700 MHz National Public Safety Broadband Communications Network
By Kevin McGinnis, NASEMSO Program Advisor

In a Nutshell…
There has been considerable recent media attention about a process at the FCC to provide public safety with access to a significant swath of bandwidth for broadband use in a unique Public/Private partnership arrangement. Misinformation and speculation during the process led to an FCC inspector general's investigation and two Congressional inquiries and the media attention. While the former has been completed, has identified the misinformation and largely exonerated the process and those involved, the latter are still under way. FCC Commissioners, key legislators, and the public safety interests involved remain optimistic that this Public/Private model will succeed in providing the next generation of interoperable communications for public safety nationwide.

NASEMSO is involved as being represented on the Board of Directors of the Public Safety Spectrum Trust (PSST), the non-profit group of public safety and other interests named by the FCC during this process as the "public" half of the Public/Private partnership.

The process to create this national public safety broadband network hit a roadblock when an auction for part of the spectrum (to be operated by the commercial, "private" half of the partnership) failed to produce a winning bid. Between this failure and the media attention to other aspects of the process and participants, the road ahead is somewhat unclear. On May 14, 2008, the FCC voted unanimously to release a Second Further Notice of Proposed Rulemaking that is intended to pave the way for another auction and to get the process back on track. The content below provides more detail on this process and the issues it has spun off. Readers can also go to the PSST website (www.PSST.org) for further information.

Why Should EMS Care as a National Community?
EMS has utilized essentially the same narrowband-based voice communications systems since the early 1970's. These systems are becoming increasingly limiting as technology provides the ability to use new and different capabilities such as the transmission of electronic patient care records, multi-vital signs data, video, voice-to-text files, and new diagnostic and treatment tools. The VHF, UHF, 800 MHz and other systems are limiting because they do not provide adequate data transmission speed. A number of locales are beginning to use video and to send electronic run data from "gateway" systems using commercial wireless (cellular modems, air cards and other devices) or urban 2.4/4.9 GHz "mesh" systems which have broadband capability.

If EMS is to move in this direction (which it must to improve response and patient care), it must seek broadband "pipes" to use. The 2.4 GHz systems now used are essentially those adopted by municipalities to provide "city-wide" Internet access. They are extremely short distance "hotspot" systems useful primarily in urban areas. They are also unlicensed and therefore vulnerable to overcrowding and reduced security and reliability. They are therefore not recommended for mission critical EMS use. The 4.9 GHz system is licensed for public safety use and is therefore more appropriate to EMS. Again, it is a short range hotspot technology most appropriate to urban areas.

Commercial wireless services may be appropriate for some EMS data transmission applications, but reliability and security concerns limit their mission critical applicability (remember the Blackberry crashes and perhaps your own experience with slowing and varying data rates depending on locale, time of day, and day of week).

Telemedicine systems may offer EMS some broadband capability, but these are often fiber-based systems not offering mobile applications.

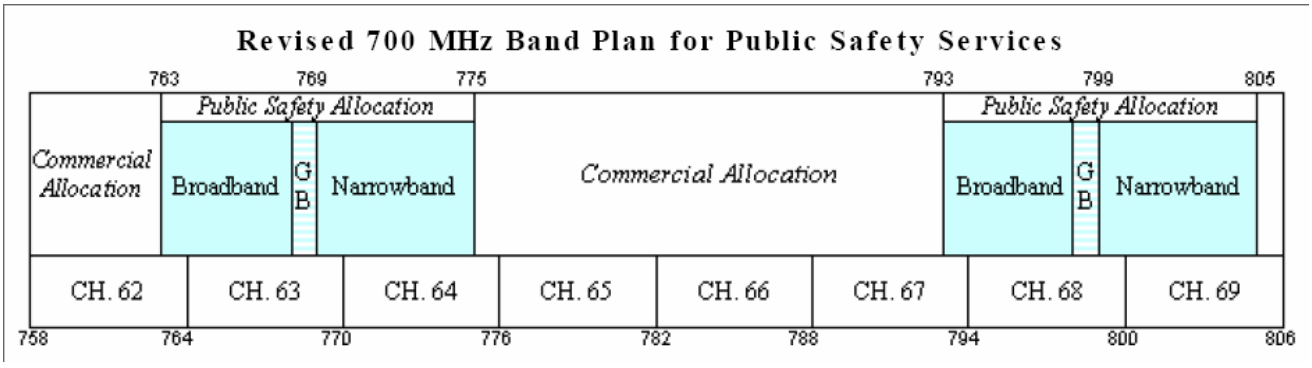
The remaining option for EMS is the new 700 MHz public safety national broadband network with transmission ranges intermediate to the hotspot technologies and our current VHF and other systems. This and the urban hotspot technologies are the primary broadband options for us in the future.

