



Public Safety Wireless Network

Saving Lives and Property Through Improved Interoperability

May 3, 2002

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
12th St. Lobby, TW-A325
Washington, DC 20554

Re: Comments on Notice of Proposed Rulemaking, *Improving Public Safety Communications in the 800 MHz Band, Consolidating the 900 MHz Industrial/Land Transportation Business Pools*, WT Docket No. 02-55

Dear Ms. Dortch:

On behalf of the Public Safety Wireless Network (PSWN) Program and pursuant to Section 1.419 of the Commission's Rules, 47 C.F.R. § 1.419 (2000), enclosed herewith for filing are an original and four (4) copies of the PSWN Program's Comments in the above-referenced proceeding.

Kindly date-stamp and return the additional, marked copy of this cover letter and filing to the person delivering it.

Should you require any additional information, please contact the undersigned.

Respectfully submitted,

Brigadier General Paul H. Wieck II
Iowa Army National Guard
Chair, PSWN Executive Committee
Spectrum Working Group

Steven Proctor
Executive Director,
Utah Communications Agency Network
Executive Vice-Chair,
PSWN Executive Committee

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OFFICE OF THE SECRETARY

In the Matter of)
)
Improving Public Safety Communications in the)
800 MHz Band)
)
Consolidating the 900 MHz Industrial/Land)
Transportation and Business Pool Channels)

WT Docket No. 02-55

To: The Commission

COMMENTS TO NOTICE OF PROPOSED RULEMAKING

Filed by: The Public Safety Wireless Network Program

Date: May 3, 2002

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ii
I. INTRODUCTION	1
II. BACKGROUND	2
III. DISCUSSION	6
A. Band Restructuring	6
B. Additional Spectrum for Public Safety Agencies	8
C. Interoperability Channels.....	9
D. Incumbent Relocation	10
1. Relocation of Incumbent Public Safety and Digital Specialized Mobile Radio (SMR) Within the 800 MHz Band	11
2. Relocation of Conventional SMR, B/ILT Stations.....	12
3. Reimbursement of Relocation Costs	12
4. Feasibility of Relocation Proposals	13
5. Replacement Spectrum	13
6. Primary/Secondary Status.....	14
7. Proposed Implementation Schedule	14
8. Fee Waiver.....	15
IV. COMPLEMENTARY SOLUTIONS	15
A. Equipment Standards/Operating Parameters	16
B. Guard Bands	18
C. Implementation Schedule	19
V. CONCLUSION	20

EXECUTIVE SUMMARY

The Commission has identified a number of issues that directly affect the quality and integrity of public safety communications, and has requested recommendations for the reorganization of the 800 megahertz (MHz) band. The Public Safety Wireless Network (PSWN) Program offers its comments to the Commission with respect to this rulemaking proceeding. Many of these suggestions are based on the Public Safety Wireless Advisory Committee's Final Report (*PSWAC Report*) of 1996.

The Commission has determined it must address Commercial Mobile Radio Service (CMRS) interference to public safety communications. The Commission also wishes to consider the need for additional spectrum and interoperability channels to support public safety applications, as well as other initiatives called for in the *PSWAC Report* to meet the requirements of local, state, and federal law enforcement, firefighting, rescue, emergency medical, and other public safety personnel. Additional spectrum, including interoperability channels, is urgently needed below 512 MHz, where many local and state public safety agencies continue to communicate in carrying out their operations.

The PSWN Program agrees with the Commission's proposed extraction of interleaved public safety channels to create a designated, contiguous public safety block. The PSWN Program expects that this will reduce the likelihood of interference typically experienced in close proximity to CMRS systems. The PSWN Program also agrees with the Commission that the reorganization process should be undertaken in a manner that will cause the least possible disruption to incumbent licensees, while still eliminating all interference to public safety

communications. The transition should be swift, and advance testing and planning should allow time to retune and modify equipment to use the new channels without any loss of service.

The PSWN Program also recommends that all relocation costs of incumbent 800 MHz public safety agencies should be reimbursed. The PSWN Program further recommends that a credit should be applied for licensing-related fees already paid, e.g., to the Commission, or to the Association of Public-Safety Communications Officials – International, Inc. (APCO) or other frequency coordinators, such that these users do not need to pay these fees a second time as a result of forced relocation. The PSWN Program is optimistic that many potential relocation costs can be avoided if public safety incumbents stay in the 800 MHz band.

Other complementary measures will likely be necessary. The PSWN Program agrees that frequency coordination by the same authorities already performing these tasks would help prioritize actions and facilitate protection of public safety communications from interference. Narrowbanding and equipment standards will allow for better planning and use of public safety assets, providing that legacy systems can still access public safety channels and do not become obsolete before they are upgraded. The PSWN Program recommends that emissions standards should also be adopted and that the Commission set aside spectrum for guard bands.

New challenges also confront the Commission and the public safety community. To effectively protect life and property and enhance our Nation's domestic security, agencies must have the tools they need to perform their duties. Spectrum must be dedicated nationwide to support seamless interoperable communications between public safety agencies and other local, state, and federal entities. Reliable communications are essential to achieve those goals.

