

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

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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)
)
Establishment of Rules and Requirements)
For Priority Access Service)

WT Docket No. 96-86
FILED

**THIRD MEMORANDUM OPINION AND ORDER
AND
THIRD REPORT AND ORDER**

Adopted: September 18, 2000

Released: October 10, 2000

By the Commission:

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I. INTRODUCTION

1. Twenty-four megahertz of spectrum is allocated for public safety services at 764-776 MHz and 794-806 MHz (hereinafter "the 700 MHz band").¹ On August 6, 1998, we adopted a *First Report and Order and Third Notice of Proposed Rule Making* that established a band plan and service rules for this spectrum.² Seventeen parties filed petitions for reconsideration and/or clarification ("Petition(s)") of decisions contained in the *First Report and Order*.³ We addressed two of these Petitions in May 1999.⁴ On July 21, 2000, we adopted a *Second Memorandum Opinion and Order* that addressed petitions for reconsideration of the *First Report and Order* concerning: (1) digital modulation requirement; (2) certain technical requirements—namely, transmitter power and antenna height, automatic power control, emission limits, frequency stability, wideband channel efficiency standards, and receiver standards; (3) protection criteria established between television and land mobile operations; (4) eligibility for licensing and alliances under Section 2.103(b) of our Rules,⁵ and (5) administrative issues regarding regional planning, national planning, and frequency coordination.⁶ In the *Second MO&O*,⁷ we also deferred resolution of the reconsideration requests concerning digital standards in the 700 MHz band to the *Fourth Notice of Proposed Rule Making* in the captioned proceeding.⁸

2. The instant *Third Memorandum Opinion and Order* ("*Third MO&O*") addresses the remaining issues raised in the petitions for reconsideration of the *First Report and Order*; by presenting

¹ See Reallocation of Television Channels 60-69, the 746-806 MHz Band, ET Docket No. 97-157, *Report and Order*, 12 FCC Rcd 22,953 (1997) (*Reallocation Report and Order*).

² The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152 (1998) (*recon. pending*) (referred to herein as "*First Report and Order*" or "*Third Notice*" as applicable).

³ Fourteen parties filed oppositions to specific petitions and replies to the oppositions. A list of parties, with their acronyms, that filed Petitions, Oppositions, and Replies is contained in Appendix C.

⁴ In May 1999 we addressed the Petitions for Reconsideration filed by the American National Standards Institute ("ANSI") and the Telecommunications Industry Association ("TIA") in this proceeding. See The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Memorandum Opinion and Order on Reconsideration*, 14 FCC Rcd 8059 (1999) ("*First MO&O*").

⁵ 47 C.F.R. § 2.103(b).

⁶ The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Second Memorandum Opinion and Order*, FCC 00-264 (rel. August 1, 2000) referred to herein as "*Second MO&O*").

⁷ See *Second MO&O* at ¶ 1 citing Public Safety National Coordination Committee, Recommendations to the Federal Communications Commission for Technical and Operational Standards for Use of the 764-776 MHz and 794-806 MHz Public Safety Band Pending Development of Final Rules (Feb. 25, 2000) (NCC Recommendations). We recognized that the NCC Recommendations pertained to matters that are the subject of some of the Petitions and stated that we anticipated seeking public comment on the substance of the NCC Recommendations. *Id.*

⁸ See The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Fourth Notice of Proposed Rule Making*, FCC 00-271 (rel. August 2, 2000).

our decisions in response to those various portions of the petitions that address the: (1) band plan for the 700 MHz band,⁹ and (2) low power narrowband devices for on-scene communication.¹⁰

3. In the *Third Report and Order* portion of this combined item, we address designation and licensing issues for the spectrum that we reserved in the *First Report and Order* to be “subject to the *Third Notice*.”¹¹ In addition, we adopt technical criteria for 700 MHz band operations to protect satellite-based global navigation systems from harmful interference. We also establish measures to promote interoperability on public safety channels below 512 MHz. Our actions today are additional steps toward the development of a flexible regulatory framework to meet vital current and future public safety communications needs.

II. EXECUTIVE SUMMARY

4. Band Plan We revise the band plan adopted in the *First Report and Order* to reposition the location of the narrowband and wideband channel groups for the general use, interoperability, and reserve spectrum. Upon review of the reconsideration requests, this new plan represents an improved layout and will promote better assignment and operational possibilities for the public safety community. We also authorize 48 narrowband channels for low power use for on-scene communication.

5. State License Rather than adopting 8.8 MHz for state planning and approval, we adopt a modified version of our proposal and will grant a single, geographic license directly to the states for up to a total of 2.4 megahertz for their needs.¹² We believe a state license complements the regional planning committees (RPCs),¹³ streamlines administrative procedures,¹⁴ and enhances spectrum efficiency.¹⁵ Under this decision, each state (including U.S. territories, districts, and possessions) has the option to receive a statewide authorization to use this radio spectrum statewide for public safety services. This geographic license gives states a new tool for managing and planning the radio communication needs of state agencies.¹⁶ The Governor of each state or his/her designee will have until December 31, 2001 (over one year from the effective date of this *Third Report and Order*) to apply for a state license. We believe that

⁹ *First Report and Order*, 14 FCC Rcd at 164-177 ¶¶ 17-46. See Petitions of APCO, NPSTC, Motorola, and AASHTO *et al.*

¹⁰ See STI Petition.

¹¹ Twenty-four comments, fifteen reply comments, and numerous ex parte presentations were received in response to the *Third Notice*. A list of parties, with their acronyms, that filed comments or reply comments is contained in Appendix D.

¹² By comparison, we decline to adopt a “State Licensing” approach that most commenters oppose under which states – rather than regional planning committees (RPCs) – would manage state, local, and Federal use of all or most of the 8.8 megahertz of spectrum reserved subject to the *Third Notice*.

¹³ State systems and local city/county systems could work in tandem, possibly on joint systems, rather than competing for the same spectrum resources.

¹⁴ States would apply for one geographic based license directly to the Commission by which they could initiate planning and deployment of their systems. Site-based licenses for wide-area networks are administratively burdensome due to the license modifications needed during build-out.

¹⁵ State agencies would give each state greater latitude to develop shared networks employing more efficient technologies, such as, trunked systems.