History and Detail

In the Balanced Budget Act of 1997, Congress directed the Federal Communications Commission (FCC) to allocate 24 megahertz (MHz) of radio spectrum to public safety as the result of a national report two years earlier. This spectrum would result from the congressionally ordered abandonment of analog television stations by broadcasters going to digital transmission by February, 2009. Specifically, the FCC reallocated, for public safety use, television channels 63, 64, 68, and 69 in the upper 700MHz band (between 746 and 806 MHz).

On July 31, 2007, the FCC issued its Second Report & Order on this 700 MHz band. 10 MHz of the 24 MHz spectrum would be used for broadband transmission, 12 MHz for narrowband voice transmission and 2 MHZ would be used for "guard" bands to separate the broadband and narrowband segments to prevent interference. These allocations would be evenly split between base and mobile transmission spectrum as shown in the accompanying diagram.

Base Transmission **Mobile Transmission**



The broadband segment would be uniquely licensed to a single national entity representative of public safety interests. The entity licensed by the FCC (on November 19, 2007) for this 10 MHz broadband segment was the Public Safety Spectrum Trust (PSST). The 10 MHz held by the

PSST was to be combined with an adjacent 10 MHz of spectrum (5 MHz each in base and mobile spectrum as shown in the diagram) to be licensed to the commercial winner of the upper 700 MHz "D Block" auction that was recently completed. Together, these spectrum assets were to be used to create one shared nationwide wireless broadband network, which will provide commercial service for consumers, while maintaining a nationwide network for public safety, including priority access during emergencies.

Unfortunately, the largest bid for the commercial half of the network was "only" $472 million which did not meet the minimum price set by the FCC of $1.33 billion. Congress had hoped that the auction of the D Block plus other blocks of spectrum auctioned at the same time would bring in approximately $10 billion. In all, the auction actually brought in almost twice that amount.

Despite the financial success of the overall auction ("Auction 73"), the failure of the D Block to meet its minimum generated a lot of communications and business media speculation and finger-pointing. Much of this came even before the auction ended in April (the auction began in late January) as new bidders for the D Block failed to appear in round after round of the auction. The PSST, auction bidders, and others were under a gag order not to comment on the process and therefore had no ability to address the speculation and what was emerging as misinformation about the involvement of the PSST, its agent advisor, or potential bidders in the process.

The Public Safety Spectrum Trust (PSST)

In anticipation of the FCC's naming of a single national licensee for the public safety broadband spectrum, four associations with representatives active in the communications world set the wheels in motion to create an entity eligible to be that licensee. The four associations were the International Association of Chiefs of Police (IACP), Association of Public-Safety Communications Officials-International (APCO), the International Association of Fire Chiefs (IAFC) and the International Municipal Signal Association (IMSA). They created a new non-profit organization incorporated in DC called the Public Safety Spectrum Trust (PSST). The PSST was formed on June 2, 2007 and was named the national licensee on November 19, 2007.

The board of directors of the PSST is comprised of representatives of the following organizations:

- American Association of State Highway and Transportation Officials (AASHTO)
- American Hospital Association (AHA)
- Association of Public-Safety Communications Officials-International (APCO)
- Forestry Conservation Communications Association (FCCA)
- International Association of Chiefs of Police (IACP)
- International Association of Fire Chiefs (IAFC)

- International City/County Management Association (ICMA)
- International Municipal Signal Association (IMSA)
- **National Association of State Emergency Medical Services Officials (NASEMSO)**
- National Association of State 9-1-1 Administrators (NASNA)
- National Emergency Management Association (NEMA)
- National Emergency Number Association (NENA)
- National Fraternal Order of Police (NFOP)
- National Governors Association (NGA)
- National Sheriffs' Association (NSA)

The Executive Committee of the PSST includes:

- Chair and Interim CEO: Harlin McEwen (IACP)
- Vice-Chair: Kevin McGinnis (NASEMSO)
- Secretary/Treasurer: Alan Caldwell (IAFC)

Under the August, 2007 FCC Second Report and Order, the public safety broadband licensee, now the PSST, was given a significant set of responsibilities including relocation of some of the 700 MHz narrowband voice channels to accommodate the frequency plan changes the FCC had implemented during development of its Order, preparing to negotiate a network sharing agreement (NSA) with the eventual D block winner, communicating public safety needs for the network to potential bidders, and preparing a plan for the build-out of the system over the next ten years beginning in February, 2009. With the scheduling of the auction only two months after the PSST was named the licensee, it needed to hit the ground running.

