

FCC FACT SHEET*
Amendment of Part 90 of the Commission's Rules
Report and Order and Order
WP Docket Nos. 15-32 and 16-261

Background: The private land mobile radio (PLMR) services support the internal communications needs of businesses, public safety entities, state and local governments, and other users of two-way radio systems. The *Report and Order and Order* brings the Commission's rules in line with 21st century technology, removes unnecessary barriers to more efficient use of PLMR spectrum, and enhances communications capabilities.

What the Report and Order and Order Would Do:

- Add 318 new interstitial channels in the 800 MHz Mid-Band, the portion of the 800 MHz band used most extensively for PLMR.
- Direct Commission staff to announce when applications for 800 MHz Expansion Band, Guard Band, Sprint-vacated, and interstitial channels may be filed in the 44 of 55 National Public Safety Planning Advisory Committee regions where 800 MHz rebanding has been completed.
- Decline to give incumbent 800 MHz licensees filing priority for 800 MHz Expansion Band and Guard Band over non-incumbents after such an announcement.
- Terminate the 1995 freeze on inter-category sharing of 800 MHz channels, making it no longer necessary for applicants to seek a waiver of the freeze.
- Make available new 450-470 MHz Industrial/Business Pool channels in gaps located between Industrial/Business Pool spectrum and spectrum designated for other services.
- Authorize trackside boosters on PLMR railroad channels to facilitate communication between the front and rear of trains where direct communication is unsatisfactory because of the length of the train or intervening terrain.
- Extend conditional licensing to PLMR stations that operate in the 700 MHz public safety narrowband and the 800 MHz band.
- Make underused Central Station Alarm channels available for other PLMR purposes provided that the Central Station Alarm frequency coordinator concurs.

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Before the
Federal Communications Commission
Washington, D.C. 20554

Table with 3 columns: Matter description, Docket No., and Reference. Includes items like 'Creation of Interstitial 12.5 Kilohertz Channels in the 800 MHz Band' and 'Amendment of Part 90 of the Commission's Rules to Improve Access to Private Land Mobile Radio Spectrum'.

REPORT AND ORDER AND ORDER*

Adopted: []

Released: []

By the Commission:

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* This document has been circulated for tentative consideration by the Commission at its October 2018 open meeting. The issues referenced in this document and the Commission's ultimate resolutions of those issues remain under consideration and subject to change.

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I. INTRODUCTION

1. For decades, private land mobile radio (PLMR) services have supported the private, internal communications needs of public safety organizations, state and local governmental entities, large and small businesses, transportation providers, the medical community, and other diverse users of two-way radio systems.¹ Although communications technology has improved and demand for spectrum has increased, our rules and policies governing PLMR spectrum have often not kept pace with technological and other developments. Many PLMR rules and licensing policies have remained unchanged since the 1990s or earlier, and some existing limitations on the use of PLMR spectrum do not accommodate new equipment and services.

2. With this *Report and Order and Order*, we update our rules to provide new spectrum capacity and eliminate unnecessary restrictions in the PLMR bands, while reducing administrative burdens on applicants and licensees. As a result, Industrial/Business (I/B) Pool users will have access to additional frequency pairs for use with very-narrowband equipment, and public safety organizations and other PLMR users will gain access to as many as 318 new “interstitial” channels in the 800 MHz band. Additionally, current PLMR users will gain increased flexibility to intensify their use of the spectrum and incorporate new technological opportunities.

II. BACKGROUND

3. Private radio communications systems are used by businesses, organizations, public safety agencies, and other entities to support their internal communications requirements under part 90 of the Commission’s rules. Generally, particular sets of PLMR frequency assignments, or “pools,” are associated with certain categories of users. In addition, with limited exceptions, frequency coordination—in which a Commission-certified frequency coordinator recommends frequencies that will most effectively meet the applicant’s needs while minimizing interference to existing licensees—is required before the Commission will grant a PLMR license.²

4. The 150-174 MHz and 450-470 MHz PLMR bands, which are divided between the I/B Pool and the Public Safety Pool,³ have been the primary PLMR bands since they were first allocated for PLMR use in the 1940s and 1950s and remain heavily used today. Neither band is allocated exclusively for part 90 PLMR use. Rather, they are divided into subbands, some designated for PLMR use and others designated for other services. For example, the 450-470 MHz band also includes spectrum designated for

¹ 1998 Biennial Regulatory Review – 47 C.F.R. Part 90 – Private Land Mobile Radio Services; Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Services, Report and Order and Further Notice of Proposed Rule Making, 15 FCC Rcd 16673, 16674, para. 3 (2000) (*PLMR Biennial Review Report and Order*).

² See 47 CFR §§ 90.7 (defining frequency coordination), 90.175 (setting forth frequency coordination requirements).

³ See 47 CFR §§ 90.20, 90.35.

part 22 Public Mobile Services, part 74 Broadcast Auxiliary Services (BAS), part 80 Maritime Radio Services, and part 95 Personal Radio Services.⁴

5. In the 1970s and 1980s, as the existing bands became increasingly congested, the Commission allocated additional spectrum for PLMR in higher bands, including the 470-512 MHz band (T-Band) in certain urban areas and the 806-824/851-869 MHz (800 MHz) and 896-901/935-940 MHz (900 MHz) bands nationwide. T-Band channels are assignable to I/B and Public Safety eligibles.⁵ The 800 MHz and 900 MHz bands are divided among four categories: Public Safety, Business/Industrial Land Transportation (B/ILT), high-site Specialized Mobile Radio (SMR), and General.⁶ The 700 MHz narrowband, with service rules adopted in 1998, is exclusively for public safety licensees.⁷

6. These higher bands, however, also present challenges to current and future users. Congress designated T-Band spectrum currently used by public safety eligibles for reallocation and reassignment by competitive bidding in the Middle Class Tax Relief and Job Creation Act of 2012 (Spectrum Act).⁸ The 800 MHz band has become congested and difficult to access in many areas; since 2005, licensees in the band have been rebanding pursuant to the Commission's order reconfiguring the band to protect public safety PLMR systems from harmful interference by adjacent commercial cellular systems, with new channels becoming available in each National Public Safety Planning Advisory Committee (NPSPAC) region only after the reconfiguration process is complete in that region.⁹ The 900 MHz band is the subject of a pending Commission proceeding to consider possible rule changes, including realigning the band to create a broadband allotment.¹⁰ The acceptance and processing of

⁴ See 47 CFR § 2.106.

⁵ 47 CFR § 90.311(a).

⁶ See 47 CFR §§ 90.615, 90.617. The 900 MHz band does not include a Public Safety allocation.

⁷ *Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010*, First Report and Order and Third Notice of Proposed Rulemaking, 14 FCC Rcd 152 (1998), *reconsideration granted in part*, Memorandum Opinion and Order on Reconsideration, 14 FCC Rcd 8059 (1999).

⁸ See Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156 (Spectrum Act). Section 6103 of the Spectrum Act provides that, not later than nine years after the date of enactment, the Commission shall “reallocate the spectrum in the 470-512 MHz band . . . currently used by public safety eligibles . . .,” and “begin a system of competitive bidding . . . to grant new initial licenses for the use of the spectrum.” *Id.*, § 6103(a). It also provides that “relocation of public safety entities from the T-Band Spectrum” shall be completed not later than two years after completion of the system of competitive bidding. *Id.*, § 6103(b), (c).

⁹ *Improving Public Safety Communications in the 800 MHz Band*, Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order, 19 FCC Rcd 14969 (2004), *amended by* Erratum, WT Docket 02-55 (Sept. 10, 2004); Second Erratum, 19 FCC Rcd 19651 (2004); Third Erratum, 19 FCC Rcd 21818 (2004) (*800 MHz Report and Order*).

¹⁰ See *Review of the Commission's Rules Governing the 896-901/935-940 MHz Band; Realignment of the 896-901/935-940 MHz Band to Create a Private Enterprise Broadband Allocation; Amendment of the Commission's Rules to Allow for Specialized Mobile Radio Services Over 900 MHz Business/Industrial Land Transportation Frequencies*, Notice of Inquiry, 32 FCC Rcd 6421 (2017).

applications for new or expanded T-Band¹¹ and 900 MHz¹² operations has been suspended to maintain a stable spectral landscape while the Commission determines how to proceed with respect to that spectrum.

7. Over the years, in response to congestion and advances in technology, the Commission has revised its PLMR rules to afford licensees greater flexibility and maximize efficient use of the spectrum.¹³ However, some PLMR rules and licensing policies have not changed since the 1990s or earlier, and some existing limitations do not support the use of new and more efficient technologies. The Commission has proposed several sets of rule changes to further increase efficiency and support current and new PLMR users.

8. For example, in the *800 MHz Interstitial NPRM*,¹⁴ the Commission sought comment on expanding use of the 800 MHz Mid-Band by creating “interstitial” channels in underutilized frequencies between existing channels. The 800 MHz Mid-Band consists of the Interleaved Band (809-815/854-860 MHz, 240 channels), the Expansion Band (815-816/860-861 MHz, 40 channels), and the Guard Band (816-817/861-862 MHz, 40 channels).¹⁵ The 800 MHz Mid-Band is licensed on an exclusive basis, the four permitted service categories are interleaved in the band,¹⁶ and licensees may operate on 25 kilohertz bandwidth channels with 25 kilohertz separation between channels. The proposed interstitial channels would operate within these separations between existing channels. The NPRM sought comment on the advisability of instituting interstitial channels, the interference criteria that should apply if an Enterprise Wireless Alliance (EWA) proposal for such channels were adopted, eligibility and licensing criteria, and appropriate authorized bandwidth and emission mask for the interstitial channels.¹⁷

¹¹ See *Wireless Telecommunications Bureau and Public Safety and Homeland Security Bureau Suspend the Acceptance and Processing of Certain Part 22 and 90 Applications for 470-512 MHz (T-Band) Spectrum*, Public Notice, 27 FCC Rcd 4218 (WTB/PSHSB 2012); *Wireless Telecommunications Bureau and Public Safety and Homeland Security Bureau Clarify Suspension of the Acceptance and Processing of Certain Part 22 and 90 Applications for 470-512 MHz (T-Band) Spectrum*, Public Notice, 27 FCC Rcd 6087 (WTB/PSHSB 2012).

¹² See *Wireless Telecommunications Bureau Announces Temporary Filing Freeze on the Acceptance of Certain Part 90 Applications for 896-901-935-940 MHz (900 MHz Band) Spectrum*, Public Notice, WT Docket No. 17-200, DA 18-949 (WTB Sept. 13, 2018) (*900 MHz Freeze Public Notice*).

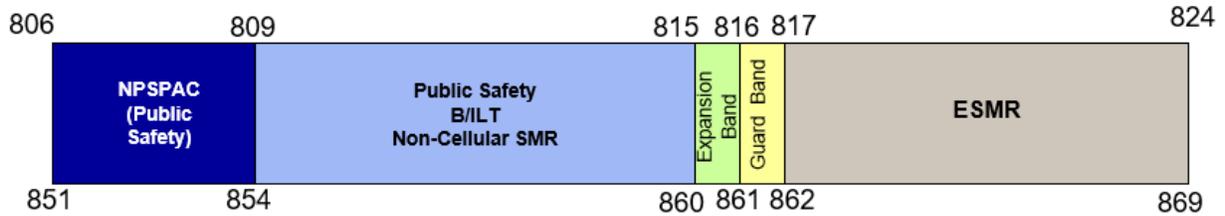
¹³ See, e.g., *Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Radio Services*, Report and Order, 10 FCC Rcd 10076 (1995) (establishing a narrowband channel plan, and consolidating services into an Industrial/Business Pool and a Public Safety Pool).

¹⁴ *Creation of Interstitial 12.5 Kilohertz Channels in the 800 MHz Band Between 809-817/854-862 MHz*, Notice of Proposed Rulemaking, 30 FCC Rcd 1663 (2015) (*800 MHz Interstitial NPRM*).

¹⁵ See *800 MHz Report and Order*, 19 FCC Rcd at 15058, para. 166; *Improving Public Safety Communications in the 800 MHz Band; New 800 MHz Band Plan for Puerto Rico and the U.S. Virgin Islands*, Third Report and Order and Third Further Notice of Proposed Rule Making, 25 FCC Rcd 4443 (PSHSB 2010); *Improving Public Safety Communications in the 800 MHz Band; New 800 MHz Band Plan for Puerto Rico and the U.S. Virgin Islands*, Fourth Report and Order, 26 FCC Rcd 1937 (PSHSB 2010); see also *Improving Public Safety Communications in the 800 MHz Band; New 800 MHz Band Plan for U.S. – Canada Border Regions*, Second Report and Order, 23 FCC Rcd 7605 (PSHSB 2008).

¹⁶ See 47 CFR §§ 90.615, 90.617.

¹⁷ *Creation of Interstitial 12.5 kHz Channels in the 800 MHz Band Between 809-817/854-862 MHz*, Notice of Proposed Rule Making, 30 FCC Rcd 1663 (2015).



9. In the *PLMR Access NPRM*, the Commission proposed to make available for PLMR use frequencies located between certain PLMR spectrum and spectrum designed for other uses.¹⁸ Such spectrum is currently not allocated for any use, but new very-narrowband equipment can make use of such band-edge frequencies without overlapping with any spectrum currently designed for an adjacent service. In addition, we proposed to clarify certain part 90 rules and remove unnecessary restrictions that limit efficient use of PLMR spectrum.

III. DISCUSSION

A. Creating New Opportunities

10. We seek to open additional opportunities for licensees by allowing access to new spectrum and by facilitating new uses for existing frequencies.¹⁹ Both the *PLMR Access NPRM* and the *800 MHz Interstitial NPRM* proposed to make available for PLMR use frequencies that were not allotted for use by any service and to expand the permissible uses of other frequencies.²⁰ In response to these NPRMs, commenters were generally supportive of expanding PLMR use in portions of the 450-470 MHz band currently unavailable for assignments, extending PLMR use to interstitial channels in the 800 MHz band, assigning Expansion Band and Guard Band channels without limiting access for new licensees, and modifying rules related to railroad trackside signal boosters. We address each of these issues in turn.

1. Additional Industrial/Business Pool Frequencies

11. Spectrum in the 450-470 MHz band is designated for use by various services, including part 74 BAS, part 90 PLMR, and part 95 General Mobile Radio Service (GMRS).²¹ Frequencies at or near the edges between part 90 spectrum and spectrum designated for other services currently lie fallow and have not been designated for use by any service because they could not be used without overlapping spectrum designated for an adjacent service. When the 450-470 MHz frequency designations were adopted, PLMR stations operated in wideband (25 kilohertz) mode. Since 2013, however, the Commission has required narrowbanding (maximum 12.5 kilohertz bandwidth or equivalent efficiency) by such PLMR licensees.²² The implementation of PLMR narrowbanding and the development of very-

¹⁸ *Amendment of Part 90 of the Commission's Rules to Improve Access to Private Land Mobile Radio Spectrum; Land Mobile Communications Council Petition for Rulemaking Regarding Interim Eligibility for 800 MHz Expansion Band and Guard Band Frequencies; Petition for Rulemaking Regarding Conditional Licensing Authority Above 470 MHz*, Notice of Proposed Rulemaking, 31 FCC Rcd 9431 (2016) (*PLMR Access NPRM*).

¹⁹ See, e.g., *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Notice of Inquiry, 32 FCC Rcd 6373, 6375, para. 6 (2017) ("To meet projected future demand, it is prudent that we continue to evaluate spectrum bands in all ranges and ensure that there is no gap in our policies in terms of enabling new opportunities for flexible broadband use.").

²⁰ While the two proceedings are both addressed in this *Report and Order and Order*, the two dockets remain separate for purposes of their underlying records. Our citations to comments of parties that commented in both proceedings indicate the docket in which the cited comment was filed.

²¹ See 47 CFR § 2.106.

²² See *Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended*, Second Report and Order and Second Further Notice of Proposed Rulemaking, 18 FCC Rcd 3034 (2003); *Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended*, Third Memorandum Opinion and Order,

narrowband four kilohertz equipment now make it possible to use some frequencies near the band edges for PLMR systems without overlapping spectrum designated for other services. In the *PLMR Access NPRM*, the Commission noted those developments and proposed to add certain frequencies near the band edges to the I/B Pool frequency table. We now make available such frequencies where it would allow more efficient use of the spectrum without conflicting with other services.

12. *Frequencies between BAS spectrum and PLMR spectrum.* Currently, the 450.000-451.000 MHz and 455.000-456.000 MHz blocks are designated for use by BAS low power auxiliary stations (LPAS).²³ The first assignable 450-470 MHz band frequency pair in the I/B Pool frequency table is 451/456.01875 MHz.²⁴ No frequencies between 451.000/456.000 MHz and 451/456.01875 MHz are designated for use on a primary basis by any service.²⁵

13. In the *PLMR Access NPRM*, the Commission proposed to amend the I/B Pool frequency table to add frequency pairs 451/456.00625 MHz and 451/456.0125 MHz, with the limitation that the authorized bandwidths not exceed six kilohertz (the widest bandwidth that would avoid overlap between the frequency pairs).²⁶ The Commission also sought comment on whether to add frequency pairs 451/456.000 MHz and 451/456.009375 MHz to the table, but it tentatively concluded this would not serve the public interest because (1) operation on 451/456.000 MHz would overlap BAS LPAS operations in the 450.000-451.000 MHz and 455.000-456.000 MHz bands;²⁷ and (2) operation on 451/456.009375 MHz would preclude use of frequency pairs 451/456.00625 MHz and 451/445.0125 MHz in the same area, resulting in the addition of only one new frequency pair instead of two.²⁸

14. Based on the record before us, we make available to PLMR applicants additional frequencies that can be used without overlapping currently assignable frequencies and without causing harmful interference. Commenters support the proposal to add frequency pairs 451/456.00625 MHz and 451/456.0125 to the I/B Pool table.²⁹ Although the National Association of Broadcasters (NAB) objects generally to authorizing frequencies between the BAS spectrum and PLMR spectrum due to concerns about interference, it directs its comments to the use of frequency pair 451/456.000 MHz, which overlaps the BAS band, rather than to channels spectrally separated from the BAS band.³⁰ Consequently, we amend our rules to add to the I/B Pool frequency table frequency pairs 451/456.00625 MHz and 451/456.0125 MHz, with the limitation that the authorized bandwidth not exceed six kilohertz. The new channels fit within the existing band plan as follows:

Third Further Notice of Proposed Rule Making and Order, 19 FCC Rcd 25045 (2004) (*Narrowbanding Third MO&O*); see also 47 CFR §§ 90.203(j), 90.209(b).

²³ See 47 CFR § 74.802(a). Devices authorized as low power auxiliary stations are intended to transmit over distances of approximately one hundred meters for uses such as wireless microphones, cue and control communications, and synchronization of TV camera signals. 47 CFR § 74.801.

²⁴ See 47 CFR § 90.35(b)(3).

²⁵ Medical Micropower Networks operate on a secondary basis in the 451-457 MHz band. See 47 CFR §§ 2.106 note US64, 95.2559(d).

²⁶ See *PLMR Access NPRM*, 31 FCC Rcd at 9433, para. 6.

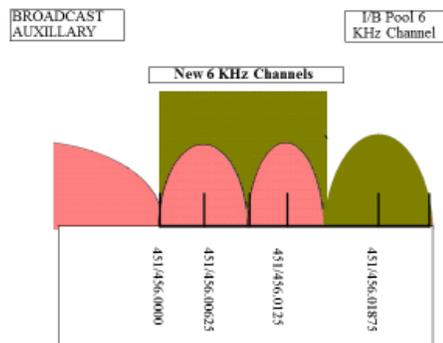
²⁷ See *id.* at 9434, para. 8. LPAS devices are authorized to use the entire bands, so long as the emission bandwidth falls entirely within the bands. See 47 CFR § 74.861(c).

²⁸ See *PLMR Access NPRM*, 31 FCC Rcd at 9433, para. 7.

²⁹ See, e.g., National Association of Manufacturers and MRFAC Comments at 4 (Nov. 22, 2016) (NAM/MRFAC Comments) (stating that access to additional frequencies would help relieve spectrum congestion).

³⁰ See National Association of Broadcasters Comments at 2-3 (Nov. 21, 2016) (NAB Comments).

Frequency Display – 451/456.00625, 451/456.0125 MHz



NOTE: Diagram is not to scale

15. We also decline to add frequency pair 451/456.009375 MHz to the table, because use of this channel would conflict with frequency pairs 451/456.00625 MHz and 451/456.0125 MHz.³¹ Mobile Relay Associates, LLC (MRA) agrees that adding two frequency pairs—451/456.00625 MHz and 451/456.0125 MHz—is more spectrally efficient than adding only one pair.³² Although some commenters argue that the decision whether to add two six-kilohertz channels or one eight-kilohertz channel in an area should be addressed in the frequency coordination process,³³ we continue to believe that our goal—enhancing access to PLMR spectrum—is better served by adding two channels. This not only accommodates more users but encourages use of more efficient equipment.

16. We also decline to add frequency pair 451/456.000 MHz to the table. This channel would overlap with BAS LPAS spectrum. NAB concurs that it would not serve the public interest to designate for PLMR use a channel that overlaps BAS LPAS spectrum.³⁴ It argues that spectrum overlap would result in interference to BAS LPAS operations in the 450.000-451.000 MHz and 455.000-456.000 MHz bands. According to NAB, this spectrum will be used increasingly by broadcasters because the broadcast incentive auction reduced the amount of spectrum available for BAS use in the 470-698 MHz band.³⁵ MRA argues that PLMR operation on frequency pair 451/456.000 MHz with a four kilohertz bandwidth would not cause interference because of the small amount of spectral overlap into the 450.000-451.000 MHz and 455.000-456.000 MHz bands.³⁶ Given the low power at which BAS LPAS devices

³¹ In 2014, WTB's Mobility Division (Division) granted a request for waiver to permit PLMR operation on frequency pair 451/456.009375 MHz, *see Mobile Relay Associates*, Order, 29 FCC Rcd 7292, 7294, para. 7 (WTB MD 2014), and it granted subsequent waiver requests for those channels prior to the *PLMR Access NPRM's* tentative conclusion not to add the channel to the I/B Pool table, *see J-Comm Corp., et al.*, Order, 31 FCC Rcd 9522, 9523, para. 6 (WTB MD 2016). Stations already authorized to operate on frequency pair 451/456.009375 MHz pursuant to waiver will be grandfathered indefinitely but will not be permitted to add locations or expand their contours.

³² *See Mobile Relay Associates Comments* at 5 n.3 (Nov. 22, 2016) (MRA 16-261 Comments).

³³ *See Land Mobile Communications Council (LMCC) Comments* at 3-4 (Nov. 22, 2016) (LMCC 16-261 Comments); *see also Enterprise Wireless Alliance Comments* at 9 (Nov. 22, 2016) (EWA 16-261 Comments) (supporting LMCC Comments).

³⁴ *See NAB Comments* at 2-3.

³⁵ *Id.* at 4.

³⁶ *See MRA 16-261 Comments* at 3. It also argues, based on its review of BAS licenses in the Commission's Universal Licensing System, that BAS licensees do not use the entire bands, so there would be no overlap. *Id.* at 3-4. Our review, however, found numerous licensees authorized to operate anywhere within the entire bands over

operate³⁷ and the difficulty in coordinating with itinerant BAS use (both geographically and spectrally), we conclude that authorizing PLMR operations that overlap BAS spectrum poses an unacceptable risk of harmful interference to BAS operations.

17. *Frequencies between PLMR spectrum and GMRS spectrum.* Currently, the last assignable I/B Pool frequency pair below 462/467.5375 MHz is 462/467.53125 MHz.³⁸ GMRS frequencies begin with 462/467.550 MHz and end with 462/467.725 MHz.³⁹ The first currently assignable I/B Pool frequencies after the GMRS blocks are 467.74375 MHz and 462/467.750 MHz.⁴⁰ Frequencies between these I/B Pool frequencies and the GMRS channels are not designated for use by any service.

18. In the *PLMR Access NPRM*, the Commission proposed to amend the I/B Pool frequency table to add frequency pairs 462/467.5375 MHz and 462/467.7375 MHz, with the limitation that the authorized bandwidth not exceed four kilohertz (the widest bandwidth that would avoid overlapping any GMRS frequencies).⁴¹ We conclude, based on the record before us, that it is in the public interest to make available to PLMR applicants additional frequencies that can be used without overlapping the occupied bandwidth of currently assignable frequencies and without causing harmful interference. Commenters addressing this proposal support it.⁴² We note, with respect to the concern of Motorola Solutions, Inc. (Motorola) that operation on the proposed frequency pairs not cause interference to GMRS operators,⁴³ that the proposed channels do not overlap GMRS spectrum⁴⁴ and that neither Motorola nor any other commenter has established that PLMR operations on frequency pairs 462/467.5375 MHz and 462/467.7375 MHz will interfere with GMRS operations.⁴⁵ The new channels fit within the existing band plan as follows:

wide areas. Moreover, we note that in addition to the low power auxiliary station licensees reflected in our licensing database, low power auxiliary stations may be operated on a short-term basis under the authority conveyed by a part 73 or BAS license without prior authorization, subject to certain conditions. See 47 CFR § 74.24.

³⁷ The maximum transmitter power in the 450-451 MHz and 455-456 MHz bands is one watt. 47 CFR § 74.861(d)(1).

³⁸ See 47 CFR § 90.35(b)(3).

³⁹ See 47 CFR § 95.1763(a), (c).

⁴⁰ See 47 CFR § 90.35(b)(3).