¹⁶ Although permitted to do so, we do not require states to share this spectrum with non-state agencies. We do not require states to manage or plan spectrum use by non-state agencies (*e.g.*, local political subdivisions, Federal).

providing states this amount of time to apply for this spectrum allows every state at least one legislative cycle or fiscal year to allocate the funds necessary to plan, prepare, and implement the use of the spectrum. What ever part of this 2.4 megahertz that a state has not applied for by December 31, 2001, will revert to General Use and be administered by the RPCs. As with other geographical-area based licenses, e.g., PCS, no further FCC authorization will be required to construct and operate transmitter sites within the state (unless the site raises specific environmental, aviation safety, "quiet zone," or international issues).

6. Reserve First, we reserve 128 narrowband channels pending the resolution of the *Fourth Notice* in this proceeding.¹⁷ Next, we relocate the remaining 5.4 megahertz of the 700 MHz band (108 wideband channels) between narrowband and wideband segments and reserve this spectrum for future developments in broadband technologies.¹⁸

7. In sum, as a the result of our actions today, we designate the 24 megahertz of spectrum in the 700 MHz band as follows:

700 MHz PUBLIC SAFETY BAND—SPECTRUM & CHANNELS

DESIGNATED PURPOSE	AMOUNT OF SPECTRUM	NARROWBAND (6.25 kHz)	WIDEBAND (50 kHz)
GENERAL USE	12.5 MHz (52.1 %)	7.7 MHz (1232 channels) ¹⁹	4.8 MHz (96 channels)
INTEROPERABILITY	2.6 MHz (10.8 %)	0.8 MHz (128 channels)	1.8 MHz (36 channels)
STATE LICENSE	2.4 MHz (10.0 %)	2.4 MHz (384 channels)	- 0 -
LOW POWER	0.3 MHz (1.3 %)	0.3 MHz (48 channels)	- 0 -
RESERVE	6.2 MHz (25.8 %)	0.8 MHz (128 channels)	5.4 MHz (108 channels)
TOTAL	24 MHz (100 %)	12 MHz (1920 channels)	12 MHz (240 channels)

8. GNSS Protection Criteria We adopt technical solutions to protect certain global navigation satellite systems (GNSS), particularly the Global Orbiting Navigation Satellite Systems (GLONASS) and Global Positioning System (GPS).²⁰ These limits are in accordance with international requirements.

9. Interoperability Below 512 MHz We adopt our proposal to designate channels in existing public safety bands for mutual aid purposes (five channels in the 150-174 MHz band and four channel

¹⁷ See note 8, *supra*.

¹⁸ A table setting forth the segments and channels is contained in Appendix G.

¹⁹ In the new composite band plan adopted herein, we redesignate 16 of the original 1248 general use channels for low power.

²⁰ GLONASS utilizes the Radionavigation-Satellite Service (space-to-Earth) band of 1598–1605 MHz.

pairs in the 450-512 MHz band). We also terminate the *Third Notice* inquiry as to the FCC's future licensing of spectrum in the 138-144 MHz band for interoperability purposes. The inquiry is now moot because Congress reclaimed this spectrum for exclusive federal use in the "National Defense Authorization Act of FY 2000."²¹ We also adopt our proposal to designate two channel pairs in the VHF 156-162 MHz band for interoperability communication in thirty-three Economic Areas (EAs), where these channels are allocated for public safety entities.²²

III. BACKGROUND

10. In 1993, Congress directed the Commission to develop a framework to ensure that public safety communications needs are met through the year 2010.²³ Pursuant to that directive, the Commission issued a report to Congress identifying a need to gather additional information on the present and future communications requirements of public safety agencies.²⁴ In 1995, the Commission, together with the National Telecommunications and Information Administration (NTIA), established the Public Safety Wireless Advisory Committee (PSWAC), pursuant to the Federal Advisory Committee Act,²⁵ to provide advice and recommendations regarding the communications needs of public safety agencies through the year 2010. Shortly thereafter, the Commission commenced this rulemaking proceeding to evaluate and plan for present and future public safety communications requirements.²⁶

11. On August 14, 1996, the Commission acknowledged that a portion of the spectrum recovered from TV channels 60-69 when digital television (DTV) is fully deployed "could be used to meet public safety needs."²⁷ In the *DTV Sixth Report and Order*, the Commission stated that it would initiate a separate proceeding to address the issue of allocating TV channels 60-69, and would give serious consideration to allocating 24 megahertz of that spectrum for public safety use.²⁸ In September 1996, the *PSWAC Final Report* was submitted to the Commission as part of the record in this proceeding. The *PSWAC Final Report* found that the spectrum then allocated to public safety was insufficient to support the current and projected voice and data needs of the public safety community, did not provide adequate capacity for obtaining interoperability, and was inadequate to meet future needs, based on projected population growth and demographic changes. The *PSWAC Final Report* concluded that in order to meet

²¹ See Pub. L. No. 106-65, § 1062, 113 Stat. 767 (1999).

²² The channel pairs were formerly allocated in 47 C.F.R. § 80.371 for VHF Public Coast Stations as public correspondence channels and were also shared under 47 C.F.R. § 90.283.

²³ See 47 U.S.C. § 309(j)(10)(B)(iv), as added by the Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6002, 107 Stat. 312 (1993).

²⁴ *1995 FCC Public Safety Report*, 10 FCC Rcd 5207 (1995).

²⁵ Federal Advisory Committee Act, 5 U.S.C., App. 2 (1988).

²⁶ The Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, *Notice of Proposed Rule Making*, 11 FCC Rcd 12,460 (1996).

²⁷ Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, MM Docket No. 87-268, *Sixth Further Notice of Proposed Rule Making*, 11 FCC Rcd 10,968, 10,980 (1996) (*DTV Sixth Notice*).

