAM Proposed Solutions to the 800MHz Interference Issue

At a Glance

Nextel Proposal	NAM Proposal
• Realign 800 MHz band • 20 MHz contiguous freq block for Public Safety • Additional 10 MHz for Public Safety • The Band will be occupied by Public Safety and Digital SMR with 2 MHz guard band in-between • Business/Industrial Land Transportation to relocate to a different band (900 MHz) • NPSPAC channels to move to the lower part of 800MHz band.	• Realign 800 MHz Band • 10 MHz contiguous freq block for Public Safety • Additional 0.5 MHz for Public Safety • The Band will be occupied by Public Safety, Digital SMR and 10MHz Business/Industrial Land Transportation in the middle • Business/Industrial Land Transportation to relocate within the band (800 MHz) • NPSPAC channels to move to the lower part of the 800MHz band.

Similar to Nextel's proposal, NAM calls for realigning the 800MHz band. However, unlike the Nextel's plan which divides the band into 2 major categories (Public Safety and Digital SMR), the NAM plan will result in 3 contiguous frequency bands, namely: Public Safety; SMR, Business/Industrial Land Transportation; and Cellular Architecture Digital SMR. Both plans will move the newly assigned NPSPAC channels to the lower part of the Band, thus having the same logistic and cost impacts on existing Public Safety systems.

In terms of interference avoidance, the NAM proposal is likely to have the same outcome as the Nextel's proposal. Strong intermodulation products will still be produced (just on different frequencies through different modes) and RF noise will still be present at high-density sites. In terms of magnitude of impact and changes on other existing systems, the NAM proposal generally will involve re-tuning of existing equipment to new operating frequencies. For Public Safety systems, this is the same effect as the Nextel plan. For the Business/Industrial Land

[2] *City of Philadelphia, 800 MHz Radio System Implementation, Preliminary Interference Study, RCC Consultants, Inc., August 21, 2001*

Transportation systems, the NAM plan is less disruptive, less expensive and quicker to implement, as they would not need to relocate to a new band.

Conclusion/Recommendations

It is clear that the NAM proposal was meant to be an alternative to Nextel's proposal. It is much more favorable to the Business/Industrial Land Transportation systems. Although Nextel's proposal has tremendous impact on existing Public Safety systems[3], it does favor Nextel itself and Public Safety in terms of additional frequencies gained, while disregarding other licensees occupying the band, particularly business and industrial sectors. Either the Nextel or the NAM plan will result in the relocation of the newly assigned NPSPAC channels to the lower part of the 800MHz band. If all other less expensive and less disruptive possibilities of addressing the interference problem were already explored and if re-banding was the only option, the NAM plan seems less favorable to Public Safety as less spectrum is assigned to Public Safety Systems.

[3] *RCC Review on 800 MHz Radio-Nextel Relocation Plan, Impact to the City of Philadelphia, 3/15/2002*

CITY OF SAN DIEGO

(1) The features of your 800 MHz system -- its actual or proposed frequencies (for those systems under construction and not yet licensed); its square miles of coverage; nature of use (police, fire, EMD, etc.); number and types (mfr/model no.) of portables and number of mobiles currently on the system and/or planned to be on it when fully loaded; trunked and/or conventional operation; how long operating (or when you expect to start operation); and any other descriptive information you consider useful or important.

1. The City of San Diego operates a 19-channel, Motorola SmartNet II, 800 MHz analog voice network. This network has been in operation since 1991, and serves almost 13,000 users. It uses seven simulcast transmitter sites in a 400 square mile area. All sites are tied together via the City's Digital Microwave Network. The 800 MHz network was designed for in-building portable coverage.

The 800 MHz network provides services for the Police Department, Fire and Life Safety Services, Rural Metro Medical Enterprise, Building Inspection, Parking Enforcement, Metropolitan Waste Water Department, Water Department, Poway Fire Department, San Diego Unified School District and the San Diego Community College District. Talkgroups are also programmed in the network for mutual aid interoperability purposes with the County of San Diego and other cities in the San Diego Region.

The number of radios on the 800 MHz Network are:

3000 Mobiles
Models include - Spectra, Maxtrac, MCS2000, Astro Spectra

5300 Portables
Models include - Saber SI, Astro Saber, XTS 3000, XTS5000, MTS2000, LTS2000, LCS2000,MTX2000, MTX8000, GTX, Visar

850 Mobile Data Terminals - Motorola Data Division 8100-10 & 8100-20
models include: Maxtrac

The frequencies in use on the 800 MHz Network are:

856/811.0250	857/812.0500	858/813.0750
856/811.0500	857/812.0750	859/814.0000
856/811.0750	858/813.0000	859/814.0250
857/812.0000	858/813.0250	859/814.0500
857/812.0250	858/813.0500	859/814.0750

859/814.2250
860/815.0000
860/815.0250
860/815.0500
860/815.0750
861/816.0500
861/816.1000
862/817.0500
862/817.1000
863/818.1000
863/818.0500
864/819.1000
864/819.0500
865/820.1000
865/820.0500

(2) If you have been experiencing commercial interference, whether this seems to be mostly attributable to proximity to commercial transmitters, intermodulation products, or other causes (please name these, if possible). If you are not yet operating, whether you have designed specially to combat commercial interference or have written into your construction contracts any contingencies related to this NPRM.

