

The T-Band Giveback

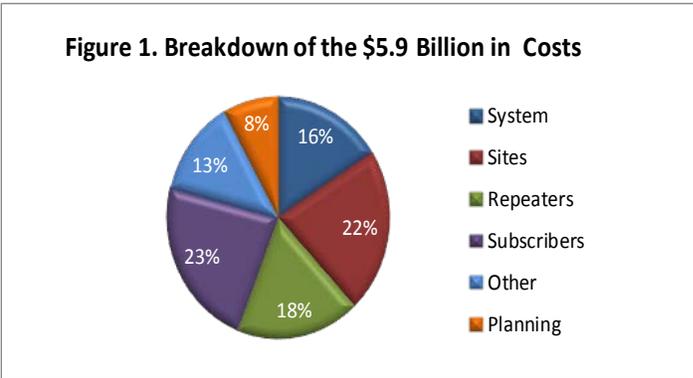
Implications for the Public Safety Community

The Middle Class Tax Relief and Job Creation Act of 2012 ([Public Law 112-96](#)¹) requires the Federal Communications Commission (FCC) to recover and auction T-Band spectrum², currently in use by public safety agencies, for commercial use by February 2021. Additionally, the Act requires the FCC to clear public safety operations from this portion of the band within two years of auction close (i.e., early 2023). The ultra-high frequency (UHF) spectrum between 470–512 megahertz (MHz)—also known as the “T-Band”—supplies a significant complement of channels to support public safety operations and regional interoperability in 11 of the largest U.S. metropolitan areas³. Specific channels in this portion of T-Band spectrum are not contiguous and vary by metropolitan area and TV channels within that area. While a licensing freeze was not required by the law, the FCC placed a freeze on all new and expanded T-Band operations for public safety and industrial and business licensees. Immediately following the law’s enactment, public safety communications experts concluded that solutions to challenges of spectrum relocation remain complex and costly for affected local and State public safety entities.

THE REPORT

In March 2013, NPSTC convened a T-Band working group to study the giveback and its implications for public safety communications, including the potential cost of relocation efforts (Figure 1)⁴. The full report is available on the [NPSTC website](#), and cites costs, spectrum alternatives, and limited spectrum gains as potential limitations:

- **Cost:** Despite being a requirement of the Act, auction revenues may not cover costs related to spectrum relocation, which is estimated to exceed \$5.9 billion (estimate from 2013). Additionally, auction proceeds do not consider private sector relocation costs, which may decrease the percentage of auction funding used specifically for public safety spectrum reallocation.
- **Spectrum Alternatives:** The law requires licensees to migrate from the T-Band to other, unspecified spectrum; however, insufficient alternatives leave few options for identifying replacement spectrum. The very high frequency (VHF), UHF, and 700/800 MHz bands have few available channels. Also, the Nationwide Public Safety Broadband Network (NPSBN) is not yet available to support existing mission critical voice operations displaced by T-Band relocation.
- **Gaining Public Broadband Spectrum:** Despite its initial intentions for repurposing, the relocation of public safety operations from the T-Band is unlikely to produce significant additional broadband spectrum for public use.



THE UPDATE REPORT

In May 2016, NPSTC released an Update Report⁵ to identify any significant changes in the public safety demand for T-Band spectrum or the viability of potential relocation options. The update study confirmed the conclusions from the 2013 NPSTC

¹ See Public Law 112-96 enacted on February 22, 2012: <http://www.gpo.gov/fdsys/pkg/PLAW-112publ96/pdf/PLAW-112publ96.pdf>

² Electromagnetic spectrum, commonly referred to as spectrum, is the range of all possible frequencies of electromagnetic radiation. Radio spectrum or wireless spectrum refers to the part of the electromagnetic spectrum corresponding to radio frequencies in the range from 3 kHz to 300 GHz that may be used for wireless communication.

³ The 11 affected T-Band markets include Boston, Chicago, Dallas, Houston, Los Angeles, Miami, New York, Philadelphia, Pittsburgh, San Francisco, and Washington, D.C.