Before the
Federal Communications Commission
Washington, DC 20554

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

To: The Commission

COMMENTS TO THE NOTICE OF PROPOSED RULEMAKING

1. The Public Safety Wireless Network (PSWN) Program¹ Executive Committee (EC) respectfully submits these comments in response to the Notice of Proposed Rulemaking (NPRM) by the Federal Communications Commission (Commission).²

I. INTRODUCTION

2. In the NPRM, the Commission tentatively concluded that interference to public safety communications caused by Commercial Mobile Radio Services (CMRS) “presents a sufficiently

¹ The PSWN Program is a federally funded initiative operating on behalf of all local, state, federal, and tribal public safety agencies. The Department of Justice and the Department of the Treasury are jointly leading the PSWN Program’s efforts to plan and foster interoperability among public safety wireless networks. The PSWN Program is a 10-year initiative that is an effort to ensure that no man, woman, or child loses his or her life because public safety officials cannot talk to one another.

² NPRM, *In the Matter of Improving Public Safety Communications in the 800 MHz Band, [and] Consolidating the 900 MHz Industrial/Land Transportation Business Pools*, WT Docket No. 02-55, adopted March 14, 2002, rel. March 15, 2002.

serious problem that a solution must be found.”³ The Commission requested comments to address the proposed restructuring of the 800 megahertz (MHz) band to “best remedy interference to 800 MHz public safety systems consistent with minimum disruption to our existing licensing structure and assurance of sufficient spectrum for critical public safety communications.”⁴ The Commission requested the public safety community, equipment vendors and manufacturers, telecommunications carriers, and other interested parties to participate in the development of a plan to resolve the issue. The Commission stated that it would also specifically examine the need for additional public safety spectrum and the need for identifying and designating interoperability spectrum for public safety operations.

3. The PSWN Program thanks the Commission for the renewed emphasis it has placed on prioritizing public safety communications and is grateful for the opportunity to participate in this rulemaking proceeding. The PSWN Program underscores the immediate need to ensure that mission-critical public safety communications are not subject to harmful interference to any extent or for any duration and requests that the Commission act on the comments solicited in this proceeding with utmost urgency.

II. BACKGROUND

4. In 1993, the Congress asked the Commission to analyze spectrum requirements to support public safety communications through the year 2010. In 1995, the Commission submitted a report recommending further study. The House of Representatives Appropriations

³ Notice of Proposed Rulemaking, *In the Matter of Improving Public Safety Communications in the 800 MHz band [and] Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels (NPRM)*, WT Docket No. 02-55, at para. 2.

⁴*Id.*, at para. 16.

Subcommittee expressed concern about whether this report met the requirements of the Omnibus Budget Reconciliation Act of 1993 (OBRA 1993) and asked the Commission and the National Telecommunications and Information Administration (NTIA) to develop a plan addressing the issue in greater detail.⁵ As a result, the Commission and NTIA chartered the Public Safety Wireless Advisory Committee (PSWAC) to investigate the state of local, state, and federal public safety communications and to provide recommendations for meeting those needs.⁶

5. In 1996, the PSWAC submitted its final report (*PSWAC Report*)⁷ which thoroughly analyzed the state of public safety wireless capabilities. The *PSWAC Report* found that “unless immediate measures are taken to alleviate spectrum shortfalls and promote interoperability, Public Safety agencies will not be able to adequately discharge their obligation to protect life and property in a safe, efficient, and cost effective manner.”⁸ The *PSWAC Report* recommended that an additional 97.5 MHz of spectrum was necessary to support public safety communications operations through 2010.⁹

6. The following year, the Congress passed the Balanced Budget Act of 1997 (BBA 97) and directed the Commission to allocate 24 MHz of spectrum in the 700 MHz band for public safety use.¹⁰ The channels identified for reallocation to public safety are among the 700 MHz spectrum

⁵ Hearings Before the House Committee on Appropriations, Subcommittee on the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies, 104th Cong., 1st Sess., Part 6, *Telecommunications Issues*, at 410 (March 22, 1995), as cited, Public Safety Wireless Advisory Committee Final Report (*PSWAC Report*), September 11, 1996, at p. 7.

⁶ See *PSWAC Report* at p. 2.

⁷ *Id.*, at para. 1.8.

⁸ *Id.*, at p. 2.