2. The City of San Diego has experienced commercial interference from Nextel sites for a number of years. We currently have identified at least 10 sites where Nextel is the source of interference. Nextel has modified some sites to reduce interference to acceptable levels. Other sites still remain a problem. Interfering sites that have been previously mitigated reoccur as coverage engineers learn of reduced power levels and therefore, reduced site coverage. This has happened at two sites. At least four sites are still a problem today. Users regularly report new areas of coverage problems that previously did not exist. The typical situation we are seeing is where Nextel antennas are located less than 50 feet above ground and our 800 MHz Network levels are less than -80dB. Improvements have been seen where Nextel has changed to higher gain antennas with smaller vertical beamwidth used with uptilt. Most cases of interference seem to be based upon receiver front end overload and wideband site noise more than from intermodulation.

(3) Your initial reactions (and tentative preferences, if you wish) as to the three proposals noted above; or some different set of characteristics you would like to see.

Public Safety Needs

Bandwidth allocations for Public Safety radio systems within the 800MHz band are grossly insufficient. In many cases, Public Safety agencies are attempting to use their 800 MHz channel allocations to satisfy both voice and mobile data needs. Available channels in the San Diego Region for Public Safety use do not meet the current and anticipated needs for radio systems. No channels are available for expansion of existing radio systems and for needed new systems.

No 800 MHz spectrum is available to create long-awaited high speed mobile data systems. Current mobile data systems are utilizing the existing 25KHz channels and provide less than 1bit/Hz data rates. There is a great need to aggregate channels and provide for higher data rates. If spectrum was available in 50, 100, or 150 KHz channels, higher speed and more efficient data systems would quickly become available due to tremendous unmet needs of public safety agencies.

Work on the Southern California Region 5 700 MHz plan has determined that spectrum needs within this new band are barely sufficient to fulfill area needs for planned radio systems. Voice spectrum has been allocated by the Region 5 Planning Committee using 6.25KHz per voice channel even though the required technology to built these systems have not yet been designated.

Channels for new wideband data systems have been requested by Public Safety agencies in the area that total approximately 18 times the designated spectrum within this new band.

Existing Interference

Nextel operates a cellular CMRS system in the San Diego Region. This system creates significant interference to public safety radio users within the metropolitan area. Sites in this system are often less than a mile apart and produce power levels that far exceed the level from Public Safety transmitters. Within the City of San Diego, 10 locations have been identified by Public Safety users to have interference caused by Nextel transmitter sites. These sites produce two to three block areas of decreased or non-existent coverage. In some cases, users experience total loss of the ability to transmit or receive dispatch and/or other system users. Attempts to eliminate this interference have resulted in very limited success.

Nextel proposes in their white paper to exchange frequency holdings and move a multitude of existing users to these bands. The fact is that CMRS systems are causing this interference in spectrum not originally intended for their type of system architecture. These CMRS systems should be required to mitigate the problem by moving to another spectrum allocation. This has long been the practice of eliminating interference and has been very effective at protecting existing spectrum uses.

Interoperability Channels

The Southwest Border Region presents some unique challenges and synergies for interoperability. In addition to the renewed commitment to homeland security, our proximity to the Mexican Border creates many opportunities and requirements for cross-border and multi-agency communications to handle public safety issues including drug trafficking, illegal border crossing, mutual aid fire and life safety situations and other day to day Law Enforcement and Public Safety needs. Federal, State and Local agencies have worked cooperatively to improve communications between agencies. The interoperability needs along the Southwest Border Region cannot wait for the implementation of the allocated 700 MHz band. As there are TV stations operating along the border area, 2006 is too far away to begin implementing needed communications systems to meet the interoperability needs. Either additional 800 MHz spectrum should be allocated to Public Safety for this need or incumbent 700 MHz TV operators should be relocated within the next two years.

Reallocation Proposal

The users of the 800MHz band, with the exception of Nextel, purchase subscriber radio equipment that is expected to last ten years or more. The users of cellular telephones tend to replace their subscriber equipment in much shorter time frames (typical 12-18 months). This cellular subscriber equipment is also far less expensive than the public safety radio which costs approximately $3000 each.

Close site cellular architecture systems are more conducive to the use of frequencies in the 2GHz range which have been stated in the NPRM as possible spectrum for use to solve this problem.

Many PCS systems have been successfully implemented in major metropolitan areas using frequencies in this range. Subscribers to these systems use equipment that allows operation on both 800MHz and 1900MHz frequency bands. This dual band technology could be utilized by Nextel in a transition to a new band plan.

A phased approach would be required to accomplish any reallocation of the 800MHz band. Initially, the allocation of a portion of 2GHz spectrum to CMRS systems could be designated to allow the development of new dual band subscriber equipment. As soon as subscriber equipment has been available for one year, metropolitan area sites would begin the transition to the 2GHZ spectrum. By the fourth year, any remaining old subscriber equipment would be replaced with new dual band radios and the CMRS system would no longer be using the 800 MHz channels at any site within a metropolitan area that is lower than a specified HAAT. High level sites utilized by the CMRS system operator that are not within the metropolitan area could continue to operate at 800MHz to augment coverage in more rural locations.