⁴¹ See *PLMR Access NPRM*, 31 FCC Rcd at 9434, para. 10.

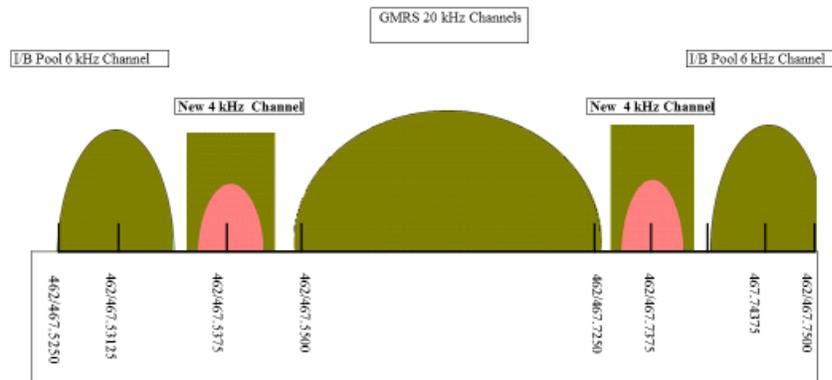
⁴² See, e.g., LMCC 16-261 Comments at 3-4 (urging the Commission to make available the frequencies identified in the *PLMR Access NPRM*); NAM/MRFAC Comments at 4 (stating that access to additional frequencies would help relieve spectrum congestion).

⁴³ See Motorola Solutions, Inc. Comments at 2-3 (Nov. 22, 2016) (Motorola 16-261 Comments).

⁴⁴ We reject the suggestion that we permit coordination of these frequencies with a bandwidth wider than four kilohertz, see Utilities Telecom Council Comments at 3 (Nov. 22, 2016) (UTC 16-261 Comments), as that would result in spectral overlap. GMRS licenses authorize nationwide operation on any GMRS channel, so there is no means for coordinating overlapping PLMR operations to avoid current or future GMRS users. See 47 CFR § 95.307; see also Leikhim and Associates, LLC Comments, WT Docket No. 10-119, at 7-8 (May 8, 2017).

⁴⁵ In 2014, the Division granted a request for waiver to permit PLMR operation on frequency pairs 462/467.5375 MHz and 462/467.7375 MHz, see *Mobile Relay Associates*, Order, 29 FCC Rcd 660, 662, para. 9 (WTB MD 2014) (rejecting speculative arguments about potential interference to GMRS, due to the lack of spectral overlap), and has granted subsequent waiver requests for those channels. We have received no interference complaints. See MRA 16-261 Comments at 5-6 (stating that MRA has received no interference complaints arising from its operations pursuant to the waiver).

Frequency Display – 462/467.5375, 462/467.7375 MHz



NOTE: Diagram is not to scale

19. *Other undesignated 450-470 MHz frequencies.* We decline to add any other currently undesignated 450-470 MHz frequency pairs to the I/B Pool frequency table.⁴⁶ All of the frequency pairs added above are adjacent to an assignable I/B Pool channel on one side and to spectrum designated for another service on the other side, so these actions simply expand existing I/B Pool blocks to include unused adjacent spectrum.

20. We reject MRA's proposal to designate for general I/B Pool use certain 454/459 MHz frequency pairs that are surrounded on both sides by spectrum designated for other uses.⁴⁷ In each case, the proposed frequency pair would be inserted between part 22 spectrum on one side, and channels designated for something other than general I/B Pool use on the other side.⁴⁸ Unlike the 451/456 MHz and 462/467 MHz frequency pairs discussed above, none of these 454/459 MHz frequency pairs is adjacent on either side to unrestricted I/B Pool frequencies. MRA has not explained why designating these frequency pairs as PLMR channels is more efficient than allotting them for the same uses as any of the adjacent channels.⁴⁹ Determining the best use for these frequency pairs requires a broader review than

⁴⁶ See *PLMR Access NPRM*, 31 FCC Rcd at 9433, para. 7 (seeking comment on whether any other channels should be added to the I/B Pool frequency table).

⁴⁷ Specifically, 454/459.009375 MHz, 454/459.990625 MHz and 454/459.996875 MHz. See MRA 16-261 Comments at 6.

⁴⁸ Frequency pair 454/459.009375 MHz is between an I/B oil spill containment and cleanup frequency pair and a part 22 Paging and Radiotelephone Service (PARS) and Rural Radiotelephone Service (RRS) frequency pair. See 47 CFR §§ 22.561 (designating assignable 454/459 PARS frequencies beginning with 454/459.025 MHz), 22.725 (designating assignable 454/459 RRS frequencies beginning with 454/459.025 MHz), 90.35(b)(3) (designating 454/459.000 MHz for oil spill containment and cleanup operations). Frequencies 454.990625 MHz and 454.996875 MHz are between part 22 General Aviation Air-ground Radiotelephone Service (GAARS) frequencies and part 74 BAS frequencies. See 47 CFR §§ 22.805 (designating assignable 454/459 MHz GAARS frequencies ending with 454/459.975 MHz), 74.402(a)(4) (designating assignable 455 MHz BAS frequencies beginning with 455.00625 MHz). Frequencies 459.990625 MHz and 459.996875 MHz are between part 22 GAARS spectrum and part 90 Public Safety (PS) Pool frequencies. See 47 CFR §§ 22.805 (designating assignable 454/459 MHz GAARS frequencies ending with 454/459.975 MHz), 90.20(c)(3) (designating assignable 460 MHz PS frequencies beginning with 460.0125 MHz). MRA argues that part 90 channels and part 22 channels are fungible and used similarly, so the fact that the suggested frequency pairs are adjacent to part 22 channels rather than adjacent to part 90 channels should not preclude adding them to the I/B Pool frequency table. See MRA 16-261 Comments at 7.

⁴⁹ That the entity making the suggestion is a part 90 PLMR licensee is not a sufficient reason. Cf. *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959, 4003-04, para. 138 (2015) ("We do not believe

we have in the record before us. Commission staff is examining potential rule changes to promote efficient use of narrowband part 22 spectrum by increasing service, technical, and operational flexibility.⁵⁰ We conclude that the disposition of the part 22-adjacent frequency pairs suggested by MRA is better addressed in a future rulemaking proceeding.

2. Interstitial Channels in the 800 MHz Band

21. We also create new opportunities for licensees by adding channel capacity in the heavily used 800 MHz Mid-Band, subject to certain protections designed to safeguard adjacent-channel incumbents from interference. The addition of these interstitial channels will enable licensees to take advantage of the increased availability of equipment that uses narrower bandwidth than the 25 kilohertz bandwidth channels historically used in the 800 MHz band, such as equipment used in the PLMR bands below 470 MHz and the 700 MHz public safety band. Thus, the Commission's narrowbanding proceeding required all 150-174 MHz and 450-470 MHz band PLMR licensees to narrowband their facilities to operate within a 12.5 kilohertz channel or with equivalent efficiency,⁵¹ and the 700 MHz narrowband allocation requires a spectrum efficiency of at least one voice path per 12.5 kilohertz of spectrum bandwidth.⁵²

22. In 2015, the Commission proposed to increase channel capacity in the 800 MHz Mid-Band by adding interstitial 12.5 kilohertz offset frequencies, or channels, between the existing 25 kilohertz channels in the band.⁵³ The Commission requested comment on whether the introduction of interstitial channels would promote more effective use of the 800 MHz Mid-Band and asked what interference protection criteria should apply if interstitial channels were added to the Mid-Band.⁵⁴ The Commission also requested comment on eligibility and licensing requirements and on authorized bandwidth and appropriate emission masks.⁵⁵ In addition, the Commission sought comment on how the introduction of Terrestrial Trunked Radio (TETRA) technology in to the Mid-Band could impact the establishment of interstitial channels.⁵⁶ The Commission also proposed to make interstitial channels

that using a 'first come, first served giveaway' as a licensing mechanism in this scenario would ensure the most efficient and intensive use of the spectrum") (footnote omitted).

⁵⁰ See *Wireless Telecommunications Bureau Reminds Paging and Radiotelephone Service Licensees of Certain Technical Rules and Seeks Comment on the Need for Technical Flexibility*, Public Notice, 29 FCC Rcd 12673 (WTB 2014).

⁵¹ The Commission's action applied to the T-Band as well as the 150-174 MHz and 450-470 MHz PLMR bands. See *Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended*, Second Report and Order and Second Further Notice of Proposed Rulemaking, [18 FCC Rcd 3034 \(2003\)](#); *Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended*, Third Memorandum Opinion and Order, Third Further Notice of Proposed Rule Making and Order, [19 FCC Rcd 25045 \(2004\)](#). Subsequently, however, the Wireless Telecommunications Bureau and Public Safety and Homeland Security Bureau waived the narrowbanding deadline for T-Band frequencies to relieve T-Band licensees from the narrowbanding requirement before the Commission determined how to implement the Spectrum Act. See *Implementation of Sections 309(j) and 337 of the Communications Act as Amended*, Order, 27 FCC Rcd 4213, 4215, para. 7 (WTB/PSHSB 2012).

⁵² 47 CFR § 90.535.

⁵³ See *800 MHz Interstitial NPRM*, 30 FCC Rcd at 1663-64, para. 1. The *800 MHz Interstitial NPRM* was based on a petition filed by the Enterprise Wireless Alliance that proposed interstitial channels and received widespread support from commenters. Petition of the Enterprise Wireless Alliance for Rulemaking, RM-11572, at 3-4 (filed Apr. 29, 2009) (EWA Petition for Rulemaking).

⁵⁴ *800 MHz Interstitial NPRM*, 30 FCC Rcd at 1673-75, paras. 22-27.

⁵⁵ *Id.* at 1675-78, paras. 28-35.

⁵⁶ *Id.* at 1671, para. 17 (citing *Amendment of Part 90 of the Commission's Rules to Permit Terrestrial Trunked Radio (TETRA) Technology*, Report and Order, 27 FCC Rcd 11569 (2012) (*TETRA Report and Order*)). The Commission's rules permit standard channel licensees in the 800 MHz Mid-Band to deploy TETRA, a spectrally

available for licensing in any NPSPAC region only after 800 MHz rebanding is completed in that region and to announce by public notice when licensing of interstitial channels may begin in each NPSPAC region.⁵⁷

23. Most commenters support the addition of interstitial channels to the band, although commenters differed on how best to protect incumbents on adjacent channels from interference.⁵⁸ In an attempt to develop a consensus to move forward, the Land Mobile Communications Council (LMCC), which includes all of the part 90 frequency coordinators, proposed in its reply to comments to protect Mid-Band incumbents from adjacent-channel interference by using contour analysis in the frequency coordination process.⁵⁹ Because LMCC filed its proposal during the reply comment phase of the proceeding, the Public Safety and Homeland Security Bureau and Wireless Telecommunications Bureau (WTB) (collectively, the Bureaus) sought comment on the LMCC proposal in a public notice.⁶⁰ Parties commenting in response to that public notice generally support the LMCC proposal. MRA, however, suggests certain modifications.

24. *Availability of interstitial channels.* We conclude that the introduction of 12.5 kilohertz offset interstitial channels to the 800 MHz Mid-Band will promote more efficient use of this portion of the 800 MHz spectrum.⁶¹ These channels will be made available for licensing by NPSPAC region. We direct the Bureaus to announce by public notice the date upon which applicants in each NPSPAC region may apply for interstitial channels.

efficient digital technology operating with an authorized bandwidth of up to 22 kilohertz. *See TETRA Report and Order*, 27 FCC Rcd at 11569, para. 1.

⁵⁷ 800 MHz Interstitial NPRM, 30 FCC Rcd at 1671-72, para. 18.

⁵⁸ Association of Public-Safety Communications Officials-International, Inc. Comments at 1-2 (May 11, 2015) (APCO 15-32 Comments); Enterprise Wireless Alliance Comments at 2 (May 11, 2015) (EWA 15-32 Comments); Keith Bradshaw Comments at 1 (May 11, 2015) (filing on behalf of the Michigan Public Safety Frequency Advisory Committee) (MPSFAC Comments); Land Mobile Communications Council Comments at 3 (May 11, 2015) (LMCC 15-32 Comments); National Public Safety Telecommunications Council Comments at 4 (May 11, 2015) (NPSTC 15-32 Comments); American Petroleum Institute Reply Comments at 1 (May 26, 2015) (API Reply Comments); Enterprise Wireless Alliance Reply Comments at 1 (May 26, 2015) (EWA 15-32 Reply Comments); Robert Burchett Reply Comments at 1 (May 14, 2015) (filing on behalf of Enterprise Electronics) (Enterprise Electronics Reply Comments).

⁵⁹ Land Mobile Communications Council Reply Comments at 1 (May 26, 2015) (LMCC 15-32 Reply Comments).

⁶⁰ *Wireless Telecommunications Bureau and Public Safety and Homeland Security Bureau Seek Comment on Land Mobile Communications Council's Proposed 800 MHz Interstitial Channel Interference Contours*, Public Notice, 30 FCC Rcd 7389 (WTB/PSHSB 2015); *see also* Federal Communications Commission, *Creation of Interstitial 12.5 kHz Channels in the 800 MHz Band Between 809-817/854-862 MHz*, 80 Fed. Reg. 46928 (Aug. 6, 2015) (establishing a comment date for the Public Notice).

⁶¹ We note that we do not make available for licensing an interstitial channel between standard channels 470 (814/859.9875 MHz) and 471 (815/860.0125 MHz) because an interstitial channel between these two standard channels would overlap the Expansion Band segment of the 800 MHz Mid-Band. *See* 47 CFR § 90.613. If made available for licensing, the interstitial channel would be assigned to the Public Safety Pool because the lower-adjacent standard channel (Channel 470) is a Public Safety Pool channel. The Commission established the Expansion Band to create spectral separation between public safety systems and high-density cellular architecture systems in the band. *800 MHz Report and Order*, 19 FCC Rcd at 15053-54, para. 154-156. Thus, Public Safety Pool channels previously falling in the Expansion Band pre-rebanding were converted to SMR or B/ILT Pool channels so that all Public Safety Pool channels would stay below the Expansion Band. *Id.* at para. 155. Therefore, a public safety interstitial channel between standard channels 470 and 471 would partially fall in the Expansion Band contrary to the Commission's intent in the *800 MHz Report and Order* to limit the Expansion Band to SMR and B/ILT use.

25. We are persuaded by parties arguing that the new interstitial channels will leverage newer, more efficient narrowband technology to alleviate channel congestion and allow licensees in the 800 MHz Mid-Band to increase capacity. Data in the Commission's Universal Licensing System confirm that the Mid-Band is heavily used and that no standard channels are available in some major metropolitan areas. For example, there are no 800 Mid-Band channels available for application in the Interleaved Band, other than channels vacated by Sprint Corporation (Sprint), in New York City, Chicago, Los Angeles, or Houston. The Sprint-vacated channels are reserved for public safety for three years following completion of rebanding, however, and for public safety and critical infrastructure applicants for the subsequent two years.⁶²

26. Providing additional channels in the 800 MHz band is consistent with the Commission's view that "[t]he 800 MHz spectrum is essential to the future expansion of private land mobile systems."⁶³ In many areas of the country, potential applicants have few, if any, options for initiating new service. In those areas, both the 800 MHz "standard" 25 kHz channels and channels in the VHF and UHF bands already are licensed to other parties. Cellular service is not a viable option because it lacks the "one-to-many" message capability inherent in PLMR systems, *i.e.*, the ability of a dispatcher to transmit the same voice message simultaneously to multiple radios. The availability of 800 MHz interstitial channels thus benefits those entities with critical communications needs that they are unable to satisfy using already occupied 800 MHz standard channels or channels in other bands. For public safety entities, this is a particularly important benefit because the ability to communicate reliably with first responders is critical to the health, safety, and welfare of the public at large.

27. We agree with commenters that suggest that potential applicants should not have to wait until the Commission announces the completion of band reconfiguration before interstitial channels become available for licensing in that region.⁶⁴ Instead we will use the termination of the application freeze in a NPSPAC region as the trigger for the Bureaus to announce the availability of interstitial channels in a region. That means interstitial channels will be available in all regions except the five bordering Mexico.⁶⁵ This will reduce the time required to make interstitial channels available because the Commission lifts the application freeze in a NPSPAC region once all licensees have re-tuned to their replacement channels rather than waiting for a formal declaration of rebanding completion.

28. We find the likely costs of implementing this approach to be modest. First, any increase in capacity, whether using 25 kilohertz standard channels or the new 12.5 kilohertz interstitial channels would require the deployment of new equipment. The record does not suggest that narrowband capability will add to the cost of equipment. Some base station transmitters and individual subscriber units (user radios) are already capable of operating on the interstitial channels without the need for new equipment authorizations from the Commission. Others, only certified for the 25 kilohertz standard channels, will have to obtain new certifications. The certifications are based on tests conducted by Commission-approved Telecommunications Certification Bodies. Whether to obtain a new certification and enter the market for 12.5 kilohertz interstitial channel-capable equipment is a business decision to be made by the equipment manufacturer. Given the well-established use of 12.5 kHz technology in the VHF, UHF, and 769-775/799-805 MHz (700 MHz) PLMR bands and emission masks and authorized bandwidth limits,

⁶² 47 CFR § 90.617(g).

⁶³ See *Amendment of Part 90 of the Commission's Rules to Release Spectrum in the 806-821/855-866 MHz Bands and to Adopt Rules Which Govern Their Use, et al.*, Second Report and Order, 90 F.C.C. 2d 1281, 1282, para. 1 (1983).

⁶⁴ To date, the Commission has declared band reconfiguration complete in 41 of 59 NPSPAC regions.

⁶⁵ See *Public Safety and Homeland Security Bureau Extends 800 MHz Application Freeze Along Border with Mexico*, Public Notice, 32 FCC Rcd 1817 (PSHSB 2017).

we believe that manufacturers would have strong financial incentive to update their equipment authorizations to take advantage of an expanded 800 MHz PLMR market.

29. We reject the argument that interstitial channels should not be introduced because it will make it more difficult for 800 MHz Mid-Band licensees to increase capacity by implementing wideband technology.⁶⁶ The Commission's current rules permit 800 MHz Mid-Band licensees seeking to deploy wideband technology to aggregate up to five contiguous standard channels based on a showing that single channel bandwidth is inadequate.⁶⁷ Given the high level of 800 MHz usage, however, we believe that there will be far fewer opportunities going forward to aggregate standard channels than there will be to use interstitial channels, particularly in the busiest markets.⁶⁸ Consequently, we conclude that spectrum efficiency is better served by introducing interstitial channels. Moreover, to the extent that channel aggregation continues to be feasible, the rules we adopt today do not limit licensees' ability to aggregate channels.

30. We also reject the suggestion from the State of Florida that interstitial channels should be 25 kilohertz rather than 12.5 kilohertz as proposed.⁶⁹ Florida supplied no study or technical data on the effects of using 25 kilohertz interstitial channels vs. 12.5 kilohertz interstitial channels. Florida's proposal would result in considerably greater spectral overlap between adjacent channels, thus requiring greater geographical spacing between interstitial and regular channels, with a consequent reduction in spectrum efficiency. Specifying 12.5 kilohertz interstitial channels rather than 25 kilohertz interstitial channels is more spectrum-efficient because most modern digital technologies do not require 25 kilohertz channels for satisfactory operation.

31. *Potential interference costs imposed by interstitial channel implementation.* Parties endorsing the adoption of interstitial channels contend that appropriate interference safeguards are essential to ensure that the new interstitial channels not interfere with 25 kilohertz channel operations.⁷⁰ We agree. The contour protection standards we adopt in this *Memorandum Opinion and Order*—similar to those suggested by LMCC⁷¹—are conservative but not so restrictive that they would make implementation of interstitial channels infeasible. Thus, in the interest of interference avoidance, we decline to adopt the less stringent contour protection values recommended by MRA.⁷²

⁶⁶ See, e.g., Peak Relay, Inc. (Peak Relay) Comments at 3, 15 (May 11, 2015) (Peak Relay Comments); UTC Reply Comments at 2 (May 12, 2015) (UTC 15-32 Reply Comments); see also Motorola Solutions, Inc. Comments at 2-3 (May 11, 2015) (stating that it is "premature" to inquire whether "further narrowbanding" in the 800 MHz Mid-Band would "better serve the private land mobile community as opposed to rules promoting broader bandwidth technologies") (Motorola 15-32 Comments).

⁶⁷ 47 CFR § 90.645(g).

⁶⁸ See API Reply Comments at 5 ("API believes that there are very few instances in which current licensees on standard channels hold sufficient adjacent channels that could be combined to form wider bandwidth operations.").

⁶⁹ State of Florida Reply Comments at 1 (May 26, 2015) (Florida 15-32 Reply Comments).

⁷⁰ National Public Safety Telecommunications Council *ex parte* filing at 4-5 (Sept. 9, 2015) (NPSTC Contour Matrix *Ex Parte*) (stating that the matrix will "serve public safety and the overall land mobile community well to protect systems on existing channels and allow implementation of new interstitial channels that provide more spectrum opportunities").

⁷¹ LMCC 15-32 Reply Comments at 3-4.

⁷² Mobile Relay Associates Comments at 1 (Sept. 8, 2015) (MRA Contour Matrix Comments).

32. We disagree with parties that claim interstitial channels would cause interference, especially to adjacent-channel operations.⁷³ In particular, we reject Boeing's claim that the proposed channels could cause interference to its wideband Class B signal boosters⁷⁴ because such boosters operate on a secondary basis and thus are not protected against interference.⁷⁵ Any new interference to a Class B booster that Boeing might receive could be remedied by replacing the Class B booster with a more selective Class A booster—a more spectrum-efficient alternative than not allowing interstitial channels in the 800 MHz Mid-Band because of potential interference to secondary operations. Similarly, we see no cause to expect interstitial channels coordinated in accordance with the contour protection matrix we adopt today to be any less compatible with adjacent TETRA channels than with standard channels using other emission types.

33. In response to SouthernLINC's concern about the potential impact of interstitial channels on its Enhanced SMR (ESMR) operations, we clarify that interstitial channels will only be available for licensing below the dividing line between the 800 MHz Mid-Band and ESMR segments of the band, including in regions of the United States where the Commission adopted alternate channel plans with extended ESMR segments and reduced Mid-Bands. This is reflected in administrative clarifications to the headings of several tables in our rules, as suggested by SouthernLINC, to define more accurately the frequency range of the Mid-Band in portions of the country with extended ESMR segments.⁷⁶

34. *Interference protection.* We agree that the new interstitial channels will benefit licensees in the 800 MHz Mid-Band only if appropriate interference safeguards are adopted.⁷⁷ These adjacent channel interference avoidance rules apply to applicants for either 12.5 kilohertz or 25 kilohertz bandwidth channels in the 800 MHz Mid-Band. Adjacent-channel interference analysis is necessary to protect incumbents because the addition of interstitial channels to the 800 MHz Mid-Band will create greater spectral overlap between adjacent channels.

35. Most parties, including LMCC, submit that contour protection is the optimum methodology for avoiding mutual interference between interstitial channels and standard 25 kilohertz-spaced facilities. However, to lessen the burden on applicants, we have specified that contour analysis need not be applied to applications that meet or exceed the distances specified in the Commission's co-channel spacing rules. Those rules furnish adequate interference protection independent of the technology used by the applicant and the incumbent licensee. We agree with LMCC that a matrix is the clearest way of displaying the contour protection values appropriate to different technologies and have incorporated such a matrix into the rules.

36. We also are persuaded by parties' arguments that contour overlap analysis generally has worked well as a method for assessing interference and that licensees are familiar with it.⁷⁸ Moreover, because results are easily understandable and easily replicated, we believe that contour overlap analysis will minimize the potential for disputes over whether an applicant is likely to cause interference to an

⁷³ See, e.g., Motorola Solutions, Inc. Comments at 2-3 (May 11, 2015) (Motorola 15-32 Comments); Boeing Company Comments at 1-2 (May 11, 2015) (Boeing Comments); SouthernLINC Wireless Comments at 4 (May 11, 2015) (SouthernLINC Comments).

⁷⁴ Boeing Comments at 2-3. Class A signal boosters amplify only the discrete frequency or frequencies intended to be retransmitted, while Class B signal boosters amplify all signals within the signal booster's passband. 47 CFR §§ 90.7, 90.219(a).

⁷⁵ 47 CFR § 90.219(b)(1)(ii).

⁷⁶ See SouthernLINC Comments at 8. See also 47 CFR § 90.617 *infra* Appendix B.

⁷⁷ MPSFAC Comments at 3; NPSTC 15-32 Comments at 4; LMCC 15-32 Comments at 3-4; EWA 15-32 Comments at 2; APCO Comments at 2; Boeing Comments at 1-2; American Electric Power Service Corp. Comments at 1 (May 11, 2015) (AEPSC Comments); Enterprise Electronics Reply Comments at 1; API Reply Comments at 1.

⁷⁸ EWA Petition for Rulemaking at 6; MPSFAC Comments at 4

incumbent operator under our revised channel plan. Furthermore, no commenting party has proposed a viable alternative to contour overlap analysis for determining potential adjacent-channel interference.

37. We reject LMCC's suggestion that we adopt a contour values matrix but not incorporate it into the Commission's rules, thereby allowing the matrix to be modified without the need for rulemaking.⁷⁹ If future technologies require a change in our rules, the Administrative Procedure Act compels us to adopt any such modifications only after public notice and comment.⁸⁰

38. LMCC proposes using the Commission's F(50,50) curves to assess both coverage and interference contours. It offers no rationale for deviating from the accepted procedure of using the F(50,50) curves for prediction of coverage and the F(50,10) curves for prediction of interference.⁸¹ Thus, the rules we adopt retain the accepted approach for definition of coverage and interference..