²⁸ Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, MM Docket No. 87-268, *Sixth Report and Order*, 12 FCC Rcd 14,588, 14,626 (1997) (*DTV Sixth Report & Order*).

these needs, 25 megahertz of new public safety spectrum allocations would be needed within five years.²⁹ The *PSWAC Final Report* further stated that data communication and wireless video needs were also expected to grow rapidly, and additional spectrum was required to support new capabilities and technologies, including high speed data and video.³⁰

12. Subsequently, in the 1997 Budget Act, Congress directed the Commission to reallocate 24 megahertz of the spectrum recovered from TV channels 60-69 as a result of DTV implementation for public safety services.³¹ Shortly thereafter, the Commission initiated a rulemaking proceeding in ET Docket No. 97-157 which led to the adoption of a *Report and Order* reallocating 24 megahertz of spectrum located in the 700 MHz band for public safety services.³²

13. This new allocation is the largest ever made for public safety communications and constitutes a significant public benefit derived from the conversion of television broadcasting in the United States from analog technology to state-of-the-art digital technology.³³ In the *Second Notice*, the Commission sought comment on a wide variety of public safety communications issues, including, but not limited to, future public safety spectrum needs, projected operational and technological requirements for interoperability (between and among public safety entities on a local and regional basis), and technical parameters needed to ensure efficient and effective communications.³⁴

14. In the *First Report and Order*, we established a band plan and adopted service rules for the 700 MHz band. We designated 12.6 megahertz of the spectrum for general use to be managed by regional planning committees (RPCs). In addition, we designated 2.6 MHz of spectrum in the 700 MHz band for interoperability purposes (the ability of different governmental agencies to communicate across jurisdictions and with each other). We also adopted technical specifications to enhance spectrum efficiency and minimize harmful interference in the 700 MHz band. The *First Report and Order* also designated 8.8 megahertz of 700 MHz band spectrum as reserved subject to the *Third Notice*.³⁵

15. In the *Third Notice*, we continued our inquiry into present and future public safety communications needs. We sought comment on a broad range of options to promote the efficient and

²⁹ *Final Report of the Public Safety Wireless Advisory Committee to the Federal Communications Commission*, September 11, 1996, at 3 (*PSWAC Final Report*).

³⁰ *Id.* at 19-20.

³¹ See Balanced Budget Act of 1997, Pub. L. No. 105-33, § 3004, 111 Stat. 251 (1997) (1997 Budget Act), codified at 47 U.S.C. § 337.

³² Reallocation of Television Channels 60-69, the 746-806 MHz Band, ET Docket No. 97-157, *Notice of Proposed Rule Making*, 12 FCC Rcd 14,141 (1997); *Reallocation Report and Order*, 12 FCC Rcd 22,953 (1998).

³³ See *DTV Sixth Report and Order*, 12 FCC Rcd at 14,588.

³⁴ The *Second Notice*, prompted by a Petition for Rulemaking filed by the National Communications System, sought comment on the establishment of Cellular Priority Access Service (CPAS) designed to meet the communications needs of public safety services in emergency and disaster situations. See 12 FCC Rcd at 17,779-800. We address CPAS issues by a separate action. See *Second Report and Order*, WT Docket No. 96-86, FCC 00-242 (rel. July 13, 2000).

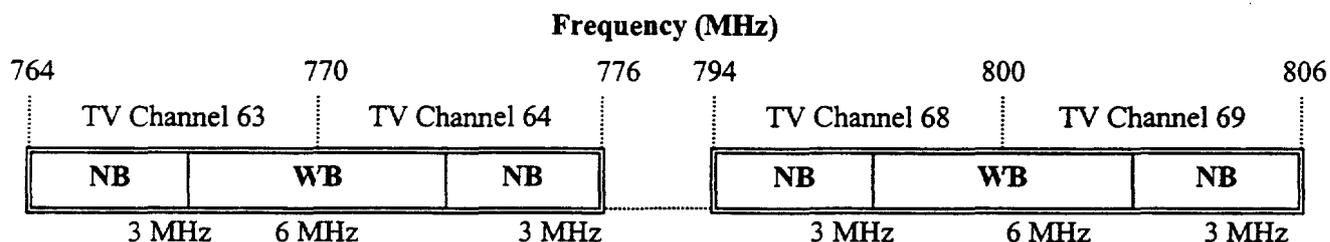
³⁵ Our decisions today, addressing petitions for reconsideration of the *First Report and Order*, effectively decrease the amount of spectrum in reserve from 8.8 megahertz to 8.6 megahertz. See, e.g., *Third MO&O*, paras. 37-38, *infra*.

effective use of the 700 MHz band spectrum that we reserved in the *First Report and Order*. We also asked how to license the 2.6 megahertz of spectrum in the 700 MHz band that we designated for nationwide interoperability in the *First Report and Order*. Additionally, we discussed protection requirements for 700 MHz band operations in connection with Global Navigation Satellite Systems.³⁶ We also offered proposals to facilitate use of nationwide interoperability in public safety bands below 512 MHz.

IV. THIRD MEMORANDUM OPINION AND ORDER

A. Band Plan

16. In the *First Report and Order*, we designated the 24 MHz of spectrum in the 700 MHz band to be divided as shown below:³⁷



NB = narrowband channels

WB = wideband channels

First Report and Order (1998) — 700 MHz Public Safety Band Spectrum & Channels

Designated Purpose	Amount of Spectrum	Narrowband (6.25 kHz)	Wideband (50 kHz)
General Use	12.6 MHz (52.5 %)	7.8 MHz (1248 channels)	4.8 MHz (96 channels)
Nationwide Interoperability	2.6 MHz (10.8 %)	0.8 MHz (128 channels)	1.8 MHz (36 channels)
Reserved	8.8 MHz (36.7 %)	3.4 MHz (544 channels)	5.4 MHz (108 channels)
TOTAL	24 MHz (100 %)	12 MHz (1920 channels)	12 MHz (240 channels)

³⁶ Global Positioning Service (GPS) is the civilian portion of the United States Global Navigation Satellite System (GNSS), made available for commercial use, which utilizes the Aeronautical Radionavigation-Satellite (space-to-earth) band of 1559-1610 MHz on a primary basis and is maintained by the United States Department of Defense. Our discussion also includes a section on the protection requirements for the Russian Federation Global Orbiting Navigation Satellite System (GLONASS).

³⁷ *First Report and Order*, 14 FCC Rcd at 166, 167 ¶¶ 24, 25.