CMRS stations located in high level sites are not as likely to produce the interference that is currently affecting public safety users. These stations may be able to co-exist in the upper SMR channels currently allocated. All SMR allocations could be made in a portion of the upper 200 channels freeing 80 SMR channels from the middle 250 interleaved channels. These 80 channels would become part of the spectrum reallocated to public safety.

During the transitional period to CMRS 2GHz metropolitan sites, every effort should be made to re-tune all 800MHz CMRS transmitters to the highest of available 800MHz channels. As CMRS systems move to 2GHz and the higher 800MHz channels, they will be vacating the newly designated Public Safety, B/ILT, and General channels allowing these systems to begin their transition and relieve existing interference.

The result of this will create Public Safety spectrum adjacent to the 700MHz band. Public Safety voice systems would be moved into this new Public Safety allocation, freeing NPSPAC channels to become wide band Public Safety data channels. Data systems will be designed to allow high throughput for a large number of users and may employ some of the strategies of a cellular system. Some low level sites employing frequency reuse techniques and a few high level large coverage area sites could be built using this spectrum.

This technology and its system topology will likely create similar power densities and transmitter emission characteristics as the cellular systems adjacent to this spectrum and they should be segregated accordingly. Data systems could be designed to be more tolerant to the interference situations that would exist in metropolitan areas with a high density of cellular transmitter locations. The lowest channels of the converted NPSPAC band could be restricted to high level transmitter sites only.

New radios should be built for Public Safety users to take advantage of any new segregation of unlike systems and should have receivers designed to limit their bandwidth to reduce the effect of the low site transmitter systems that operate above 821 MHz.

Bandplan for the Mexican Border

Mexican and Canadian border areas represent the greatest challenge to the changes being proposed. These areas are also the most difficult to deploy future 700MHz systems due to the treaties that presently do not allow the use of land mobile systems in this spectrum. Some of these border areas may also be the most needy of additional spectrum and the availability of 700 MHz public safety spectrum has no resolution in sight.

Changes to the existing 800MHz band plan must take into account how border areas would be affected. Neither of the two existing proposals have detailed how spectrum would be allocated considering the existing treaties. The plan detailed above does not require renegotiation with either bordering country although this would be advantageous.

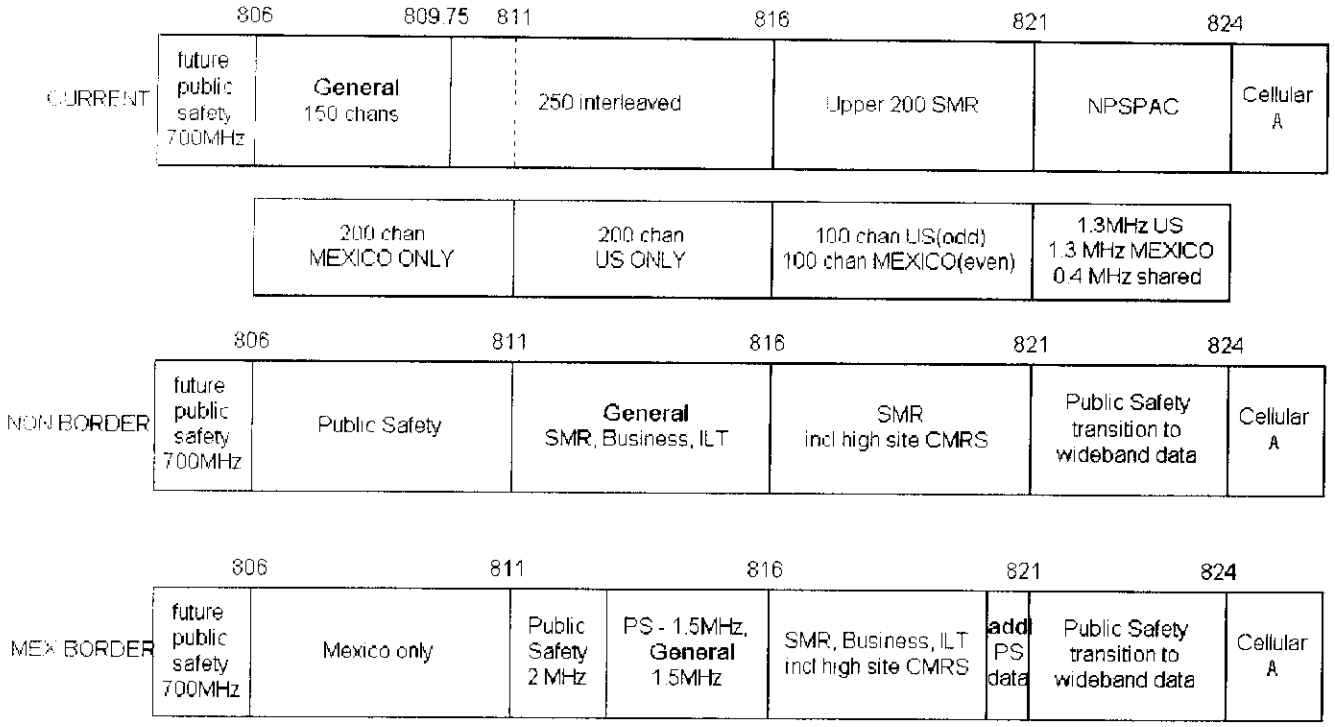
Renegotiation of the treaty with Mexico would be beneficial to obtain additional 800MHz channels, especially for wideband data, to be used within the United States. In the California border area, a new agreement with Mexico trading an amount of VHF spectrum for an equal amount of 800MHz spectrum may be advantageous to both countries.