39. We agree with MRA that a contour overlap analysis is unnecessary where four kilohertz, or less, technology is employed if there is no spectral overlap between the applicant's facilities and an incumbent's facilities operating on an adjacent channel, as this is consistent with our practice in other bands.⁸² We reject, however, MRA's proposal to use a 60 dBu interference contour for analysis of a four kilohertz narrowband applicant to an adjacent-channel 25 kilohertz TETRA incumbent system and to use a 40 dBu interference contour for analysis of a 25 kilohertz TETRA applicant to an adjacent-channel four kilohertz narrowband incumbent system.⁸³ MRA has neither explained nor justified its proposed adjustments.

40. The Commission's 800 MHz rules currently require frequency coordinators to consider only co-channel spacing when recommending the most appropriate frequency for an applicant.⁸⁴ We modify this requirement because of our addition of interstitial channels to the 800 MHz Mid-Band. Once interstitial channels become available for licensing in each NPSPAC region, frequency coordinators must verify compliance with the contour overlap protections when determining the most appropriate frequency for an applicant in that region.⁸⁵ Frequency coordinators must also perform contour analysis to protect licensees outside the NPSPAC region that are sufficiently close to be affected by the new application. Potentially affected incumbents are those operating on an adjacent-channel at distances closer than those specified under the minimum co-channel spacing requirements.⁸⁶

41. LMCC suggested that 800 MHz Mid-Band applicants pass both a forward and a reciprocal contour analysis.⁸⁷ We agree, because requiring reciprocal contour analysis will discourage

⁷⁹ LMCC 15-32 Reply Comments at 4.

⁸⁰ See 5 U.S.C. § 553 *et seq.*

⁸¹ See 47 CFR § 90.621(b)(4)(ii)(C) at note 2 to the short-spacing table (explaining that the separation distances in the table are based upon non-overlap of a proposed station's 22 dBu F(50,10) interference contour with the 40 dBu F(50,50) contour of an existing station).

⁸² See MRA Contour Matrix Comments at 1-2 (arguing that an interference analysis is unnecessary if there is "no spectral overlap between the incumbent station and the proposed station). Other parties support MRA's proposed modification. See NPSTC Contour Matrix *Ex Parte* at 4-5; JVCKenwood *Ex Parte* filing at 2 (Nov. 12, 2015).

⁸³ MRA Contour Matrix Comments at 6.

⁸⁴ 47 CFR § 90.621(b).

⁸⁵ *Infra* Appendix B.

⁸⁶ *Id.*

⁸⁷ LMCC 15-32 Reply Comments at 3-4. The forward analysis determines whether the applicant's interference contour overlaps a potentially affected incumbent's service contour while the reciprocal analysis determines whether the potentially affected incumbent's interference contour overlaps the applicant's service contour. Applicants would only pass the contour analysis if both the forward and reciprocal analysis indicate no overlap.

applicants from filing applications that are of limited practical use but which block an incumbent on an adjacent channel from expanding its service contour once the new application is granted.⁸⁸ Applicants may, however, file applications that cause contour overlap to an incumbent if each incumbent licensee that receives contour overlap provides its written consent. In its consent letter, the incumbent operator must agree to accept any interference that occurs as a result of the contour overlap. By allowing incumbents to accept contour overlap, we provide applicants the opportunity to present more granular studies to the incumbent licensee if an applicant believes that interference would not occur in practice despite the contour overlap. Applicants and incumbents have similar flexibility under our existing co-channel spacing rules.⁸⁹

42. Although APCO observes that the contour protection values advanced in this proceeding are untested and recommends that manufacturers of 800 MHz radios validate these values,⁹⁰ it does not propose specific tests. Moreover, manufacturers have declined the invitation to validate the values. We find it significant that the values endorsed by LMCC and others arose from a consensus of frequency coordinators well versed in making coverage versus interference assessments. We note that previously, in similar contexts, we have accepted industry-recommended interference protection recommendations that have later been validated in the field.⁹¹ In particular, the Commission has for years used contour overlap analysis to provide interference protection between geographically proximate PLMR systems in various frequency bands licensed under part 90 of the rules.⁹² Accordingly, we believe that the contour protection values we adopt will suffice to satisfy APCO's concerns but will revisit that determination if field experience shows otherwise.

43. Although no commenters specifically address the costs and benefits of adopting this approach, the record demonstrates that the costs of the Commission's requirements will be minimal. For example, the cost of frequency coordination may increase because the new interference criteria are more complex to apply than the previous criteria. Currently, frequency coordination fees are in the range of \$300 per channel.⁹³ Even if these fees were to increase substantially to accommodate the new interference criteria, they still would be nominal when viewed against the cost of equipment, which may cost thousands or tens of thousands of dollars.⁹⁴

⁸⁸ We note that the Commission adopted a similar procedure for applicants in the Industrial/Business pool category seeking exclusive use of channels below 512 MHz. *See* 47 CFR § 90.187(d)(3) (requiring no overlap between the service contour of an applicant's proposed centralized trunked station on an I/B Pool frequency and the interference contour of an incumbent licensee's station); *Amendment of Part 90 of the Commission's Rules*, Fifth Report and Order, 28 FCC Rcd 5924, 5928, para. 11 (2013).

⁸⁹ *See* 47 CFR § 90.621(b)(5).

⁹⁰ *See* Association of Public-Safety Communications Officials-International, Inc. Comments at 2 (Sept. 8, 2015) (APCO Contour Matrix Comments).

⁹¹ *See Filing Freeze to Be Lifted for Applications under Part 90 for 12.5 kHz Offset Channels in the 421-430 MHz and 470-512 MHz Bands*, Public Notice, 13 FCC Rcd 5942, 5942 (WTB 1997); *see also Refarming Second Report and Order*, 12 FCC Rcd at 14330-31, para. 43.

⁹² *See* 47 CFR § 90.187(d)(1)(ii).

⁹³ The typical coordination fee per channel for regular 800 MHz applications is \$300. *See, e.g.*, Enterprise Wireless Alliance, https://www.enterprisewireless.org/resources/schedule_services (\$300); Utilities Telecommunications Council, <http://utc.org/wp-content/uploads/2016/05/UTC-Fee-Schedule-05-12-16-new-logo.pdf> (\$300); MRFAC, Inc., <http://mrfac.net/ServiceFees.shtm> (\$300).

⁹⁴ This includes base station transmitter and receiver, antenna, transmission line, tower, equipment housing, and subscriber units. A frame of reference for the cost of a base station can be derived from the 800 MHz rebanding proceeding, in which the Commission found that the cost of just retuning – not purchasing or replacing – 11 base

44. The Commission sought comment on the bandwidth and emission mask limits applicable to the interstitial channels.⁹⁵ We adopt a maximum authorized bandwidth of 11.25 kilohertz and apply the limits of emission mask D⁹⁶ to transmitters operating on the new interstitial 12.5 kilohertz offset channels in the 800 MHz Mid-Band, as proposed. These parameters have worked well to limit interference in other PLMR bands, and commenting parties agree these limits are appropriate for licensees operating on interstitial channels in the 800 MHz Mid-Band.⁹⁷ We update sections 90.209 (bandwidth limitations) and 90.210 (emission masks) of the Commission's rules accordingly.⁹⁸

45. We do not, however, change the technical specifications for transmitters designed to operate solely on the standard 25 kilohertz bandwidth channels in the 800 MHz Mid-Band.⁹⁹ As of the effective date of this *Report and Order and Order*, recognized Telecommunications Certification Bodies may accept applications for certification of transmitters designed to operate on the interstitial 12.5 kilohertz bandwidth channels in the 800 MHz Mid-Band. Telecommunications Certification Bodies may certify a transmitter for operation on the interstitial channels only if that transmitter meets the authorized bandwidth and emission mask limits we adopt here as well as other pertinent part 90 technical specifications.

46. *Eligibility issues.* The Commission sought comment on eligibility criteria for the interstitial channels.¹⁰⁰ As noted above, channels in the 800 MHz Mid-Band currently fall into four eligibility pools or categories: General Category, Public Safety, B/ILT, and high-site SMR.¹⁰¹ Each category is subject to specific eligibility criteria.¹⁰² The Commission requested comment on whether to assign eligibility for each interstitial channel based on the category of the lower-adjacent standard channel.¹⁰³ The Commission also sought comment on whether public safety eligible entities should receive preferential or exclusive access to public safety category interstitial channels, particularly in markets where public safety licensees are required by the Spectrum Act¹⁰⁴ to vacate the T-Band.¹⁰⁵ UTC suggests that we provide a "preference for utilities to access the interstitial channels" and the Michigan

stations totaled \$444,963, representing \$40,451 per base station. *Charles County Maryland and Sprint Nextel Corp.*, Memorandum Opinion and Order, 24 FCC Rcd 12749, 12756 para. 25 (PSHSB 2009).

⁹⁵ *800 MHz Interstitial NPRM*, 30 FCC Rcd at 1677-78, paras. 32-33. The authorized bandwidth is the frequency band specified in kilohertz and centered on the carrier frequency containing those frequencies in which a total of 99 percent of the radiated power appears. 47 CFR § 90.7.

⁹⁶ An emission mask is a technical parameter that limits emissions from a transmitter into adjacent channels. *PLMR Biennial Review Report and Order*, 15 FCC Rcd at 16689, para. 33. Emission mask D limits the amount of power a transmitter operating on a 12.5 kilohertz bandwidth channel may radiate into the upper- and lower-adjacent channels. 47 CFR § 90.210(d).

⁹⁷ See MPSFAC Comments at 4; EWA 15-32 Comments at 9-10; APCO 15-32 Comments at 3-4; EWA 15-32 Reply Comments at 8.

⁹⁸ *Infra* Appendix B.

⁹⁹ 47 CFR §§ 90.201-90.221 (general technical requirements for transmitters designed to operate on frequencies governed by part 90 of the rules).

¹⁰⁰ *800 MHz Interstitial NPRM*, 30 FCC Rcd at 1676, para. 30.

¹⁰¹ *Id.* at 1675-76, para. 28.

¹⁰² *Id.*

¹⁰³ *Id.* at 1676, para. 30. EWA, in its petition for rulemaking, urged dispensing with the discrete categories for the interstitial channels, making them all available to applicants from all four of the categories regardless of the eligibility requirements of the adjacent channels. *Id.* at 1676, para. 29 (citing EWA Petition for Rulemaking at 6).

¹⁰⁴ See note 8, *supra*.

¹⁰⁵ *800 MHz Interstitial NPRM*, 30 FCC Rcd at 1676, para. 31.

Public Safety Frequency Advisory Committee (MPSFAC) recommends that we “grant public safety exclusive access” to the interstitial channels for “a period of at least five years.”¹⁰⁶

47. The Commission has already established standard channel allocations in the 800 MHz Mid-Band for General Category, Public Safety, B/ILT, and high-site SMR.¹⁰⁷ No party has presented a compelling case for abandoning the current allocation of 800 MHz Mid-Band spectrum among the four usage categories. Although UTC and MPSFAC urge preferences that would benefit their constituencies, they have failed to show how the public interest would be advanced by so upsetting the allocation structure of the Mid-Band. By contrast, we agree with commenting parties that support linking eligibility for each interstitial channel to eligibility for the lower-adjacent standard 25 kilohertz bandwidth channel.¹⁰⁸ This reserves a set of interstitial channels for each of the four user categories in the 800 MHz Mid-Band. We retain that allocation and assign eligibility for each interstitial channel based on the category of the lower-adjacent standard channel as proposed in the *800 MHz Interstitial NPRM*. We update our rules to reflect the addition of Mid-Band interstitial channels to each category or pool.¹⁰⁹ As suggested by SouthernLINC, we also correct the headers to several tables in our rules listing pool channels. These updated headers more accurately reflect the frequency range of the Mid-Band in portions of the United States where there are extended ESMR segments.¹¹⁰

48. In sum, we find that the existing reservation of channels as between the General Category, Public Safety, high-site SMR, and B/ILT classifications has proven equitable over time, and no party presents convincing evidence that it should be changed merely because interstitial channels are being introduced into the 800 MHz band.

49. For a three-year period, however, we afford priority access to 800 MHz Mid-Band interstitial channels to T-Band incumbents in the urban areas specified in section 90.303 of the Commission’s rules.¹¹¹ In this context, priority access means that if a T-Band licensee and another—non-T-Band—applicant timely file for the same frequency, and the frequency conflict cannot be resolved by the Commission-certified frequency coordinator, the frequency coordinator shall recommend the T-Band licensee’s application to the Commission. To be eligible for priority, the T-Band incumbent licensee must commit to surrendering an equal amount of T-Band spectrum. Channels from the 470-512 MHz band will be counted on a one-for-one basis for 12.5 kilohertz bandwidth interstitial channels from the 800 MHz Mid-Band. Our action is similar to the Commission giving public safety T-Band incumbents priority access to the former Reserve Channels in the 700 MHz band.¹¹²

50. Although the National Public Safety Telecommunications Council claims that interstitial channels will not provide “significant opportunities for relocation of T-Band operations in most T-Band

¹⁰⁶ UTC 15-32 Reply Comments at 4; MPSFAC Comments at 4.

¹⁰⁷ 47 CFR §§ 90.615, 90.617(b)-(c).

¹⁰⁸ NPSTC 15-32 Comments at 7; APCO 15-32 Comments at 2; Florida 15-32 Reply Comments at 4. For instance, APCO notes that the Commission’s proposal will “preserve the ability of public safety entities (and others in each service pool) to have fair opportunities to obtain new channels.”

¹⁰⁹ As shown in Appendix B hereto, rule section 90.613, the interstitial channels are denoted by an “a” after the channel number.

¹¹⁰ SouthernLINC Comments at 8.

¹¹¹ Priority will apply for licensees that relocate from the T-Band to interstitial channels in their license category, e.g., a public safety licensee may relocate only to a public safety category interstitial channel. While we afford this priority to both public safety and non-public safety T-Band licensees, we note that the Commission has not yet determined how Spectrum Act implementation will affect non-public safety T-Band licensees.

¹¹² See *Amendments to the Service Rules Governing Public Safety Narrowband Operations in the 769-775/799-805 MHz Band*, Report and Order, 29 FCC Rcd 13283, 13299, paras. 43-44 (2014).

areas” because applicants seeking to license interstitial channels must maintain geographic separation from incumbents operating on the standard 25 kilohertz bandwidth channels,”¹¹³ we agree with APCO that, even if the number of new interstitial channels in spectrum-congested markets will be “relatively small,” a limited preference can “provide partial relief for public safety licensees required to relinquish their T-Band spectrum.”¹¹⁴

51. Finally, we find speculative EWA’s warning of a “land rush” by what it considers “unqualified, entirely speculative applicants,”¹¹⁵ and reject its suggestion that the Commission “convene an industry meeting to address this matter” before any interstitial channels are made available.¹¹⁶ Bureau staff routinely reviews applications to verify qualifications. Should EWA or other parties identify specific instances of unqualified applicants, we will not hesitate to investigate, and, if warranted, deny their applications.

3. Licensing Additional 800 MHz Channels

52. In this section, we take actions to clear the way for licensing of 800 MHz channels in additional NPSPAC regions. First, we address a petition filed by LMCC that proposes filing priority for incumbent licensees to apply for 800 MHz Expansion Band (EB) and Guard Band (GB) frequencies before the frequencies are made available to new applicants. As explained below, we deny the request. This action permits the release of EB/GB channels in regions where licensing was deferred pending resolution of the petition. We also announce the completion of rebanding in additional NPSPAC regions, which will allow us to commence licensing those 800 MHz channels.

53. *800 MHz band incumbent priority.* As part of 800 MHz rebanding, the Commission created the Expansion (815-816/860-861 MHz) and Guard (816-817/861-862 MHz) Bands as “buffers” to provide spectral separation between low site¹¹⁷ commercial licensees operating cellular architecture systems above 817/862 MHz and high site licensees¹¹⁸ operating below 815/860 MHz.¹¹⁹ Of the 40 EB channels, 28 are designated for SMR stations, and the remainder are designated for B/ILT Pool

¹¹³ NPSTC 15-32 Comments at 7. NPSTC asserts that almost all the standard channels are “occupied within the 50 mile radius [of] T-Band areas.” *Id.*

¹¹⁴ APCO 15-32 Comments at 3.

¹¹⁵ EWA 15-32 Comments at 6.

¹¹⁶ *Id.* at 7.

¹¹⁷ Low site systems are arranged in a cellular configuration with frequency reuse, and typically employ low antenna elevations and relatively high power. They frequently have been a source of interference to the reception of signals from high site systems.

¹¹⁸ High site systems typically use high antenna elevations (towers, mountaintops, high buildings, etc.) to achieve wide-area coverage with one, or only a few, transmitter sites. High site licensees include Public Safety, B/ILT, and non-cellular SMR licensees.

¹¹⁹ See *800 MHz Report and Order*, 19 FCC Rcd at 15053-55, para. 154-58 (2004). No Guard Band exists in the southeastern portion of the United States in counties served by both Sprint Corporation and SouthernLINC and in areas adjacent to the U.S.-Canada border. Furthermore, the Expansion Band consists of the 812.5-813.5 MHz/857.5-858.5 MHz segment of the band in these counties served by both Sprint and SouthernLINC except for a 70-mile radius around Atlanta where the Expansion Band is reduced to one-half megahertz. *Id.* at 15058, para. 166.

eligibles.¹²⁰ The 40 GB channels are in the General Pool and thus are available for Public Safety, B/ILT, and SMR operations.¹²¹

54. In 2014, LMCC petitioned the Commission to provide a six-month window for incumbent 800 MHz licensees in a market to acquire EB/GB channels to expand existing systems before accepting applications from new entrants.¹²² In the *PLMR Access NPRM*, the Commission proposed to adopt LMCC's suggestion in part: It proposed to provide a window for incumbent 800 MHz licensees in a market to acquire or expand coverage on the 12 EB B/ILT channels before accepting applications from new entrants.¹²³ The Commission expected that these incumbent licensees were unlikely to acquire spectrum for other than operational purposes and would put additional channels into service promptly to meet existing needs.¹²⁴ The Commission declined, however, to propose to afford incumbent priority for the 28 EB SMR channels.¹²⁵

55. EWA argues that SMR incumbents need channels to expand existing systems to meet customer demand,¹²⁶ but most commenters agree with the Commission that SMR incumbents and new licensees have the same economic incentives to use the spectrum in a timely manner, so they should be treated similarly and 800 MHz SMR incumbents should not be afforded priority for EB SMR channels.¹²⁷ We conclude that the success or failure of commercial services should be determined in the marketplace

¹²⁰ See 47 CFR § 90.617(b), (d). EB users also include Public Safety licensees that chose to remain on channels that are now designated for SMR stations. See *800 MHz Report and Order*, 19 FCC Rcd at 15053, n.417. They are permitted to expand geographically on the EB channels they retained. See *Public Safety and Homeland Security Bureau Clarifies the Rights of 800 MHz Public Safety Licensees Electing to Remain in the 800 MHz Expansion Band*, Public Notice, 22 FCC Rcd 6803, 6803-04 (PSHSB 2007); *Public Safety and Homeland Security Bureau Clarifies the Process for Accepting Applications from Public Safety Licensees that Elected to Remain in the 800 MHz Expansion Band*, Public Notice, 30 FCC Rcd 3021 (PSHSB 2015).

¹²¹ See 47 CFR § 90.615; *800 MHz Interstitial NPRM*, 30 FCC Rcd at 1675, n.95.

¹²² See Petition of the Land Mobile Communications Council for Rulemaking, RM-11719, at 3-6 (filed Mar. 27, 2014).

¹²³ See *PLMR Access NPRM*, 31 FCC Rcd at 9442, para. 31.

¹²⁴ See *id.*

¹²⁵ See *id.* at 9442, para. 33. The Commission explained that, because SMR licensees compete for customers in the commercial wireless marketplace, both incumbents and new licensees have similar economic motives to use the spectrum in a timely manner so there is no justification for incumbent priority. *Id.* The Commission also sought comment on whether to provide incumbent priority for 40 GB channels but questioned whether preferring 800 MHz SMR incumbents over potential competitors for this spectrum would further the public interest. See *id.* at 9443, para. 34.

¹²⁶ EWA 16-261 Comments at 5; see also New York Communications Company, Inc. Reply Comments at 1 (Dec. 22, 2016). Other commenters support incumbent priority for all EB/GB channels, but do not articulate a specific justification for SMR incumbent priority. See, e.g., Motorola Reply Comments at 4 (Dec. 22, 2016); NAM/MRFAC Comments at 2-3; UTC 16-261 Comments at 5.

¹²⁷ See ABN Health Comments at 1 (Nov. 21, 2016); Athletes Business Network, LLC Comments at 1 (Nov. 21, 2016) (ABN LLC Comments); Absalom Gonzalez, Inc. Comments at 1 (Nov. 21, 2016) (Gonzalez Comments); APCO Comments at 3 (Nov. 22, 2016) (APCO 16-261 Comments); At Home Health Equipment Comments at 1 (Nov. 21, 2016) (AHHE Comments); Caito Foods, Inc. Comments at 1 (Nov. 21, 2016) (Caito Comments); Ice Realty LLC Comments at 1 (Nov. 21, 2016) (Ice Realty Comments); James Babcock, Inc. Comments at 1 (Nov. 21, 2016) (Babcock Comments); M2M Spectrum Networks, LLC Comments at 6 (Nov. 22, 2016) (M2M Comments); Maetrics, LLC Comments at 1 (Nov. 21, 2016) (Maetrics Comments); Marion Utilities Comments at 1; One World Design & Manufacturing Group Ltd. Comments at 1 (Oct. 13, 2016) (One World Comments); Roadrunner Delivery, Inc. Comments at 1 (Oct. 19, 2016) (Roadrunner Comments); Sanford Health Comments at 1; Ubicquia Comments at 1; Wireless Infrastructure Association Reply Comments at 3 (Dec. 22, 2016) (WIA Reply Comments).

without affording certain competitors an undue regulatory advantage.¹²⁸ Therefore, we decline to afford incumbent priority for EB SMR channels. In addition, we agree with the majority of commenters that filing priority also is not justified for 800 MHz incumbents seeking GB channels, because it will hamper or even bar new competitors and services in areas of high spectrum demand.¹²⁹

56. In addition, we decline to adopt the proposal to afford priority to 800 MHz incumbents for EB B/ILT channels. Commenters opposing the proposal argue that incumbent priority is not supported by any distinction between PLMR and commercial licensees (because all businesses compete for customers, and therefore all have an economic incentive to use spectrum effectively and efficiently), and that a preference for incumbents would contravene the Commission's general policy of assigning spectrum through mechanisms that do not favor some applicants over others.¹³⁰ Even some commenters that support the proposal recognize that there is no more public interest in favoring incumbent B/ILT systems and services than in favoring incumbent SMR systems and services.¹³¹ We therefore conclude that we should treat incumbent priority for B/ILT and SMR systems equally. Because the 12 EB B/ILT channels constitute only 15% of the EB/GB channels and are already scarce in some areas, we agree with PLMR frequency coordinators that priority access for just this small portion of the spectrum would not provide sufficient relief for B/ILT incumbents to merit further complicating the already-complex 800 MHz licensing regime.¹³²

57. Finally, we are not persuaded by EWA's suggestion that we impose additional conditions on EB/GB licensees to deter warehousing and encourage spectral efficiency. To the extent that EWA's proposal applies to licensees that obtain EB/GB channels outside the six-month window proposed in the *PLMR Access NPRM*, EWA's proposal is beyond the scope of this proceeding, as is its suggestion that we amend section 90.617(g) of the rules to eliminate public safety applicants' priority for Sprint-vacated channels in the Interleaved Band.¹³³ Moreover, as to future EB/GB applications, the Commission will

¹²⁸ See *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, Fourth Report and Order, 16 FCC Rcd 15435, 15438, para. 7 (2001); *MTS and WATS Market Structure*, Memorandum Opinion and Order, 102 F.C.C. 2d 849, 860, para. 22 (1985). We are not persuaded by MRA's suggestion that competition-related arguments are inapposite because EB SMR licensees provide non-interconnected dispatch service to business fleets and are more akin to B/ILT licensees than they are to other commercial providers serving the public. See MRA 16-261 Comments at 14-15.

¹²⁹ See ABN Health Comments at 1; ABN LLC Comments at 1; AHHE Comments at 1; Babcock Comments at 1; Caito Comments at 1; Gonzalez Comments at 1; Ice Realty Comments at 1; M2M Comments at 6-7; Maetrics Comments at 1; Marion Utilities Comments at 1; One World Comments at 1; Roadrunner Comments at 1; Sanford Health Comments at 1; Ubiqquia Comments at 1. Others support incumbent priority for GB channels. See Association of American Railroads Comments at 6-7 (Nov. 22, 2016) (AAR Comments); American Association of State Highway & Transportation Officials Reply Comments at 3 (Nov. 22, 2016) (AASHTO Reply Comments); APCO 12-261 Comments at 3; MRA 16-261 Comments at 15; National Public Safety Telecommunications Council Comments at 6 (Nov. 22, 2016) (NPSTC 16-261 Comments).

¹³⁰ M2M Comments at 7 ("there are no compelling benefits to justify a discriminatory preference for incumbents that would cut against the grain of the Commission's spectrum policy"); WIA Reply Comments at 2-4 ("As the Commission has long recognized, it should not be in a position of picking winners and losers.") (citing *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, Memorandum Opinion and Order and Notice of Proposed Rulemaking, 13 FCC Rcd 24012, 24014, para. 2 (1998)).