17. The band plan designates 764-776 MHz (TV Channels 63 and 64) for base-to-mobile communications and 794-806 MHz (TV Channels 68 and 69) for mobile-to-base communications.³⁸ The band plan also accommodates all of the traditional operational modes (voice, data, image/HSD, and video) and is flexible enough to allow deployment of future technologies. We divided the band into separate segments for narrowband and wideband communications for both General Use and Nationwide Interoperability. To promote efficient spectrum usage, the band plan incorporates a channelization approach that is based on the smallest practical channel sizes for narrowband and wideband public safety communications).³⁹ To promote flexibility, we included a "building block" approach that allows licensees to combine narrowband or wideband channels to accommodate different technologies. Specifically, we permit the combination of up to four narrowband 6.25 kHz channels (up to 25 kHz) and up to three wideband 50 kHz channels (up to 150 kHz) to create larger bandwidths when needed to accommodate different technologies, such as 12.5 kHz or 25 kHz voice and data channels, or communications requiring higher data speeds.⁴⁰

1. General Use Channels

18. *Band segments (narrowband and wideband)*. APCO notes that we largely adopted the channel plan proposed by NPSTC (which APCO helped to develop).⁴¹ APCO contends, however, that the adopted plan lacks necessary flexibility to meet the varying needs of each region for narrowband or wideband channels.⁴² APCO requests, therefore, that we provide each RPC with additional flexibility to: (1) aggregate narrowband channels to create additional wideband channels and; (2) split wideband channels to produce additional narrowband channels.⁴³ APCO states that in either case, we should permit RPCs to modify the adopted band segments only as a last resort and that unassigned narrowband channels could not be aggregated unless and until all existing wideband channels were exhausted (and *vice versa* as to splitting unused wideband channels).⁴⁴

19. The adopted band plan reflects the best current evaluation of the relative spectrum requirements for narrowband and wideband operations⁴⁵ whereas APCO's suggested rule change would permit each of the fifty-five RPCs to adopt irregular narrowband/wideband segments. We continue to believe that it makes sense to separate narrowband segments from wideband segments to ensure the placement of compatible communications types together in band segments. Ensuring compatibility removes an element of uncertainty as to the potential for adjacent channel interference, leading to less complicated frequency coordination requirements and more efficient use of the spectrum.⁴⁶ Nonetheless,

³⁸ *Id.* at 168, 169 ¶¶ 28, 29.

³⁹ The minimum channel size (building block) is 6.25 kHz for narrowband, and 50 kHz for wide band channels.

⁴⁰ *First Report and Order*, 14 FCC Rcd at 173-75 ¶¶ 38, 41.

⁴¹ APCO Petition at 15, 16.

⁴² *Id.*

⁴³ APCO Petition at 15, 16; *see also* NYSTEC Petition at 5, 6, 9, 10.

⁴⁴ APCO Petition at 15, 16. APCO adds that, due to the need to maintain a common nationwide channel plan for interoperability purposes, the interoperability channels should not be subject to such modifications. *Id.*; *see also* NYSTEC Petition at 9, 10.

⁴⁵ *Accord* APCO Petition at 15.

⁴⁶ *See id.*, 14 FCC Rcd at 169 ¶ 31, n.76, citing Motorola Comments, Appendix at 4-7, NPSTC Comments Appendix A, and Florida Comments at 2-6.

we appreciate APCO's point that the need for narrowband or wideband channels will vary throughout the nation. We note in this connection that the existing waiver process⁴⁷ is available for individual applicants that demonstrate that all other alternatives have been thoroughly exhausted.⁴⁸ Moreover, as discussed below in Section A.3. (Location of Reserve Spectrum), we are adopting NPSTC's suggestion to relocate the reserve channels between the narrowband and wideband segments.⁴⁹ This action will provide future flexibility to adjust the dividing line between narrowband and wideband segments.

20. *Aggregation of narrowband channels.* Ericsson seeks reconsideration of our decision to limit the maximum aggregation of channels to four channels in the narrowband channel plan. Ericsson contends that limiting aggregation to four 6.25 kHz channel "building blocks" restricts the efficient accommodation of emerging technologies that have operating bandwidths between 25 kHz and 50 kHz. Thus, Ericsson proposes that we modify the narrowband channel plan to permit the aggregation of up to eight 6.25 kHz channels.⁵⁰

21. We do not find this recommendation persuasive. The composite plan that we adopted in the *First Report and Order*, provides a careful balance of general use, interoperability, wideband, and narrowband channels based on all of the band plans submitted in response to the *Second Notice*.⁵¹ We also adopted corresponding rules regarding channel pairing, the segments of the band to be used for narrowband and wideband applications, minimum and maximum channel sizes, and spectrum usage efficiency standards. Ericsson's proposal would allow data applications to use more than the 25 kHz of bandwidth for narrowband channels. We believe this to be unwise because permitting the aggregation of up to eight 6.25 kHz channels, the equivalent of a wide band channel (50 kHz), could prematurely deplete the availability of channels needed for narrowband voice and data operations.⁵² Moreover, allowing wideband channels within a narrowband segment⁵³ creates the same interference potential discussed above.⁵⁴

22. Most importantly, Ericsson's proposal also raises concerns related to spectrum efficiency because it could essentially defeat the efficiency safeguards of the adopted band plan.⁵⁵ As noted in the *First Report and Order*, public safety entities are generally insulated from market forces in regard to the

⁴⁷ See, e.g., 47 C.F.R. § 1.925 (Waivers). We note as an administrative matter that a rule waiver request is the most appropriate process for determining, e.g., whether all narrowband channels are exhausted in a given geographic area and that a specific proposal to use a portion of a wideband channel is truly a "last resort."

⁴⁸ Accord NYSTEC Petition at 9, 10 (Commission should allow for some flexibility in the channel plan but only after all other alternatives have been thoroughly exhausted).

⁴⁹ NPSTC Petition at 4. We acknowledge that NPSTC's original plan (which APCO helped to develop) called for this approach.

⁵⁰ Ericsson Petition at 6.

⁵¹ See, e.g., *First Report and Order*, 14 FCC Rcd at 175, 176 ¶¶ 42-43.

⁵² *Id.*, 14 FCC Rcd at 173 ¶ 38.

⁵³ The adopted band plan reflects the best current evaluation of the relative spectrum requirements for narrowband and wideband operations. See para. 18, *supra*.

⁵⁴ See para. 19, *supra*.

⁵⁵ See, e.g., para. 17, *supra*.

acquisition of licenses for radio spectrum and the provision of public safety communications.⁵⁶ Instead, each jurisdiction typically provides public safety communications to better protect the safety of life and property — with spectrum utilization based more on budgetary limitations than on considerations of the most efficient and effective technologies.⁵⁷ Thus, the technical structure of standard channelization is appropriate to ensure that the 700 MHz public safety band spectrum is used efficiently in the absence of the market forces that discipline other services. Moreover, from a regional and national perspective, the record reflects that not enough spectrum is available to meet the long-term needs of the public safety community.⁵⁸ Thus, the adopted band plan incorporates a channelization approach that is based on the smallest practical channel sizes for narrowband and wideband public safety communications along with the "building block" approach to provide significant flexibility. Ericsson's proposal, however, would disturb this careful balance between efficiency and flexibility by allowing voice and data operations within the narrowband segment to use bandwidths of up to 50 kHz (*i.e.*, wideband).