No easy solution is available to accommodate all users and rectify all problems. Any solution will require new spectrum to accommodate moves to alternate channels. It seems that the primary source of the interference (Nextel), who also happens to be the largest proponent to these changes, would be the best party to relocate and utilize newly allocated spectrum.

Relocation Costs

Public Safety systems are built using taxpayer money. They are in place to serve the public and meet the Law Enforcement and Life Safety needs. Federal, State and Local agencies should not have to bear the cost of replacing their systems because of interference by business enterprises. All costs associated with any 800 MHz reallocation proposal should be the sole responsibility of the carriers and other business enterprises who are causing interference to public safety.

PROPOSED 800 MHz ALLOCATION



(4) Your tentative views, if any, about the balancing of (a) handset interference resistance; (b) carrier out-of-band emission reduction; (c) increasing public safety signal strength; reducing commercial carrier signal strength; and (d) other considerations important to you.

4. We are in support of the vendor being required to provide radios that can be programmed to receive signals on our licensed channels and exclude channels of other networks and/or commercial enterprises. Future public safety networks should be designed with higher signal strength in the intended coverage area, similar to the interference limited architecture used in Nextel and other cellular-type systems. As commercial carriers increase the number of sites and area of coverage, they should be required to reduce signal strength. Again, this is important, as most cases of interference are <u>not</u> due to intermod.

The long term goal of 800MHz band realignment will allow future public safety radios to be built with better rejection of unwanted frequencies. In the meantime our only method of reducing the interference from CMRS systems is the reduction of CMRS transmit power levels and the reduction of wideband noise in the immediate area surrounding their sites.

Comments of the Chief Technology Officer (OCTO)
Government of the District of Columbia
In Support of the Public Safety Improvement Coalition
May 2, 2002

(1) The features of your 800 MHz system -- its actual or proposed frequencies (for those systems under construction and not yet licensed); its square miles of coverage; nature of use (police, fire, EMD, etc.); number and types (mfr/model no.) of portables and number of mobiles currently on the system and/or planned to be on it when fully loaded; trunked and/or conventional operation; how long operating (or when you expect to start operation); and any other descriptive information you consider useful or important.

Question 1: The District of Columbia operates, since January of 1999, a 16-channel 800 MHz simulcast network licensed to both DC Fire/EMS and DC Emergency Management Agency (EMA). The system provides exclusive voice services today and expects to add Public Safety data services in the near future with availability of additional channels.

The system covers an area of 67 square miles from four antenna sites. The District is now designing new antenna locations into the network to improve in-building radio coverage and to better manage external interference.

The network currently accommodates some 2,500 public safety users and the District has requirements to add many additional thousand voice and data users to the system when additional channels are available. Network users today primary use voice only portable radio terminals with expectation for the future for combined voice/data compatible portable terminal technology.

The currently licensed District channels are as follows:

DCF/EMS-EMA Channel List

FCC Chan	DCF Chan	TX Freq	RX Freq	Utilization
64	1	852.6125	807.6125	Control
65	2	852.6375	807.6375	Voice
66	3	852.6625	807.6625	Voice
67	4	852.6875	807.6875	Voice
68	5	852.7125	807.7125	Voice
69	6	852.7375	807.7375	Voice
70	7	852.7625	807.7625	Voice
71	8	852.7875	807.7875	Voice
168	9	855.2125	810.2125	Voice
169	10	855.2375	810.2375	Voice
178	11	855.4625	810.4625	Voice
239	12	856.9875	811.9875	Voice

279	13	857.9875	812.9875	Voice
319	14	858.9875	813.9875	Voice
359	15	859.9875	814.9875	Voice
399	16	860.9875	815.9875	Voice

(2) If you have been experiencing commercial interference, whether this seems to be mostly attributable to proximity to commercial transmitters, intermodulation products, or other causes (please name these, if possible). If you are not yet operating, whether you have designed specially to combat commercial interference or have written into your construction contracts any contingencies related to this NPRM.

Question 2: The District of Columbia has experienced regular interference and result and service degradation from CMRS operators over the course of the system operational existence. Interference has been severe in specification locations of the metropolitan service area. The District filed an official letter of complaint (see attached) to the FCC exposing issues and recommending FCC actions undertaken to minimize future exposure of the District's Public Safety network to CMRS carrier interference. The District remains committed to partnership with the FCC and collaboration with 800 MHz carriers to resolve interference under mutually equitable terms.

(3) Your initial reactions (and tentative preferences, if you wish) as to the three proposals noted above; or some different set of characteristics you would like to see.