¹³¹ See LMCC 16-261 Comments at 10 ("All businesses compete for customers in their respective marketplaces. If FedEx is permitted to add capacity to an existing system . . . while UPS, a proposed entrant to a market, must wait until incumbent capacity requirements are satisfied, why does the same reasoning not apply to SMR operators?"); MRA 16-261 Comments at 14-15.

¹³² See EWA 16-261 Comments at 4-5; LMCC 16-261 Comments at 9-10; NAM/MRFAC Comments at 2; UTC 16-261 Comments at 4-5.

¹³³ See EWA 16-261 Comments at 7; 47 CFR § 90.617(g).

enforce its construction deadline rules in the same manner as it enforces them in other parts of the spectrum.

58. *Completion of 800 MHz band reconfiguration in certain NPSPAC regions.* The Bureaus declare a NPSPAC region complete with 800 MHz band reconfiguration after (a) all licensees in the region have retuned their facilities to new frequencies assigned by the 800 MHz Transition Administrator, (b) all licensees in that region have ceased operating on their former frequencies, and (c) the incumbents' licenses have been modified to authorize operation on their new operating channels. Upon the completion of rebanding, the Bureaus (a) alert relevant stakeholders of the expiration of the interim interference criteria and full implementation of the interference abatement rules in sections 22.970(a) and 90.672(a) of our rules,¹³⁴ and (b) announce when they will begin to accept applications for EB and GB channels and for any remaining channels in the interleaved segment of the band vacated by Sprint. The Transition Administrator has certified that band reconfiguration is complete and all licensees are now operating on their post-rebanding channels in 44 NPSPAC regions, the most recent being Regions 9 (Florida), 33 (Ohio), and 43 (Washington State).¹³⁵ Therefore, the temporary waiver of the interference criteria in those regions has expired, and the minimum threshold levels specified in sections 22.970(a) and 90.672(a) are now in effect in those 44 regions.

59. We direct the Bureaus to announce by public notice the dates and procedures for submitting applications for EB/GB and vacated interleaved channels in those regions where rebanding is complete, and for EB/GB channels in those regions where EB/GB licensing was deferred pending the resolution of the LMCC request for incumbent priority.¹³⁶

4. Trackside Signal Boosters

60. As proposed in the *PLMR Access NPRM*, we modify our rules to permit railroads to use fixed trackside single-channel Class A signal boosters under certain conditions to increase rail safety by facilitating communication between the front and rear of trains. A signal booster is a device at a fixed location that automatically receives, amplifies, and retransmits, on a one-way or two-way basis, the signals received from base, fixed, mobile, and portable stations, with no change in frequency or authorized bandwidth.¹³⁷ Section 90.219(d)(3) of our rules limits each retransmitted channel to five watts

¹³⁴ 47 CFR §§ 22.970(a), 90.672(a).

¹³⁵ In addition to the Florida, Ohio and Washington State regions, band reconfiguration is complete in Regions 1 (Alabama), 2 (Alaska), 7 (Colorado), 8 (New York – Metropolitan), 10 (Georgia), 11 (Hawaii), 12 (Idaho), 13 (Illinois), 14 (Indiana), 15 (Iowa), 16 (Kansas), 17 (Kentucky), 18 (Louisiana), 19 (New England), 20 (Maryland, Washington, DC, and Virginia – Northern), 21 (Michigan), 22 (Minnesota), 23 (Mississippi), 24 (Missouri), 25 (Montana), 26 (Nebraska), 28 (New Jersey, Pennsylvania, and Delaware), 30 (New York – Albany), 31 (North Carolina), 32 (North Dakota), 35 (Oregon), 36 (Pennsylvania), 37 (South Carolina), 38 (South Dakota), 39 (Tennessee), 41 (Utah), 42 (Virginia), 44 (West Virginia), 45 (Wisconsin), 46 (Wyoming), 47 (Puerto Rico), 48 (U.S. Virgin Islands), 51 (Texas – Houston), 54 (Chicago – Metropolitan), 55 (New York – Buffalo), and 64 (American Samoa).

¹³⁶ To date, EB/GB channels have been made available for licensing in 20, generally less populated, NPSPAC regions. See *Public Safety and Homeland Security Bureau and Wireless Telecommunications Bureau Announce the Completion of 800 MHz Band Reconfiguration in Certain NPSPAC Regions*, Public Notice, 27 FCC Rcd 14775, 14780 (PSHSB/WTB 2012); *Public Safety and Homeland Security Bureau and Wireless Telecommunications Bureau Announce the Completion of 800 MHz Band Reconfiguration in Certain NPSPAC Regions and the Availability of Additional Sprint Vacated Channels*, Public Notice, 29 FCC Rcd 16290, 16295 (PSHSB/WTB 2014). Licensing of EB/GB channels in another 21 NPSPAC regions where rebanding is complete has been deferred pending the resolution of *PLMR Access* proceeding. See *Public Safety and Homeland Security Bureau and Wireless Telecommunications Bureau Announce the Completion of 800 MHz Band Reconfiguration in Certain NPSPAC Regions and the Availability of Additional Sprint Vacated Channels*, Public Notice, 31 FCC Rcd 12891, 12895-97 (PSHSB/WTB 2016).

¹³⁷ 47 CFR § 90.7.

effective radiated power (ERP) to reduce the potential for interference to other users.¹³⁸ Fixed use of frequencies in the 450-470 MHz band generally is permitted on a secondary basis to land mobile operations, but section 90.261(f) of the Commission's rules excludes certain frequencies in order to reserve them for other specialized uses, including railroad frequencies at 452/457.925 MHz to 452/457.96875 MHz.¹³⁹

61. In the *PLMR Access NPRM*, the Commission proposed to amend sections 90.219(d)(3) and 90.261(f) to permit railroads to use fixed trackside single-channel Class A signal boosters with up to 30 watts ERP on frequencies 452/457.90625 to 452/457.9625 MHz in areas where coverage is unsatisfactory due to distance or intervening terrain barriers.¹⁴⁰ It sought comment on whether it also should permit such operations on the channel pairs at the edge of the frequencies coordinated by the Association of American Railroads—452/457.9000 MHz and 452/457.96875 MHz.¹⁴¹

62. Most commenters support the proposal.¹⁴² In addition, the Association of American Railroads submits that permitting such operations on frequencies 452/457.9000 MHz and 452/457.96875 MHz would increase the reliability of railroad safety and communications systems without causing interference to other users.¹⁴³ The National Association of Manufacturers and MRFAC, Inc. (NAM/MRFAC), however, oppose use of higher power railroad signal boosters on these two channels, which overlap channels available to other users, due to concerns about interference in railroad yards or terminal areas near manufacturing plants.¹⁴⁴ We conclude that NAM/MRFAC's concerns are misplaced. The proposed rule permits high-power trackside signal boosters only in areas where communication between the front and rear of trains is unsatisfactory due to distance or intervening terrain barriers. This is an exception to the general limits on signal booster power, and does not authorize such operations in most areas, such as typical urban or industrial settings.

63. We conclude that permitting higher power railroad signal boosters will serve the public interest. On balance, the safety benefits of permitting the proposed signal boosters on the 452/457 MHz frequencies coordinated by Association of American Railroads outweigh the concerns that have been raised. Authorizing these operations will increase rail safety by facilitating communications between the front and rear end of trains. We accordingly amend sections 90.219(d)(3) and 90.261(f) to permit railroad licensees to use single-channel Class A signal boosters with up to 30 watts ERP on frequencies 452/457.9000 MHz to 452/457.96875 MHz, but only in areas where communication between the front and rear of trains is unsatisfactory due to distance or intervening terrain barriers, and not in urban or industrial areas.

¹³⁸ See 47 CFR § 90.219(d)(3); see also *Amendment of Parts 1, 2, 22, 24, 27, 90 and 95 of the Commission's Rules to Improve Wireless Coverage Through the Use of Signal Boosters*, Report and Order, 28 FCC Rcd 1663, 1718, para. 153 (2013).

¹³⁹ See 47 CFR §§ 90.35(b)(3), 90.261(f); see also *Amendment of Part 90 Concerning Secondary Fixed Operations in the 450-470 MHz Band*, Notice of Proposed Rule Making, 6 FCC Rcd 1800, 1802, n.22 (1991).

¹⁴⁰ See *PLMR Access NPRM*, 31 FCC Rcd at 9440, para. 27.

¹⁴¹ See *id.*

¹⁴² See AAR Comments at 2-3; EWA 16-261 Comments at 10; LMCC 16-261 Comments at 7; NAM/MRFAC at 3-4; NPSTC 16-261 Comments at 10.

¹⁴³ See AAR Comments at 5-6.

¹⁴⁴ See NAM/MRFAC Comments at 3; NAM/MRFAC Reply Comments at 1-2.

B. Removing Unnecessary Restrictions

64. In the *PLMR Access NPRM*, the Commission proposed rule changes to eliminate impediments to the efficient use of PLMR spectrum.¹⁴⁵ We now take action to eliminate rules and policies that “unnecessarily reduce the ability of licensees to put this spectrum to its highest and best use”¹⁴⁶ and that no longer serve the public interest. Specifically, we expand conditional licensing to specific bands above 470 MHz, lift the long-standing freeze on inter-category sharing of 800 MHz channels, and expand the availability of certain channels currently reserved for central station alarm operations.

1. Conditional Licensing Authority

65. Pursuant to section 90.159(b) of the Commission’s rules, most applicants proposing to operate a new or modified PLMR station on frequencies below 470 MHz that require frequency coordination may begin operating the proposed station 10 days after the application is filed and may continue to operate it for up to 180 days while the application is pending.¹⁴⁷ This conditional authority is not available for applicants in the PLMR frequency bands above 470 MHz, where spectrum is available on an exclusive basis. When the Commission adopted this rule in 1989, it stated that it was restricting conditional authority to bands where frequencies are shared in order to be conservative, but that it might consider extending the concept to bands above 470 MHz based on its experience with the shared bands.¹⁴⁸ To expedite deployment of communications facilities and reduce administrative burdens, we amend our rules to expand conditional authority to 700 MHz Public Safety narrowband and 800 MHz band PLMR applicants.

66. In its petition asking the Commission to expand conditional authority to T-Band, 800 MHz, and 900 MHz band PLMR applicants, LMCC argued that experience had demonstrated that expansion of conditional authority is now appropriate.¹⁴⁹ In the *PLMR Access NPRM*, the Commission agreed with LMCC and others that expanding conditional authority would enable more applicants to meet pressing communications requirements without seeking special temporary authority (STA) and would provide greater flexibility and earlier deployment of spectrum without compromising quality of service.¹⁵⁰ Consequently, the Commission proposed to expand conditional authority to 800 and 900 MHz PLMR applicants and sought comment on whether to expand it to applicants for 700 MHz Public Safety

¹⁴⁵ See *PLMR Access NPRM*, 31 FCC Rcd at 9443, para. 36.

¹⁴⁶ See, e.g., *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission’s Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands*, Notice of Proposed Rulemaking, FCC 18-59, para. 23 (May 10, 2018).

¹⁴⁷ See 47 CFR § 90.159(b), (b)(6). This conditional authority applies only to applications that meet the following requirements: the proposed station location is south of Line A and west of Line C; the proposed antenna structure has previously been determined by the Federal Aviation Administration to pose no hazard to aviation safety, or the proposed structure height does not exceed 6.1 meters above ground level or above an existing man-made structure; grant of the application does not require a waiver of the Commission’s rules; the proposed facility will not have a significant environmental effect; and the proposed station is not in a quiet zone. 47 CFR § 90.159(b)(1)-(5).

¹⁴⁸ *Amendment of Part 90 of the Commission’s Rules to Implement a Conditional Authorization Procedure for Proposed Private Land Mobile Radio Service Stations*, Report and Order, 4 FCC Rcd 8280, 8282-83, para. 25 (1989) (*Conditional Authorization Report and Order*).

¹⁴⁹ See Petition of the Land Mobile Communications Council for Rulemaking, RM-11722, at 4-6 (filed May 15, 2014).

¹⁵⁰ See *PLMR Access NPRM*, 31 FCC Rcd at 9438, para. 18.

narrowband frequencies.¹⁵¹ In response to comments from MRA, the Commission also asked whether any limitations or additional conditions should be imposed on conditional authority.¹⁵²

67. We agree with the commenters that expanding conditional authority is in the public interest and that we should no longer restrict conditional authority to bands below 470 MHz. We find that such authority will expedite deployment of communications facilities and reduce administrative burdens on licensees and the Commission, without increasing the risk of harmful interference.¹⁵³ Accordingly, we amend section 90.159 to expand conditional authority to 800 MHz band (including the 800 MHz NPSPAC band) PLMR applicants, and we amend section 1.931 to provide an appropriate cross-reference. We also agree with the commenters that conditional authority would not create any different interference risk for 700 MHz Public Safety narrowband frequencies, so there is no reason to exclude those applicants from the benefits of conditional licensing.¹⁵⁴ We amend the rules accordingly.

68. We do not expand conditional licensing to the T-Band band. Acceptance of applications for new or expanded T-Band operations has been suspended in order to maintain a stable spectral landscape while the Commission determines how to proceed with respect to that spectrum, which Congress has designated for reallocation and reassignment.¹⁵⁵ Commenters addressing the question¹⁵⁶ assert that conditional authority should be expanded to T-Band applicants notwithstanding the current application freeze.¹⁵⁷ We conclude, however, that there is no reason to make any changes to the T-Band licensing rules as long as the freeze is in effect. For similar reasons, we decline to expand conditional licensing to the 900 MHz band at this time, in light of the licensing freeze recently adopted as the Commission explores whether any rule changes may be appropriate to improve spectrum efficiency or expand flexibility in the 900 MHz band in order to better serve PLMR users' current and future communications needs.¹⁵⁸

69. We deny LMCC's request that we modify the *PLMR Access NPRM* proposal to allow site-based SMR applicants to operate while an application is pending.¹⁵⁹ Section 90.159 does not provide conditional authority for commercial mobile radio service applicants, and the *PLMR Access NPRM* did not propose to remove that limitation. When the Commission adopted that section, it specifically excluded SMR applicants because, unlike private mobile radio service applications, SMR applications require 30 days pre-grant public notice.¹⁶⁰

¹⁵¹ See *id.* at 9438, paras. 18-19.

¹⁵² See *id.* at 9438-39, paras. 21-23.

¹⁵³ See AAR Comments at 6; APCO 16-261 Comments at 2; EWA 16-261 Comments at 9-10; State of Florida Comments at 1 (Dec. 5, 2016) (Florida 16-261 Comments); LMCC 16-261 Comments at 5; Motorola 16-261 Comments at 2-4; MRA 16-261 Comments at 10; NAM/MRFAC Comments at 4; NPSTC 16-261 Comments at 4-5; National Regional Planning Council Comments at 2 (NRPC Comments); UTC 16-261 Comments at 3-4.

¹⁵⁴ See APCO 16-261 Comments at 2; Florida 16-261 Comments at 1; LMCC 16-261 Comments at 6-7; NPSTC 16-261 Comments at 5; NRPC Comments at 2-3; UTC 16-261 Comments at 3.

¹⁵⁵ See Spectrum Act, Pub. L. No. 112-96, 126 Stat. 156.

¹⁵⁶ *PLMR Access NPRM*, 31 FCC Rcd at 9437-38, paras. 17-18.

¹⁵⁷ See APCO 16-261 Comments at 2; EWA 16-261 Comments at 10; LMCC 16-261 Comments at 6; NPSTC 16-261 Comments at 6; NRPC Comments at 3; UTC 16-261 Comments at 4. The 900 MHz band freeze was implemented after the comments were filed.

¹⁵⁸ See *900 MHz Freeze Public Notice*, DA 18-949.

¹⁵⁹ See LMCC 16-261 Comments at 5-6; see also EWA 16-261 Comments at 10.

¹⁶⁰ See *Conditional Authorization Report and Order*, 4 FCC Rcd at 8283, paras. 25-29 (citing 47 U.S.C. § 309). It subsequently reaffirmed that conclusion. See *Implementation of Sections 3(n) and 332 of the Communications Act – Regulatory Treatment of Mobile Services; Amendment of Part 90 of the Commission's Rules to Facilitate*

70. We also reject MRA's argument that conditional licensing should be limited to unopposed applications and that operations under conditional authority should be secondary to incumbent licensee operations.¹⁶¹ Other commenters, opposing MRA's suggestions, note that the frequency coordination process provides a safeguard against incompatible operations.¹⁶² As the Commission noted in the *PLMR Access NPRM*, our rules already permit modification or cancellation of conditional authority at any time without hearing if the need arises.¹⁶³ We conclude, based on the record before us, that MRA's suggested changes to the conditional licensing rules are unnecessary and that individual incidents of interference can be addressed under our existing licensing and enforcement procedures.¹⁶⁴

71. We also decline the suggestion of the State of Florida to extend conditional authority beyond 180 days if the application remains pending.¹⁶⁵ LMCC opposes Florida's proposal and encourages the Commission to enforce the 180-day limitation strictly.¹⁶⁶ The Commission concluded in 1989 that 180 days is a reasonable period for conditional authorization because it corresponds with the Communications Act's 180-day limit on temporary authority.¹⁶⁷ Expanding conditional licensing beyond 180 days would raise legal and policy issues that depart from Commission precedent and are not addressed in the current record. An applicant whose application is pending longer than 180 days must request and, if warranted, be granted special temporary authority if it wishes to continue operating.¹⁶⁸

2. Termination of the Freeze on Inter-Category Sharing in the 800 MHz Band

72. We also terminate the freeze on inter-category sharing put into effect in 1995 by WTB.¹⁶⁹ Because of the changing use of the spectrum, the fundamental rationale behind the freeze no longer applies. In addition, elimination of the freeze will relieve burdens on applicants, which currently must request waivers, and the Commission, which must process them.

73. Ordinarily, an applicant is licensed on a frequency in the pool (General Category, Public Safety, B/ILT, or high-site SMR¹⁷⁰) for which it meets the eligibility criteria. However, the Commission's rules permit "inter-category sharing" in certain circumstances. An applicant eligible for licensing in the 800 MHz Public Safety Pool or B/ILT Pool may be licensed on channels outside of its

Development of SMR Systems in the 800 MHz Frequency Band; Amendment of Parts 2 and 90 of the Commission's Rules to Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and 935-940 MHz Band Allotted to the Specialized Mobile Radio Pool, Third Report and Order, 9 FCC Rcd 7988, 8089, para. 384 (1994) (*SMR Third Report and Order*).

¹⁶¹ See MRA 16-261 Comments at 10-13.

¹⁶² See Florida 16-261 Comments at 2; LMCC 16-261 Comments at 7; UTC Reply Comments at 3 (Dec. 22, 2016).

¹⁶³ See *PLMR Access NPRM*, 31 FCC Rcd at 9439, para. 22 (citing 47 CFR § 90.159(d)).

¹⁶⁴ Indeed, MRA's arguments that change is needed are premised primarily on the operations of one licensee, whose licenses subsequently were revoked. See *Acumen Communications*, Order of Revocation, 33 FCC Rcd 4 (EB 2018).

¹⁶⁵ See Florida 16-261 Comments at 2.

¹⁶⁶ See LMCC 16-261 Comments at 7.

¹⁶⁷ See *Conditional Authorization Report and Order*, 4 FCC Rcd at 8281, n.16 (citing 47 U.S.C. § 309(f)).

¹⁶⁸ See 47 CFR § 1.931(b)(2) (setting forth the circumstances in which STA will be granted in the Private Wireless Services).

¹⁶⁹ *Inter-Category Sharing of Private Mobile Radio Frequencies in the 806-821/851-855 MHz Bands*, Order, 10 FCC Rcd 7350 (*Inter-Category Sharing Order*), *aff'd*, Memorandum and Opinion and Order, 11 FCC Rcd 1452 (WTB 1995). We take this action on our own motion, though we note that some comments in response to the *PLMR Access NPRM* requested termination of the freeze. See AASHTO Reply Comments at 3-4; APCO 16-261 Comments at 3; EWA 16-261 Comments at 5, 7; LMCC 16-261 Comments at 10.

¹⁷⁰ See 47 CFR §§ 90.615, 90.617.

pool if (a) a Commission-certified frequency coordinator certifies that no channels are available in the pool for which the applicant is eligible, and (b) the desired out-of-pool channel is available as certified by the out-of-pool channel coordinator.¹⁷¹ Formerly, the rules also permitted entities eligible for the SMR Pool or General Category Pool to obtain out-of-pool channels through inter-category sharing.¹⁷²

74. Because of a freeze on SMR applications on certain channels,¹⁷³ by 1995, SMR applicants had obtained numerous inter-category sharing authorizations primarily for channels in the B/ILT Pool. This led B/ILT entities to file inter-category sharing requests for public safety channels. Concerned that this might lead to a shortage of public safety channels,¹⁷⁴ WTB issued its “freeze order” suspending acceptance of applications proposing inter-category sharing in the 800 MHz band.¹⁷⁵

75. Over time, public safety began to use the 800 MHz band more intensely. This led to a shortage of public safety channels in some areas. Public safety agencies, unable to identify vacant public safety channels, began seeking waivers of the inter-category freeze to obtain channels in other pools.¹⁷⁶ Appropriate waiver requests were routinely approved.¹⁷⁷

76. *Discussion.* We find the freeze on inter-category sharing is no longer necessary. The channel environment in the 800 MHz band has evolved over the last 20 years. The primary demand for channels is from public safety entities, many of which are constructing complex, multi-channel, statewide or county-wide systems.¹⁷⁸ Public safety applicants’ requests for waiver of the inter-category sharing freeze have without exception been granted, provided they satisfied the requirements of the inter-category sharing rule.

77. We envision no untoward effects from lifting the freeze. Applicants still must meet the prerequisites for inter-category sharing, and parties are still free to oppose a given inter-category sharing application.¹⁷⁹ In the unlikely event that our action here results in difficulties similar to those that led to the institution of the 1995 freeze, we direct the Bureaus to reinstitute the freeze as necessary.

¹⁷¹ See 47 CFR § 90.621(e)(1), (5).

¹⁷² See 47 CFR § 90.621(e)(2)-(4) (1995).

¹⁷³ See *SMR Third Report and Order*, 9 FCC Rcd at 8167, para. 108.

¹⁷⁴ WTB had noted “a dramatic increase in the number of Business and I/LT entities filing applications for inter-category sharing to use Public Safety channels” *Inter-Category Sharing Order*, 10 FCC Rcd at 7352, para. 5.

¹⁷⁵ *Id.* The freeze was imposed to “ensure that adequate frequencies are made available to public safety licensees,” and in recognition that “Congress also [was] concerned with the adequacy of spectrum to meet the communications needs of public service agencies.” *Id.*

¹⁷⁶ There also were applications filed by B/ILT entities seeking inter-category sharing of public safety channels; these, however, were infrequent.

¹⁷⁷ See, e.g., *Fisher Ranch*, Order, 17 FCC Rcd 602 (WTB PSPWD 2002); *Duke Energy Corp.*, Order, 18 FCC Rcd 1245 (WTB PSPWD 2003); *Delaware, State of*, Order, 21 FCC Rcd 6332 (WTB PSCID 2006); *Cumberland, County of*, Order, 21 FCC Rcd 9089 (WTB PSCID 2006); *Weld, County of*, Order, 28 FCC Rcd 4369 (PSHSB PLD 2013); *Weld, County of*, Memorandum Opinion and Order, 29 FCC Rcd 5748 (PSHSB PLD 2014); *Denver, City and County of*, Order, 30 FCC Rcd 10680 (PSHSB PLD 2015); *North Carolina State Highway Patrol*, Order, 30 FCC Rcd 10969 (PSHSB PLD 2015).

¹⁷⁸ See *Inter-Category Sharing Order*, 10 FCC Rcd at 7352, para. 5.

¹⁷⁹ See 47 CFR § 1.41.

78. Termination of the freeze on inter-category sharing is procedural and therefore not subject to the notice and comment requirements of the Administrative Procedure Act.¹⁸⁰

3. Central Station Alarm Channels

79. Section 90.35 of the Commission's rules lists the frequencies that are available for assignment to I/B Pool stations and sets forth eligibility requirements and frequency-specific use limitations.¹⁸¹ Certain frequencies are reserved for the use of central station commercial protection services to maintain communications paths between alarm systems at customer premises and central station alarm monitoring centers.¹⁸² Except for five "primary" frequency pairs, these frequencies are limited to two watts output power.¹⁸³ In the *PLMR Access NPRM*, the Commission noted that these channels were set aside for central station use 50 years ago,¹⁸⁴ and it observed that this spectrum appeared to be underused.¹⁸⁵ The Commission surmised that the need for these channels had diminished due to advances in other services and technologies that can be used to complete the communications path to the alarm service central office, such as cellular telephone, satellite communication services, and the Internet.¹⁸⁶ The Commission proposed to modify section 90.35(c) to make frequencies that currently are limited to central station alarm operations available for other uses.¹⁸⁷ We agree with the majority of commenters addressing the issue that central station channels should be made available for other uses.¹⁸⁸

¹⁸⁰ See, e.g., *Amendment of Section 0.457, Rules and Regulations*, Order, 9 F.C.C. 2d 1, 1, para. 2 (1967) (revising the rules concerning the availability of investigatory files for inspection); see also *Kessler v. FCC*, 326 F.2d 673 (D.C. Cir. 1963).

¹⁸¹ See 47 CFR § 90.35.

