NPSTC
National Public Safety Telecommunications Council

National Public Safety Telecommunications Council (NPSTC)
Governing Board Meeting
Office of the Chief Technology Officer (OCTO)
May 6, 2015

Welcome, Ralph Haller, NPSTC Chair

Ralph Haller, Chair, National Public Safety Telecommunications Council (NPSTC), called the meeting to order and called the roll, establishing a quorum was present. He thanked the Association of Association of Public Safety Communications Officials – International (APCO) for co-hosting the meeting and providing coffee and cake and also Mike Corey, American Radio Relay League (ARRL), for shipping the AV equipment to the meeting.

Federal Partners Update

Department of Homeland Security (DHS), Office for Interoperability and Compatibility, John Merrill, Director. Mr. Merrill said the mission of OIC is to provide the science and technology that enables emergency communications and facilitates the seamless exchange of information to save lives and protect property. OIC is part of the First Responder Group (FRG):

- OIC leads the RDT&E of technical solutions for public safety communication and information sharing challenges.
- Responder Technologies manages technology development; disseminates information on products and services; and facilitates innovation.
- Information Applications & Standards leads development of technology and standards to meet the challenges of providing first responders with timely, valid, actionable information.
- National Urban Security Technology Laboratory leads radiological/nuclear response and recovery effort; provides testing, evaluation, analysis and technical assistance.

Jeff Booth is Director of Information Applications & Standards (IAS), which focuses on information sharing, Alerts, Warnings & Notifications (AWN), Apex Situational Awareness & Decision Support Engine (SANDS), and SLTT Information Sharing Governance. The APEX Program, new to OIC, is a global product covering border situational awareness, real-time bio awareness, screening, the Next Generation First Responder (NGFR), NG Cyber infrastructure, and, flood awareness.

Under the APEX umbrella is Communications and Networking Engine (CNET) which comprises interoperable voice and data communications, indoor location and communications, mission critical video, applications and services, networking standards and security, and SANDS, covering geospatial analytics, open data standards, system architecture interoperability, and visualization. The Data Analytics Engine (DAE) comprises work on data analytics R&D, rapid experimentation, strategic R&D, and assessment of emerging technology.

OIC's NGFR Prize Competition focuses on finding solutions for real-time, robust indoor tracking of first responders. Brian Fontes, National Emergency Number Association (NENA), asked whether OIC coordinates with the Federal Communications Commission (FCC). Mr. Merrill said not initially, but OIC is reaching out to coordinate this idea between the two communities.

The mission of the NGFR is: Protected-Connected-Fully Aware. NGFR's near time objectives include real-time situational awareness, duty uniforms and personal protective equipment (PPE), and the responder technology alliance. By 2020, NGFR performance metrics are to:

- Adopt FRG-transitioned, commercialized cross-functional wearable uniforms that provide for effective environmental and mission specific safeguards.
- Adopt FRG-transitioned, commercialized interoperable communications technologies that are seamlessly connected to enhance voice, video and data for all public safety agencies as well as state, local, and federal partners.
- Visualize a situation in real-time before, during, and after a mission response including blue force tracking, locations of local and cross jurisdictional resources and any threats of immediate concern.

Additional OIC programs include:

- The EMERGE! Accelerator Program is working to change the business model to encourage innovation and provides a path to introduce technologies to variety of market. It helps innovators develop and launch ideas into investable companies by providing early market validation, mentoring, and access to private investment. It has accelerated the development of commercial wearable technologies.
- The Incident Management Information Sharing Subcommittee (IMIS SC) provides strategic direction, guides project initiatives and leverages professional networks to operate and maintain information sharing capabilities and capacity across the public safety community.
- OIC has developed a new Continuum and Maturity Model Alignment, to describe communications from "as is--to be."
- OIC's Response and Defeat Operations Support (REDOPS) provides state and local bomb squad (SLBS) support.
- DHS's National Conversation has attracted participants and generated several good ideas.

Chris Lewis, Department of Interior, asked who the OIC representative is for work along the borders. Mr. Merrill said Sean McDonald is the representative. Marilyn Ward, NPSTC Executive Director, asked what kind of responses OIC is receiving under APEX regarding the National Conversation. Mr. Merrill said OIC is receiving good information from the commercial side. Mr. Fontes asked if OIC is working on the interface of NG 9-1-1 with FirstNet. Mr. Merrill said OIC is working on these issues, suggesting Mr. Fontes talk to Jay English at APCO.