Question 3: OCTO is grateful to the FCC, Public Safety advocates and associations, as well as to concerned CRMS carriers, for undertaking the NPRM to address greatly needed relief from operational interference and the requirement for additional channel allocation to Public Safety licensees in the 800 MHz band.

The various realignment channel plans submitted to date are creative in their effort to minimize interference and increase channel capacity for Public Safety entities. OCTO generally supports any plan that will eliminate the current channel interleaving and general category band sharing licensing in the 800 MHz spectrum since the integration of dissimilar services is the primary source of Public Safety operational interference. While OCTO is not offering specific input and recommendations for enhancing the band realignment proposals to the coalition comments, OCTO will file a separate proposal as component of our independent comments. *(Jim, we will have a proposal similar to the "NAM proposal" and need the weekend to polish it for prime time introduction. We may ask you to include it in the coalition comments on Monday if possible.)*

While is it anticipated by OCTO that the adoption of a viable 800 MHz realignment plan will be lengthy, we strongly encourage the FCC to expedite Public Safety access to 700 MHz spectrum and to regulate the broadcast industry to ensure near term surrender of allocated 700 MHz spectrum and to eliminate any opportunities for the broadcast industry to further delay migration from this spectrum. Near term access to 700 Mhz spectrum is essential for Public Safety

capacity and long-term strategic investment into network interoperability and government inter-agency operations of a common radio network.

OCTO encourages the FCC to place Public Safety interference mitigation and capacity expansion requirements at the forefront of 800 MHz proceeding and to guide the NPRM to a speedy conclusion. OCTO recognizes that there are tremendous commercial interests at stake in resolving Public Safety concerns and requirements. Commercial interests will complicate the proceeding and CMRS operators could directly delay the rule making and object to rational restructure of the 800 MHz based on competitive pressures in the CMRS marketplace.

While it is not the intention of Public Safety to diminish competitive influences resulting from this NPRM, or recommend band restructuring to the detriment of commercial operators, we cannot understate that this NPRM focus is the mitigation of detrimental interference to Public Safety agencies responsible for safeguard the life and property of the citizens of the United States. These agencies provide critical and valuable services to citizens and must have sufficient, interference free, radio channel capacity to ensure the success of their mission. It would be a grave mistake to not place the interests of these agencies at the forefront of this proceeding.

(4) Your tentative views, if any, about the balancing of (a) handset interference resistance; (b) carrier out-of-band emission reduction; (c) increasing public safety signal strength; reducing commercial carrier signal strength; and (d) other considerations important to you.

Question 4:

The FCC Should Mandate the Reduction of Out Of Band Emissions

OCTO supports Nextel's proposal regarding the Out Of Band Emissions limitations. We believe the FCC should mandate CMRS licensees to implement additional filtering to their transmission Base Stations transmitters systems to further protect Public Safeties channel operations. As specified by Nextel in its White Paper (p33), an acceptable emissions level of 85dB minimum attenuation of the CMRS carrier channel below the Public Safety desired in-band carrier level is reasonable.

The FCC Should Encourage The Public Safety to Improve Their Public Safety Receivers

OCTO supports Nextel's proposal to encourage Public Safety to enhance their receiver performance and we encourage equipment vendors to offer such solutions. However, we believe the FCC should not mandate such actions of Public Safety. As the victims of undesired interference, Public Safety has to make this choice in conjunction with other corrective actions they deem appropriate to manage interference. Should the Public Safeties decide to proceed with the upgrade of their receivers, the associated costs should be shared between the identified interfering entities.

The FCC Should Not Mandate The Increase of Public Safety Coverage Level

OCTO does not support the proposal to increase the level of the Public Safety coverage desired signal in the vicinity of digital SMR base station. As pointed out by the FCC in its Notice, this would primarily require the construction of additional sites for the Public Safety. We are opposed to this proposal because:

- The timelines involved in the construction of those new sites (from several months to several years) are incompatible with the desired timely resolution of the original interference issue.

- The costs generated by such a solution are not affordable by Public Safety unless CMRS is willing to support all required funding for coverage level increases. In addition, there are significant reoccurring operational costs (site rents, operations and maintenance, leased lines and others) that are not prudent for a Public Safety entity to absorb.

- Moreover, the cellular operator's subscriber base and service delivery requirements continually expand, resulting in additional macro and micro sites being incorporated into their network design. New antenna site will increase the noise floor and create even more interference for Public Safety services. Under these situations, Public Safety would continually be forced to add new sites to maintain a desired coverage level over and beyond CMRS interference. This is simply not a reasonable mitigation strategy for Public Safety to absorb.

City of Cincinnati and Hamilton County

800MHz Digital Trunked Radio System

Hamilton County is located in southwest Ohio and is bordered on the south by Kentucky and on the west by Indiana. Hamilton County covers approximately 450 square miles and contains unincorporated areas as well as over forty separate cities and towns including Cincinnati. The City of Cincinnati and Hamilton County are each in the process of developing and/or building a digital, trunked 800MHz voice radio system. These two "systems" will be linked together through the use of a single, fault tolerant, controller and audio switch, thus allowing the two "systems" to function as one wide area voice radio system. Hamilton County and Cincinnati will continue to maintain separate communications centers and control over separate police, fire, EMS and other assets, while users from either "system" will be able to roam seamlessly throughout the coverage area. The new system will greatly enhance the ability of the Hamilton County community to coordinate responses to natural and man-caused disasters.