23. Ericsson's proposal would also result in irregular channelization (intra-and inter-regional) whereas, as noted in the *First Report and Order*, standardizing channelization on a national basis provides for reasonably rapid development of a cost-based equipment market for the 700 MHz band. Standardizing channelization on a national basis also removes a major element of uncertainty as to the potential for interference due to irregular, overlapping channels (intra-or inter-region), leading to less complicated frequency coordination requirements and more efficient use of the spectrum.⁵⁹ Specifically, allowing nonstandard channels would create difficulties when overlapping channels are assigned to different types of users in nearby service areas. Interference and compatibility difficulties are currently issues in the refarmed bands below 512 MHz, where new channels were established in between existing channels.⁶⁰ Similar difficulties would arise in the 700 MHz band, *e.g.*, government and NGO users assigned on overlapping channels, if we allowed each RPC to assign nonstandard, overlapping channels. Moreover, the 700 MHz public safety band is newly allocated so, unlike the refarmed bands, we have an exceptional opportunity to adopt a channelization plan that promotes efficient use, balanced with significant flexibility and a minimum of overlapping channel assignments. We believe the adopted band plan, with some minor modifications adopted today, provides the appropriate balance based on the broad range of commenters. Finally, we note that the existing waiver process is available for truly unique and unusual circumstances.⁶¹

24. Set-aside for wideband HSD channels In his Petition, Powell requests that before allowing the RPCs to begin their planning process, we meet with members of the manufacturing, system integration and public safety communities to discuss a wideband channel plan that would permit development of a national public safety high speed data (HSD) network and still allow the RPCs

⁵⁶ See, *e.g.*, *First Report and Order*, 14 FCC Rcd at 172 ¶ 37.

⁵⁷ *Id.*

⁵⁸ See, *e.g.*, *PSWAC Final Report* at 21. "By the year 2010, as much as an additional 70 MHz may be needed for [voice and data] applications, including image and video requirements." *Id.* (Key Recommendation 2.2.1).

⁵⁹ See *id.*, 14 FCC Rcd at 169 ¶ 31, n.76, citing Motorola Comments, Appendix at 4-7, NPSTC Comments Appendix A, and Florida Comments at 2-6.

⁶⁰ See generally Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, PR Docket No. 92-235, *Report and Order and Further Notice of Proposed Rule Making*, 10 FCC Rcd 10,076 (1995) (*Refarming First R&O*).

⁶¹ See 47 C.F.R. § 1.925(b)(3); see also note 47, *supra*.

maximum flexibility to implement regional channel plans.⁶² Powell states that the wideband plan and channel bandwidths action adopted in the *First Report and Order* will "severely hinder" any effort to establish a nationwide interoperability data network. Powell states that the need for an integrated wireless HSD network cannot be overstated and there is insufficient public safety spectrum, even including this new 24 MHz, to allow law enforcement agencies, much less other public safety users, to implement HSD systems.⁶³ Powell requests reconsideration of the wideband channel plan where nearly half of the available HSD spectrum is designated for wideband "General Use."⁶⁴

25. We have considered Powell's request and concern regarding the public safety community's needs for HSD systems. As Powell indicates in his Petition,⁶⁵ in response to the *Second Notice*, the Commission received several suggestions for wideband channel plans. These proposals were discussed in the *First Report and Order* along with the rationale for our decision, based upon the record at that time, to designate the 12 megahertz of wideband spectrum as follows— 4.8 MHz to General Use, 1.8 MHz for Interoperability, and retain 5.4 MHz in Reserve.⁶⁶ We concur with Powell's expectation that HSD will be a highly desired product by the public safety community at large. After consideration of Powell's request, however, we affirm our original wideband general use decision which provided a balance between the wide range of competing wideband needs. Accordingly, we will retain 4.8 MHz for General Use. We believe the planning process of the RPCs will be sufficient to address Powell's concerns. We believe that any modification of the plan at this time could be premature depending upon the technical progress made in the not-too-distant future. Therefore, while we decline to modify our wideband plan at this time, we leave this issue open for further analysis and recommendations by the public safety community, RPCs, and the NCC as the technology progresses. In this connection, we note our decision in today's *Third Report and Order* reserving 5.4 megahertz of spectrum for future needs such as the Law Enforcement HSD network.⁶⁷

2. Interoperability Channels

26. We established narrowband and wideband channels in the *First Report and Order* and set the standard channel bandwidth for narrowband channels at 6.25 kHz. We designated all of these channels as for general use, nationwide interoperability, or reserved subject to the *Third Notice*⁶⁸ and, specifically, we designated 2.6 MHz of spectrum for interoperability purposes.⁶⁹ This 2.6 MHz of spectrum included 128 narrowband channels for a total of 0.8 MHz of spectrum. We located thirty-two of the 128 channels in each of the four TV channels: two contiguous interoperability channels, skip two channels, two contiguous interoperability channels, skip six channels, two contiguous interoperability channels, skip sixty-six channels. This pattern is repeated five times. After the fifth repeat, eighty-four channels are skipped before arriving at the final two interoperability channels, for a total of thirty-two channels.⁷⁰

⁶² Powell Petition at 7.

⁶³ *Id.* at 5.

⁶⁴ *Id.* at 6.

⁶⁵ *Id.* at 4.

⁶⁶ *First Report and Order*, 14 FCC Rcd at 175-177 ¶¶ 42-46 (Amount of Spectrum).

⁶⁷ See *Third Report and Order*, para. 68, *infra*.

⁶⁸ See, e.g., *id.*

⁶⁹ *Id.*

⁷⁰ *Id.* at 176-77 ¶¶ 45, 46.

Additionally, we paired the 128 channels (four times thirty-two) to make sixty-four channel pairs. We received requests from APCO and NPSTC to reconsider our decisions regarding the narrowband interoperability channeling plan.

27. Narrowband interoperability channel size APCO reiterates its initial proposal for a 12.5 kHz channeling plan based on the Project 25 Phase I (12.5 kHz) standards. APCO again requests that we revise the band plan to change the channelization for the narrowband interoperability channels from 6.25 kHz to 12.5 kHz. It states that a band plan with 12.5 kHz channelization would accommodate a wider range of equipment options and enhance competition and interoperability.⁷¹ APCO further states that operation on 6.25 kHz channels, as opposed to 12.5 kHz, requires linear amplifiers and frequency stability techniques that are years from being widely available in the marketplace.

