

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)
)
Expanding Flexible Use in Mid-Band Spectrum) GN Docket No. 17-183
Between 3.7 and 24 GHz)

COMMENTS OF APCO INTERNATIONAL

The Association of Public-Safety Communications Officials-International, Inc. (APCO) hereby submits the following comments in response to the Commission’s Notice of Inquiry (NOI) in the above-captioned proceeding.¹

Founded in 1935, APCO is the nation’s oldest and largest organization of public safety communications professionals. APCO is a non-profit association with over 30,000 members, primarily consisting of state and local government employees who manage and operate public safety communications systems - including 9-1-1 Public Safety Answering Points (PSAPs), emergency operations centers, radio networks, and information technology - for law enforcement, fire, emergency medical, and other public safety agencies.

The Commission seeks comment on the bands between 3.7 and 24 GHz with the most potential to support increased flexible uses, including wireless broadband services.² APCO has a particular interest in the 5.925-6.425 GHz and 6.425-7.125 GHz bands, which are heavily used and relied upon for fixed point-to-point microwave links essential to public safety services, including backhaul for mission critical land mobile radio systems that support dispatch and

¹ In the Matter of Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, GN Docket No. 17-183, *Notice of Inquiry*, FCC 17-104 (rel. Aug. 3, 2017) (“NOI”).

² *Id.* at para. 12.

tactical communications.³ To avoid negatively impacting public safety communications, APCO urges the Commission to consider bands other than 6 GHz to achieve its flexible spectrum use goals.

Public Safety Heavily Uses and Depends Upon the 6 GHz Band, and Has No Viable Alternatives

The 6 GHz bands are the most ideal for long haul microwave transmissions for public safety, in some cases throughout entire states. By comparison, higher frequency bands available for public safety use, such as 11 GHz are not as useful given the shorter path lengths and susceptibility to signal attenuation from environmental factors like rain.⁴ Further, many public safety users of the 6 GHz bands were previously relocated from the 2 GHz band to make spectrum available for wireless services. If the 6 GHz bands are repurposed or become unsuitable, public safety will lack viable alternatives.

Public Safety Bands Are Not Suitable Testing Grounds for Unproven Spectrum Sharing Techniques

The Commission seeks comment on whether, in the 5.925-6.425 GHz band, it would be feasible to “adopt techniques to mitigate the risk of interference from unlicensed devices to licensed services” and “whether it may be viable to realign or retune existing incumbent operations in this band to make more efficient use of this spectrum and better facilitate sharing.”⁵

³ According to the Commission’s Universal Licensing System database, there are over 11,000 licensed public safety microwave stations in the 6 GHz band.

⁴ The 4.9 GHz band would not be a suitable alternative to 6 GHz either. Channels in the 6 GHz band are full duplex, with typical bandwidths of 30/40 MHz and throughputs in the range of 160-200 Mbits/s. The entire 4.9 GHz allocation only has 50 MHz of simplex spectrum, which means there is not enough bandwidth for it to serve as an alternative for public safety’s use of the 6 GHz band. Moreover, the 4.9 GHz band cannot support the longer path lengths that the 6 GHz allocation permits.

⁵ NOI at para. 29.

Regarding the 6.425-7.125 GHz band, the Commission seeks comment on what sharing techniques can be used for new fixed and mobile services to coexist with current operations in the band.⁶ Additionally, for both 6 GHz bands, the Commission seeks comment on whether there are technological advancements or modifications to the Commission's service rules that could minimize the potential for harmful interference between different types of services in the bands if mobile services are deployed.⁷

Permitting flexible use of the 6 GHz bands for wireless broadband could be detrimental to public safety communications. Public safety spectrum use must be protected to the maximum extent possible from potential interference. Further, should interference occur, mechanisms for rapid identification and resolution of the source of interference must be in place. Accordingly, any spectrum sharing or interference protection techniques for use in public safety bands must undergo substantial testing and be proven effective in advance. APCO has raised this concern in a related proceeding, in which Higher Ground was granted a Bureau-level waiver for a blanket earth station license to operate up to 50,000 "SatPac" terminals in 6 GHz, based on the claim that a database-driven, permission-based self-coordination authorization system would protect incumbent licensees from harmful interference.⁸ Public safety spectrum bands are not the

⁶ *Id.* at para. 36.

⁷ The Commission encourages commenters to address the same questions raised previously with regard to the 3.7-4.2 GHz band for both 6 GHz bands. *Id.* at paras. 20-22, 31, 36.

⁸ Application for Review of APCO, File No. SES-LIC-20150616-00357 (filed Feb. 17, 2017). As APCO stated, the Commission should reverse the Bureaus' Order, initiate a formal rulemaking proceeding to consider Higher Ground's proposal, and require Higher Ground to conduct a live test, coordinated with public safety, to assess the effectiveness of its proposed coordination system to protect licensed operations. Thorough testing is needed before multiple devices that are difficult to keep track of and control are introduced into a band with existing public safety licensees to ensure that incumbents are adequately protected from potential harmful interference. Reply to Consolidated Opposition of Higher Ground LLC of APCO, File No. SES-LIC-20150616-00357, at 5 (filed Mar. 16, 2017).

appropriate arena to deploy new, untested spectrum sharing and frequency coordination methods.⁹

Applying Market-Based Incentive Auctions to Public Safety Would Be Complex

Finally, the Commission seeks comment on whether market-based relocation approaches such as incentive auctions are appropriate for public safety services.¹⁰ Incentive auctions would be complex, and potentially impractical, to use for relocation of public safety incumbents in the 6 GHz bands. As noted above, there are thousands of public safety licensees in the 6 GHz band, and point-to-point microwave licenses often stretch across jurisdictions and are shared among several entities. Further, since public safety licensees in the 6 GHz bands lack viable alternatives, they would likely not choose to participate in an incentive auction.

Respectfully submitted,

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⁹ APCO raised similar themes in the Commission's proceeding to permit Unlicensed National Information Structure devices in the 5 GHz band. APCO recommended that any sharing arrangement ensure that no harmful interference occurs to public safety applications in the 5.9 GHz band, and that any sharing techniques under consideration should undergo substantial testing and be proven effective in advance, before being used in a way that could impact public safety applications. Comments of APCO, ET Docket No. 13-49, at 2 (filed Jul. 7, 2016).

¹⁰ NOI at para. 41.