The Cincinnati/Hamilton County 800MHz system will be Motorola Astro 25 (version 6.(+)) utilizing at least 23 radio towers to achieve portable/hand-held radio coverage within 15-20dB buildings throughout the coverage area. Both Hamilton County and the City will operate their "systems" as total government systems but will be addressing the voice communications needs of fire. police and EMS first.

City of Cincinnati Radio Assets –

Planned Loading:

1100 – Motorola Astro Spectra Mobiles

1400 - Motorola XTS 5000 Portable Radios

1000- Motorola XTS 2500/3000 Portable Radios

Frequencies:

866/821.11250Mhz	867/822.11250Mhz
866/821.18750	867/822.26250
866/821.21250	867/822.31250
866/821.46250	867/822.33750
866/821.56250	867/822.61250
866/821.58750	867/822.63750
866/821.68750	867/822.66250
866/821.81250	868/823.63750
866/821.83750	868.823.78750
867/822.08750	868/823.86250

Cincinnati Current 800MHz Operations;

Presently a Motorola single site Smartzone System has been installed at the Eden Park, 600 foot Main Site Tower. It is licensed on the above frequency pairs and has about 300 units loaded. This site will be operated until the new City system is brought on line.

Hamilton County Radio Assets:

Planned Loading:

500 – Motorola Astro Spectra Mobiles

2000 – Motorola XTS 5000 Portable Radios

1000 – Motorola XTS 2500/3000 Portable Radios

Frequencies:

WPFS987	867.73750	WPFS987	868.95000
WPFS987	866.16250	WPFS987	866.25000
WPFS987	866.27500	WPFS987	866.30000
WPFS987	866.53750	WPFS987	866.65000
WPFS987	866.78750	WPFS987	867.23750
WPFS987	867.53750	WPFS987	867.76250
WPFS987	867.81250	WPFS987	867.85000
WPFS987	867.95000	WPFS987	868.12500
WPFS987	868.15000	WPFS987	868.26250
WPFS987	868.36250	WPFS987	868.56250

Hamilton County Current Operations:

The Hamilton County Phase I of the System has been operational since October 1999. Phase I is a Motorola Smartzone system, 6 sites, 20 channels, about 400 units currently on the system. Phase II is a 15 site, 20 channel simulcast trunked system that will be operational 12/02.

Phase III will include the addition of channels, sites and units from the City of Cincinnati. We will share the system controller with the City of Cincinnati for cost savings and ease of interoperability.

Interference:

While we have only limited experience with the 800Mhz voice system operations, we have, to date, not experienced any notable interference. We have experienced some interference with an

800MHz data channel in southeast portion of Hamilton County. This interference, so far, is limited to one frequency in a multi channel system and is probably a proximity issue.

SAN DIEGO COUNTY RESPONSE

(1) The features of your 800 MHz system -- its actual or proposed frequencies (for those systems under construction and not yet licensed); its square miles of coverage; nature of use (police, fire, EMD, etc.); number and types (mfr/model no.) of portables and number of mobiles currently on the system and/or planned to be on it when fully loaded; trunked and/or conventional operation; how long operating (or when you expect to start operation); and any other descriptive information you consider useful or important.

1) See the attached frequency list for the RCS.

   a. Coverage area 4,200 square miles
   b. Nature of use, Public-Safety (Police, Fire, EMS Disaster Preparedness) and Public-Service (public works, parks, facilities maintenance etc.)
   c. Number and types of radios on the system, 15,000 Motorola Astro Spectra mobiles (W3, W4, W7, W9), MCS2000, LCS2000, XTS3000, MTS2000, LTS2000.
   d. Trunked mixed mode operation.
   e. Operating since 1998.

(2) If you have been experiencing commercial interference, whether this seems to be mostly attributable to proximity to commercial transmitters, intermodulation products, or other causes (please name these, if possible). If you are not yet operating, whether you have designed specially to combat commercial interference or have written into your construction contracts any contingencies related to this NPRM.

2) We have experienced minimal localized interference from commercial transmitters. We have experienced licensing difficulties with "phantom" sites where Nextel has licensed 200+ frequencies and has done no improvements i.e. no pad, no tower, no building, no preparation for construction.

(3) Your initial reactions (and tentative preferences, if you wish) as to the three proposals noted above; or some different set of characteristics you would like to see.

   a. The NAM proposal only gives us .5 MHz additional spectrum. The concept of SMR and commercial being more compatible with Public-Safety has not proven effective in the past as a protection against interference. The reallocation of spectrum next to the 700MHz public safety spectrum is a good idea.
   b. The Nextel proposal gives us nearly double the amount of spectrum in the 800MHz band. The concept of a guard band is of questionable effectiveness as a protection against interference. If a guard band is utilized then the licenses issued in this segment should be for low power uplink or simplex use only. The proposal seems to

suggest that reducing the number of users within the spectrum would reduce congestion and further separate dissimilar services, which seems logical and appropriate. Additional spectrum is necessary in the border regions to compensate for Mexican and Canadian treaties that give 50% of the existing bandwidth to those countries.

c. The third proposal suggests that modifying channel bandwidth would resolve the spectrum congestion and allow for coexistence within the band. It ignores the recurrent issue with the FCC rulings that government agencies typically are not able to "pass on" costs of operation to a user population and therefore change out technology in response to the business case presented. Government is slow to change because funding is not available to keep up with technology. Therefore to suggest that conversion of existing systems to 6.5 KHz spacing in the near term is not practical. The existing 12.5 KHz spacing will be with us for quite some time so the need for the additional spectrum for Public-Safety will not diminish. At best it will remain constant as NEW requirements are met with newer technology, which will also result in the continuation of interoperability issues.