⁴ See the NPSTC T-Band Report: http://www.npstc.org/download.jsp?tableId=37&column=217&id=2678&file=T_Band_Report_20130315.pdf

⁵ See the NPSTC T-Band Update Report: http://www.npstc.org/download.jsp?tableId=37&column=217&id=3696&file=T_Band_Update_Report_Final.pdf

T-Band Report remain valid. The report indicated only minimal numbers of public safety T-Band licenses have been cancelled or allowed to expire without renewal since the previous NPSTC study. Also, various jurisdictions indicated their T-Band systems and spectrum are still essential to effective communications and interoperability. Although the FCC released 24 reserve channels from the 700 MHz band earmarked for T-Band relocation, the number of additional channels is significantly less than the T-Band channels in use, especially in the top five T-Band areas. While related standards progressed, much work remains to provide a viable mission critical voice-over-LTE (VoLTE)⁶ solution with coverage, guaranteed voice capacity, and local control equivalent to that of current T-Band systems. Despite FirstNet's upcoming buildout of broadband data and imaging capabilities not supported on current land mobile networks, it is still premature to determine whether equivalent broadband coverage would be in place and mission critical VoLTE could be proven reliable in the public safety stressed environment. While most of Public Law 112-96 is positive for public safety, Section 6103 of that law, which requires auction of the T-Band spectrum, still imposes a negative impact on public safety communications and interoperability. In turn, this also could negatively impact the operations of public safety agencies and critical industrial and business systems that provide emergency response and infrastructure support to a population of more than 90 million people in the 11 T-Band areas.

FCC ACTIONS

In response to Public Law 112-96, the FCC issued rules and guidance related to the required T-Band transition. On October 17, 2014, the FCC released the narrowband reserve channels (twenty four 12.5 kHz channels) to General Use under the administration of the Regional Planning Committees (RPC) for the benefit of state and local public safety users. On January 9, 2015, the FCC issued a Public Notice, announcing the following:

- A five-year priority access window for T-Band incumbents to license the former reserve spectrum (from January 9, 2015, to January 9, 2020);
- The date for filing RPC Plan Amendments to incorporate the former reserve spectrum (June 2, 2015 [subsequently extended to October 30, 2015]); and
- The date by which certain licensees must reprogram their deployable trunked systems to operate on the former reserve channels (see FCC Public Notice DA 15-34 for specific dates)

The FCC required that T-Band incumbents seeking reserve channels (1) commit to returning to the Commission an equal amount of T-Band spectrum and (2) obtain RPC concurrence.⁷

FIRST RESPONDERS CONTINUE TO RELY ON LAND MOBILE RADIO

Although VoLTE is successfully deployed by several major cellular networks, it is still unclear whether the 700 MHz NPSBN will be able to accommodate mission-critical voice for public safety users currently using the T-Band spectrum or have the capacity to concurrently support their voice and data communications requirements. Currently, wireless broadband technology does not support a mission critical voice capability (e.g., talk around/simplex/direct mode)⁸ and is not a substitute for land mobile radio (LMR) mission critical voice. Therefore, first responders will continue to rely on LMR channels, such as those on the T-Band, as crucial components of their communications systems. The public safety community must work together to establish and test quality access, service, capacity, and a full set of public safety standards before achieving full convergence of LMR mission critical voice with broadband. Furthermore, the broadband network must be built out to provide coverage equivalent to that of today's LMR systems. Until then, LMR systems should be maintained and expanded in order to support first responders appropriately.

GRANT GUIDANCE

OEC has encouraged States to update Statewide Communications Interoperability Plans (SCIP) to address FCC directives affecting current or planned public safety communications systems, including T-Band migration. OEC has also advised grantees to consult the FCC, their Statewide Interoperability Coordinator (SWIC), and their frequency coordinator during project planning to ensure projects or upgrades planned for systems operating in the T-Band are coordinated and align with the State's migration plans.⁹

⁶ LTE is a 4G commercial cellular technology currently being deployed globally. LTE has been identified by the First Responder Network Authority as the "technology of choice" for the NPSBN.

⁷ See FCC DA 15-34 published on January 9, 2015, at: <http://www.fcc.gov/document/pshsb-provides-guidance-licensing-700-mhz-reserve-channels>

⁸ U.S. Department of Homeland Security, Office of Emergency Communications, *Public Safety Communications Evolution Brochure*, 2014.

⁹ FY 2014 SAFECOM Guidance at: www.safecomprogram.gov/ecg/2014_safecom_guidance_final.pdf

SAMPLE T-BAND GIVEBACK TRANSITION TIMELINE

The following is an example timeline providing proposed steps for transitioning to a new system.