⁹ *Id.*, at para. 2.2.1

¹⁰ See the Balanced Budget Act of 1997 (*BBA 97*), Pub. L. No. 105–33, Sec. 3004 (a)—*Allocation and Assignment of New Public Safety Services Licenses and Commercial Licenses*.

to be vacated by analog television stations as they migrate to digital television (DTV) service.¹¹ The attractiveness of DTV service to consumers has fallen far short of original expectations. These channels are still unavailable in many markets where the DTV migration has not yet occurred,¹² and targeted deadlines for completion of the DTV transition may not be met, placing the planned reallocation of this spectrum for public safety in jeopardy. Furthermore, as the Commission notes, equipment that uses the 700 MHz channels is still in development and will not be available for use in the field in the immediate future.¹³

7. FCC Chairman Michael Powell has formed a DTV transition task force to recommend methods to expedite voluntary band clearing initiatives,¹⁴ and the Commission further clarified its rules to help speed the transition from analog to digital technology.¹⁵ On December 4, 2001, the House of Representatives introduced legislation that would remove eligibility for extensions of the deadline for completion of the DTV migration¹⁶ and require clearance of analog channels 63, 64, 68, and 69 for public safety use by December 31, 2006.¹⁷ The Commission has since taken further steps to promote voluntary band clearance.¹⁸ However, barring passage of this measure or similar legislation, these channels could remain in the hands of commercial broadcast media indefinitely, i.e., until DTV penetration targets are met in all national markets.

¹¹ See Report and Order, *In the Matter of Reallocation of Television Channels 60–69, the 746–806 MHz Band (Reallocation R&O)*, ET Docket No. 97–157, 12 FCC Rcd. 22953 (1997).

¹² See, e.g., *Comments of APCO in Response to FNPRM*, WT Docket No. 98–182 *et. seq.*, at p. 2.

¹³ See *NPRM*, WT Docket No. 02–55, at para. 48.

¹⁴ See *FCC Chairman Michael Powell Announces Creation of FCC Digital Television Task Force*, FCC News Release, October 11, 2001.

¹⁵ See, e.g.; Order on Reconsideration of the Third R & O, *In the Matter of Service Rules for the 746–764 and 776–794 MHz Bands, and Revisions to Part 27 of the Commission’s Rules (Service Rules for the 700 MHz Band)*, WT Docket No. 99–168 *et. seq.*, September 17, 2001; see also *FCC Acts to Expedite DTV Transition and Clarify DTV Build-Out Rules*, FCC News Release, November 8, 2001.

¹⁶ See the Communications Act of 1934, as Amended (*1934 Act*), 47 U.S.C. 309 (j)(14)(B).

¹⁷ See H.R. 3397, the Homeland Emergency Response Operations (*HERO*) Act.

¹⁸ See, e.g.; *FCC Chief Proposes Moves to Speed Digital TV Rollout*, Reuter’s News, April 4, 2002.

8. On February 14, 2002, the Commission allocated an additional 50 MHz of spectrum in the 4.9 gigahertz (GHz) band to support public safety communications,¹⁹ particularly for emerging technologies such as high-speed data and video applications. The Second Report and Order (*Second R & O*) and Further Notice of Proposed Rulemaking (*FNPRM*), published April 9, 2001, has requested comments on licensing and service rules for this spectrum. This rulemaking proceeding will not yield results until after the August 7, 2002, deadline for reply comments has passed, and the deficiencies in spectrum will continue to seriously curtail communications capabilities until agencies have actual access to the spectrum allocated for public safety communications.

9. Even with these recent allocations, including the 4 channels in the 150–162 MHz band, and the 5 channel pairs in the 450–470 MHz band,²⁰ and also the 20 narrowband (12.5 kHz channel) frequencies designated by the NTIA for state and local public safety interoperability in the 162–174 MHz band), a deficit of approximately 23.5 MHz of spectrum still remains from the original recommendations submitted in the *PSWAC Report*.²¹ The PSWN Program reconfirms the exigent need to fulfill those stated requirements and provide sufficient spectrum to support public safety communications through the year 2010. The PSWN Program acknowledges the need to provide a solution that balances the Commission’s objectives of eliminating interference to public safety communications and providing sufficient spectrum for those operations without placing an undue burden on incumbent licensees.²² However, in balancing these competing

¹⁹ See Second R&O and FNPRM, *In the Matter of The 4.9 GHz Band Transferred from Federal Government Use (Second R&O and FNPRM)*, WT Docket No. 00–32, FCC 02–47, rel. February 27, 2002.

²⁰ See Third Memorandum Order and Opinion, *In the Matter of the Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State, and Local Public Safety Agency Communication Requirements Through the Year 2010 (Third MO & O)*, WT Docket No. 96–86, FCC 00–348, rel. October 10, 2000, at para. 9.

²¹ See *PSWAC Report*, at p. 3.

²² See *NPRM*, WT Docket No. 02–55, at para. 2.

priorities, the PSWN Program urges the Commission to focus on the public safety community's immediate need for reliable, interoperable communications.