(4) Your tentative views, if any, about the balancing of (a) handset interference resistance; (b) carrier out-of-band emission reduction; (c) increasing public safety signal strength; reducing commercial carrier signal strength; and (d) other considerations important to you.

3) Issues

a. See (d) below.
b. In our experience Nextel has used filters that are capable of remote adjustment to reduce their maintenance time by reducing the need to visit the sites. These filters are inferior and have resulted in emissions that cause interference on some of our channels. In those sites where Nextel has upgraded these filters we have enjoyed a reduction in harmful interference.
c. On some sites where we experienced harmful interference from Nextel upon notification Nextel has voluntarily reduced their signal strength that has resulted in a reduction of harmful interference. We have only identified three localized areas of interference from Nextel on our system, which we attribute to having sufficient signal strength to capture our receivers in spite of other in band emissions.
d. We have experienced difficulties with some inferior receiver front end rejection and have modified our acceptable equipment list to delete the Motorola LCS/LTS series radios and have complained to Motorola about the rejection specifications on the VRM660 and PRM660 RF data modem radios.

Any solution must include an answer to the border issues. San Diego has 50% less spectrum to utilize from the outset because of the Treaty with Mexico. As a result there is 50% less spectrum to share and therefore a need for fewer systems to share it with. Any resolution should not be implemented anywhere in the U.S. until border issues with Mexico and Canada are completely resolved. Otherwise, the U.S. may implement a program that the border communities cannot use.

RCS Channels sorted by Site

	Control Channels		
	Mobile Data		
	Voice		
Frequency	**Location**	**Channel**	**Usage**
867.7750	Banner Ranch	1	Control Channel
867.2750	Banner Ranch	2	Voice
866.7750	Banner Ranch	3	Voice
866.6000	Birch Hill	1	Control Channel
867.5750	Birch Hill	2	Voice
866.1000	Birch Hill	3	Voice
868.0500	Birch Hill	4	Voice
856.2000	Black Mtn, Imp. Co.	1	Voice
857.2000	Black Mtn, Imp. Co.	2	Voice
858.2000	Black Mtn, Imp. Co.	3	Control Channel
864.1000	Black Mtn, Imp. Co.	4	Voice
865.1000	Black Mtn, Imp. Co.	5	Voice
868.4500	Boucher Hill	1	Control Channel
867.0500	Boucher Hill	2	Voice
866.0500	Boucher Hill	3	Voice
867.5875	Boucher Hill	4	Voice
863.1500	Campo	1	Control Channel
862.2000	Campo	2	Control Channel
860.2000	Campo	3	Voice
856.2000	Campo	4	Voice
868.1875	Chihuahua	1	Control Channel
867.1875	Chihuahua	2	Voice
866.1875	Chihuahua	3	Voice
866.1125	Chihuahua	4	Voice
867.9500	Cuyamaca Peak	1	Control Channel
867.0375	Cuyamaca Peak	2	Voice
866.5750	Cuyamaca Peak	3	Voice

RCS Channels sorted by Site

Frequency	Location	Channel	Usage
865.1500	Cuyamaca Peak	4	Voice
858.2000	Cuyamaca Peak	5	Voice
866.0875	Cuyamaca Peak	6	Voice
857.2000	Emery Hill	1	Control Channel
860.2250	Emery Hill	2	Voice
856.1250	Emery Hill	3	Voice
863.0000	Emery Hill	4	Voice
867.7500	Harmony Peak	1	Control Channel
867.3000	Harmony Peak	2	Voice
866.8000	Harmony Peak	3	Voice
866.2750	Harmony Peak	4	Voice
868.0750	Harmony Peak	5	Voice
867.9500	Harmony Peak	6	Voice
861.2000	Hendrix Peak	1	Control Channel
858.1750	Hendrix Peak	2	Voice
857.1750	Hendrix Peak	3	Voice
856.1750	Hendrix Peak	4	Voice
865.2500	Hubbard Hill	1	Control Channel
864.2500	Hubbard Hill	2	Voice
863.2500	Hubbard Hill	3	Voice
862.2500	Hubbard Hill	4	Voice
861.2500	Hubbard Hill	5	Voice
868.6625	Jojoba Hill	1	Control Channel
868.1625	Jojoba Hill	2	Voice
867.1625	Jojoba Hill	3	Voice
868.9500	Los Pinos	1	Control Channel
868.6000	Los Pinos	2	Voice
868.1000	Los Pinos	3	Voice
867.0750	Los Pinos	4	Voice
868.9250	Lyons Peak	1	Control Channel
868.3750	Lyons Peak	2	Voice

