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

In the Matter of	)	
	)	
Creation of Interstitial 12.5 kHz Channels in the	)	WP Docket No. 15-32
800 MHz Band Between 809-817/854-862 MHz	)	RM-11572

COMMENTS BY THE STATE OF FLORIDA
TO THE NOTICE OF PROPOSED RULEMAKING

1. The State of Florida, Department of Management Services, Division of Telecommunications (DivTel) offers these comments to the Notice of Proposed Rulemaking (NPRM) in the above referenced matter. As a licensed user of public safety spectrum, and an agency with regulatory responsibility for other State of Florida and local public safety agencies, DivTel has a direct interest in the outcome of this proceeding. Our comments are divided into the same categories as the NPRM and include a general reference to the corresponding paragraph numbers of the NPRM.

2. The Division of Telecommunications' Statewide Law Enforcement Radio System (SLERS) utilizes primarily 800 MHz frequency spectrum in the National Public Safety Planning Advisory Committee (NPSPAC) band and Mid-Band. The Division of Telecommunications wants to ensure our operations as an incumbent licensee in this frequency spectrum is not compromised and avoid a potentially substantial financial burden.

3. The Division of Telecommunications also operates a regularly-assignable 800 MHz frequency from the Mid-Band for mutual aid radio communications, known as the Florida Mutual Aid (MAFLA) channel, and is not subject to channel loading.[1] The MAFLA channel is for statewide conventional use by numerous state and local licensees. Similarly, DivTel wants to ensure incumbent licensees on this channel are not compromised and avoid a potential substantial financial burden.

III. Notice of Proposed Rulemaking

A. Interstitial Channels

4. (Re: ¶14-15) As filed in our comments on the Enterprise Wireless Alliance's petition for rulemaking, DivTel proposes 25 kHz channel bandwidths instead of 12.5 kHz for the proposed interstitial channels. The Division of Telecommunications is an incumbent licensee on 29 interstitial channels, each with a 25 kHz channel bandwidth on SLERS.[2] There are also several public safety entities licensed on eight additional interstitial channels, mainly in the Central and South Florida. The SLERS is an all-digital, EDACS[3] radio network. The initial system design was started in the mid-1990s. During the design

[1] Authorized by waiver in accordance with Order DA 97-1631 released July 31, 1997.
[2] Nineteen are licensed pursuant to rule waiver under FCC Order DA 01-139, released January 24, 2001, and 10 additional interstitial channels proposed in this rulemaking, which are licensed pursuant to rule waiver under FCC Order DA 03-752A1, released March 11, 2003.
[3] EDACS – Enhanced Digital Access Communications System

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phase, DivTel used interstitial channels as the viable solution to complete the system because of 800 MHz channel shortages. The Division of Telecommunications, having licensed 20 contiguous General Category channels statewide, applied for and was granted a waiver to license the interstitial channels between the block of General Category channels.[4] Additionally, DivTel applied for and was granted a waiver for additional interstitial channels between regular Public Safety category channels.[5] With careful spectrum management, DivTel has been using these channels without any major issues in the SLERS network. The SLERS 800 MHz radio equipment throughout the state operates on 25 kHz channels. Approximately 80 of the 219 SLERS sites operate on at least one interstitial channel. The change to 12.5 kHz channel bandwidths would have a significant financial and operational impact on the network.

5. (Re: ¶17) The Division of Telecommunications opposes TETRA technology into the Mid-Band, particularly on the channels allocated for Public Safety eligibility, or currently licensed by public safety agencies. The introduction of Tetra technology equipment with operations at 18.75 kHz each side of its center frequency will require coordination of channels equivalent to one primary channel at 25 kHz and two interstitial channels at 12.5 kHz, for a total impact of 50 kHz of equivalent channel bandwidth ("TETRA channel").[6] If four voice paths per "TETRA channel" are possible, the effective spectrum efficiency becomes one voice path per 12.5 kHz. Whereas, Project 25, 2-slot Time Division Multiple Access (TDMA) at 12.5 kHz channel bandwidth provides an effective spectrum efficiency of one voice path per 6.25 kHz. Therefore, a "TETRA channel" would occupy twice the effective frequency spectrum than Project 25, 2-slot TDMA.

6. (Re: ¶18) The Division of Telecommunications agrees with caution in making "…interstitial channels available in the Mid-Band available for licensing in any NPSPAC region only after 800 MHz rebanding is completed in that region." The Division of Telecommunications agrees with an announcement by Public Notice from the Commission when public safety agencies in each region may apply to license interstitial channels. The caution is where a region may be captured by an agency still rebanding on one end of the region, preventing others on the opposite end of that region in need of interstitial channels from securing a license. During this time, adjacent regions would be free to apply, which may render interstitial channels along the state line(s)[7] unavailable for the region captured. Necessity for spectrum relief may motivate affected agencies in the region captured to apply for a waiver before a Public Notice from the Commission can be issued.