III. DISCUSSION

A. Band Restructuring

10. The Commission has stated that “there is a serious problem with public safety in the 800 MHz band that deserves resolution.”²³ The debilitating interference experienced by law enforcement, fire and rescue, and other public safety operations in close proximity to CMRS antennas has reached epidemic proportions and puts lives at risk daily. The PSWN Program maintains that reorganization of the 800 MHz band is necessary to completely eliminate interference to public safety communications and agrees with the Commission that intermodulation from CMRS systems is the leading cause of interference to public safety communications. The PSWN Program also agrees with the Commission that interference will only intensify as CMRS systems expand, unless decisive action is taken.²⁴

11. To date, the Commission has received two reorganization proposals for the 800 MHz band, from the National Association of Manufacturers (NAM) and MRFAC, Inc. (*NAM/MRFAC Proposal*)²⁵ and Nextel Communications, Inc. (*Nextel Proposal*).²⁶ The Commission has also offered its own plan to create a contiguous block of public safety spectrum, by “extracting public safety channels from the interleaved spectrum at 809.75–816 MHz and 854.75–861 MHz where

²³ *Id.*, at para. 20.

²⁴ *Id.*, at para. 18.

²⁵ Letter to Michael Powell, Chairman, Federal Communications Commission, from Jerry Jasinowski, President, National Association of Manufacturers and Clyde Morrow, Sr., President, MRFAC, Inc. (*NAM/MRFAC Proposal*), December 21, 2001.

²⁶ Promoting Public Safety Communications—Realigning the 800 MHz Land Mobile Radio Band to Rectify Commercial Mobile Radio—Public Safety Interference and Allocate Additional Spectrum to Meet Critical Public Safety Needs (*Nextel Proposal*), November 21, 2001.

public safety systems frequently operate on channels immediately adjacent to potentially interfering—or actually interfering—digital SMR, conventional SMR, Business or Industrial/Land Transportation stations.”²⁷ The Commission has recommended relocating the public safety channels into a contiguous block of spectrum and relocating Business/Land Transportation (B/ILT) channels immediately adjacent to that block at 811.500 to 814 MHz.²⁸ The PSWN Program notes that all the plans proposed have advantages and drawbacks, and does not specifically endorse any reorganization plan; however, subject to additional protections discussed *infra*, the PSWN Program concurs that the Commission’s proposed extraction and relocation of public safety channels within the 800 MHz band is acceptable.

12. The PSWN Program agrees with Nextel that intermodulation is the primary cause of interference to public safety communications.²⁹ While public safety receiver characteristics contribute to intermodulation interference, equipment sensitivity must be high in order to detect signals from remote antennas serving a large coverage area. As the popularity of cellular telephone service became widespread, and CMRS base stations proliferated, the interaction of these factors increased interference to public safety systems operating in the 800 MHz channels.³⁰ One organization recently remarked “the public interest compels the FCC to consider further analysis raising concerns about potential interference to public safety communications systems....[T]he industry’s—and the FCC’s—understanding of interference mechanisms between commercial and public safety wireless networks is increasing almost daily

²⁷ *Id.*, at para. 20.

²⁸ *Id.*, at para. 26.

²⁹ *Id.*, at para. 27.

³⁰ See *Avoiding Interference Between Public Safety Wireless Communications Systems and Commercial Wireless Communications Systems at 800 MHz—A Best Practices Guide*, published by APCO, The Cellular Telecommunications and Internet Association; Motorola, Inc.; Nextel, Inc.; and the PSWN Program; Version 1, December 2000, at p. 5.

as a result of the ongoing efforts to resolve 800 MHz interference situations.”³¹ Relocation of CMRS licensees to spectrum separated from the proposed public safety block should aid in reducing interference from this source. The PSWN Program also agrees that public safety communications would benefit from the active participation of frequency coordinators monitoring, administering, and overseeing wireless services on the 800 MHz band.³²

B. Additional Spectrum for Public Safety Agencies

13. The Commission has clearly stated that providing sufficient spectrum for public safety communications is a priority in this rulemaking proceeding, and that one factor in evaluating the proposals submitted will be the amount of spectrum allocated for public safety communications purposes.³³ Increasing the amount of spectrum allocated for public safety communications to meet the needs identified in the *PSWAC Report* remains a critical consideration for public safety for any band reorganization proposal that is ultimately adopted. The Commission has also acknowledged that spectrum requirements for public safety communications have changed since the events of September 11, 2001.³⁴ While many of these features were not envisioned or even foreseeable at the time of the *PSWAC Report*, the Commission has the opportunity to advance the goal of supporting public safety and ensuring reliable communications by planning for a mature interoperable communications network. A new initiative to unite and coordinate communications between local, state, and federal agencies that participate in public safety issues

³¹ See Telecommunications Industries Association (*TIA*) Notice of Ex Parte Comment, *Service Rules for the 700 MHz Band*, WT Docket No. 99–168, April 4, 2002, at p. 3.

³² See *Fourth MO&O*, WT Docket No. 96–86, at para. 10. The Commission noted with approval that the four certified public safety frequency coordinators (APCO, the American Association of State Highway Transportation Officials, the International Association of Fire Chiefs and International Municipal Signal Association, and the Forestry Conservation Communications Association) all use a frequency coordination database, which would be equally applicable to monitoring usage of frequencies in the 800 MHz band.

³³ See *NPRM*, WT Docket No. 02–55, at para. 29.