Having no staff, no money, and no commercial wireless network development experience with which to do this, the PSST Board made one of its first missions after it formed in mid-2007, in anticipation of being named the licensee, to find expert help and funding to get it through until the new system would begin to generate operating revenue. In July, 2007 it put out an RFP for an agent/advisor. It attracted ten proposals from firms with experience in this area. After a review process, three firms were interviewed and in early October a firm called Cyren Call was announced as the new PSST agent/advisor.

Cyren Call is led by Morgan O'Brien, founder and former CEO of Nextel. He and principals among his staff of 18 professionals have extensive experience in the start up of Nextel and with other wireless networks. Further, Cyren Call had been involved in developing the Public/Private partnership concept in the previous three years and was prepared with thoughts and plans for implementation, therefore allowing the PSST to indeed hit the ground running. Finally, Cyren

Call also had a funding plan which would allow the PSST to take loans to allow it operate early on.

After selection of Cyren, the PSST Board and its independent attorneys entered into negotiation on the business arrangement with Cyren as well as the loan arrangement. In executing these, and recognizing the large amounts of monthly expenditures proposed to move forward, the Board engaged an independent expert business evaluation firm to assess the "fairness" of the terms and arrangements proposed by Cyren. With this assurance, the Board executed the necessary agreements to engage Cyren Call as its agent/advisor.

Prior to the January D Block auction, the PSST and its agent/advisor staff, and with assistance from the National Public Safety Telecommunications Council (NPSTC – to which NASEMSO belongs) succeeded in developing a bidders information document to inform bidders of public safety's needs in the evolving network, and to begin to accomplish rebanding of the narrowband frequencies in 700 MHz. It also established a complex business plan for build out of the network and began to meet with potential bidders to encourage their involvement in Auction 73.

Once the January auction and "quiet period" began, the PSST continued its work, expecting to quickly enter the network sharing agreement negotiations as soon as early spring. As the auction proceeded through round after round with only the one $472 M bid on the D Block, speculation in the communications and business media began about what might happen if no bidder emerged. One expected bidder, Frontline, announced that it not only was not bidding but was ceasing operations entirely.

Adding to the speculation was a circulating story that Cyren had told Frontline in a pre-auction meeting that it would demand $500 million from the D block winner during the 10 year build out as a lease fee. The PSST and Cyren both concur that a lease arrangement was expected to generate revenue in order to carry out the responsibilities given the PSST by the FCC but deny that any specific "demand" was voiced and that the amount would be a part of the network sharing agreement negotiation. Another story that began later in the auction was that Cyren intended to act as more than the PSST's agent/advisor and actually operate a for-profit sub-business selling access to the broadband network. Again, this was not the intention of the PSST which did, itself, plan to manage the public safety "customer" relationships using Cyren as its staff in the PSST's non-profit model.

These stories appeared to have caused the initiation of inquiries by two congressional committees and by the FCC inspector general's office. While the latter has been completed the former are still under way. The Inspector General's report may be downloaded at http://fjallfoss.fcc.gov/edocs_public/attachmatch/DOC-281791A1.pdf . It affirms that lease payments were discussed in varying amounts as one item of potential network sharing agreement negotiations, but that it was only one of many issues that may have led Frontline and others not to bid. FCC Commissioners, key legislators, and the public safety interests involved remain optimistic that this Public/Private model will succeed in providing the next generation of interoperable communications for public safety nationwide.

A last issue, which the PSST has been discussing in detail with Commissioners and FCC staff is the PSST business plan or concept of operations. While the FCC refused to review the business plan when it was first developed in 2007, it has expressed surprise at the plan's scope now that the PSST has been given an opportunity to present it after the quiet period. At odds are interpretations of the responsibilities given to the PSST, how they might be implemented, and the structure and financing of the process to accomplish that.

On May 14, the FCC voted unanimously to release a Second Further Notice of Proposed Rulemaking that is intended to pave the way for another auction and to get the process back on track. This process will include thorough public input on the auction rules (such things as the minimum bid and certain penalties built in to the process which were thought to be deterrents to bidders) and on the needs of the public safety community as represented by the bidders information document (such as the reliability, "hardening", and build out speed of the system) which also posed concern for bidders. The PSST concept of operations will be revised in concert with the FCC staff as this input is received and processed by the Commissioners.

Readers can periodically view the PSST (www.PSST.org), NPSTC (www.NPSTC.org), and FCC websites (http://www.fcc.gov/) for further information. Kevin McGinnis may also be contacted by NASEMSO members and others in the EMS community with questions about this process (mcginnis@nasemso.org; 207-512-0975).