28. We have reviewed APCO's request and, while making no decision regarding Project 25 Phase I standards at this time, we decline to adopt a 12.5 kHz channeling plan.⁷² We find no benefit to adopting a 12.5 kHz channeling plan because the 6.25 kHz channeling plan can accommodate the Project 25 Phase I (12.5 kHz) digital standard for interoperability, as recommended by the NCC,⁷³ by combining 6.25 kHz channel pairs. Thus, we find no advantage in amending the narrowband interoperability channel plan to 12.5 kHz channel spacing, particularly given that such action could require a return to a 6.25 kHz spacing plan at a later date depending on our decisions related to the interoperability digital standards.⁷⁴ We will make those decisions based on the record developed in response to our *Fourth Notice*.⁷⁵ However, regardless of the outcome of the *Fourth Notice*, we continue to believe that a 6.25 kHz channeling plan for the 700 MHz band provides the most flexibility for future technologies and a consistency of channel widths between the general use and the interoperability channels. Therefore, we are retaining the 6.25 kHz narrowband channel plan as adopted in the *First Report and Order*.

29. Location of narrowband interoperability channels NPSTC asks that we reconsider the narrowband interoperability plan to the extent that we change the spacing between interoperability channels. NPSTC asks that they be spaced 250 kHz apart.⁷⁶ NPSTC recommends that the interoperability channels should be in a sequence such as: Channel 19/20, 59/60, 99/100, 139/140, 179/180, 219/220, etc. NPSTC requests this reconsideration of the band plan to permit system operation

⁷¹ APCO Petition at 11.

⁷² Refer pending in Fourth Notice. . . .

⁷³ See Public Safety National Coordination Committee Recommendations to the Federal Communications Commission for Technical and Operational Standards for Use of the 764–776 MHz and 794–806 MHz Public Safety Band Pending the Development of Final Rules, dated February 25, 2000 (*NCC Report*) at 21, 22 ¶¶ 68, 69.

⁷⁴ In the *First Report and Order*, we expected that in the next few years it would be both technically and economically feasible to use 6.25 kHz channels individually for operational modes such as digital voice and data. See generally *Refarming First R&O*, 10 FCC Rcd at 10,099 ¶ 38 (it is reasonable to expect manufacturers to produce 6.25 kHz equipment in the Refarming bands within ten years since 5 kHz systems are currently allowed in the 150–170 MHz band and 5 kHz systems are proliferating in the 220–222 MHz band). We note that the Project 25 Phase II standards have, in fact, been developed and incorporated into an ANSI standard and that these standards are expected eventually to be incorporated into commercially available equipment.

⁷⁵ See *Fourth Notice*, note 8 *supra*.

⁷⁶ NPSTC Petition at 3.

through a common antenna system where 250 kHz spacing represents the closest efficient use of transmitter combiners.⁷⁷

30. We have considered the NPSTC request to change the spacing between the interoperability channels. We agree with NPSTC that this modification will permit the use of efficient transmitter combiners for common antennas and lower costs for public safety entities. Accordingly, we will relocate the narrowband interoperability channel sets in a more efficient pattern based on 250 kHz separations.⁷⁸ NPSTC's suggested pattern, however, would reduce the number of narrowband interoperability channels from 64 to 48 (6.25 kHz) channel pairs. Therefore, we will modify the narrowband interoperability plan giving consideration of 250 kHz separations but maintaining the equivalent number of channels (64 pairs) for narrowband interoperability.

31. Location of wideband interoperability channels NPSTC states that the wideband plan generally spaces the wideband interoperability channel groups apart from each other — thereby facilitating common antenna systems. However, two of the 150 kHz wideband interoperability groups in each wideband segment are immediately adjacent to each other.⁷⁹ NPSTC recommends changing this channel spacing plan for wideband channels to permit base stations to operate on a common antenna system.⁸⁰

32. The wideband interoperability channel groups were generally spaced between 1200-1350 kHz apart, except for the two adjacent blocks noted by NPSTC.⁸¹ Similar to the narrowband interoperability channels situation, we are also persuaded that modifying the wideband interoperability channeling plan will permit the use of efficient transmitter combiners for common antennas and lower costs for public safety entities using wideband technologies. Upon reconsideration, we amend the wideband interoperability plan to form the two groups of 150 kHz wideband channel groups, in a regular pattern spaced 450 kHz apart, based on efficient wideband combiner technology.

3. Location of Reserve Spectrum

33. NPSTC requests modification of the band plan to place the reserve spectrum between the narrowband and wideband channel segments as originally suggested in both their band plan proposal and Motorola's proposed band plan filed in response to the *Second Notice*.⁸² NPSTC states that both plans recommended that we locate the reserve spectrum (channels not initially assigned) between the narrowband and the wideband channel segments so that the dividing line between those band segments could be adjusted to meet local and regional needs.⁸³ NPSTC notes that we located the reserve spectrum at mid-band locations distributed throughout the narrowband and wideband segments. NPSTC contends

⁷⁷ *Id.*

⁷⁸ Unlike the previous suggestions discussed above (*see paras. 19 and 22*), a rearrangement of channels continues to preserve the balance of wideband versus narrowband channels.

⁷⁹ The adjacent wideband interoperability groups are Channels 58-60, 61-63, 178-180, and 181-183. *See First Report and Order*, Appendix H-6 and H-7.

⁸⁰ NPSTC Petition at 3.

⁸¹ *Id.*

⁸² NPSTC Petition at 4.

⁸³ *Id.*

that in some metropolitan areas there will be a greater need for wideband channels than is allocated in our wideband plan.⁸⁴

34. After consideration of NPSTC's request for reconsideration, we conclude that grouping the reserve spectrum into four segments of 1.35 MHz each located between the narrowband and wideband segments offers improved flexibility to accommodate future requirements that are unforeseen at this time. We, therefore, concur with NPSTC's petition and amend the placement of the wideband reserve spectrum.

