

**Pennsylvania State Police Testimony**  
**Senate Committees on Communications and Technology, Veterans Affairs**  
**and Emergency Preparedness, Transportation and Law and Justice**  
**September 25, 2013**



Presented by:  
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Good morning chairman and chairwoman and members of the committees. I am Major Scott Neal, Director of the Bureau of Communications and Information Services for the Pennsylvania State Police. On behalf of the State Police, I would like to thank you for extending the invitation to us to participate in this hearing on the Pennsylvania Statewide Radio Network, or PA-STARNET.

In 1996, Act 148 was passed which authorized funding for the construction of the PA- STARNET. The project formally commenced in 1998 with the release of the Request for Qualified Contractors procurement document. The responsibility for the construction and maintenance of the system was placed with the Office of Administration in what was originally known as the Radio Project Office. The Radio Project Office was subsequently renamed the Office of the Public Radio System, or OPRS. The responsibility for PA-STARNET remained within the Office of Administration until July 1, 2012, when a decision was made to transition the authority to the Pennsylvania State Police (PSP). It is now organized within our Bureau of Communications and Information Services, Statewide Radio Network Division.

The PSP is the largest user of the system whose primary mission is law enforcement and whose members' lives are dependent upon reliable radio communications. Shortly after the transition, the PSP undertook an evaluation of

the system for strengths and weaknesses. We determined the most significant weaknesses were related to coverage and reliability, which inhibit the system from becoming truly “public safety grade”.

The PA-STARNET is constructed on the OpenSky platform in the 800 MHz band, which is proprietary technology belonging to Harris Corporation. The OpenSky platform is very sound technology which provides for superior data transmission capabilities and spectral efficiencies not found in other land mobile radio platforms. However, propagation footprint limitations of the 800 MHz frequency over rugged terrain, which we have in rural Pennsylvania, as well as the proprietary nature of the technology which eliminates flexibility and competition in purchasing user devices, are significant problems with the system. Additionally, the system is not sufficiently hardened, which is to say there are too many times when a site malfunctions and there is not appropriate backup in place to last long enough to repair the problem without losing coverage from that site. This is due in large part to the very high number of sites on the system and the over reliance on commercial telephone circuits to connect them as well as commercial power without adequate backup power to the site.

To explain this further, due to the limitations of the 800 MHz band to provide a large coverage footprint over rugged terrain, there were a significant number of areas where “dead spots” in coverage were located off of the high

profile tower sites after the system was constructed. A high profile tower site generally is a large freestanding steel tower or monopole commonly seen dotting the landscape as we travel across the country. As a solution to this problem, the coverage dead spots were rectified by the installation of micro-cell sites. These micro-cell sites most often were placed at the top of 90 foot wooden poles along public right-of-ways. Our system is comprised of approximately 1,000 radio sites, of which approximately 250 are high profile, with the remaining being micro-cells. These micro-cells require commercial electricity to operate them, and a lot of them are connected to the system via a telephone circuit. If power is lost to a site, battery backup provides power, but it is limited to 24-48 hours, after which the site ceases operating. If a problem develops with the telephone connectivity, then the site ceases to operate until the telephone company responds to make appropriate repairs. In the event of a major weather event causing loss of power for multiple days, it results in the loss of multiple micro-cell sites and greatly reduced radio coverage. Thankfully, our dedicated team has developed a temporary mitigation strategy combining the 800 MHz and the legacy VHF system to address the most acute concern of officer safety. This approach will serve us adequately as we move forward to our long-term goals.

The inability to competitively bid procurements of user equipment among different vendors is significant. Since the technology is proprietary to the Harris

Corporation, all end user devices must be purchased through them. Additionally, this impacts the interoperability capabilities of the system. The Harris Corporation does not offer the OpenSky platform in any of its multi-band end user devices. Therefore, in order to mitigate this problem we purchased a second radio for PSP vehicles in the VHF band. This was a necessary, albeit temporary, solution to achieve acceptable interoperability levels and address our previously stated coverage issues.

In order to address these weaknesses and inefficiencies long-term, we have entered into a procurement process with both Harris Corporation and Motorola in which we have solicited quotes from both to transition the system from OpenSky to a Project 25, or P25 phase II system. The P25 is a suite of standards established by the Association of Public Safety Communications Officials, also known as APCO, which mandates standardized specifications for manufacturing of radio equipment. The P25 compliant systems allow for a high degree of equipment interoperability and compatibility by allowing various manufacturers' devices to operate on different systems. A significant advantage to system owners is the ability to competitively bid radio equipment purchases among multiple vendors. Simply stated, any P25 compliant radio should be able to operate on any P25 compliant radio system in the same radio band (VHF, UHF, or 700/800 MHz). Another requirement we have given the vendors is to form a solution which greatly

reduces our site count, which would also greatly reduce the yearly maintenance costs. The proposed solutions are due back from the vendors on October 15 of this year, after which we will conduct an evaluation and select the most desired proposal.

We feel we have made great strides in the last year tackling the most acute system problems. If we are able to transition to a P25 system, we feel very strongly that the end result would be a very robust public safety grade system that would derive long term savings to the Commonwealth and other user entities. We are committed to the success of this plan.

I once again would like to thank all of you for the opportunity to address the committees and am happy to answer any questions you may have.