7. (Re: ¶20) Absent data to support or dispute the United Telecom Council's claim, DivTel certainly does not want another round of unintended interference like that which prompted the 800 MHz rebanding. Aggregating contiguous 25 kHz channels in the middle of the interstitial channels seems to create an environment of interleaved channels inviting another round of interference.

8. (Re: ¶21) The Division of Telecommunications applauds the Commission for attention given to "receive[d]… interference from interstitial channel systems." (Emphasis is on

[4] See waiver granted on FCC Order DA 01-139, released January 24, 2001.
[5] See waiver granted on FCC Order DA 03-752A1, released March 11, 2003.
[6] One 25 kHz channel, one 12.5 kHz upper and one 12.5 kHz lower channel bandwidth for 50 kHz of effective channel bandwidth.
[7] Some NPSPAC regions are comprised of multiple states (e.g., Region 28, Region 54, Region 19, etc.)

"receive."). Section 5.2.2 of Florida's 800 MHz Region 9 Plan for Public Safety Radio Communications (the Plan) addresses receiver standards.[8] The Division of Telecommunications encourages the Commission to address rules for radio receivers that can further the efficient use of the interstitial channels, whether at 12.5 kHz or 25 kHz bandwidths. For 25 kHz channels spaced 12.5 kHz apart (offset channels), the Plan includes:

a. 20 dB adjacent offset-channel selectivity as recommended by NPSPAC, and
b. at least 20 dB of protection to the adjacent 12.5 kHz offset-channel signal when tested with the revised method described in the NPSPAC Final Report.[9] The Division of Telecommunications reiterates that in the NPSPAC band, public safety uses 25 kHz channel bandwidth at 12.5 kHz spacing and has not had any interference issues related to coordination.

B. Interference Protection Criteria

9. (Re: ¶25-27) The Division of Telecommunications agrees with the Land Mobile Communications Council (LMCC) supporting reciprocal contour analysis. However, DivTel hesitates to agree with LMCC's proposed "Interstitial 800 MHz Coordination Procedures." The Division of Telecommunications would need further analysis that provides a comparison between LMCC's procedures and those used by the Florida Region Interference Program (FRIP). The FRIP procedures use 33.3 dBu offset channel interference contour (OCIC) and a 40 dBu protected service interference contour (PSAC), using the Okumura propagation model for a 25 kHz channel bandwidth at a 12.5 kHz channel spacing (offset). Hence, further analysis would need to be provided for the proposed 12.5 kHz interstitial channels.

10. If the interstitial channels are allocated at 25 kHz bandwidth, DivTel proposes 33.3 dBu OCIC and 40 dBu PSAC. This is in conjunction with receiver criteria presented earlier and a 4 kHz frequency deviation limit for a 14 kHz emission bandwidth.

11. Florida's agencies, counties and cities have been using FRIP to prepare applications for submittal to the Florida Region Committee from the outset of the NPSPAC 800 MHz channels. This has proven how FRIP simplifies input requirements for the Okumura propagation model to achieve successful interference protection between voice radio systems. The Division of Telecommunications understands a propagation model for an urban area over quasi-smooth terrain would not be applicable for rural, mountain terrain. However, DivTel wants to emphasize any nationwide coordination procedures like that proposed by LMCC must be applicable to the various propagation environments ranging from quasi-smooth to mountainous terrain.

C. Eligibility and Licensing Requirements

12. (Re: ¶30) Allocating all the interstitial channels to Part 90 eligibles puts Public Safety agencies in competition with others.[10] It will put public safety agencies at a disadvantage

[8] http://www.dms.myflorida.com/content/download/108088/608712/Florida_Region-9_Plan_amendment_#15.pdf.

[9] See Final Report of the National Public Safety Planning Advisory Committee, Gen. Docket 87-112 (September 9, 1987).

[10] For instance, paragraph 3 of FCC Order DA 01-139 (released January 24, 2001) cites "…a steep rise in the request by SMR applicants and licensees for General Category channels."