³⁴ *Id.*

will create a greater need for access and more efficient use of spectrum and other communications resources. By dedicating or reserving spectrum for this eventuality, the Commission can plan for the incorporation of disparate organizations. Communications between such diverse entities as the Federal Emergency Management Agency, the Immigration and Naturalization Service, and the Office of Homeland Security, along with local and state law enforcement, emergency medical, rescue, and other first responders, can be developed into an organized public safety system. This strategy will allow for fast, flexible, and coordinated response to emergencies and other events.

14. While protecting communications from interference and allocating additional public safety spectrum remain priorities, the PSWN Program concurs with the Commission's focus on improving spectral efficiency. By adopting the Project 25 Phase I standard for the 700 MHz interoperability spectrum, the Commission provided an incentive for public safety agencies to use equipment that is more spectrum-efficient and ultimately lessen the existing congestion.³⁵ However, the PSWN Program notes that equipment replacement costs are often prohibitive, especially for small public safety agencies with limited resources. With these practical limitations in mind, the PSWN Program recommends that if the Commission chooses to mandate narrowbanding for local and state public safety spectrum, it must require that new narrowband-compliant equipment also be backward compatible with legacy systems.

C. Interoperability Channels

15. Citing the "renewed commitment to homeland security," the Commission recognizes the need to designate additional interoperability spectrum for public safety communications

³⁵ See *Fourth R&O*, WT Docket No. 96-86, at paras. 70-72.

operations.³⁶ The PSWN Program asks the Commission to consider the particular need for interoperability spectrum below 512 MHz in acknowledgement of the fact that the majority of state and local public safety systems currently operate in the very high frequency (VHF) band. If uniform spectrum can be designated nationally, the infrastructure is in place, and the equipment already exists, for this spectrum to be used at once. The *PSWAC Report* indicated the need to identify nationwide interoperability spectrum was among the key factors hampering communications between public safety users.³⁷ The Commission has acknowledged the need to designate nationwide public safety interoperability channels below 512 MHz.³⁸ Interoperability spectrum that can be used for day-to-day operations by local, state, and tribal public safety agencies should be designated, in addition to the Federal Government frequencies that have been designated for interoperability with federal agencies.³⁹

D. Incumbent Relocation

16. The PSWN Program is in agreement with the Commission that the objectives of the reorganization plan adopted for the 800 MHz band should be balanced with creating the least possible disruption to incumbent licensees.⁴⁰ Public safety communications will benefit from a plan that accomplishes the goal of eliminating interference as quickly and simply as possible. By expediting this transition, the Commission will allow the public safety community to improve the quality of mission-critical communications operations immediately and to plan for future emergencies—with the assurance that robust, reliable communications are available.

³⁶ See *NPRM*, WT Docket No. 02–55, at para. 30.

³⁷ See *PSWAC Report*, at para. 2.1.4.

³⁸ See *Third R&O*, WT 96–86, at para. 82.

³⁹ See Public Notice, *Federal Government Spectrum Available for Interoperability Communications*, DA 01–621, rel. July 13, 2001. See also *Third R&O*, WT Docket No. 96–86, at paras. 83–88.

⁴⁰ See *NPRM*, WT Docket no. 02–55, at para. 20.

1. Relocation of Incumbent Public Safety and Digital Specialized Mobile Radio (SMR) Within the 800 MHz Band

17. The PSWN Program is mindful of the need to protect public safety communications in order for the 800 MHz band reorganization plan to be effective. Therefore, it is crucial that the Commission select new spectrum to replace the interleaved public safety channels that will not be compromised by any known sources of interference. The PSWN Program agrees with the assessment that B/ILT systems are more compatible with public safety communications, and are not as likely to create interference.⁴¹ The PSWN Program notes that public safety channels located adjacent to spectrum used for passive operations or for low power applications, such as assistive learning devices (ALD) for the hearing impaired, were used compatibly with public safety communications in the past.⁴² However, high-power uses, such as the paging networks and cellular architecture that is especially pervasive in urban areas, create an unacceptable risk of interference to adjacent public safety users.

18. The Commission can also plan the 800 MHz band reorganization to keep public safety costs to a minimum by migrating to channels where retuning mobile, portable, and base equipment already deployed by public safety agencies is an option that will prevent costly replacement. Additional hardware, such as preselector filters, and software flash upgrades to perform equipment retuning may be sufficient to modify some deployed equipment, if public safety operations can remain in the 800 MHz band. The changes may vary with the kind of equipment being modified, and some 800 MHz band equipment may still require replacement.

⁴¹ *Id.*, at para. 26.

⁴² See PSWN Program Ex Parte Comments, *In the Matter of Reallocation of the 216–220 MHz, 1390–1395 MHz, 1427–1429 MHz, 1429–1432 MHz, 1432–1435 MHz, 1670–1675 MHz and 2385–2390 MHz Government Transfer Bands*, ET Docket No. 00–221, at p. 3.

By restructuring the 800 MHz band to allow public safety channels to be relocated to a contiguous block of spectrum within that band, the Commission should help reduce the costs associated with resolving interference to public safety communications.