Department of Homeland Security (DHS), Office of Emergency Communications (OEC) – Dusty Rhoads. Mr. Rhoads provided an update on OEC activities. The National Emergency Communication Plan (NECP), which identifies emergency communications systems, functions, and stakeholders, is evolving and becoming more interconnected:

- Greater emphasis on “whole community;” recent events show more disciplines are being integrated into emergency response.
- Internet Protocol-based technologies are transforming the content and flow of communications and information during incident response.
- Modernization of communications and information systems (i.e., National Public Safety Broadband Network, NG9-1-1, Alerts & Warnings) is changing. The question is how to manage information from citizens and develop a process to move information to public safety.

OEC has developed a service delivery model that begins with the input of stakeholders that includes NPSTC, the National Council of Statewide Interoperability Coordinators (NCSWICs), SAFECOM, and the Emergency Communications Preparedness Center (ECPC) who provide information on trends and requirements to develop a strategic direction and office priorities resulting in policy, technical assistance, lessons learned, best practice, Statewide Communications Interoperability Plans (SCIP), and grant guidance.

The Communications Unit Leader (COML program is evolving. New Communications Unit (COMU) training courses are being developed including those for the Radio Operator (RADO), Incident Dispatcher (IDT), and Incident Communications Center Manager (INCM). OEC is coordinating the development with the Federal Emergency Management Agency (FEMA). Because of the joint state and federal ownership, issues of accreditation need to be resolved. The COML and COMT of the future include increasing use of digital/broadband communications and a new ICS Form 205.

Regarding standards development, OEC is looking at how Priority Telecommunications Services (PTS) will work in the new environment where copper lines are becoming a thing of the past. Current circuit-switched wireless priority service (WPS) will cease by 2017 for AT&T, in 2020 for Verizon, and 2021 for all service providers.

The ECPC has three priorities: To promote consistency across federal financial assistance programs, coordinate across federal financial assistance programs, and improve the understanding of emergency communications funding. Recently OEC created a 9-1-1 Focus Group when the group saw a need to better coordinate 9-1-1 initiatives and develop consistent messaging, given the different policy lanes that federal agencies work within regarding 911, and worked to pursue joint projects that can provide insights, recommendations, and thought leadership to 911 stakeholders on various issues, particularly the deployment of Next Generation 911.

Mr. Fontes asked how many OEC grant programs include NG9-1-1. Mr. Rhoads said he was not sure because grants require organizations to meet the definition of emergency communications as part of their allowable expense which leaves 911 out of the definitional element of these grant programs. Rhoads agreed; if SAFECOM was to define 911 as an allowable expense that decision would move these grants forward. Mr. Fontes said he thought DHS could make an independent decision in this regard.

Joe Heaps, National Institute of Justice (NIJ), asked if there is a vision for COML in the future. Mr. Rhoads said there is nothing in writing yet. Mr. Lewis asked if the DOT is involved and if NG9-1-1 is integrated into the other federal programs. Mr. Rhoads said OEC has liaison staff working with DOT to coordinate

programs. Chris Lougee, Telecommunications Industry Association (TIA) asked for a rough level of funding in grant programs compared to the past. Is the enforcement of the Project 25 requirement still true? P25 is mandated by SAFECOM grant guidance for DHS. Regarding other agencies, DHS cannot mandate P25 compliance.

Andy Thiessen, Vice Chair, Broadband and Technology Committee, asked what current grant guidance there is on P25 compliance. Jim Downes, OEC, said equipment should have valid P25 compliance; however, in the absence of CAP testing, users are encouraged to get performance, interoperability, and conformance testing done as part of their procurement package. Harlin McEwen, International Association of Chiefs of Police (IACP), said public safety has always recommended compliance although there are exceptions. For example, a small rural fire department that depends on older analog equipment could be exempt. Jim Goldstein, International Association of Fire Chiefs (IAFC), asked a question regarding land lines. The fire chiefs wanted to issue a resolution asking the FCC to deny carriers the options of leaving landlines until it can be demonstrated the new technology is as good as land lines. How is DHS coordinating with the FCC on this issue? Mr. Rhoads said the Communications Portfolio Management Branch is responsible for this change and they are looking at the issues Mr. Goldstein has raised.

Technology and Broadband Discussion, Tom Sorley, Committee Chair; Andy Thiessen, Vice Chair

LTE Global Standards/3GPP Update, Andy Thiessen, *via teleconference*. Mr. Thiessen reported that much has been occurring in 3GPP this quarter, beginning with the dedicated SA6 Working Group. The first task of this group is mission critical push-to-talk (PTT). 3GPP works in releases. Release 12 was frozen in March 2015. Direct mode capability consistent with functionality in LMR was included in that release. Release 13 is focused on completing unfinished work in Release 12 in addition to adding some new capabilities. Mission critical PTT is of most importance to public safety. The direct mode and group communications capabilities will be further developed in Release 13, which is expected to be approved by the end of this year. Mission-critical PTT provisions are also expected to be in Release 13. Mission critical video is expected to be included for Release 14. U.S. wireless carriers have brought to 3GPP information concerning the FCC's approval of new 911 location accuracy rules. The carriers have committed to working on standards development related to those rules.