¹⁸² See 47 CFR § 90.35(c)(63) (defining central station commercial protection service as "an electrical protection and supervisory service rendered to the public from and by a central station accepted and certified by one or more of the recognized rating agencies, or the Underwriters Laboratories (UL), or the Factory Mutual System"). Specifically, six 12.5 kilohertz frequency pairs (460/465.900 MHz, 460/465.9125 MHz, 460/465.925 MHz, 460/465.9375 MHz, 460/465.950 MHz, and 460/465.9625 MHz) and the upper-adjacent 6.25 kilohertz interstitial frequency pairs (460/465.90625 MHz, 460/465.91875 MHz, 460/465.93125 MHz, 460/465.94375 MHz, 460/465.95625 MHz, and 460/465.96875 MHz) are set aside for central station protection service use in the 88 urbanized areas with a population over 200,000 in the 1960 Census (urban frequencies), and four 12.5 kilohertz frequency pairs (460/465.975 MHz, 460/465.9875 MHz, 461/466.000 MHz, and 461/466.0125 MHz) and the upper-adjacent 6.25 kilohertz interstitial frequency pairs (460/465.98125 MHz, 460/465.99375 MHz, 461/466.00625 MHz, and 461/466.01875 MHz) are designated for central station protection service use nationwide (nationwide frequencies). See 47 CFR § 90.35(c)(63), (66).

¹⁸³ 460/465.900 MHz, 460/465.925 MHz, 460/465.950 MHz, 460/465.975 MHz, and 461/466.000 MHz. 47 CFR §§ 90.35(c)(87), 90.267(f)(4).

¹⁸⁴ See *Amendment of Parts 89, 91, 93, and 95 (Formerly 10, 11, 16, and 19) of the Commission's Rules to Reduce the Separation Between the Assignable Frequencies in the 450-470 Mc/s Band, et al.*, Second Report and Order, 11 F.C.C. 2d 648, 653, para. 14 (1968). The Commission designated these channels for central station alarm use to "provide for reasonably reliable radio systems." *Id.*

¹⁸⁵ See *PLMR Access NPRM*, 31 FCC Rcd at 9435-36, para. 12.

¹⁸⁶ See *id.* at 9435-36, paras. 11-12 (citing *Sunset of the Cellular Radiotelephone Service Analog Service Requirement and Related Matters*, Memorandum Opinion and Order, 22 FCC Rcd 11243, 11247, para. 7 (2007)).

¹⁸⁷ See *id.* at 9436, paras. 13-14.

¹⁸⁸ See, e.g., MRA 16-261 Comments at 9 ("The allocation of this spectrum to central station alarm service, over forty years ago, has been rendered completely obsolete by changes in technology. Currently, this spectrum is lying fallow and completely underutilized. The public interest is best served by re-allocating this spectrum to IB usage."); NAM/MRFAC Comments at 4 ("NAM/MRFAC support the Notice's proposal to . . . consider possible liberalization of eligibility rules for certain UHF central station alarm frequencies which are currently underutilized").

80. Only The Monitoring Association (formerly the Central Station Alarm Association) argues generally that the use restriction on these channels should be retained. It asserts that the restriction should not be removed at this time because an increasing percentage of alarm systems will use wireless devices to relay signals to the central station, and millions of existing users are expected to transition to central station channels in response to the sunset of 2G cellular service and decommissioning of telephone land lines.¹⁸⁹ We believe that access to additional frequencies to help relieve congestion affecting PLMR users can be provided while still meeting the needs of the alarm industry.¹⁹⁰

81. The reservation of these channels for central station commercial protection services reflected the Commission's approach to PLMR spectrum at the time, when what is now the I/B Pool was divided into multiple industry-specific services. The Commission subsequently consolidated the separate services into the I/B Pool to encourage more efficient use of the spectrum and to reduce administrative burdens.¹⁹¹ It recognized, however, that "some types of radio users employ radio not just for day-to-day business needs but also to respond to emergencies that could be extremely dangerous to the general public."¹⁹² Rather than leave that spectrum designated for those industries' exclusive use, the Commission required entities applying for frequencies formerly allocated solely to the Railroad, Power, Petroleum, or Automobile Emergency Radio Services to obtain coordination or concurrence from the certified frequency coordinator for that service.¹⁹³ That coordinator could deny coordination or concurrence where an application "would have a demonstrable, material, adverse effect on safety."¹⁹⁴ We

¹⁸⁹ See Central Station Alarm Association Comments at 3-7 (Nov. 22, 2016) (CSAA Comments). After the comment cycle ended, LMCC and The Monitoring Association submitted a joint plan whereby some central station alarm channels would be available to all I/B Pool applicants, while others would remain designated only for central station use but The Monitoring Association agreed that it would not object to requests for waivers under certain conditions. See The Monitoring Association (formerly the Central Station Alarm Association) and LMCC *ex parte* filing, Attach. at 2-4 (May 8, 2017) (TMA/LMCC *Ex Parte*); see also The Monitoring Association (formerly the Central Station Alarm Association) and LMCC *ex parte* filing, Attach. at 2-4 (Apr. 20, 2018). Specifically, urban primary channels would be available to all I/B Pool applicants proposing centralized trunked operations, provided that (1) the proposed interference contour does not overlap an incumbent central station licensee's authorized service area without the incumbent's consent, and (2) the applicant does not seek the last available primary frequency pair in that urbanized area. Nationwide primary channels would remain designated for central station use only, as would all non-primary channels (both urban and nationwide). As part of the proposed joint plan, The Monitoring Association represented that, as the frequency coordinator for the central station alarm channels, it would consider concurring with waiver requests for nationwide primary channels under the following conditions: (1) there are no exclusive use frequencies available in the applicant's primary pool, and (2) the applicant does not seek all or part of the last available primary frequency pair in any of the 88 urbanized areas with a population over 200,000 in the 1960 Census. For the reasons set forth above, however, we continue to believe that even this level of designated exclusive use of the subject channels is unnecessary, and we decline to adopt the proposed joint plan.

¹⁹⁰ See, e.g., EWA 16-261 Comments at 9 (advocating "an approach that addresses the communications needs of that industry [*i.e.*, commercial central station protection services] and of other LMCC member constituencies").

¹⁹¹ *Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them*, Second Report and Order, 12 FCC Rcd 14307, 14309, para. 3 (1997) (*Refarming Second Report and Order*).

¹⁹² See *id.* at 14329, para. 41.

¹⁹³ *Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them; and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Services*, Second Memorandum Opinion and Order, 14 FCC Rcd 8642, 8647-48, 8650-51, paras. 9, 16 (1999); see 47 CFR § 90.175(b).

¹⁹⁴ See 47 CFR § 90.175(b)(2). The coordinator must provide a written supporting statement containing the technical basis for the denial of concurrence. *Id.* If that the relevant coordinators cannot cooperatively resolve their differences, the matter may be referred to WTB. See *Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them; and Examination of Exclusivity and Frequency*

find that this approach has worked well to expand access to PLMR spectrum while protecting safety-related communications. We further find that such a requirement would address The Monitoring Association's concerns that unrestricted sharing with other I/B Pool eligibles will result in interference to central station alarm systems.¹⁹⁵

82. Consequently, we amend sections 90.35(c), 90.175(b), and 90.267(f) of the Commission's rules to require entities other than central station commercial protection services to obtain the concurrence of the central station alarm channel frequency coordinator¹⁹⁶ before they are permitted to use these channels.¹⁹⁷ We conclude that this approach serves the public interest because it will make unused central station frequencies available for other PLMR operations while protecting central station operations.¹⁹⁸

83. Finally, The Monitoring Association and LMCC suggest that the Commission modify section 90.35(c)(64) of the Commission's rules to ease limitations on central station use of primary channels for data signaling,¹⁹⁹ which The Monitoring Association argues will make the channels more useful for alarm services.²⁰⁰ We agree that the purpose of the rule permitting data signaling—to allow central station licensees to improve their systems' operating efficiency and to facilitate immediate communication with police and fire departments in emergencies—is no longer served by the current technical restrictions, which are 40 years old.²⁰¹ We amend section 90.35(c) to ease limitations on central station use of primary channels for data signaling.

Assignment Policies of the Private Land Mobile Services, Fifth Memorandum Opinion and Order, 16 FCC Rcd 416, 419, para. 8 (2000).

¹⁹⁵ See CSAA Comments at 14-15.

¹⁹⁶ The Commission certified the Central Station Electrical Protection Association (CSEPA) as the frequency coordinator for the central station alarm channels in 1986. See *Frequency Coordination in the Private Land Mobile Radio Services*, Report and Order, 103 F.C.C. 2d 1093, 1138, para. 90 (1986). CSEPA became the Central Station Alarm Association and is now known as The Monitoring Association. See <http://tma.us/about-csaa/>.

¹⁹⁷ We extend this approach to both the primary and non-primary channels. We expect few if any requests for the non-primary channels, however, given that they already are heavily used for central station operations and there is no shortage of other low-power channels for which applicants will not need The Monitoring Association's concurrence. See CSAA Comments at 8-9.

¹⁹⁸ NPSTC suggests that public safety entities receive preferential or exclusive access to these channels in markets where public safety licensees are required by the Spectrum Act to vacate the T-Band. See NPSTC 16-261 Comments at 9-10. We decline NPSTC's suggestion that we give public safety T-Band licensees priority for the channels formerly designated only for central station commercial protection services, because the central station frequencies are in the I/B Pool. Cf. note 114, *supra* (providing priority access for public safety licensees in T-Band markets only on newly available 800 MHz Public Safety Pool frequencies, but not 800 MHz B/ILT Pool frequencies).

¹⁹⁹ See TMA/LMCC *Ex Parte*, Attach. at 4.

²⁰⁰ See CSAA Comments at 10-11.

²⁰¹ See *Amendment of Section 91.554 of the Commission's Rules to prohibit the operation of base or control stations on the frequencies 460.900/465.900, 460.925/465.925, and 460.950/465.950 MHz by non-central station commercial protection entities within 75 miles of urbanized areas of 200,000 or more population (1960 Census), and to permit alarm signaling and other fixed point-to-point operations on a secondary basis for central station commercial protection entities on the frequencies 460.900/465.900, 460.925/465.925, 460.950/465.950, 460.975/465.975, and 461.000/466.000 MHz*, Report and Order, 69 F.C.C. 2d 1169, 1170, para. 2 (1978).

C. Editorial Corrections and Updates

84. In addition to the substantive proposals discussed above, the *PLMR Access NPRM* proposed to make certain corrections to section 90.35.²⁰² The Commission received no comments regarding these proposals.²⁰³ As proposed, we restore two airports (Kahului and Ke-Ahole) to the list of airports at or near which certain frequencies are reserved for commercial air transportation services.²⁰⁴ These two airports were inadvertently deleted when the list was last updated.²⁰⁵ We also correct the coordinates for one airport (Boeing/King County International) that were listed incorrectly. In addition, we correct the entries in the I/B Pool table for frequencies from 153.0425 MHz to 153.4025 MHz for which the notation indicating that the concurrence of the Petroleum Coordinator is required was inadvertently deleted.²⁰⁶

IV. PROCEDURAL MATTERS

85. *Final Regulatory Flexibility Analysis.*—As required by the Regulatory Flexibility Act (RFA) of 1980,²⁰⁷ as amended, an Initial Regulatory Flexibility Analysis (IRFA) was incorporated into the *NPRMs*.²⁰⁸ The Commission sought, but did not receive, written public comment on the possible significant economic impact on small entities regarding the proposals addressed in the *NPRMs*, including comments on the IRFAs. Pursuant to the RFA, the Final Regulatory Flexibility Analysis in this *Report and Order and Order* is attached as Appendix A. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of the *Report and Order and Order*, including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. In addition, the Commission will send a copy of the *Report and Order and Order*, including the FRFA, in a report to Congress pursuant to the Congressional Review Act.²⁰⁹

86. *Paperwork Reduction Act Analysis.*—The requirements in revised section 90.175(e) and new section 90.621(d)(4) constitute new information collections subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13, and the requirements in revised sections 90.35(c)(63) and (66), 90.175(b), and 90.267(f) constitute modified information collections. They will be submitted to the Office of Management and Budget (OMB) for review under section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new information collection requirements contained in this proceeding. This document will be submitted to OMB for review under section 3507(d) of the PRA. In addition, we note that, pursuant to the Small Business Paperwork Relief Act of 2002, we previously sought, but did not receive, specific comment on how the Commission might

²⁰² See *PLMR Access NPRM*, 31 FCC Rcd at 9436, para. 15.

²⁰³ MRA requests that section 90.307(e), 47 CFR § 90.307(e), be revised to update the list of television stations that must be protected by part 90 T-Band stations. See MRA 16-261 Comments at 9-10. In addition to being beyond the scope of the *PLMR Access NPRM* proposals, we note that updating the list would be premature while the post-incentive auction repacking process is still ongoing. See *Incentive Auction Task Force and Media Bureau Announce the Opening of the Second Filing Window for Eligible Full Power and Class A Television Station—October 3 Through November 2, 2017*, Public Notice, 32 FCC Rcd 6989 (MB 2017).

²⁰⁴ 47 CFR § 90.35(c)(61)(iv).

²⁰⁵ See *1998 Biennial Regulatory Review – 47 C.F.R. Part 90 – Private Land Mobile Radio Services*, Memorandum Opinion and Order and Second Report and Order, 17 FCC Rcd 9830, 9853, para. 49 (2002). We also take this opportunity to update the list to reflect intervening airport closures and name changes.

²⁰⁶ See *Narrowbanding Third MO&O*, 19 FCC Rcd at 25090-91.

²⁰⁷ 5 U.S.C. § 604.

²⁰⁸ *800 MHz Interstitial NPRM*, 30 FCC Rcd 1663 at Appendix A; *PLMR Access NPRM*, 31 FCC Rcd 9431 at Appendix B.

²⁰⁹ See 5 U.S.C. § 801(a)(1)(A).

further reduce the information collection burden for small business concerns with fewer than 25 employees. We describe impacts that might affect small businesses, which includes more businesses with fewer than 25 employees, in the Final Regulatory Flexibility Analysis in Appendix A.

87. *Congressional Review Act.*—The Commission will send a copy of this *Report and Order and Order* to Congress and the Government Accountability Office pursuant to the Congressional Review Act.²¹⁰

V. ORDERING CLAUSES

88. Accordingly, IT IS ORDERED that, pursuant to Sections 4(i), 201(b), 303, 308, 316, 324, 332, and 337 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 201(b), 303, 308, 316, 324, 332, 337, this *Report and Order and Order* IS HEREBY ADOPTED.

89. IT IS FURTHER ORDERED that the amendments of the Commission's rules as set forth in Appendix B ARE ADOPTED, effective thirty days from the date of publication in the Federal Register, except for modified sections 90.35(c)(63) and (66), 90.175(b) and (e), and 90.267(f), and new section 90.621(d)(4) that contain new or modified information collection requirements that require review by the OMB under the PRA WILL BECOME EFFECTIVE only after OMB review and approval. The Commission will announce the effective date of rules subject to OMB review in a notice published in the Federal Register after it receives OMB approval.

90. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Report and Order and Order*, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

91. IT IS FURTHER ORDERED that the Commission SHALL SEND a copy of this *Report and Order and Order* in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. § 801(a)(1)(A).

92. IT IS FURTHER ORDERED pursuant to sections 4(i) and 5(c) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 155(c) that the suspension of the acceptance of applications for inter-category sharing of frequencies allocated to the 800 MHz Public Safety and Business/Industrial Land Transportations Pools imposed April 5, 1995, is hereby TERMINATED.

93. IT IS FURTHER ORDERED that, if no petitions for reconsideration or applications for review are timely filed, the above-captioned proceedings SHALL BE TERMINATED and the dockets CLOSED.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

²¹⁰ 5 U.S.C. § 801(a)(1)(A).

Appendix A Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notices of Proposed Rulemaking (Notices)* released in these proceedings.² The Commission sought written public comment on the proposals in the *Notices*, including comment on the IRFAs. No comments were filed addressing the IRFAs. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.

A. Need for, and Objectives of, the Rules

2. The *Report and Order and Order* takes several actions to expand access to private land mobile radio (PLMR) spectrum. PLMR services provide for the private, internal communications needs of public safety organizations, state and local government entities, large and small businesses, transportation providers, the medical community, and other diverse users of two-way radio systems. Demand for PLMR services has steadily increased and existing PLMR spectrum has become congested and difficult to access. Specifically, we introduce new, full power, interstitial 12.5 kilohertz bandwidth offset channels to the 809-817/854-862 MHz band (800 MHz Mid-Band), subject to certain protections designed to minimize the possibility of interference between licensees operating on adjacent channels. With the introduction of these new interstitial channels, licensees operating PLMR systems in the 800 MHz Mid-Band will have access to 318 additional voice-grade channels for use in the Public Safety, Business/Industrial/ Land Transportation (B/ILT) and high-site Specialized Mobile Radio (SMR) categories.

3. We also amend section 90.35 of our rules to make available for PLMR use particular frequencies located between the Industrial/Business (I/B) Pool and either General Mobile Radio Service (GMRS) or Broadcast Auxiliary Service (BAS) spectrum, to allow wider use of some frequencies currently designated for central station alarm operations, and to make updates and corrections; amends section 90.159 of our rules to extend conditional licensing authority to applicants for site-based licenses in specific bands above 470 MHz; and amend sections 90.219(d)(3) and 90.261(f) of our rules to accommodate certain railroad operations. In addition, we announce the completion of 800 MHz band reconfiguration in certain National Public Safety Planning Advisory Committee (NPSPAC) regions, and terminate the freeze on inter-category sharing that was put into effect in 1995. By our actions today, we substantially expand access to PLMR spectrum and encourage its more efficient use. At the same time, we reduce administrative burdens on small as well as other sized applicants and licensees.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

4. There were no comments filed that specifically addressed the rules and policies proposed in the IRFAs.

¹ 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601–612, was amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, 110 Stat. 857 (1996).

² *Creation of Interstitial 12.5 Kilohertz Channels in the 800 MHz Band Between 809-817/854-862 MHz*, Notice of Proposed Rulemaking, 30 FCC Rcd 1663, 1682-87 (2015) (*800 MHz Interstitial NPRM*); *Amendment of Part 90 of the Commission's Rules to Improve Access to Private Land Mobile Radio Spectrum; Land Mobile Communications Council Petition for Rulemaking Regarding Interim Eligibility for 800 MHz Expansion Band and Guard Band Frequencies; Petition for Rulemaking Regarding Conditional Licensing Authority Above 470 MHz*, Notice of Proposed Rulemaking, 31 FCC Rcd 9431 (2016) (*PLMR Access NPRM*).

C. Response to Comments by the Chief Counsel for Advocacy of the Small Business Administration

5. Pursuant to the Small Business Jobs Act of 2010, which amended the RFA, the Commission is required to respond to any comments filed by the Chief Counsel for Advocacy of the Small Business Administration (SBA), and to provide a detailed statement of any change made to the proposed rules as a result of those comments.³

6. The Chief Counsel of Advocacy of the SBA did not file any comments in response to the proposed rule changes in these proceedings.

D. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply

7. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the rules adopted herein.⁴ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”⁵ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.⁶ A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.⁷

8. *Small Businesses, Small Organizations, Small Governmental Jurisdictions.* Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three broad groups of small entities that could be directly affected herein.⁸ First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the SBA’s Office of Advocacy, in general a small business is an independent business having fewer than 500 employees.⁹ These types of small businesses represent 99.9% of all businesses in the United States which translates to 28.8 million businesses.¹⁰ Next, the type of small entity described as a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”¹¹ Nationwide, as of as of Aug 2016, there were approximately 356,494 small organizations based on registration and tax data filed by nonprofits with the Internal Revenue Service (IRS).¹²

³ 5 U.S.C. § 604(a)(3).

⁴ 5 U.S.C. § 604(a)(3)

⁵ 5 U.S.C. § 601(6).

⁶ 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in the Small Business Act). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

⁷ 15 U.S.C. § 632.

⁸ See 5 U.S.C. § 601(3)-(6).

⁹ See SBA, Office of Advocacy, “Frequently Asked Questions, Question 1 – What is a small business?” https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf (June 2016)

¹⁰ See SBA, Office of Advocacy, “Frequently Asked Questions, Question 2- How many small business are there in the U.S.?” https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf (June 2016).

¹¹ 5 U.S.C. § 601(4).

¹² Data from the Urban Institute, National Center for Charitable Statistics (NCCS) reporting on nonprofit organizations registered with the IRS was used to estimate the number of small organizations. Reports generated

9. Finally, the small entity described as a “small governmental jurisdiction” is defined generally as “governments of cities, counties towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”¹³ U.S. Census Bureau data from the 2012 Census of Governments¹⁴ indicates that there were 90,056 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States.¹⁵ Of this number there were 37,132 General purpose governments (county¹⁶, municipal and town or township¹⁷) with populations of less than 50,000 and 12,184 Special purpose governments (independent school districts¹⁸ and special districts¹⁹) with populations of less than 50,000. The 2012 U.S. Census Bureau data for most types of governments in the local government category shows that the majority of these governments have

using the NCCS online database indicated that as of August 2016 there were 356,494 registered nonprofits with total revenues of less than \$100,000. Of this number 326,897 entities filed tax returns with 65,113 registered nonprofits reporting total revenues of \$50,000 or less on the IRS Form 990-N for Small Exempt Organizations and 261,784 nonprofits reporting total revenues of \$100,000 or less on some other version of the IRS Form 990 within 24 months of the August 2016 data release date. See <http://nccs.urban.org/sites/all/nccs-archive/html//tablewiz/tw.php> where the report showing this data can be generated by selecting the following data fields: Report: “The Number and Finances of All Registered 501(c) Nonprofits”; Show: “Registered Nonprofits”; By: “Total Revenue Level (years 1995, Aug to 2016, Aug)”; and For: “2016, Aug” then selecting “Show Results”.

¹³ 5 U.S.C. § 601(5).

¹⁴ See 13 U.S.C. § 161. The Census of Government is conducted every five (5) years compiling data for years ending with “2” and “7”. See also Program Description Census of Government <https://factfinder.census.gov/faces/affhelp/jsf/pages/metadata.xhtml?lang=en&type=program&id=program.en.CO G#>.

¹⁵ See U.S. Census Bureau, 2012 Census of Governments, Local Governments by Type and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG02.US01>. Local governmental jurisdictions are classified in two categories - General purpose governments (county, municipal and town or township) and Special purpose governments (special districts and independent school districts).

¹⁶ See U.S. Census Bureau, 2012 Census of Governments, County Governments by Population-Size Group and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG06.US01>. There were 2,114 county governments with populations less than 50,000.

¹⁷ See U.S. Census Bureau, 2012 Census of Governments, Subcounty General-Purpose Governments by Population-Size Group and State: 2012 - United States – States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG07.US01>. There were 18,811 municipal and 16,207 town and township governments with populations less than 50,000.

¹⁸ See U.S. Census Bureau, 2012 Census of Governments, Elementary and Secondary School Systems by Enrollment-Size Group and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG11.US01>. There were 12,184 independent school districts with enrollment populations less than 50,000.

¹⁹ See U.S. Census Bureau, 2012 Census of Governments, Special District Governments by Function and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG09.US01>. [The U.S. Census Bureau data did not provide a population breakout for special district governments.](#)

populations of less than 50,000.²⁰ Based on this data we estimate that at least 49,316 local government jurisdictions fall in the category of “small governmental jurisdictions.”²¹

10. *Private Land Mobile Radio Licensees.* Private land mobile radio (PLMR) systems serve an essential role in a vast range of industrial, business, land transportation, and public safety activities. These radios are used by companies of all sizes operating in all U.S. business categories. Because of the vast array of PLMR users, the Commission has not developed a small business size standard specifically applicable to PLMR users. The closest applicable SBA category is Wireless Telecommunications Carriers (except Satellite) which encompasses business entities *engaged* in radiotelephone communications. The appropriate size standard for this category under SBA rules is that such a business is small if it has 1,500 or fewer employees.²² For this industry, U.S. Census Bureau data for 2012 shows that there were 967 firms that operated for the entire year.²³ Of this total, 955 firms had employment of 999 or fewer employees and 12 had employment of 1000 employees or more.²⁴ Thus under this category and the associated size standard, the Commission estimates that the majority of PLMR Licensees are small entities.

11. According to the Commission’s records, PLMR users hold a total of approximately 400,622 licenses.²⁵ Of this number there are a total of approximately 3,174 PLMR licenses in the 4.9 GHz band;²⁶ 29,187 PLMR licenses in the 800 MHz band;²⁷ and 3,374 licenses in the frequencies range 173.225 MHz to 173.375 MHz.²⁸ The Commission does not require PLMR licensees to disclose information about number of employees, and does not have information that could be used to determine how many PLMR licensees constitute small entities under this definition. The Commission however

²⁰ See U.S. Census Bureau, 2012 Census of Governments, County Governments by Population-Size Group and State: 2012 - United States-States - <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG06.US01>; Subcounty General-Purpose Governments by Population-Size Group and State: 2012 - United States-States - <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG07.US01>; and Elementary and Secondary School Systems by Enrollment-Size Group and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG11.US01>. While U.S. Census Bureau data did not provide a population breakout for special district governments, if the population of less than 50,000 for this category of local government is consistent with the other types of local governments the majority of the 38, 266 special district governments have populations of less than 50,000.

²¹ *Id.*

²² See 13 CFR § 121.201, NAICS code 517210.

²³ U.S. Census Bureau, 2012 *Economic Census of the United States*, Table EC1251SSSZ5, Information: Subject Series: Estab and Firm Size: Employment Size of Firms for the U.S.: 2012 NAICS Code 517210. https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/51SSSZ5//naics~517210.