2. Relocation of Conventional SMR, B/ILT Stations

19. The PSWN Program submits that retuning equipment should also make it possible for many B/ILT and conventional SMR users to remain in the 800 MHz band and reduce costs and time for implementing the reorganization plan. The PSWN Program asserts that the necessary retuning can be done in conformance with the Commission's equipment certification requirements. While the PSWN Program declines to comment regarding the specific proposal to reserve 900 MHz spectrum for B/ILT use, the PSWN Program supports any necessary accommodation by the Commission to ensure those critical infrastructure industries (CII),⁴³ such as water, electricity, and other basic services that public safety agencies rely on, will receive adequate spectrum to support their needs.

3. Reimbursement of Relocation Costs

20. The PSWN Program maintains public safety agencies should be eligible for reimbursement for their relocation costs. In some circumstances, this reimbursement may come from not only licensees displacing the incumbents (although some of these users may be involuntarily relocated themselves), but from other entities benefiting from the reorganization, either by a reduction of their own costs in coordination fees or other savings realized because of the reorganization. As Nextel points out, "(1) requiring public safety agencies to pay all costs of relocation would be an unexpected burden on state and local governments and (2) CMRS

⁴³ See *NPRM*, WT Docket No. 02-55, at para. 37.

licensees would receive a benefit in the form of relief from having to resolve instances of interference to public safety stations.”⁴⁴

21. The reimbursable costs should include any site costs, retuning, modification, and replacement of equipment necessary to maintain reliable, interference-free communications. Also, any licensing costs that are held to be appropriate by the Commission should be waived or charged to the responsible licensees.

4. Feasibility of Relocation Proposals

22. The PSWN Program does not advocate any specific reallocation scheme, including relocating B/ILT and other incumbent licensees to the 700 MHz and 900 MHz bands. Noting, however, that the Commission has indicated that as much as possible, comparable spectrum will be given to displaced incumbents, the PSWN Program agrees with the Commission that any relocation impacting other bands must “ensure that operations in that spectrum do not interfere with public safety communications in the 764–776 and 794–806 MHz band.”⁴⁵

5. Replacement Spectrum

23. The PSWN Program does not have any comments to offer regarding the best replacement spectrum for relocating entities from the 800 MHz band, except to clarify that the ongoing operations in the band(s) should not be adversely affected.

⁴⁴ *Id.*, at para. 38.

⁴⁵ *See NPRM*, WT Docket No. 02–55, at para. 49.

6. Primary/Secondary Status

24. One of the 800 MHz band reorganization proposals has suggested that if incumbent licensees do not want to migrate to other bands, they can remain on the band on a secondary, non-interference basis.⁴⁶ However, this begs the question of how interference would be resolved when detected. In some scenarios, an immediate solution would be necessary to protect safety of life and property in mission-critical communications functions, which would leave commercial customers holding a secondary status without recourse.

7. Proposed Implementation Schedule

25. The Commission clearly acknowledges the urgency of remedying interference to public safety communications.⁴⁷ The PSWN Program strongly recommends that the Commission begin implementing the reorganization plan that is ultimately adopted by the end of 2002, or as soon after that date as is practicable. While some time will be necessary to retune and modify equipment and to introduce additional complementary procedures if reorganization proves to be insufficient to remedy all interference, the Commission should announce a final plan and initiate the transition process at the earliest opportunity. Retuning and, if necessary, manufacturing equipment will take time, and an early indication of where incumbents will be relocated will allow these preparations to begin sooner rather than later. Nextel has suggested that even the elaborate band reorganization plan that it proposes could be completed within 36 months.⁴⁸ The PSWN Program agrees with the Commission's observation that a reorganization plan that only affects the 800 MHz band, similar to the Commission's recommendation, could be administered

⁴⁶ See *Nextel Proposal*, at p. 48. See also *NPRM*, WT Docket No. 02-55, at para. 35.

⁴⁷ *Id.*, at para. 63.

⁴⁸ See *NPRM*, WT Docket No. 02-55, at para. 65.

earlier.⁴⁹ The PSWN Program also reasons that implementation time should be another factor in choosing the best available option for reorganization.

8. Fee Waiver

26. The PSWN Program recommends that the Commission waive those fees associated with transferal of channels to consolidate public safety channels. If the licensees involved in the reorganization have no additional expenditures, that barrier is removed and the transition can occur more quickly. The PSWN Program concurs in the legal analysis offered by the Commission regarding "per application" waivers⁵⁰ and agrees that license modification fees for 800 MHz incumbents participating in the band reorganization should be waived for the "public interest, convenience and necessity" exemption noted, as well.⁵¹

IV. COMPLEMENTARY SOLUTIONS

27. The reorganization proposals discussed have also highlighted the need for additional measures to ensure that interference does not continue to plague public safety communications after the 800 MHz band reorganization plan is implemented. While the PSWN Program is optimistic that reorganization will greatly reduce interference, the Commission should anticipate that further steps will be necessary to completely resolve interference to public safety communications.

⁴⁹ *Id.*, at para. 64.