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to appreciate the pool of frequencies due to their planning, budgeting and purchasing process. Allocating a subset of interstitial channels for specific eligibility categories can preserve a pool of channels for Public Safety eligibles. For a General Category pool of frequencies, public safety agencies will be at the same disadvantage as described above. To offset this disadvantage, any General Category pool of interstitial channels should be reserved for Public Safety eligibles consistent with the criteria of the Enhanced Specialized Mobile Radio (ESMR)-vacated spectrum and with preference for public safety T-Band incumbents. Applicants should exhaust the availability of primary channels in their area of operations before being allowed to license interstitial channels, similar to FCC rule 90.621 concerning intercategory sharing. This would pack the primary pool of channels before applicants can apply for interstitial channels. Regardless, the 19 interstitial channels licensed in the 854 MHz range[11] for DivTel's SLERS, in accordance with FCC Order DA 01-139, should be part of either the Public Safety pool or General Category pool if subsets are established until such time each channel is relinquished. As an incumbent licensee, DivTel's current operational status must be safeguarded throughout this rulemaking process. The Division of Telecommunications' radio system has an additional 10 interstitial channels licensed between 10 primary channels designated as Public Safety category per FCC Order DA 03-752A1, and should also be preserved for SLERS. The expectation was that the adjacent licensee of those channels would operate in the similar manner as the SLERS radio system. To introduce licensees that potentially have a different method of operation, such as a TETRA or similar technology, may introduce a significant higher chance of interference between users. The Division of Telecommunications has successfully used offset Public Safety channels in the highly-congested southwest and central part of the state for many years with only minor issues.

13. The Division of Telecommunications tentatively agrees with assigning "…eligibility to each interstitial channel based on the category of the lower-adjacent standard channel."[12] Some of DivTel's licensed interstitial channels are adjacent to lower-adjacent standard channels pooled as General Category, which must be preserved at 25 kHz channel bandwidth as presented in our previous paragraph.

14. (Re: ¶31) Absent an allocated block of channels for each category proposed in footnote 3 of the NPRM, the interstitial channels should be reserved for public safety consistent with the ESMR-vacated spectrum. Furthermore, preference should be provided for public safety T-Band incumbents to the extent equivalent to FCC Report and Order on PS Docket No. 13-87, released October 24, 2014.

D. Authorized Bandwidth and Emission Mask

15. (Re: ¶32) The Division of Telecommunications proposes full, 25 kHz bandwidth interstitial channels. The Division of Telecommunications' current use of 19 interstitial channels for SLERS spaced between its 20 primary channels with 12.5 kHz separation at full bandwidth demonstrates it can be done, and is similar to how 800 MHz NPSPAC channels are packed and licensed in Florida. The Division of Telecommunications' 10 additional interstitial channels for SLERS licensed at specific sites in Central and South Florida are also operating at full bandwidth. Incumbent licensees of interstitial channels at 25 kHz channel bandwidths would face the tremendous cost of changing out their

[11] Originally at and below 854 MHz, these channels were subject to 800 MHz rebanding and are now in the 856 MHz range.

[12] "Lower-adjacent standard channel" is understood to be "primary channels" cited in our comments.

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equipment to 12.5 kHz channel bandwidths. To reiterate, DivTel has licensed and implemented 29 interstitial channels at approximately 80 sites statewide, using the interstitial channels approximately 200 times. If limited to 12.5 KHz bandwidth channel, the task to find replacement channels for these 25 kHz channels will be practically impossible.

16. (Re: ¶33) While DivTel agrees to emission mask D for 12.5 kHz bandwidth channels, our comments provided herein requires emission mask B or G for 25 kHz bandwidth channels to avoid impacts to DivTel's SLERS channels.

17. (Re: ¶34) Per our previous our comments, DivTel supports 25 kHz channels spaced every 12.5 kHz and with a 4 kHz frequency deviation because of the heavy investment in this channel bandwidth. The Division of Telecommunications' experiences with the FRIP application demonstrates how efficiently frequency reuse can be successfully achieved with the proper co-channel and offset channel interference criteria for both transmitter and receiver criteria.[13]

18. (Re: ¶35) The Division of Telecommunications agrees with two voice paths for 12.5 kHz channel bandwidths with caution. Incumbent licensees are already licensed on some of the proposed interstitial channels operating on 25 kHz channel bandwidths as presented herein for SLERS. Incumbent licensees should be grandfathered based on their current waivers approved. Upsetting incumbent licensees has the potential for a substantial financial burden, which could include license modifications, system modifications, reprogramming subscriber units and equipment replacement. It would take public safety personnel out of service to bring their subscriber units in for reprogramming or replacement.

19. For any additional information concerning these comments, contact Mr. Carlton Wells of the Bureau of Public Safety (BPS) of the State of Florida, Division of Telecommunications at (850) 922-7426, email carlton.wells@dms.myflorida.com or Leon Simmonds of BPS at (850) 413-6382, email leon.simmonds@dms.myflorida.com.

Respectfully submitted,

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Bureau of Public Safety
Division of Telecommunications
State of Florida

April 14, 2015

CWW-LS:Comments to NPRM in WPD 15-32

cc: Joint Task Force Chair

[13] We have been able to space stations co-channel to others as close as 26 miles.

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