B. Low Power Narrowband Frequencies for On-scene Communications

35. STI requests that we amend Section 90.531 of our Rules to modify the narrowband general use channel plan to designate twelve 6.25 kHz pairs specifically for nationwide use in a low power, analog modulation, person-to-person communications and personnel accountability reporting (PAR) system for on-scene, firefighting use.⁸⁵ STI notes that firefighters, and other public safety personnel working in environmentally hazardous settings, wear protective gear and self-contained breathing apparatus (SCBA) that makes ordinary voice communications extremely difficult, even at close range.⁸⁶ To overcome this problem, on-scene/PAR systems such as STI's⁸⁷ have SCBA masks with low power radios that provide hands-free, voice activated, firefighter-to-firefighter communication. Furthermore, STI notes that existing personnel alert safety systems (PASS) are ineffective when firefighters do not attach the separate PASS device to their gear and remember to activate it upon entry onto the fireground.⁸⁸ By comparison, STI avers that its multifunction system provides for improved communications and personnel alert safety and accountability reporting systems,⁸⁹ which STI believes should prevent some firefighter deaths and injuries.⁹⁰ STI claims that its on-scene/PAR system could be available for use within one year if we amend Section 90.531 of our Rules to designate (a) twelve channel pairs specifically for this use without going through the RPC process, and (b) Section 90.535 of our Rules to permit the use of only analog modulation in the on-scene/PAR system. STI contends that digital modulation is inferior to analog for use in the on-scene/PAR system for three reasons: (1) the SCBA mask radio would not operate as well with marginal signal strength (as signal strength goes down, digital

⁸⁴ *Id.*

⁸⁵ STI Petition at ii.

⁸⁶ STI Petition at 4.

⁸⁷ The on-scene/PAR system in development by STI is known as the MaskCom® Communications System. STI Petition at 2.

⁸⁸ STI notes that according to industry literature, an informal survey of nearly 1000 firefighters revealed that more than sixty percent did not activate their PASS devices at every fire, and a substantial number of firefighters similarly may not assure that they are carrying their PASS devices. STI Petition at 4-5 citing *Firefighter Fatalities*, National Fire Protection Association (NFPA) Journal, July/Aug. 1998 at 50, 56.

⁸⁹ STI Petition at 6. These personnel system functions include recording time and status on-scene, automatic monitoring of air supply, man-down alarming signals, evacuation signals, and homing signals to locate firefighters trapped or lost in buildings. STI notes that the homing signal feature will assist firefighters in locating downed, trapped or lost comrades in dangerous fires and with reduced risk to the rescuers. *Id.*

⁹⁰ STI Petition at 5. STI notes that 94 firefighters lost their lives in 1997, half while operating at the fireground or at other emergencies, and that firefighter injuries at the fireground numbered from 40,000 to more than 60,000 annually during 1988-1997. *Id.* citing *Firefighter Fatalities*, NFPA Journal, July/Aug. 1998 at 49-50.

reception drops altogether whereas analog continues to work with degraded performance); (2) digital equipment is more sensitive to ambient heat; and (3) digital radios tend to weigh more.⁹¹

36. APCO and AASHTO responded to STI's Petition and both support it. APCO also asks us to set aside a larger amount of spectrum than STI requested to accommodate additional low power public safety operations such as: police surveillance and tactical operations, urban search and rescue, and remote control of robotic devices.⁹²

37. We conclude that there is merit to providing for low power public safety communication systems such as the on-scene/PAR system.⁹³ We are not convinced, however, that we should allocate 700 MHz spectrum exclusively for this one particular public safety low power application as requested by STI. We agree with APCO that there may be other low power applications that could operate in the 700 MHz band.⁹⁴ In instances where there is the potential for multiple low power applications, absent a compelling showing, we favor a sharing approach rather than making exclusive assignments for each specific application. In general, we believe low power operations can co-exist on the same frequencies with minimal potential for interference because of the low power restriction.⁹⁵ For these reasons, we will allocate twenty-four (6.25 kHz) channel pairs for low power mobile operations only.⁹⁶ The maximum effective radiated power (ERP) on these channels is limited to 2 watts.

38. As noted above, we believe that a low power sharing approach is appropriate here. However, to minimize further the potential for interference we are adopting some additional restrictions. We are designating the twenty-four pairs as low power channels nationwide. Further, since we believe most low power operations will operate in-region the vast majority of the time, we will require applicants for eighteen of the pairs (Channels 1-8 and 949-958)⁹⁷ to go through the regional planning process. The RPCs will be responsible for determining the most appropriate low power application(s) on these channels and the frequency coordinators will be responsible for providing appropriate interference protection.⁹⁸ We have not specified all twenty-four pairs for RPC oversight because we believe there may be public safety organizations who have low power needs and cross regional borders routinely, such as search and rescue organizations. Therefore, we will license the remaining six low power pairs (Channels

⁹¹ STI Petition at 12-14.

⁹² APCO Response to Petitions at 10; AASHTO *et al.* Reply at 9.

⁹³ In general, low power system operations have been beneficial to the private land mobile radio services. *See, e.g.,* Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, PR Docket No. 92-235, *Report and Order and Further Notice of Proposed Rule Making*, 10 FCC Rcd 10,076, 10,110 ¶ 66 (1995) (*Refarming First R&O*).

⁹⁴ For example, the police may need low power frequencies in connection with physical surveillance, stakeouts, raids and other such activities.

⁹⁵ *See, e.g.,* Amendment of the Commission's Rules Concerning Low Power Radio and Automated Maritime Telecommunications System Operations in the 216-217 MHz Band, WT Docket No. 95-56, *Report and Order*, 11 FCC Rcd 18,517, 18,532 ¶ 34 (1996).

⁹⁶ The twenty-four 6.25 kHz channels (twelve 12.5 kHz channels) provides for the six 12.5 kHz low power channels STI says it needs and an additional six 12.5 kHz channels to satisfy other potential low power needs.

⁹⁷ Only one side of the pair is listed.

⁹⁸ For example, the RPCs would determine whether to allow the channel pairs to be used in a duplex operation or split the pairs to allow separate low power operations on each side of the pair.

9-12 and 959-960) on a nationwide, itinerant basis.⁹⁹ These six channels should provide for the communications needs of entities that routinely need to travel to different parts of the country and, because they are nationwide, we are exempting applications for the low power itinerant channels from the frequency coordination requirement. Finally, we clarify that a Commission license will be required for operation on any of the low power channels.