⁵⁰ *Id.*, at para. 67.

⁵¹ *Id.*

A. Equipment Standards/Operating Parameters

28. The Commission has also suggested that mandating equipment standards can reduce interference to public safety communications.⁵² The PSWN Program agrees and supports the criteria enumerated by the PSWAC Steering Committee for a technology-neutral standard to promote cooperation among manufacturers and “allow Public Safety agencies and commercial service providers to work together to determine if alternatives exist to develop features and capabilities needed...in both mission critical and non-mission critical areas.”⁵³ Adoption of the American National Standards Institute (ANSI) standard for receivers similar to the Grade A receiver standard recommended by the Public Safety National Coordination Committee (NCC)⁵⁴ may also be appropriate for equipment on the 800 MHz band. Further research and investigation is necessary to ensure that the values that have been applied to 700 MHz band equipment will be appropriate for the 800 MHz band.

29. Manufacturers, users, and standards and policy bodies have studied at length the receiver overload characteristics, i.e., radio frequency (RF) selectivity, intermodulation rejection, adjacent channel rejection, and receiver reference sensitivity. The PSWN Program notes the interim standards recommended by the TIA⁵⁵ may provide a useful reference point for this inquiry. In particular, this publication recommends values of 70–75 decibels (dB) intermodulation rejection for portable and mobile receivers and 80 dB for base stations, 60 dB for analog adjacent channel rejection for mobile and portable receivers and 70db for analog base stations, and 60 dB for all

⁵² See *NPRM*, WT Docket No. 02–55, at para. 74.

⁵³ See *PSWAC Report*, at para. 2.6.

⁵⁴ See *NPRM*, WT Docket No. 02–55, at para. 74, and FN 198, citing letter from Kathleen Wallman, Chair, National Coordination Committee to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, August 7, 2001.

⁵⁵ See *TIA/EIA Interim Standard Digital C4FM/CPQSK Transceiver Performance Recommendations*, TIA/EIS-IS 102.CAAB, May 1999.

digital adjacent channel rejection, and -116 dBm for reference sensitivity for Class A equipment.⁵⁶ Nextel recommends that RF selectivity should attenuate signals outside the public safety band by at least 20 dB, intermodulation rejection should be 75 dB or better, adjacent channel rejection should also be 75 dB or better, and receiver sensitivity should be -112 dBm or better.⁵⁷ Recently APCO'S project 39 Technical Committee concluded based on their evaluations that current receiver specifications in the 800 MHz band were "simply inadequate" to ensure protection from adjacent commercial wireless systems, and that intermodulation specifications of at least 97.5 dB may be necessary.⁵⁸ The PSWN Program recommends thorough review of documentation to make certain that equipment will not be vulnerable to harmful interference from other wireless services. The PSWN Program remains convinced that, once determined, such a standard should be incorporated into the Commission's Rules.

30. The PSWN Program contends that proposals to improve public safety signal strength or to weaken signals for CMRS stations are not viable. Replacing or upgrading equipment can be very expensive, and members of the public safety community are often limited by budgetary constraints. In addition, because construction options may be impacted by factors such as topography, no single solution will necessarily be flexible enough to apply to a broad range of situations. On the one hand, increasing signal strength for public safety operations would create the possibility of greater co-channel interference because entities operating on the same or nearby channels in different geographic areas might be adversely affected by other public safety licensees on those frequencies. Similarly, this would limit opportunities for frequency reuse. By

⁵⁶ *Id.*, at pgs. 5-7.

⁵⁷ See *NPRM*, WT Docket No. 02-55, at para. 74, and FN 200-203.

⁵⁸ *Six Month Status Report of the Project 39 Technical Committee*, Appendix 5 (P39-020315-03-01): "Subscriber Unit Intermodulation Rejection Specification - Major Disappointment," Presented at the APCO Western Regional Conference, Phoenix, Arizona, March 19, 2002.

reducing the power of CMRS signals, the Commission would create the need for more base stations to provide commercial customers the same level of service, which could even potentially increase the interference experienced by public safety users in close proximity to those sites.

31. As it has in other Dockets where the development of standards to protect public safety users from harmful interference is of paramount importance, the PSWN Program urges the Commission to err on the side of caution.⁵⁹ In addition to interference from intermodulation, the Commission must also be aware of potential adjacent channel and co-channel interference. The PSWN Program recommends that the Commission adopt the “Zero Tolerance of Interference to Public Safety from Commercial Licensees” standard articulated by the National Public Safety Telecommunications Council (NPSTC).⁶⁰ Using this definition to send a clear message for enforcement of rules to safeguard the integrity of public safety wireless communications is the most effective way to ensure universal and easily managed compliance.