RCS Channels sorted by Site

Frequency	Location	Channel	Usage
867.8750	Lyons Peak	3	Voice
866.9750	Lyons Peak	4	Voice
867.4375	Lyons Peak	5	Voice
860.2500	Mobile Data	1	Data
859.1000	Mobile Data	2	Data
856.1000	Mobile Data	3	Data
857.1000	Mobile Data	4	Data
858.1000	Mobile Data	5	Data
856.2500	Mobile Data	6	Data
857.2500	Mobile Data	7	Data
858.2500	Mobile Data	8	Data
859.2500	Mobile Data	9	Data
860.1000	Mobile Data	10	Data
856.1250	Mobile Data	11	Data
864.2000	Mobile Data	12	Data
867.1000	Monument Pk	1	Control Channel
868.4750	Monument Pk	2	Voice
866.4750	Monument Pk	3	Voice
867.7250	Mtn Empire	1	Control Channel
867.2250	Mtn Empire	2	Voice
866.2250	Mtn Empire	3	Voice
860.2250	Mtn Empire	4	Voice
868.5500	North Peak	1	Control Channel
867.9750	North Peak	2	Voice
867.4750	North Peak	3	Voice
866.3000	North Peak	4	Voice
862.0000	North Peak	5	Voice
863.1500	North Simulcast	1	Control Channel
862.2000	North Simulcast	2	Control Channel
862.1500	North Simulcast	3	Control Channel
861.2000	North Simulcast	4	Control Channel

RCS Channels sorted by Site

Frequency	Location	Channel	Usage
861.1500	North Simulcast	5	Voice
860.2250	North Simulcast	6	Voice
860.2000	North Simulcast	7	Voice
859.2000	North Simulcast	8	Voice
858.2000	North Simulcast	9	Voice
858.1750	North Simulcast	10	Voice
857.2000	North Simulcast	11	Voice
857.1750	North Simulcast	12	Voice
856.2000	North Simulcast	13	Voice
856.1750	North Simulcast	14	Voice
861.5000	North Simulcast	15	Voice
865.0000	North Simulcast	16	Voice
861.0000	North Simulcast	17	Voice
863.0000	North Simulcast	18	Voice
864.2500	North Simulcast	19	Voice
868.9500	Ocotillo Wells	1	Control Channel
868.6000	Ocotillo Wells	2	Voice
868.1000	Ocotillo Wells	3	Voice
868.8625	Ram's Hill	1	Control Channel
867.3625	Ram's Hill	2	Voice
866.8625	Ram's Hill	3	Voice
866.3625	Ram's Hill	4	Voice
867.5875	Ram's Hill	5	Voice
867.8750	Ram's Hill	6	Voice
868.3875	Ram's Hill	7	Voice
868.4750	San Onofre	1	Control Channel
868.0750	San Onofre	2	Voice
867.9500	San Onofre	3	Voice
867.0750	San Onofre	4	Voice
867.0375	San Onofre	5	Voice
862.0500	Sidewinder Imp. Co.	1	Control Channel

RCS Channels sorted by Site

Frequency	Location	Channel	Usage
857.1000	Sidewinder, Imp. Co.	2	Voice
856.1000	Sidewinder, Imp. Co.	3	Voice
868.8375	Sierra Rojo	1	Control Channel
868.3375	Sierra Rojo	2	Voice
867.6875	Sierra Rojo	3	Voice
866.6625	Sierra Rojo	4	Voice
866.1875	Sierra Rojo	5	Voice
867.1875	Sierra Rojo	6	Voice
868.4125	South Simulcast	1	Control Channel
868.1375	South Simulcast	2	Control Channel
868.0750	South Simulcast	3	Voice
867.9125	South Simulcast	4	Voice
867.6375	South Simulcast	5	Voice
867.6125	South Simulcast	6	Voice
867.4125	South Simulcast	7	Voice
867.3875	South Simulcast	8	Voice
867.1375	South Simulcast	9	Voice
866.9125	South Simulcast	10	Voice
866.8875	South Simulcast	11	Voice
866.6375	South Simulcast	12	Voice
866.4125	South Simulcast	13	Voice
866.1375	South Simulcast	14	Voice
866.0375	South Simulcast	15	Voice
868.6875	Sunshine Summit	1	Control Channel
867.6625	Sunshine Summit	2	Voice
866.6875	Sunshine Summit	3	Voice
866.3875	Sunshine Summit	4	Voice
863.2500	Superstition	1	Control Channel
862.2500	Superstition	2	Voice
861.2500	Superstition	3	Voice
864.0500	Superstition	4	Voice

RCS Channels sorted by Site

Frequency	Location	Channel	Usage
865.0500	Superstition	5	Voice
867.8375	Volcan North	1	Control Channel
867.3375	Volcan North	2	Voice
866.8375	Volcan North	3	Voice
866.3375	Volcan North	4	Voice
862.1500	White Star	1	Control Channel
861.1500	White Star	2	Voice
859.2000	White Star	3	Voice
858.2000	White Star	4	Voice