39. STI asks that we permit the use of analog modulation as the primary mode of modulation on its on-scene/PAR system and that the interoperability channel operating requirement not apply. In the *First Report and Order*, we adopted rules requiring all portable and mobile units to be capable of operating on all the narrowband interoperability channels and that when such equipment is operating on the interoperability channels, it be designed to use digital modulation as the primary mode.¹⁰⁰ The purpose of the digital modulation requirement was to make more efficient use of the spectrum. The reason for the interoperability requirement was to ensure that public safety entities could talk to one another. These requirements were cornerstones of the rules governing the public safety 700 MHz band. Thus, we are concerned about the potential negative impact of granting the exemption requested by STI. In this case, however, we believe a limited exemption of these two requirements may be in order but only for equipment that operates only on the designated low power channels. Low power systems by design make efficient use of the spectrum because they increase frequency reuse.¹⁰¹ Further, low power systems such as the on-scene/PAR system are usually not designed to communicate with public safety entities outside "the system." Finally, granting a limited exemption will provide additional flexibility to design specialized, self-contained communications systems intended to enhance safety. Therefore, we will exempt equipment that is designed to operate only on the 700 MHz low power channels (capable of transmitting only on these designated low power channels) from the requirement of having to be capable of operating on all interoperability channels¹⁰² and the primary digital modulation requirement.¹⁰³ For these same reasons, we will also exempt such low power equipment from the trunking requirement.¹⁰⁴ Finally, we caution that 700 MHz band radios without these capabilities are inappropriate for meeting the multitude of daily public safety communication requirements. Nonetheless, so long as these operational limitations/circumstances are understood, we agree that there is merit to providing for low power public safety communication systems.

⁹⁹ See § 90.7 for a definition of itinerant operations.

¹⁰⁰ Mobile and portable units can have analog modulation capability, but only as a secondary mode in addition to the primary digital mode. See *First Report and Order*, 14 FCC Rcd at 211 ¶ 128, n.322.

¹⁰¹ We have exempted low power equipment in the past from certain requirements because of the spectral efficiency attained through frequency reuse. See, e.g., Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, PR Docket No. 92-235, *Memorandum Opinion and Order*, 11 FCC Rcd 17676, 17,686-87 ¶¶ 20-22 (1996).

¹⁰² See 47 C.F.R. § 90.547. We are also revising Section 90.547, on our own motion, to more clearly reflect the interoperability channel capability requirement that we adopted in the *First Report and Order*. See *First Report and Order*, 14 FCC Rcd at 213 ¶ 135. "We are adopting [new Section 90.547] to require that all narrowband mobile and portable 700 MHz band public safety radios be capable of operating on all of the narrowband nationwide interoperability channels." *Id.*

¹⁰³ See 47 C.F.R. § 90.535. Equipment that employs analog modulation as the primary mode of modulation must meet the emission mask and frequency stability requirements associated with PLMR 12.5 kHz channels at 900 MHz. See 47 C.F.R. §§ 90.210(d), 90.213.

¹⁰⁴ See 47 C.F.R. § 90.537.

V. THIRD REPORT AND ORDER

A. Use and Licensing of the Spectrum Reserved for the *Third Notice*

40. In the *First Report and Order*, we designated 12.6 megahertz of spectrum for general use, to be managed by regional planning committees (RPCs),¹⁰⁵ and 2.6 megahertz of spectrum for interoperability. We reserved the remaining 8.8 megahertz of spectrum “subject to the *Third Notice*.”¹⁰⁶ In the *Third MO&O*, we decided to designate 0.3 megahertz of spectrum for low power operations.¹⁰⁷ Of this 0.3 megahertz of spectrum, we allotted 0.2 megahertz from the reserve spectrum and 0.1 megahertz from the general use spectrum. Additionally, 0.8 megahertz (128 narrowband channels) was set-aside pending the resolution of the interoperability guard band issue discussed in the *Fourth Notice* in this proceeding.¹⁰⁸ Consequently the amount of the spectrum currently under consideration “subject to the *Third Notice*” is 7.8 megahertz – 2.4 megahertz for narrowband operations (voice and data) and 5.4 megahertz for wideband technologies (image/HSD and slow motion video).¹⁰⁹

41. In the *Third Notice*, we sought comment on three alternatives to govern the use and licensing of the reserve spectrum.¹¹⁰ First, we sought comment on whether we should allow RPCs to administer the reserve spectrum, in addition to administering the 12.6 megahertz, we designated for General Use in the *First Report and Order*.¹¹¹ We also invited commenters to suggest modifications or refinements to the RPC process to improve the management of the reserve spectrum.¹¹²

42. Second, we sought comment on whether we should grant a single license to each state for the entire reserve spectrum and require the states – rather than RPCs – to manage all use of this spectrum by state, local, and Federal public safety providers.¹¹³ We specifically invited states to comment on this

¹⁰⁵ We concluded that the RPC approach has been a reasonably successful method of ensuring that the public safety spectrum in the 800 MHz band was assigned fairly and efficiently and put to its most appropriate and efficient use. Nonetheless, we modified the 700 MHz RPC process after considering comments and experiences with the 800 MHz RPC process. *First Report and Order*, 14 FCC Rcd at 191 ¶ 78.

¹⁰⁶ *First Report and Order*, 14 FCC Rcd at 175-176 ¶ 43.

¹⁰⁷ See para. 37, *supra*.

¹⁰⁸ See note 8, *supra*.

¹⁰⁹ See, e.g., *First Report and Order*, 14 FCC Rcd at 170, ¶ 33. We noted that this reserve designation may be short term, based on the comments to the *Third Notice*. *Id.* Alternatively, we asked whether some or all of reserve spectrum should remain in reserve pending future developments. *Third Notice*, 14 FCC Rcd at 228, 233 ¶¶ 169, 181.

¹¹⁰ *Third Notice*, 14 FCC Rcd at 228-233 ¶¶ 169–181.

¹¹¹ *Third Notice*, 14 FCC Rcd at 230 ¶ 173.

¹¹² *Id.*

¹¹³ We noted that some commenters to the *Second Notice* argued that local politics, inadequate diversity of representation, lack of funding and training, and the inability to coordinate statewide channel assignments have hampered the 800 MHz RPC process. *Third Notice*, 14 FCC Rcd at 230 ¶ 172. We also noted that a number of states have developed statewide systems as a cost-effective way of sharing advanced technologies and that the RPC process may not lend itself as easily to these types of systems as a state-run process might. *Id.* at 230 ¶ 172. On the other hand, we also noted concerns that states administering statewide-shared system might be less responsive to the local needs and requirements of rural areas and more responsive to the needs of major metropolitan areas. *Id.* at 232 ¶ 178.