²⁴ *Id.* Available census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with “1000 employees or more.”

²⁵ This figure was derived from Commission licensing records as of September 19, 2016. Licensing numbers change on a daily basis. This does not indicate the number of licensees, as licensees may hold multiple licenses. There is no information currently available about the number of PLMR licensees that have fewer than 1,500 employees.

²⁶ Based on an FCC Universal Licensing System search of January 26, 2018. Search parameters: Radio Service = PA – Public Safety 4940-4990 MHz Band; Authorization Type = Regular; Status = Active.

²⁷ Based on an FCC Universal Licensing System search of May 15, 2017. Search parameters: Radio Service = GB, GE, GF, GJ, GM, GO, GP, YB, YE, YF, YJ, YM, YO, YP, YX; Authorization Type = Regular; Status = Active.

²⁸ This figure was derived from Commission licensing records as of August 16, 2013. Licensing numbers change daily. We do not expect this number to be significantly smaller today. This does not indicate the number of licensees, as licensees may hold multiple licenses. There is no information currently available about the number of licensees that have fewer than 1,500 employees.

believes that a substantial number of PLMR licensees may be small entities despite the lack of specific information.

12. *Frequency Coordinators.* Neither the Commission nor the SBA has developed a small business size standard specifically applicable to spectrum frequency coordinators. There are thirteen frequency coordinators certified by the Commission to coordinate PLMR frequencies.²⁹ The SBA rules contain a definition for Wireless Telecommunications Carriers (except Satellite) which encompasses business entities engaged in radiotelephone communications employing no more than 1,500 persons.³⁰ For this industry, U.S. Census Bureau data for 2012 shows that there were 967 firms that operated for the entire year.³¹ Of this total, 955 firms had employment of 999 or fewer employees and 12 had employment of 1000 employees or more.³² Thus, under this category and size standard, we estimate that a majority of frequency coordinators can be considered small.

13. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment.³³ Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.³⁴ The SBA has established a size standard for this industry of 1,250 employees or less.³⁵ U.S. Census data for 2012 shows that 841 establishments operated in this industry in that year.³⁶ Of that number, 828 establishments operated with fewer than 1,000 employees, 7 establishments operated with between 1,000 and 2,499 employees and 6 establishments operated with 2,500 or more employees.³⁷ Based on this data, we conclude that a majority of manufacturers in this industry can be considered small.

²⁹ The Commission's records indicate that there are currently 13 frequency coordinators that would be affected by this rulemaking. See <https://www.fcc.gov/wireless/wireless-services/industrial-business/industrial-business-licensing#block-menu-block-4> (last visited Jan. 26, 2018).

³⁰ See 13 C.F.R. § 121.201, NAICS code 517210.

³¹ U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1251SSSZ5, Information: Subject Series: Estab and Firm Size: Employment Size of Firms for the U.S.: 2012 NAICS Code 517210. https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/51SSSZ5//naics~517210.

³² *Id.* Available census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with "1000 employees or more."

³³ The NAICS Code for this service is 334220. 13 C.F.R. 121.201. See also U.S. Census Bureau, 2012 NAICS Definitions, "334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing" <https://factfinder.census.gov/faces/affhelp/jsf/pages/metadata.xhtml?lang=en&type=ib&id=ib.en./ECN.NAICS2012.334220#>.

³⁴ The NAICS Code for this service is 334220. 13 CFR 121.201. See also U.S. Census Bureau, 2012 NAICS Definitions, "334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing" <https://factfinder.census.gov/faces/affhelp/jsf/pages/metadata.xhtml?lang=en&type=ib&id=ib.en./ECN.NAICS2012.334220#>.

³⁵ 13 CFR § 121.201, NAICS Code 334220.

³⁶ U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1231SG2, Manufacturing: Summary Series: General Summary: Industry Statistics for Subsectors and Industries by Employment Size: 2012, NAICS Code 334220, https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/31SG2//naics~334220.

³⁷

http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2012_US_31SG2&prodType=table.

E. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

14. PLMR entities seeking licenses are required to obtain coordination from certain frequency coordinators as specified in section 90.175 of the Commission's rules, 47 CFR § 90.175. OMB has already approved the information collection requirements associated with Form 601, including the frequency coordination requirement. See ICR Reference Number: 201311-3060-018, OMB Control No. 3060-0798. We do not make any substantive or material changes to the wording of this existing information collection. Instead, by making 318 additional 12.5 kilohertz bandwidth offset channels available for licensing in the 800 MHz Mid-Band, we potentially increase the number of respondents subject to the existing information collections.

15. Furthermore, the Commission has certified a number of frequency coordinators to recommend the most appropriate frequencies for applicants in the designated part 90 radio services per section 90.175 of the Commission's rules, 47 CFR § 90.175. To date, frequency coordinators only needed to consider co-channel mileage separation requirements when coordinating applications for the 800 MHz band. We are amending our rules, however, to require frequency coordinators to perform a contour overlap analysis when coordinating applications for the 800 MHz Mid-Band in order to minimize the potential for adjacent-channel interference. For frequency bands below 512 MHz, frequency coordinators are required to analyze adjacent channel interference. Thus, we anticipate the burden and cost levels would be comparable to the existing contour overlap analysis in the below 512 MHz band, which OMB approved.³⁸ In that case, the Commission estimated it would take a frequency coordinator one hour to perform a contour overlap analysis and provide a concurrence letter to an applicant at an in-house rate of \$40 per hour.³⁹ The Commission estimated that frequency coordinators would receive 2,500 requests for contour analysis per year for a total annual cost burden of \$ 100,000.⁴⁰

16. Moreover, the rules we adopt in the *Report and Order* provide regulatory flexibility to all 800 MHz PLMR licensees, including small governmental jurisdictions and small businesses. For instance, we permit applicants to file applications which cause contour overlap to an incumbent operator provided each incumbent operator who receives contour overlap provides its written consent. By allowing incumbent operators to accept contour overlap, we provide PLMR applicants with the opportunity to present more granular studies to an incumbent if an applicant believes that interference would not be an issue in practice despite the contour overlap or for incumbent operators to accept interference in portions of its service area where such interference would present no detriment to its operations. Currently PLMR applicants may provide letters of concurrence indicating that the applicant and each short-spaced co-channel licensee agree to accept any interference resulting from the reduced co-channel separation between systems (i.e. 47 CFR § 90.621(e)(5)). We envision that the estimated burden and cost levels would be comparable to the existing consensual short spacing rules.⁴¹ In that case, the Commission estimated it would take an applicant 1.5 hours to collect the information it needs to request written consent from a short-spaced co-channel licensee and that there would be no in-house cost

³⁸ See ICR Reference No: 201311-3060-015, OMB Control No: 3060-0984.

³⁹ See Supporting Statement for ICR Reference No: 201311-3060-015, OMB Control No: 3060-0984 at 2 (Sep 2106).

⁴⁰ *Id.*

⁴¹ See ICR Reference No: 201205-3060-017, OMB Control No: 3060-0441.

associated with collecting the information.⁴² It estimated that applicants would need consent from short-spaced co-channel licensees thirty-six times annually for a total annual burden of 54 hours.⁴³

17. In addition, we adopt rules in the *Report and Order* which allow equipment manufacturers to manufacture transmitters capable of operating on the new interstitial 12.5 kilohertz bandwidth offset channels provided their equipment satisfies certain bandwidth and emission mask limitations. These specifications are designed to limit the amount of RF energy a transmitter operating on an offset channel can radiate onto an adjacent standard channel. Equipment manufacturers will be required to obtain a new equipment authorization or modify an existing equipment authorization when designing equipment intended to operate on the new offset channels. OMB has already approved the information collection requirements associated with obtaining a new or modified equipment authorizations. Specifically, an equipment manufacturer who seeks a new or modified equipment authorization needs to electronically file FCC Form 731 which the Commission estimates takes an average of 35 hours per application to complete depending upon the range and complexity of the measurement test reports which must be included with the application.⁴⁴ The Commission estimates that 22,250 FCC Form 731 applications are filed annually at an in-house cost to the equipment manufacturer of \$500 per application resulting in a total annual cost burden of \$ 11,125,000.⁴⁵ We do not propose any substantive or material changes to the wording of this existing information collection. Instead, if equipment manufacturers chose to develop equipment capable of operating on the new 12.5 kilohertz bandwidth offset channels, then the number of respondents subject to the existing information collections could increase.

18. The *Report and Order* also requires entities not engaged in central station alarm operations that seek licenses for frequencies formerly reserved exclusively for central station alarm operations to obtain the concurrence of the Commission-certified frequency coordinator for those frequencies. It is estimated that no more than 1 hour of effort would be required to request and receive such concurrence. The number of such applicants or licensees that may be required to request such concurrence depends on future events and this is difficult of estimation. However, 200 such applicants or licensees may be affected.

19. Finally, with the 800 MHz Transition Administrator's (TA's) certification that band reconfiguration is complete and all licensees are now operating on their post-rebanding channels in 44 NPSPAC regions, the temporary waiver of the interference criteria in those regions has expired and the minimum threshold levels specified in sections 22.970(a) and 90.672(a) are now in effect. In the *Order*, we direct the Bureaus will announce by public notice the dates and procedures for submitting applications for Expansion Band, Guard Band, and vacated interleaved channels in those regions, as well as for Expansion Band and Guard Band channels in those regions where licensing was deferred pending the resolution of the LMCC request for incumbent priority. Additionally, in the *Order* we terminate the freeze on inter-category sharing that was put into effect on April 5, 1995 by WTB removing the obligation on small and other sized entities to file requests to waive the freeze. We do so because the rationale of the freeze no longer is applicable. Termination of the freeze on inter-category sharing is procedural and therefore not subject to the notice and comment requirements of the Administrative Procedure Act.

20. The Commission believes that applying the proposed information collections will promote spectrum efficiency, will reduce barriers to innovation and encourage investment in new technologies while mitigating the potential for interference between licensees operating on adjacent

⁴² See Supporting Statement for ICR Reference No: 201205-3060-017, OMB Control No: 3060-0441 at 4 (Jun 2015).

⁴³ *Id.*

⁴⁴ See Supporting Statement for ICR No: 201404-3060-029, OMB Control No. 3060-0057 at 7 (Apr 2017).

⁴⁵ *Id.* at 8.

channels. The Commission does not believe that the costs and/or administrative burdens associated with the rules we adopt in this *Report and Order* will unduly burden small entities. Rather, the rules we adopt should benefit small governmental jurisdictions, small businesses, small equipment manufacturers and small business associations by giving them more flexibility, and more options for gaining access to PLMR spectrum.

F. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

21. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in developing its approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof for small entities.⁴⁶

22. We believe that the rule changes discussed in this *Report and Order* will promote flexibility and more efficient use of the spectrum, reduce administrative burdens on both the Commission and licensees, and allow licensees to better meet their communications needs.

23. In order to minimize the economic impact resulting from the rules we adopt today on small entities and other licensees in the 800 Mid-Band, we leave in place our existing licensing scheme and technical requirements for entities who seek to continue operating in the 800 MHz Mid-Band using 25 kilohertz bandwidth equipment. Thus, eligible entities will be permitted to continue applying to license facilities on standard 25 kilohertz bandwidth channels in the 800 MHz Mid-Band without needing to make changes to the 25 kilohertz bandwidth equipment they use today.

24. Only entities who chose to operate on the newly established 12.5 kilohertz bandwidth offset channels in the 800 MHz Mid-Band will be required to employ equipment that conforms to the technical parameters we adopt in this *Report and Order* including bandwidth limitations and emission mask requirements

25. Furthermore, no manufacturer will be required to modify its equipment. Only manufacturers who choose to design equipment capable of operating on the new 12.5 kilohertz bandwidth offset channels will be required to obtain updated or new equipment authorizations. As noted above, we make no changes to the technical specifications for transmitters designed to operate solely on the standard 25 kilohertz bandwidth channels in the 800 MHz Mid-Band.

26. Finally, in the *Report and Order*, we require all applicants, whether employing 25 kilohertz or 12.5 kilohertz bandwidth equipment, to comply with a contour overlap analysis when seeking to license channels in the 800 MHz Mid-Band. The contour overlap analysis is needed to minimize the potential for interference between licensees operating on adjacent channels. Nonetheless, we provide regulatory flexibility for this requirement by allowing applicants who cause contour overlap to obtain letters of consent from incumbent operators. By allowing applicants to obtain consent for contour overlap, we provide PLMR applicants with the opportunity to present more granular studies to incumbents if an applicant believes that interference would not be an issue in practice despite the contour overlap or for an incumbent operator to accept interference to portions of its service area where such interference would present no detriment to its operations.

Report to Congress

⁴⁶ 5 U.S.C. § 603(c)(1)-(4).

27. The Commission will send a copy of the *Report and Order and Order*, including this FRFA, in a report to Congress pursuant to the Congressional Review Act.⁴⁷ In addition, the Commission will send a copy of the *Report and Order and Order*, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the *Report and Order and Order* and FRFA (or summaries thereof) will also be published in the Federal Register.⁴⁸

⁴⁷ See 5 U.S.C. § 801(a)(1)(A).

⁴⁸ See 5 U.S.C. § 604(b).

**Appendix B
Final Rules**

Parts 1 and 90 of Title 47 of the Code of Federal Regulations (CFR) are amended as follows:

Part 1 – PRACTICE AND PROCEDURE

1. The authority citation for Part 1 continues to read as follows:

[INSERT CURRENT AUTHORITY CITATION]

2. Section 1.931 is amended by revising paragraph (b)(11) to read as follows:

§ 1.931 Application for special temporary authority.

* * * * *

(b) *Private Wireless Services.*

* * *

(11) An applicant for an itinerant station license, an applicant for a new private land mobile radio station license in the frequency bands below 470 MHz or in the 769-775/799-805 MHz, the 806-824/851-866 MHz band, or the one-way paging 929-930 MHz band (other than a commercial mobile radio service applicant or licensee on these bands) or an applicant seeking to modify or acquire through assignment or transfer an existing station below 470 MHz or in the 769-775/799-805 MHz , the 806-824/851-866 MHz band, or the one-way paging 929-930 MHz band may operate the proposed station during the pendency of its application for a period of up to 180 days under a conditional permit. Conditional operations may commence upon the filing of a properly completed application that complies with § 90.127 if the application, when frequency coordination is required, is accompanied by evidence of frequency coordination in accordance with § 90.175 of this chapter. Operation under such a permit is evidenced by the properly executed Form 601 with certifications that satisfy the requirements of § 90.159(b).

* * * * *

PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

3. The authority citation for Part 90 continues to read as follows:

[INSERT CURRENT AUTHORITY CITATION]

4. Section 90.35 is amended by removing paragraphs (c)(64)(i)-(vi), (ix), and (xi); renumbering paragraphs (c)(64)(vii), (viii), and (x) as (i), (ii), and (iii), respectively; and revising paragraphs (b)(3), (c)(2), (c)(61)(iv), (c)(63), (c)(64), and (c)(66) to read as follows:

§ 90.35 Industrial/Business Pool.

* * * * *

(b) * * *

(3) *Frequencies.*

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitations	Coordinator
* * *	* * *	* * *	* * *
153.035	.....do .....	.....	IP
153.0425	.....do	30	IP
153.050	.....do	4, 7	IP

153.0575	.....do	4, 7, 30	IP
153.065	.....do .....	.....	IP
153.0725	.....do	30	IP
153.080	.....do	4, 7	IP
153.0875	.....do	4, 7, 30	IP
153.095	.....do .....	.....	IP
153.1025	.....do	30, 80	IP
153.110	.....do	4, 7	IP
153.1175	.....do	4, 7, 30	IP
153.125	.....do .....	.....	IP
153.1325	.....do	30	IP
153.140	.....do	4, 7	IP
153.1475	.....do	4, 7, 30	IP
153.155	.....do .....	.....	IP
153.1625	.....do	30	IP
153.170	.....do	4, 7	IP
153.1775	.....do	4, 7, 30	IP
153.185	.....do .....	.....	IP
153.1925	.....do	30	IP
153.200	.....do	4, 7	IP
153.2075	.....do	4, 7, 30	IP
153.215	.....do .....	.....	IP
153.2225	.....do	30	IP
153.230	.....do	4, 7	IP
153.2375	.....do	4, 7, 30	IP
153.245	.....do .....	.....	IP
153.2525	.....do	30	IP
153.260	.....do	4, 7	IP
153.2675	.....do	4, 7, 30	IP
153.275	.....do .....	.....	IP
153.2825	.....do	30	IP
153.290	.....do	4, 7	IP
153.2975	.....do	4, 7, 30	IP
153.305	.....do .....	.....	IP
153.3125	.....do	30	IP
153.320	.....do	4, 7	IP
153.3275	.....do	4, 7, 30	IP
153.335	.....do .....	.....	IP
153.3425	.....do	30	IP
153.350	.....do	4, 7	IP
153.3575	.....do	4, 7, 30	IP
153.365	.....do .....	.....	IP
153.3725	.....do	30	IP
153.380	.....do .....	.....	IP
153.3875	.....do	30	IP
153.395	.....do .....	.....	IP
153.4025	.....do	30	IP
153.410	.....do .....	.....	IW

***	***	***	***
450 to 470	Fixed, base, or mobile	27, 57.	
451.00625	Base or mobile	33	
451.0125 .....	.....do	33	
451.01875 .....	.....do	33	IW
***	***	***	***
454.000 .....	.....do	8	IP
456.00625 .....	.....do	33	
456.0125 .....	.....do	33	
456.01875 .....	.....do	33	IW
***	***	***	***
462.53125 .....	.....do	33.	
462.5375 .....	.....do	2.	
462.7375 .....	.....do	2.	
462.750	Base	29, 36.	
***	***	***	***
467.53125 .....	.....do	33.	
467.5375 .....	.....do	2.	
467.7375 .....	.....do	2.	
467.74375 .....	.....do	33, 62.	
***	***	***	***

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b)(3) of this section:

(2) This frequency will be assigned with an authorized bandwidth not to exceed 4 kHz.

(61) ***

(iv) The airports and their respective reference coordinates are (coordinates are referenced to North American Datum 1983 (NAD83)):

City and airport	Reference coordinates	
	N. Latitude	W. Longitude
*** Appleton, WI: Appleton Int'l (ATW)..... ***	*** 44°15'26.7"	*** 88°31'10.1"
Atlanta, GA: *** Fulton County/Brown Field (FTY)..... ***	33°46'44.9"	84°31'16.9"
Baltimore, MD: Baltimore-Washington International Thurgood Marshall (BWI)..... ***	39°10'31.5"	74°40'05.5"
Birmingham, AL: Birmingham-Shuttlesworth Int'l (BHM).....	33°33'46.6"	86°45'12.8"

*** Boise, ID: Boise Air Terminal/Gowen Field (BOI)..... ***	43°33'52.0"	116°13'22.0"
Bozeman, MT: Bozeman Yellowstone Int'l (BZN)..... ***	45°46'36.8"	111°09'10.8"
Chicago, IL: Chicago Executive (PWK)..... South Bend Int'l (SBN)..... ***	42°06'51.1" 41°42'32.2"	87°54'05.3" 86°19'06.5"
DuPage (DPA)..... ***	41°54'24.8"	88°14'54.3"
Cincinnati, OH: Cincinnati Municipal/Lunken Field (LUN)..... ***	39°06'12.0"	84°25'07.0"
Columbus, GA: Columbus (CSG)..... Columbus, OH: John Glenn Columbus Int'l (CMH)..... ***	32°30'58.8" 39°59'52.8"	84°56'19.9" 82°53'30.8"
Dallas, TX: *** Dallas Executive (RBD).....	32°40'51.1"	96°52'05.5"
Davenport, IA: *** Quad City Int'l (MLI).....	41°26'54.7"	90°30'27.1"
Dayton, OH: James M. Cox Int'l (DAY).....	39°54'08.6"	84°13'09.8"
Denver, CO: *** Rocky Mountain Metropolitan (BJC)..... ***	39°54'31.6"	105°07'01.9"
Detroit, MI: Coleman A. Young Municipal (DET)..... *** Oakland County Int'l (PTK)..... ***	42°24'33.1" 42°39'54.7"	83°00'35.5" 83°25'07.4"
Eureka, CA: Samoa Field (O33)..... ***	40°46'51.4"	124°12'44.2"
Flint, MI: Bishop Int'l (FNT)..... ***	42°57'55.8"	83°44'36.4"
Fort Myers, FL: Page Field (FMY)..... Southwest Florida Int'l (RSW)..... ***	26°35'11.8" 26°32'10.2"	81°51'47.7" 81°45'18.6"
Fort Worth, TX: *** Meacham Int'l (FTW).....	32°49'11.2"	97°21'44.8"
Fresno, CA: Fresno Chandler Executive (FCH)..... ***	36°43'56.5"	119°49'11.6"
Gunnison, CO: Gunnison-Crested Butte Regional (GUC)..... ***	38°32'02.2"	106°55'58.9"
Honolulu, HI: Daniel K. Inouye Int'l (HNL).....	21°19'07.3"	157°55'20.7"

Jacksonville, FL:		
Jacksonville Executive at Craig (CRG)	30°20'10.8"	81°30'52.0"
Jacksonville Int'l (JAX)	30°29'38.6"	81°41'16.3"
Kahului, HI: Kahului (OGG).....	20°53'55.4"	156°25'48.9"
Kailua-Kona, HI: Kona Int'l at Ke-Ahole (KOA).....	19°44'19.7"	156°02'44.2"
Kalamazoo, MI: Kalamazoo/Battle Creek International (AZO)..	42°14'05.5"	85°33'07.4"

Kansas City, MO-KS:		

Charles B. Wheeler Downtown (MKC).....	39°07'23.7"	94°35'33.9"

LaCrosse, WI: LaCrosse Regional (LSE).....	43°52'46.5"	91°15'24.6"
Lansing, MI: Capital Region Int'l (LAN).....	42°46'43.3"	84°35'14.5"

Lincoln, NE: Lincoln (LNK).....	40°51'03.5"	96°45'33.3"
Little Rock, AR: Bill and Hillary Clinton National/Adams Field (LIT).....	34°43'48.8"	92°13'27.3"
Los Angeles, CA:		
Bob Hope (BUR).....	34°12'02.2"	118°21'30.6"

John Wayne-Orange County (SNA).....	33°40'32.4"	117°52'05.6"

Lubbock, TX: Lubbock Preston Smith Int'l (LBB).....	33°39'49.1"	101°49'22.0"

Miami, FL:		

Opa-Locka Executive (OPF).....	25°54'25.2"	80°16'42.2"
Miami Executive (TMB).....	25°38'52.4"	80°25'58.0"

Monterey, CA: Monterey Regional (MRY).....	36°35'13.1"	121°50'34.6"

New Haven, CT: Tweed-New Haven (HVN).....	41°15'50.0"	72°53'13.6"
New Orleans, LA:		

Louis Armstrong New Orleans Int'l (MSY).....	29°59'36.2"	90°15'28.9"

New York-Northeast NJ:		

Newark Int'l (EWR).....	40°41'32.9"	74°10'07.2"

Peoria, IL: General Wayne A. Downing Peoria Int'l (PIA).....	40°39'51.3"	89°41'35.9"

Roanoke, VA: Roanoke-Blacksburg Regional/Woodrum Field (ROA).....	37°19'31.7"	79°58'31.5"

Saipan Isl., CQ: Francisco C. Ada/Saipan Int'l (GSN).....	15°07'08.4"	145°43'45.7" E
St. Louis, MO:		

Lambert-St. Louis Int'l (STL).....	38°44'51.7"	90°21'35.9"

*** San Diego, CA: San Diego Int'l (SAN)..... ***	32°44'00.8"	117°11'22.8"
San Jose, CA: Norman Y. Mineta San Jose Int'l (SJC)..... ***	37°21'42.7"	121°55'44.4"
Savanna, GA: Savannah/Hilton Head Int'l (SAV).....	32°07'39.3"	81°12'7.7"
Scranton, PA: Wilkes Barre/Scranton Int'l (AVP).....	41°20'17.3"	75°43'27.4"
Seattle, WA: Boeing/King County Int'l (BFI)	47°31'48.4"	122°18'07.4"
Seattle-Tacoma Int'l (SEA)	47°26'56.3"	122°18'33.5"

Sioux City, IA: Sioux Gateway/Colonel Bud Day Field (SUX)... ***	42°24'09.4"	96°23'03.7"
Springfield, MA: Westfield-Barnes Regional (BAF)..... ***	42°09'27.8"	72°42'56.2"
Springfield, MO: Springfield-Branson National (SGF)..... ***	37°14'39.6"	93°23'12.7"
Tallahasee, FL: Tallahasee Int'l (TLH)..... ***	30°23'47.5"	84°21'01.2"
Waterloo, IA: Waterloo Regional (ALO)..... ***	42°33'25.5"	92°24'01.2"
Wichita, KS: Wichita Dwight D. Eisenhower National (ICT).....	37°38'59.9"	97°25'58.9"
Wilmington, DE: New Castle (ILG)..... ***	39°40'43.4"	75°36'23.5"

(63) Unless concurrence is obtained in accordance with section 90.175(b) of this chapter from the Commission-certified frequency coordinator for frequencies designated for central station alarm operations (central station alarm frequency coordinator), this frequency may be used within the boundaries of urbanized areas of 200,000 or more population, defined in the United States Census of Population, 1960, vol. 1, table 23, page 1-50, only by persons rendering a central station commercial protection service within the service area of the radio station using the frequency and may be used only for communications pertaining to safety of life and property, and for maintenance or testing of the protection facilities. Central station commercial protection service is defined as an electrical protection and supervisory service rendered to the public from and by a central station accepted and certified by one or more of the recognized rating agencies, or the Underwriters Laboratories' (UL), or Factory Mutual System. Other stations in the Industrial/Business Pool may be licensed on this frequency without the central station alarm frequency coordinator's concurrence only when all base, mobile relay and control stations are located at least 120 km (75 miles) from the city center or centers of the specified urban areas of 200,000 or more population. With respect to combination urbanized areas containing more than one city, 120 km (75 mile) separation shall be maintained from each city center which is included in the urbanized area. The locations of centers of cities are determined from appendix, page 226, of the U.S. Commerce publication "Air Line Distance Between Cities in the United States."