B. Guard Bands

32. The Commission and parties submitting 800 MHz band reorganization proposals have acknowledged that guard bands may also be necessary to protect public safety communications from interference.⁶¹ Nextel has recommended that the Commission designate a minimum 2 MHz for a guard band.⁶² The PSWN Program is optimistic that a 2 MHz guard band will provide sufficient protection against interference. The PSWN Program also maintains that if a guard band is necessary, the guard band spectrum should not be entirely composed of spectrum

⁵⁹ See, e.g., PSWN Program Comments to the Third NPRM, *In the Matter of Inquiry Regarding Software Defined Radios*, ET Docket No. 00-47, March 19, 2001, at para. 15.

⁶⁰ See the National Public Safety Telecommunications Council Petition for Reconsideration (*NPSTC PFR*), Second R&O, *Service Rules for the 700 MHz Band*, WT Docket No. 99-168, at pages 10-11.

⁶¹ *NPRM*, WT Docket No. 02-55, at para. 23.

⁶² *Id.*

allocated for public safety. Instead, adjacent licensees that may potentially cause interference should contribute any necessary buffer to public safety communications users. In the 700 MHz band proceedings, the Commission has directed that band managers would administer designated guard band channels and be subject to strict out-of-band emission (OOBE) limitations.⁶³ The PSWN Program recommends that the Commission continue these practices in the reorganized 800 MHz band.

C. Implementation Schedule

33. The PSWN Program asserts that the solution adopted by the Commission to remedy interference should be conducted in stages. During the first phase, the Commission can reorganize the 800 MHz band to extract the interleaved public safety channels and create a contiguous block for public safety use, preferably providing additional spectrum to meet those increasing requirements. The PSWN Program further suggests that the Commission adopt receiver standards and educate licensees on best practices, to further protect public safety spectrum from potential sources of interference. Manufacturers will need time to produce compliant equipment to meet the Commission's requirements, and a tentative schedule for applying those standards to deployed equipment should be developed. At the same time, the Commission should expect that reorganization and the adoption of equipment standards will not completely resolve interference issues and should reserve adequate additional spectrum, i.e., a minimum of 2 MHz, for guard bands. This spectrum can be licensed to guard band managers to allow lower power uses that will not conflict with public safety applications.

⁶³ See *Second R & O*, WT Docket No. 99-168, paras. 17-19.

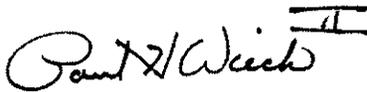
34. After a sufficient period of study to determine the success of the initial stage of the plan, the Commission should follow up with any additional remedial measures that may be necessary to make certain that public safety communications on the 800 MHz band are robust and reliable. The PSWN Program recommends a reassessment of the 800 MHz reorganization within a year of a Final Order. If a 2 MHz guard band proves to be inadequate to prevent interference, additional reserve spectrum must be designated for guard bands to protect public safety users from intermodulation interference. If other forms of interference persist, then the Commission must modify signal and emission levels, alter antenna height and direction regulations, and take any and all other steps that are necessary until the primary objective of this rulemaking proceeding—the elimination of interference to public safety communications—has been met.

V. CONCLUSION

35. The PSWN Program thanks the Commission for the opportunity to provide comments addressing the reorganization of the 800 MHz band spectrum and commends other parties that have taken the time to contribute comments to this rulemaking. It is critical for all Americans that public safety remains a critical objective among the Commission's competing priorities. To balance these concerns, the PSWN Program recommends that the Commission should proceed cautiously but decisively and should consider, on an expedited schedule, the issues addressed by all parties that have submitted comments. The PSWN Program also recommends that the Commission work in cooperation with ANSI, the National Institute of Standards and Technology, the NCC, and other appropriate organizations, to assess, implement, and coordinate resources to eliminate all interference to public safety communications.

36. The PSWN Program reiterates that even with the improvements in technology since the PSWAC Report, the spectral requirements expressed by that committee remain an accurate benchmark for foreseeable public safety communication needs. Public safety personnel will only be prepared to cope with emergencies and expanding uses of their wireless systems if they are allocated additional spectrum to support those uses. The PSWN Program asks that the Commission review the recommendations in the *PSWAC Report* and reminds the Commission that approximately 23.5 MHz of the spectrum requested in support of public safety operations at that time remains unfulfilled. The PSWN Program recommends designating additional spectrum for public safety services and for interoperability communications in the spectrum below 512 MHz to provide for greater cooperation and sharing of information and other resources by members of the public safety community.

Respectfully submitted,



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Chair, PSWN Executive Committee
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PSWN Executive Committee

Before the
Federal Communications Commission
Washington, DC 20554

Certificate of Service

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

I, Richard N. Allen, Senior Associate, Booz Allen Hamilton, 8283 Greensboro Drive, McLean, Virginia, 22102-3838, hereby certify that on this date I caused to be served, by first-class mail, postage prepaid (or by hand where noted) copies of the Public Safety Wireless Network Program's Comments in response to the Notice of Proposed Rulemaking, *Improving Public Safety Communications in the 800 MHz Band [and] Consolidating the 900 MHz Industrial/Land Transportation Business Pools*, the original of which is filed herewith and upon the parties identified on the attached service list.

DATED at Fair Oaks, Virginia this 3rd day of May 2002.



Richard N. Allen

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