(64) Persons who render a central station commercial protection service are authorized to operate fixed stations on this frequency for the transmission of tone or impulse signals on a co-primary basis to base/mobile operations. Fixed stations may be licensed as mobiles. Fixed stations used for central station

alarm operations may use antennas mounted not more than 6.1 meters (20 feet) above a man-made supporting structure, including antenna structure.

* * *

(66) Unless concurrence is obtained in accordance with section 90.175(b) of this chapter from the Commission-certified frequency coordinator for frequencies designated for central station alarm operations, this frequency may be assigned only to persons rendering a central station commercial protection service, which is defined in paragraph (c)(63) of this section, within the service area of the radio station using the frequency.

* * * * *

5. Section 90.159 is amended by revising paragraphs (b), (b)(1), and (c) to read as follows:

§ 90.159 Temporary and conditional permits.

* * * * *

(b) An applicant proposing to operate a new land mobile radio station or modify an existing station below 470 MHz or in the 769-775/799-805 MHz band, 806-824/851-866 MHz band, or the one-way paging 929-930 MHz band (other than a commercial mobile radio service applicant or licensee on these bands) that is required to submit a frequency coordination recommendation pursuant to paragraphs (b) through (h) of § 90.175 of this part may operate the proposed station during the pendency of its application for a period of up to one hundred eighty (180) days upon the filing of a properly completed formal Form 601 application that complies with § 90.127 of this part if the application is accompanied by evidence of frequency coordination in accordance with § 90.175 of this part and provided that the following conditions are satisfied:

(1) The proposed station location is west of Line C as defined in § 90.7, and (for applicants proposing to operate below 470 MHz or in the 769-775/799-805 MHz band or the 806-824/851-866 MHz band) south of Line A as defined in § 90.7.

* * *

(c) An applicant proposing to operate an itinerant station or an applicant seeking the assignment of authorization or transfer of control for an existing station below 470 MHz or in the 769-775/799-805 MHz, the 806-824/851-866 MHz band, or the one-way paging 929-930 MHz band (other than a commercial mobile radio service applicant or licensee on these bands) may operate the proposed station during the pendency of its application for a period of up to one hundred eighty (180) days upon the filing of a properly completed formal Form 601 application that complies with § 90.127 of this part. Conditional authority ceases immediately if the application is dismissed by the Commission. All other categories of applications listed in § 90.175 of this part that do not require evidence of frequency coordination are excluded from the provisions of this section.

* * * * *

6. Section 90.175 is amended by revising paragraphs (b)(1), (b)(2), and (e) to read as follows:

§ 90.175 Frequency coordinator requirements.

* * * * *

(b) * * * (1) A statement is required from the applicable frequency coordinator as specified in §§ 90.20(c)(2) and 90.35(b) recommending the most appropriate frequency. In addition, for frequencies to which § 90.35(c)(63) or (66) is applicable, the written concurrence of the Commission-certified frequency coordinator for frequencies designated for central station alarm operations must be obtained. In addition, for frequencies above 150 MHz, if the interference contour of a proposed station would overlap the service contour of a station on a frequency formerly shared prior to radio service consolidation by licensees in the Manufacturers Radio Service, the Forest Products Radio Service, the Power Radio Service, the Petroleum Radio Service, the Motor Carrier Radio Service, the Railroad Radio Service, the Telephone Maintenance Radio Service or the Automobile Emergency Radio Service, the written concurrence of the coordinator for the industry-specific service, or the written concurrence of the licensee itself, must be obtained. Requests for concurrence must be responded to within 20 days of receipt of the request. The written request for concurrence shall advise the receiving party of the maximum 20 day response period. The coordinator's recommendation may include comments on technical factors such as power, antenna height and gain, terrain and other factors which may serve to minimize potential interference. In addition:

(2) On frequencies designated for coordination or concurrence by a specific frequency coordinator as specified in §§ 90.20(c)(3) and 90.35(b), and on frequencies designated for concurrence as specified in § 90.35(c)(63) or (66), the applicable frequency coordinator shall provide a written supporting statement in instances in which coordination or concurrence is denied. The supporting statement shall contain sufficient detail to permit discernment of the technical basis for the denial of concurrence. Concurrence may be denied only when a grant of the underlying application would have a demonstrable, material, adverse effect on safety.

* * *

(e) For frequencies between *470-512 MHz, 769-775/799-805 MHz, 806-824/851-869 MHz and 896-901/935-940 MHz*: A recommendation of the specific frequencies that are available for assignment in accordance with the loading standards and mileage separations applicable to the specific radio service, frequency pool, or category of user involved is required from an applicable frequency coordinator. In addition, a frequency coordinator must perform the contour overlap analysis detailed in § 90.621(d) when coordinating applications for channels in the 809-817 MHz / 854-862 MHz band segment once interstitial 12.5 kHz bandwidth channels become available for licensing in a National Public Safety Planning Advisory Committee region.

* * * * *

7. Section 90.209 is amended by amending the table in paragraph (b)(5), amending footnote 6 to the table in paragraph (b)(5) and adding a new paragraph (b)(8) as follows:

§ 90.209 Bandwidth limitations.

* * * * *

(5) * * *

STANDARD CHANNEL SPACING/BANDWIDTH

Frequency band (MHz)	Channel spacing (kilohertz)	Authorized bandwidth (kilohertz)
* * *	* * *	* * *
809-817/854-862	12.5	⁶ 20/11.25

817-824/862-869	25	20
***	***	***

⁶ Operations using equipment designed to operate with a 25 kilohertz channel bandwidth may be authorized up to a 20 kilohertz bandwidth unless the equipment meets the Adjacent Channel Power limits of § 90.221 in which case operations may be authorized up to a 22 kilohertz bandwidth. Operations using equipment designed to operate with a 12.5 kilohertz channel bandwidth may be authorized up to an 11.25 kilohertz bandwidth.

(8) Applicants may begin to license 12.5 kilohertz bandwidth channels in the 809-817/854-862 MHz band segment only after the Wireless Telecommunications Bureau and the Public Safety and Homeland Security Bureau jointly release a public notice announcing the availability of those channels for licensing in a National Public Safety Planning Advisory Committee region.

8. Section 90.210 is revised by amending the table and revising footnote 5 to the table as follows:

§ 90.210 Emission masks.

APPLICABLE EMISSION MASKS

Frequency band (MHz)	Mask for equipment with Audio low pass filter	Mask for equipment without audio low pass filter
***	***	***
809-824/854-869 ^{3, 5}	B, D	D, G
***	***	***

⁵ Equipment designed to operate on 25 kilohertz bandwidth channels must meet the requirements of either Emission Mask B or G, whichever is applicable, while equipment designed to operate on 12.5 kilohertz bandwidth channels must meet the requirements of Emission Mask D. Equipment designed to operate on 25 kilohertz bandwidth channels may alternatively meet the Adjacent Channel Power limits of § 90.221.

9. Section 90.219 is amended by revising paragraph (d)(3) to read as follows:

§ 90.219 Use of signal boosters.

* * * * *

(d) Deployment rules. * * *

(3)(i) Except as set forth in paragraph (d)(3)(ii) of this section, signal boosters must be deployed such that the radiated power of each retransmitted channel, on the forward link and on the reverse link, does not exceed 5 Watts effective radiated power (ERP).

(ii) Railroad licensees may operate Class A signal boosters transmitting on a single channel with up to 30 Watts ERP on frequencies 452/457.9000 to 452/457.96875 MHz in areas where communication between the front and rear of trains is unsatisfactory due to distance or intervening terrain barriers.

* * * * *

10. Section 90.261 is amended by revising paragraph (f) to read as follows:

§ 90.261 Assignment and use of the frequencies in the band 450-470 MHz for fixed operations.

* * * * *

(f) Secondary fixed operations pursuant to paragraph (a) of this section will not be authorized on the following frequencies or on frequencies subject to § 90.267, except as provided in § 90.219(d)(3)(ii):

* * * * *

11. Section 90.267 is amended by revising paragraphs (f), (f)(2), and (f)(3) to read as follows:

§ 90.267 Assignment and use of the frequencies in the band 450-470 MHz for low power use.

* * * * *

(f) *Group D Frequencies.* The Industrial/Business Pool frequencies in Group D are available on a coordinated basis, pursuant to §§ 90.35(b)(2) and 90.175(b). Central station alarm signaling on these frequencies are co-primary with regard to co-channel or adjacent channel base, mobile or data operations.

* * *

(2) Unless concurrence is obtained in accordance with section 90.175(b) of this chapter from the Commission-certified frequency coordinator for frequencies designated for central station alarm operations, Group D frequencies subject to § 90.35(c)(63) are limited to central station alarm use within the urban areas described in § 90.35(c)(63). Outside the urban areas described in § 90.35(c)(63), Group D frequencies subject to § 90.35(c)(63) are available for general Industrial/Business use on a coordinated basis, pursuant to § 90.35(b)(2) and § 90.175(b).

(3) Unless concurrence is obtained in accordance with section 90.175(b) of this chapter from the Commission-certified frequency coordinator for frequencies designated for central station alarm operations, Group D frequencies subject to § 90.35(c)(66) are limited to central station alarm use nationwide.

* * * * *

12. A new footnote is added to the first table in Section 90.613. The table entries for channel number 231 to channel number 550 are revised to read as follows:

§ 90.613 Frequencies available.

* * * * *

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS¹

Channel No.	Base frequency (MHz)
* * *	* * *
231	854.0125
231a	.0250
232	.0375
232a	.0500
233	.0625
233a	.0750
234	.0875
234a	.1000
235	.1125
235a	.1250
236	.1250
236a	.1500
237	.1625
237a	.1750
238	.1875
238a	.2000
239	.2125
239a	.2250
240	.2375
240a	.2500
241	.2625

241a	.2750
242	.2875
242a	.3000
243	.3125
243a	.3250
244	.3375
244a	.3500
245	.3625
245a	.3750
246	.3875
246a	.4000
247	.4125
247a	.4250
248	.4375
248a	.4500
249	.4625
249a	.4750
250	.4875
250a	.5000
251	.5125
251a	.5250
252	.5375
252a	.5500
253	.5625
253a	.5750
254	.5875
254a	.6000
255	.6125
255a	.6250
256	.6375
256a	.6500
257	.6625

257a	.6750
258	.6875
258a	.7000
259	.7125
259a	.7250
260	.7375
260a	.7500
261	.7625
261a	.7750
262	.7875
262a	.8000
263	.8125
263a	.8250
264	.8375
264a	.8500
265	.8625
265a	.8750
266	.8875
266a	.9000
267	.9125
267a	.9250
268	.9375
268a	.9500
269	.9625
269a	.9750
270	.9875
270a	855.0000
271	.0125
271a	.0250
272	.0375
272a	.0500
273	.0625

273a	.0750
274	.0875
274a	.1000
275	.1125
275a	.1250
276	.1250
276a	.1500
277	.1625
277a	.1750
278	.1875
278a	.2000
279	.2125
279a	.2250
280	.2375
280a	.2500
281	.2625
281a	.2750
282	.2875
282a	.3000
283	.3125
283a	.3250
284	.3375
284a	.3500
285	.3625
285a	.3750
286	.3875
286a	.4000
287	.4125
287a	.4250
288	.4375
288a	.4500
289	.4625

289a	.4750
290	.4875
290a	.5000
291	.5125
291a	.5250
292	.5375
292a	.5500
293	.5625
293a	.5750
294	.5875
294a	.6000
295	.6125
295a	.6250
296	.6375
296a	.6500
297	.6625
297a	.6750
298	.6875
298a	.7000
299	.7125
299a	.7250
300	.7375
300a	.7500
301	.7625
301a	.7750
302	.7875
302a	.8000
303	.8125
303a	.8250
304	.8375
304a	.8500
305	.8625

305a	.8750
306	.8875
306a	.9000
307	.9125
307a	.9250
308	.9375
308a	.9500
309	.9625
309a	.9750
310	.9875
310a	856.0000
311	.0125
311a	.0250
312	.0375
312a	.0500
313	.0625
313a	.0750
314	.0875
314a	.1000
315	.1125
315a	.1250
316	.1250
316a	.1500
317	.1625
317a	.1750
318	.1875
318a	.2000
319	.2125
319a	.2250
320	.2375
320a	.2500
321	.2625

321a	.2750
322	.2875
322a	.3000
323	.3125
323a	.3250
324	.3375
324a	.3500
325	.3625
325a	.3750
326	.3875
326a	.4000
327	.4125
327a	.4250
328	.4375
328a	.4500
329	.4625
329a	.4750
330	.4875
330a	.5000
331	.5125
331a	.5250
332	.5375
332a	.5500
333	.5625
333a	.5750
334	.5875
334a	.6000
335	.6125
335a	.6250
336	.6375
336a	.6500
337	.6625

337a	.6750
338	.6875
338a	.7000
339	.7125
339a	.7250
340	.7375
340a	.7500
341	.7625
341a	.7750
342	.7875
342a	.8000
343	.8125
343a	.8250
344	.8375
344a	.8500
345	.8625
345a	.8750
346	.8875
346a	.9000
347	.9125
347a	.9250
348	.9375
348a	.9500
349	.9625
349a	.9750
350	.9875
350a	857.0000
351	.0125
351a	.0250
352	.0375
352a	.0500
353	.0625

353a	.0750
354	.0875
354a	.1000
355	.1125
355a	.1250
356	.1250
356a	.1500
357	.1625
357a	.1750
358	.1875
358a	.2000
359	.2125
359a	.2250
360	.2375
360a	.2500
361	.2625
361a	.2750
362	.2875
362a	.3000
363	.3125
363a	.3250
364	.3375
364a	.3500
365	.3625
365a	.3750
366	.3875
366a	.4000
367	.4125
367a	.4250
368	.4375
368a	.4500
369	.4625

369a	.4750
370	.4875
370a	.5000
371	.5125
371a	.5250
372	.5375
372a	.5500
373	.5625
373a	.5750
374	.5875
374a	.6000
375	.6125
375a	.6250
376	.6375
376a	.6500
377	.6625
377a	.6750
378	.6875
378a	.7000
379	.7125
379a	.7250
380	.7375
380a	.7500
381	.7625
381a	.7750
382	.7875
382a	.8000
383	.8125
383a	.8250
384	.8375
384a	.8500
385	.8625

385a	.8750
386	.8875
386a	.9000
387	.9125
387a	.9250
388	.9375
388a	.9500
389	.9625
389a	.9750
390	.9875
390a	858.0000
391	.0125
391a	.0250
392	.0375
392a	.0500
393	.0625
393a	.0750
394	.0875
394a	.1000
395	.1125
395a	.1250
396	.1250
396a	.1500
397	.1625
397a	.1750
398	.1875
398a	.2000
399	.2125
399a	.2250
400	.2375
400a	.2500
401	.2625

401a	.2750
402	.2875
402a	.3000
403	.3125
403a	.3250
404	.3375
404a	.3500
405	.3625
405a	.3750
406	.3875
406a	.4000
407	.4125
407a	.4250
408	.4375
408a	.4500
409	.4625
409a	.4750
410	.4875
410a	.5000
411	.5125
411a	.5250
412	.5375
412a	.5500
413	.5625
413a	.5750
414	.5875
414a	.6000
415	.6125
415a	.6250
416	.6375
416a	.6500
417	.6625

417a	.6750
418	.6875
418a	.7000
419	.7125
419a	.7250
420	.7375
420a	.7500
421	.7625
421a	.7750
422	.7875
422a	.8000
423	.8125
423a	.8250
424	.8375
424a	.8500
425	.8625
425a	.8750
426	.8875
426a	.9000
427	.9125
427a	.9250
428	.9375
428a	.9500
429	.9625
429a	.9750
430	.9875
430a	859.0000
431	.0125
431a	.0250
432	.0375
432a	.0500
433	.0625

433a	.0750
434	.0875
434a	.1000
435	.1125
435a	.1250
436	.1250
436a	.1500
437	.1625
437a	.1750
438	.1875
438a	.2000
439	.2125
439a	.2250
440	.2375
440a	.2500
441	.2625
441a	.2750
442	.2875
442a	.3000
443	.3125
443a	.3250
444	.3375
444a	.3500
445	.3625
445a	.3750
446	.3875
446a	.4000
447	.4125
447a	.4250
448	.4375
448a	.4500
449	.4625

449a	.4750
450	.4875
450a	.5000
451	.5125
451a	.5250
452	.5375
452a	.5500
453	.5625
453a	.5750
454	.5875
454a	.6000
455	.6125
455a	.6250
456	.6375
456a	.6500
457	.6625
457a	.6750
458	.6875
458a	.7000
459	.7125
459a	.7250
460	.7375
460a	.7500
461	.7625
461a	.7750
462	.7875
462a	.8000
463	.8125
463a	.8250
464	.8375
464a	.8500
465	.8625

465a	.8750
466	.8875
466a	.9000
467	.9125
467a	.9250
468	.9375
468a	.9500
469	.9625
469a	.9750
470	.9875
471	860.0125
471a	.0250
472	.0375
472a	.0500
473	.0625
473a	.0750
474	.0875
474a	.1000
475	.1125
475a	.1250
476	.1250
476a	.1500
477	.1625
477a	.1750
478	.1875
478a	.2000
479	.2125
479a	.2250
480	.2375
480a	.2500
481	.2625
481a	.2750

482	.2875
482a	.3000
483	.3125
483a	.3250
484	.3375
484a	.3500
485	.3625
485a	.3750
486	.3875
486a	.4000
487	.4125
487a	.4250
488	.4375
488a	.4500
489	.4625
489a	.4750
490	.4875
490a	.5000
491	.5125
491a	.5250
492	.5375
492a	.5500
493	.5625
493a	.5750
494	.5875
494a	.6000
495	.6125
495a	.6250
496	.6375
496a	.6500
497	.6625
497a	.6750

498	.6875
498a	.7000
499	.7125
499a	.7250
500	.7375
500a	.7500
501	.7625
501a	.7750
502	.7875
502a	.8000
503	.8125
503a	.8250
504	.8375
504a	.8500
505	.8625
505a	.8750
506	.8875
506a	.9000
507	.9125
507a	.9250
508	.9375
508a	.9500
509	.9625
509a	.9750
510	.9875
510a	861.0000
511	.0125
511a	.0250
512	.0375
512a	.0500
513	.0625
513a	.0750

514	.0875
514a	.1000
515	.1125
515a	.1250
516	.1250
516a	.1500
517	.1625
517a	.1750
518	.1875
518a	.2000
519	.2125
519a	.2250
520	.2375
520a	.2500
521	.2625
521a	.2750
522	.2875
522a	.3000
523	.3125
523a	.3250
524	.3375
524a	.3500
525	.3625
525a	.3750
526	.3875
526a	.4000
527	.4125
527a	.4250
528	.4375
528a	.4500
529	.4625
529a	.4750

530	.4875
530a	.5000
531	.5125
531a	.5250
532	.5375
532a	.5500
533	.5625
533a	.5750
534	.5875
534a	.6000
535	.6125
535a	.6250
536	.6375
536a	.6500
537	.6625
537a	.6750
538	.6875
538a	.7000
539	.7125
539a	.7250
540	.7375
540a	.7500
541	.7625
541a	.7750
542	.7875
542a	.8000
543	.8125
543a	.8250
544	.8375
544a	.8500
545	.8625
545a	.8750

546	.8875
546a	.9000
547	.9125
547a	.9250
548	.9375
548a	.9500
549	.9625
549a	.9750
550	.9875
* * *	* * *

¹ The channel bandwidth for interstitial channel pairs (denoted with an “a” after the channel number) is 12.5 kilohertz. All other channel pairs have a channel bandwidth of 25 kilohertz.

* * * * *

13. Section 90.615 is revised by amending the introductory text and adding new paragraph (d) to read as follows:

§ 90.615 Individual channels available in the General Category in 806–824/851–869 MHz band.

The General Category will consist of channels 231–260a and 511–550 at locations farther than 110 km (68.4 miles) from the U.S./Mexico border and 140 km (87 miles) from the U.S./Canadian border. All entities will be eligible for licensing on these channels except as described in paragraphs (a) and (b) of this section.

* * * * *

(d) Interstitial Channels. Applicants may begin to license interstitial channels (denoted with an “a” after the channel number) only after the Wireless Telecommunications Bureau and the Public Safety and Homeland Security Bureau jointly release a public notice announcing the availability of those channels for licensing in a National Public Safety Planning Advisory Committee region.

14. Section 90.617 is revised by amending Table 1, Table 1A and Table 1B in paragraph (a); Table 2, Table 2A and Table 2B in paragraph (b); Table 4B, Table 4C and Table 4D in paragraph (d) and adding new paragraphs (l) and (m) to the table to read as follows:

§ 90.617 Frequencies in the 809.750-824/854.750-869 MHz, and 896-901/935-940 MHz bands available for trunked, conventional or cellular system use in non-border areas.

* * * * *

(a) * * *

Table 1—Public Safety Pool 806–816/851–861 MHz Band Channels
[139 Channels]

Group No.	Channel Nos.
269	269–289–311–399–439
269a	269a–289a–311a–399a–439a
270	270–290–312–400–440
270a	270a–290a–312a–400a–440a
279	279–299–319–339–359
279a	279a–299a–319a–339a–359a
280	280–300–320–340–360
280a	280a–300a–320a–340a–360a
309	309–329–349–369–389
309a	309a–329a–349a–369a–389a
310	310–330–350–370–390
310a	310a–330a–350a–370a–390a
313	313–353–393–441–461
313a	313a–353a–393a–441a–461a
314	314–354–394–448–468
314a	314a–354a–394a–448a–468a
321	321–341–361–381–419
321a	321a–341a–361a–381a–419a
328	328–348–368–388–420
328a	328a–348a–368a–388a–420a
351	351–379–409–429–449
351a	351a–379a–409a–429a–449a
352	352–380–410–430–450
332a	352a–380a–410a–430a–450a
Single Channels	391, 392, 401, 408, 421, 428, 459, 460, 469, 470 391a, 392a, 401a, 408a, 421a, 428a, 459a, 460a, 469a

* * * * *

(2) * * *

Table 1A—Public Safety Pool 806–813.5/851–858.5 MHz Band Channels for Counties in Southeastern U.S.
[140 Channels]

Group No.	Channel Nos.
261	261–313–324–335–353
261a	261a–313a–324a–335a–353a
262	262–314–325–336–354
262a	262a–314a–325a–336a–354a
265	265–285–315–333–351
265a	265a–285a–315a–333a–351a
266	266–286–316–334–352
266a	266a–286a–316a–334a–352a
269	269–289–311–322–357
269a	269a–289a–311a–322a–357a
270	270–290–312–323–355
270a	270a–290a–312a–323a–355a
271	271–328–348–358–368
271a	271a–328a–348a–358a–368a
279	279–299–317–339–359
279a	279a–299a–317a–339a–359a
280	280–300–318–340–360
280a	280a–300a–318a–340a–360a
309	309–319–329–349–369
309a	309a–319a–329a–349a–369a
310	310–320–330–350–370
310a	310a–320a–330a–350a–370a
321	321–331–341–361–372
321a	321a–331a–341a–361a–372a
Single Channels	326, 327, 332, 337, 338, 342, 343, 344, 345, 356 326a, 327a, 332a, 337a, 338a, 342a, 343a, 344a, 345a, 356a

(3) * * *

Table 1B—Public Safety Pool 806–813.5/851–858.5 MHz Band Channels for Atlanta, GA
[140 Channels]

Group No.	Channel Nos.
261	261–313–324–335–353
261a	261a–313a–324a–335a–353a
262	262–314–325–336–354
262a	262a–314a–325a–336a–354a
269	269–289–311–322–357
269a	269a–289a–311a–322a–357a
270	270–290–312–323–355
270a	270a–290a–312a–323a–355a
279	279–299–319–339–359
279a	279a–299a–319a–339a–359a
280	280–300–320–340–360
280a	280a–300a–320a–340a–360a
285	285–315–333–351–379
285a	285a–315a–333a–351a–379a
286	286–316–334–352–380
286a	286a–316a–334a–352a–380a
309	309–329–349–369–389
309a	309a–329a–349a–369a–389a
310	310–330–350–370–390
310a	310a–330a–350a–370a–390a
321	321–331–341–361–381
321a	321a–331a–341a–361a–381a
328	328–348–358–368–388
328a	328a–348a–358a–368a–388a
Single Channels	317, 318, 326, 327, 332, 337, 338, 356, 371, 372 317a, 318a, 326a, 327a, 332a, 337a, 338a, 356a, 371a, 372a

(b) * * *

Table 2—Business/Industrial/Land Transportation Pool 806–816/851–861 MHz Band Channels
[200 Channels]

Group No.	Channel Nos.
322	322–362–402–442–482
322a	322a–362a–402a–442a–482a
323	323–363–403–443–483
323a	323a–363a–403a–443a–483a
324	324–364–404–444–484
324a	324a–364a–404a–444a–484a
325	325–365–405–445–485
325a	325a–365a–405a–445a–485a
326	326–366–406–446–486
326a	326a–366a–406a–446a–486a
327	327–367–407–447–487
327a	327a–367a–407a–447a–487a
342	342–382–422–462–502
342a	342a–382a–422a–462a–502a
343	343–383–423–463–503
343a	343a–383a–423a–463a–503a
344	344–384–424–464–504
344a	344a–384a–424a–464a–504a
345	345–385–425–465–505
345a	345a–385a–425a–465a–505a
346	346–386–426–466–506
346a	346a–386a–426a–466a–506a
347	347–387–427–467–507
347a	347a–387a–427a–467a–507a
Single Channels	261, 271, 281, 291, 301, 262, 272, 282, 292, 302, 263, 273, 283, 293, 303, 264, 274, 284, 294, 304, 265, 275, 285, 295, 305, 266, 276, 286, 296, 306, 267, 277, 287, 297, 307, 268, 278, 288, 298, 308 261a, 271a, 281a, 291a, 301a, 262a, 272a, 282a, 292a, 302a, 263a, 273a, 283a, 293a, 303a, 264a, 274a, 284a, 294a, 304a, 265a, 275a, 285a, 295a, 305a, 266a, 276a, 286a, 296a, 306a, 267a, 277a, 287a, 297a, 307a, 268a, 278a, 288a, 298a, 308a

(1) * * *

Table 2A—Business/Industrial/Land Transportation Pool 806–813.5/851–858.5 MHz Band for Channels in Southeastern U.S.
[137 Channels]

	Channel Nos.
Single Channels	263, 264, 267, 268, 272, 273, 274, 275, 276, 277, 278, 281, 282, 283, 284, 287, 288, 291, 292, 293, 294, 295, 296, 297, 298, 301, 302, 303, 304, 305, 306, 307, 308, 346, 347, 362, 363, 364, 365, 366, 367, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 399, 400, 401, 403, 403, 404, 405, 406, 407, 408, 409, 410
	263a, 264a, 267a, 268a, 272a, 273a, 274a, 275a, 276a, 277a, 278a, 281a, 282a, 283a, 284a, 287a, 288a, 291a, 292a, 293a, 294a, 295a, 296a, 297a, 298a, 301a, 302a, 303a, 304a, 305a, 306a, 307a, 308a, 346a, 347a, 362a, 363a, 364a, 365a, 366a, 367a, 379a, 380a, 381a, 382a, 383a, 384a, 385a, 386a, 387a, 388a, 389a, 390a, 391a, 392a, 393a, 394a, 399a, 400a, 401a, 403a, 403a, 404a, 405a, 406a, 407a, 408a, 409a

(2) * * *

Table 2B—Business/Industrial/Land Transportation Pool 806–813.5/851–858.5 MHz Band for Channels in Atlanta, GA
[137 Channels]

	Channel Nos.
Single Channels	263, 264, 265, 266, 267, 268, 271, 272, 273, 274, 275, 276, 277, 278, 281, 282, 283, 284, 287, 288, 291, 292, 293, 294, 295, 295, 297, 298, 301, 302, 303, 304, 305, 306, 307, 308, 342, 343, 344, 345, 346, 347, 362, 363, 364, 365, 366, 367, 382, 383, 384, 385, 386, 387, 391, 392, 393, 394, 399, 400, 401, 402, 403, 404, 405, 406, 407, 409, 410
	263a, 264a, 265a, 266a, 267a, 268a, 271a, 272a, 273a, 274a, 275a, 276a, 277a, 278a, 281a, 282a, 283a, 284a, 287a, 288a, 291a, 292a, 293a, 294a, 295a, 295a, 297a, 298a, 301a, 302a, 303a, 304a, 305a, 306a, 307a, 308a, 342a, 343a, 344a, 345a, 346a, 347a, 362a, 363a, 364a, 365a, 366a, 367a, 382a, 383a, 384a, 385a, 386a, 387a, 391a, 392a, 393a, 394a, 399a, 400a, 401a, 402a, 403a, 404a, 405a, 406a, 407a, 409a

* * * * *

(d) * * *

Table 4B—SMR Category 806–816/851–861 MHz Band Channels, Available After January 21, 2005, for Site-Based Licensing
[160 Channels]

Group No.	Channel Nos.
315	315–355–395–435–475

315a	315a-355a-395a-435a-475a
316	316-356-396-436-476
316a	316a-356a-396a-436a-476a
317	317-357-397-437-477
317a	317a-357a-397a-437a-477a
318	318-358-398-438-478
318a	318a-358a-398a-438a-478a
331	331-371-411-451-491
331a	331a-371a-411a-451a-491a
332	332-372-412-452-492
332a	332a-372a-412a-452a-492a
333	333-373-413-453-493
333a	333a-373a-413a-453a-493a
334	334-374-414-454-494
334a	334a-374a-414a-454a-494a
335	335-375-415-455-495
335a	335a-375a-415a-455a-495a
336	336-376-416-456-496
336a	336a-376a-416a-456a-496a
337	337-377-417-457-497
337a	337a-377a-417a-457a-497a
338	338-378-418-458-498
338a	338a-378a-418a-458a-498a
Single Channels	431, 432, 433, 434, 471, 472, 473, 474, 479, 480, 481, 488, 489, 490, 499, 500, 501, 508, 509, 510 431a, 432a, 433a, 434a, 471a, 472a, 473a, 474a, 479a, 480a, 481a, 488a, 489a, 490a, 499a, 500a, 501a, 508a, 509a, 510a

(1) * * *

Table 4C—SMR Category 806–813.5/851–858.5 MHz Band Channels Available for Site-Based Licensing in Southeastern U.S. After January 21, 2005
[22 Channels]

	Channel Nos.
--	--------------

Single Channels	371, 373, 374, 375, 376, 377, 378, 395, 396, 397, 398 371a, 373a, 374a, 375a, 376a, 377a, 378a, 395a, 396a, 397a, 398a
-----------------	---

(2) * * *

Table 4D—SMR Category 806–813.5/851–858.5 MHz Band Channels Available for Site-Based Licensing in Atlanta, GA after January 21, 2005
[22 Channels]

	Channel Nos.
Single Channels	373, 374, 375, 376, 377, 378, 395, 396, 397, 398, 408 373a, 374a, 375a, 376a, 377a, 378a, 395a, 396a, 397a, 398a, 408a

* * * * *

(l) Interstitial Channels. Applicants may begin to license interstitial pool channels (denoted with an “a” after the channel number) listed above in paragraphs (a) through (d) only after the Wireless Telecommunications Bureau and the Public Safety and Homeland Security Bureau jointly release a public notice announcing the availability of those channels for licensing in a National Public Safety Planning Advisory Committee region.

(m) T-Band Relocation. Incumbent licensees in the 470-512 MHz band in the urban areas specified in § 90.303 of the Commission’s rules are given priority access for a three-year period to all interstitial channel pairs in the public safety pool or the business/industrial/land transportation pool listed above in paragraph (a) for which they are eligible, provided that any relocating T-Band incumbent must commit to surrendering an equal amount of 470-512 MHz spectrum on a channel-for-channel basis. The three-year period begins on the date these channel pairs become available for licensing in a National Public Safety Planning Advisory Committee region. Priority access applies to any applicant seeking to license a base station within 80 kilometers (50 miles) or mobile units or control stations within 128 kilometers (80 miles) of the geographic center of the urbanized areas listed in § 90.303 of the Commission’s rules.

15. Section 90.619 is revised by amending Table C6, Table C7, Table C8 and Table C9 to read as follows:

§ 90.619 Operations within the U.S./Mexico and U.S./Canada border areas.

* * * * *

(6) * * *

Table C6—Public Safety Pool 806–816/851–861 MHz Band Channels in the Canada Border Regions

Canada Border Region	Channel Nos.	Total

Regions 1, 4, 5 and 6	231–260a	60 Channels.
Region 2	See paragraph (c)(6)(i) of this section	
Region 3	231–320a, 501–508a	180 Channels.
Regions 7A and 8	269, 289, 311, 399, 439, 270, 290, 312, 400, 440, 279, 299, 319, 339, 359, 280, 300, 320, 340, 360, 309, 329, 349, 369, 389, 310, 330, 350, 370, 390, 313, 353, 393, 441, 461, 314, 354, 394, 448, 468, 321, 341, 361, 381, 419, 328, 348, 368, 388, 420, 351, 379, 409, 429, 449, 352, 380, 410, 430, 450, 391, 392, 401, 408, 421, 428, 459, 460, 469, 470 269a, 289a, 311a, 399a, 439a, 270a, 290a, 312a, 400a, 440a, 279a, 299a, 319a, 339a, 359a, 280a, 300a, 320a, 340a, 360a, 309a, 329a, 349a, 369a, 389a, 310a, 330a, 350a, 370a, 390a, 313a, 353a, 393a, 441a, 461a, 314a, 354a, 394a, 448a, 468a, 321a, 341a, 361a, 381a, 419a, 328a, 348a, 368a, 388a, 420a, 351a, 379a, 409a, 429a, 449a, 352a, 380a, 410a, 430a, 450a, 391a, 392a, 401a, 408a, 421a, 428a, 459a, 460a, 469a	139 Channels.
Region 7B	231–260, 269, 289, 311, 399, 439, 270, 290, 312, 400, 440, 279, 299, 319, 339, 359, 280, 300, 320, 340, 360, 309, 329, 349, 369, 389, 310, 330, 350, 370, 390, 313, 353, 393, 441, 461, 314, 354, 394, 448, 468, 315, 355, 395, 435, 475, 316, 356, 396, 436, 476, 317, 357, 397, 437, 477, 318, 358, 398, 438, 478, 321, 341, 361, 381, 419, 328, 348, 368, 388, 420, 331, 371, 411, 451, 491, 332, 372, 412, 452, 492, 333, 373, 413, 453, 493, 334, 374, 414, 454, 494, 335, 375, 415, 455, 495, 336, 376, 416, 456, 496, 337, 377, 417, 457, 497, 338, 378, 418, 458, 498, 351, 379, 409, 429, 449, 352, 380, 410, 430, 450, 391, 392, 401, 408, 421, 428, 459, 460, 469, 470, 431, 432, 433, 434, 471, 472, 473, 474, 479, 480 231a–260a, 269a, 289a, 311a, 399a, 439a, 270a, 290a, 312a, 400a, 440a, 279a, 299a, 319a, 339a, 359a, 280a, 300a, 320a, 340a, 360a, 309a, 329a, 349a, 369a, 389a, 310a, 330a, 350a, 370a, 390a, 313a, 353a, 393a, 441a, 461a, 314a, 354a, 394a, 448a, 468a, 315a, 355a, 395a, 435a, 475a, 316a, 356a, 396a, 436a, 476a, 317a, 357a, 397a, 437a, 477a, 318a, 358a, 398a, 438a, 478a, 321a, 341a, 361a, 381a, 419a, 328a, 348a, 368a, 388a, 420a, 331a, 371a, 411a, 451a, 491a, 332a, 372a, 412a, 452a, 492a, 333a, 373a, 413a, 453a, 493a, 334a, 374a, 414a, 454a, 494a, 335a, 375a, 415a, 455a, 495a, 336a, 376a, 416a, 456a, 496a, 337a, 377a, 417a, 457a, 497a, 338a, 378a, 418a, 458a, 498a, 351a, 379a, 409a, 429a, 449a, 352a, 380a, 410a, 430a, 450a, 391a, 392a, 401a, 408a, 421a, 428a, 459a, 460a, 469a, 431a, 432a, 433a, 434a, 471a, 472a, 473a, 474a, 479a, 480a	339 Channels.

* * * * *

(7) * * *

Table C7—General Category 806-821/851-866 MHz Band Channels in the Canada Border Regions

Canada border region	General category channels where 800 MHz high density	General category channels where 800 MHz high density
----------------------	--	--

	cellular systems are prohibited	cellular systems are permitted
Regions 1, 4, 5 and 6	261-560	561-710
Region 2	231-620	621-710
Region 3	321-500a	509-710
Regions 7A and 8	231-260a, 511-550	None
Region 7B	511-550	None

(8) * * *

Table C8—Business/Industrial/Land Transportation Pool 806–816/851–861 MHz Band Channels in the Canada Border Regions

Canada Border Region	Channel Nos.	Total
Regions 1, 2, 3, 4, 5 and 6	None	0 Channels
Regions 7A, 7B and 8	261, 271, 281, 291, 301, 262, 272, 282, 292, 302, 263, 273, 283, 293, 303, 264, 274, 284, 294, 304, 265, 275, 285, 295, 305, 266, 276, 286, 296, 306, 267, 277, 287, 297, 307, 268, 278, 288, 298, 308, 322, 362, 402, 442, 482, 323, 363, 403, 443, 483, 324, 364, 404, 444, 484, 325, 365, 405, 445, 485, 326, 366, 406, 446, 486, 327, 367, 407, 447, 487, 342, 382, 422, 462, 502, 343, 383, 423, 463, 503, 344, 384, 424, 464, 504, 345, 385, 425, 465, 505, 346, 386, 426, 466, 506, 347, 387, 427, 467, 507 261a, 271a, 281a, 291a, 301a, 262a, 272a, 282a, 292a, 302a, 263a, 273a, 283a, 293a, 303a, 264a, 274a, 284a, 294a, 304a, 265a, 275a, 285a, 295a, 305a, 266a, 276a, 286a, 296a, 306a, 267a, 277a, 287a, 297a, 307a, 268a, 278a, 288a, 298a, 308a, 322a, 362a, 402a, 442a, 482a, 323a, 363a, 403a, 443a, 483a, 324a, 364a, 404a, 444a, 484a, 325a, 365a, 405a, 445a, 485a, 326a, 366a, 406a, 446a, 486a, 327a, 367a, 407a, 447a, 487a, 342a, 382a, 422a, 462a, 502a, 343a, 383a, 423a, 463a, 503a, 344a, 384a, 424a, 464a, 504a, 345a, 385a, 425a, 465a, 505a, 346a, 386a, 426a, 466a, 506a, 347a, 387a, 427a, 467a, 507a	200 Channels

(9) * * *

Table C9—SMR Category 806–816/851–861 MHz Channels Available for Site-Based Licensing in the Canada Border Regions

Canada Border Region	Channel Nos.	Total
Regions 1, 2, 3, 4, 5 and 6	None	0 Channels.
Regions 7A and 8	315, 355, 395, 435, 475, 316, 356, 396, 436, 476, 317, 357, 397, 437, 477, 318, 358, 398, 438, 478, 331, 371, 411, 451, 491, 332, 372, 412, 452, 492, 333, 373, 413, 453, 493, 334, 374, 414, 454, 494, 335, 375, 415, 455, 495, 336, 376, 416, 456, 496, 337, 377, 417, 457, 497, 338, 378, 418, 458, 498, 431, 432, 433, 434, 471, 472, 473, 474, 479, 480, 481, 488, 489, 490, 499, 500, 501, 508, 509, 510 315a, 355a, 395a, 435a, 475a, 316a, 356a, 396a, 436a, 476a, 317a, 357a, 397a, 437a, 477a, 318a, 358a, 398a, 438a, 478a, 331a, 371a, 411a, 451a, 491a, 332a, 372a, 412a, 452a, 492a, 333a, 373a, 413a, 453a, 493a, 334a, 374a, 414a, 454a, 494a, 335a, 375a, 415a, 455a, 495a, 336a, 376a, 416a, 456a, 496a, 337a, 377a, 417a, 457a, 497a, 338a, 378a, 418a, 458a, 498a, 431a, 432a, 433a, 434a, 471a, 472a, 473a, 474a, 479a, 480a, 481a, 488a, 489a, 490a, 499a, 500a, 501a, 508a, 509a, 510a	160 Channels.
Region 7B	481, 488, 489, 490, 499, 500, 501, 508, 509, 510 481a, 488a, 489a, 490a, 499a, 500a, 501a, 508a, 509a, 510a	20 Channels.

* * * * *

16. Section 90.621 is revised by updating paragraphs (b) and (d), which was previously reserved, to read as follows:

§90.621 Selection and assignment of frequencies.

* * * * *

(b) Stations authorized on frequencies listed in this subpart, except for those stations authorized pursuant to paragraph (g) of this section and EA-based and MTA-based SMR systems, will be assigned co-channel frequencies solely on the basis of distance between fixed stations. In addition, contour overlap as detailed in paragraph (d) of this section will be the basis for geographic separation between fixed stations operating on adjacent-channel frequencies in the 809-817 MHz / 854-862 MHz sub-band. The separation between co-channel systems will be a minimum of 113 km (70 mi) with one exception. For incumbent licensees in Channel Blocks F1 through V, that have received the consent of all affected parties or a certified frequency coordinator to use an 18 dBµV/m signal strength interference contour (see §90.693), the separation between co-channel systems will be a minimum of 173 km (107 mi). The following exceptions to these separations shall apply:

* * * * *

(d) Geographic separation between fixed stations operating on adjacent channels in the 809-817 MHz / 854-862 MHz band segment will be based on contour overlap as detailed below.

(1) *Forward Contour Analysis.* An applicant seeking to license a fixed station on a channel in the 809-817 MHz / 854-862 MHz band segment will only be granted if the applicant’s proposed interference contour creates no overlap to the 40 dBu F(50,50) contour of an incumbent operating a fixed station on an upper- or lower-adjacent channel. The applicant’s interference contour is determined using the dBu level listed in the appropriate table in paragraph (3).

(2) *Reciprocal Contour Analysis.* In addition to the contour analysis described above, any applicant seeking to license a fixed station on a channel in the 809-817 MHz / 854-862 MHz band segment must also pass a reciprocal contour analysis. Under the reciprocal analysis, the interference contour of an incumbent operating a fixed station on an upper- or lower-adjacent channel must create no contour overlap to the proposed 40 dBu F(50,50) contour of the applicant’s fixed station. The incumbent’s interference contour is determined using the dBu level listed in the appropriate table in paragraph (3).

(3) *Contour Matrix.* Interference contour levels for the contour analysis described in paragraphs (1) and (2) are determined using Table 1 or Table 2 below. Table 1 is used to determine the interference contour level of a fixed station operating on a 12.5 kilohertz bandwidth channel while Table 2 is used to determine the interference contour level of a fixed station operating on a 25 kilohertz bandwidth channel. The dBu level of the interference contour is determined by cross-referencing the modulation type of the station operating on the 25 kilohertz bandwidth channel with the modulation type of the station operating on the 12.5 kilohertz bandwidth channel. The interference contour should be plotted using the F(50,10) R-6602 curves.

Table 1 – Interference Contour Level for Fixed Station Operating on 12.5 kilohertz Bandwidth Channel

Interference Contour (12.5 kilohertz into 25 kilohertz channel)		12.5 kilohertz Bandwidth Technology of 12.5 kilohertz Bandwidth Channel				
		Transmitter Emission				
25 kilohertz Technology on 25 kilohertz Bandwidth Channel		11K3F3E or less	8K10F1E 8K10F1D 8K70D1W 9K80D7W	7K60FXE 7K60FXD 7K60F7E 7K60F7D 7K60F7W 8K30F1E 8K30F1D	4K00F1E 4K00F1D	11K0F7E 11K0F7D 11K0F7
		Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Transmitter Emission		Interference Contour [dBu F(50,10)]				
16K0F3E or 20K0F3E	Receiver	25	20	25	NA	15
10K0F1E or 10K0F1D	Receiver	40	35	40	NA	25
12K5F9W	Receiver	40	35	40	NA	30
16K0F1E or 16K0F1D	Receiver	70	65	65	NA	70
18K3D7W OR 17K7D7D	Receiver	25	20	25	NA	10

12.5 kilohertz Bandwidth Technology on 25 kilohertz Bandwidth Channel						
Transmitter Emission		Interference Contour [dBu F(50,10)]				
11K3F3E or less	Receiver	65	65	65	NA	70
8K10F1E, 8K10F1D, 8K70D1W, 9K80D7W, 9K80D1E or 9K80D1D	Receiver	NA	75	75	NA	70
7K60FXE, 7K60FXD, 7K60F7E, 7K60F7D, 7K60F7W, 8K30F1E or 8K30F1D	Receiver	NA	75	75	NA	NA
4K00F1E or 4K00F1D	Receiver	NA	NA	NA	NA	NA
11K0F7E, 11K0F7D or 11K0F7W	Receiver	60	55	60	NA	NA
Section 90.221 Technology on 25 kilohertz Bandwidth Channels						
Transmitter Emission		Interference Contour [dBu F(50,10)]				
22K0D7E, 22K0D7D, 22K0D7W, 22K0DXW or 22K0G1W	Receiver	25	20	25	45	10
21K0D1E, 21K0D1D or 21K0D1W	Receiver	25	20	25	NA	10
21K7D7E, 21K7D7D or 21K0D1W	Receiver	25	20	25	NA	10

Table 2 – Interference Contour Level for Fixed Station Operating on 25 kilohertz Bandwidth Channel

Interference Contour (25 kilohertz into 12.5 kilohertz channel)	12.5 kilohertz Bandwidth Technology of 12.5 kilohertz Bandwidth Channel
	Transmitter Emission

		11K3F3E or less	8K10F1E 8K10F1D 8K70D1W 9K80D7W	7K60FXE 7K60FXD 7K60F7E 7K60F7D 7K60F7W 8K30F1E 8K30F1D	4K00F1E 4K00F1D	11K0F7E 11K0F7D 11K0F7
25 kilohertz Technology on 25 kilohertz Bandwidth Channel		Receiver	Receiver	Receiver	Receiver	Receiver
Transmitter Emission		Interference Contour [dBu F(50, 10)]				
16K0F3E or 20K0F3E	Transmitter	40	50	45	NA	35
10K0F1E or 10K0F1D	Transmitter	50	50	50	NA	50
12K5F9W	Transmitter	40	50	45	NA	35
16K0F1E or 16K0F1D	Transmitter	35	40	40	NA	35
18K3D7W OR 17K7D7D	Transmitter	20	45	30	NA	15
12.5 kilohertz Bandwidth Technology on 25 kilohertz Bandwidth Channel						
Transmitter Emission		Interference Contour [dBu F(50,10)]				
11K3F3E or less	Transmitter	65	NA	75	NA	60
8K10F1E, 8K10F1D, 8K70D1W, 9K80D7W, 9K80D1E or 9K80D1D	Transmitter	65	75	70	NA	55
7K60FXE, 7K60FXD, 7K60F7E, 7K60F7D, 7K60F7W, 8K30F1E or 8K30F1D	Transmitter	65	75	75	NA	60
4K00F1E or 4K00F1D	Transmitter	NA	NA	NA	NA	NA
11K0F7E, 11K0F7D or 11K0F7W	Transmitter	70	NA	NA	NA	NA
Section 90.221 Technology on 25 kilohertz Bandwidth Channels						

Transmitter Emission		Interference Contour [dBu F(50,10)]				
22K0D7E, 2K0D7D, 22K0D7W, 22K0DXW or 22K0G1W	Transmitter	20	25	20	30	15
21K0D1E, 21K0D1D or 21K0D1W	Transmitter	20	25	20	NA	15
21K7D7E, 21K7D7D or 21K0D1W	Transmitter	15	20	15	NA	10

(4) *Letters of Concurrence.* Applicants may submit applications which cause overlap under the forward contour analysis described above in paragraph (1) provided the applicant includes a letter of concurrence from each incumbent that receives contour overlap. In the letter of concurrence, the incumbent operator must agree to accept any interference that occurs as a result of the contour overlap.

* * * * *

Appendix C
List of Commenters

I. Comments in WP Docket No. 15-32

American Electric Power Service Corp.
Association of Public-Safety Communications Officials-International, Inc. (APCO)
The Boeing Company
Keith M. Bradshaw
Entergy Services, Inc.
Enterprise Wireless Alliance (EWA)
Land Mobile Communications Council (LMCC)
Motorola Solutions, Inc. (Motorola)
National Public Safety Telecommunications Council (NPSTC)
Peak Relay Inc.
SouthernLINC Wireless

II. Reply Comments in WP Docket No. 15-32

American Petroleum Institute
Robert L. Burchett
EWA
State of Florida (Florida)
LMCC [LMCC Contour Matrix]
RadioSoft, Inc.
Utilities Technology Council (UTC)

III. Comments on LMCC Contour Matrix in WP Docket No. 15-32

APCO
JVCKenwood USA Corporation (*Ex Parte*)
Mobile Relay Associates, LLC (MRA)
NPSTC

IV. Comments in WP Docket No. 16-261

ABN Health
Absalom Gonzales, Inc.
APCO
Association of American Railroads
At Home Health Equipment
The Athlete's Business Network
Caito Foods Service, Inc.
Central Station Alarm Association (CSAA)
EWA
Florida
Ice Reality LLC
Ionic Wireless LLC
James Babcock, Inc.
LMCC

MRA
Maetrics, LLC
Marion Utilities
Motorola
M2M Spectrum Networks, LLC (M2M)
National Association of Broadcasters
The National Association of Manufacturers and MRFAC, Inc.
National Regional Planning Council
NPSTC
One World Design & Manufacturing Group Ltd
Roadrunner Delivery, Inc.
Sanford Health
Ubicquia LLC
UTC

V. Reply Comments in WP Docket No. 16-261

American Association of State Highway Transportation Officials
CSAA
EWA
Government Wireless Technology & Communications Association
LMCC
Motorola
MRA
MRFAC, Inc.
M2M
New York Communications Company, Inc.
UTC
Wireless Infrastructure Association