Mr. Sorley asked if there is anything public safety can do to avoid proprietary language that would affect interoperability. Mr. Thiessen said there is nothing NPSTC can really do. The wording is set up to either use the IP Multimedia Subsystem (IMS) or require compliance with IMS reference points, but things inside the SIP routing box can be different, which may be incompatible with LTE.

Mr. Fontes said part of the agreement on indoor location reached with the four largest carriers was to enable location accuracy using existing standards with 3GPP. Mr. Thiessen agreed saying U.S. carriers are bringing forward this information. The Public Safety Communications Research (PSCR) program is not directly involved, but they are monitoring the accuracy of location services. Mr. Luke said at the APCO meeting this week, several industry representatives said they are updating their equipment as new releases come out.

Mr. Heaps asked, regarding standards for FirstNet, if a proprietary issue creeps in, would that be a PSCR or FirstNet problem? Mr. Thiessen said this issue has been discussed in Europe regarding procured proprietary equipment and that not all parts of an LTE network are based on standards. There are many parts of an LTE network that are custom built for an operator based on the operator's business needs. Mr. Heaps asked if an agency runs into a potential standards issue, would there be a way to communicate with Mr. Thiessen. Mr. Thiessen said he will develop a process to have that discussion.

Broadband Working Group Updates, Barry Luke, NPSTC Deputy Executive Director. Mr. Luke provided an update on NPSTC's three broadband Working Groups. The Priority and Quality of Service Working Group presented their work to the Public Safety Advisory Committee (PSAC) and is now working to update the 2012 report due to the many technological changes in the last 3 years.

The Local Control Working Group is similarly updating the 2012 Local Control Report. FirstNet's draft RFP also provided much information on the issues of Local Control which will affect the work of the group. The Broadband Deployable Systems Working Group, a joint Canada/U.S. effort, comprises 90 volunteers, many from Canada and a number of industry participants. The teleconference calls have included valuable presentations from industry. They are looking at operational capabilities and will relate them to technical requirements.

Chief McEwen asked NPSTC to acknowledge the fine work accomplished by these Broadband Working Groups. Mr. Luke added his thanks to Dereck Orr, representing the PSCR. Ms. Ward asked for a description of the information vendors have provided to the group. The vendors were asked to focus their discussions on how their product would work in the Use Cases developed by the Working Group. Issues of interoperability, authentication, and border issues are also part of these discussions.

Radio Programming Compatibility Requirements, Tom Sorley. Mr. Sorley reported on the most recent developments within the Radio PCR Working Group. The Working Group has collaborated with DHS S&T to review the PAM Tool capabilities and will examine a longer term vision for the PAM Tool including a data transition from one spreadsheet to a newer version of the spreadsheet. The Working Group would like to add the ability to create/edit a single channel in a pop-up window and to enable an error checking utility that will identify problems with frequency, channel name, CTCSS, etc. Another feature would be auto generation of ICS 205 and ICS 217 forms. The Working Group is looking at moving this from a spreadsheet to a Cloud-based application and is continuing work on webinar training and outreach.

Video Technology Advisory Group (VTAG), John Contestabile. Mr. Contestabile reported on recent work of the VTAG which works closely with the DHS S&T Video Quality in Public Safety (VQiPS) group. Work has expanded beyond video technology to policy, standards, and wireless systems. Policy issues include retention, storage, and access, accelerated by the increasing use of body cameras. The VQiPS Handbook has been revised with up-to-date information on video system design and procurement recommendations. The VQiPS Annual Workshop will be held on June 17-18 in Newark, NJ, with a joint VTAG/VQiPS leadership team meeting to be held on June 16 in advance of the workshop. Mr. Luke encouraged participants to send agency representatives to this workshop, which provided a great deal of interesting information last year.

FirstNet/NG9-1-1, Barry Luke. Mr. Luke reported that last year the NPSTC Governing Board requested that a Task Force examine the intersection of NG9-1-1 and FirstNet and "demystify" the process where messages and data leave the public network and enter the public safety network. A 2-page outreach and education document for local agencies was created as the output of the Task Force, co-chaired by John Wright, APCO, and Sharon Counterman, NENA. NG9-1-1 system features include these options:

- Provides network route for 9-1-1 caller voice and data (metadata, images, and video) to the appropriate PSAP. Also provides dynamic routing controlling NG9-1-1 features.
- Provides ability to share 9-1-1 caller voice and data between multiple PSAPs.
- Provides ability to control 9-1-1 call flows and to dynamically rearrange NG9-1-1 call routing zones.
- Provides interface capability to hand off 9-1-1 call data to CAD systems supporting PSAPs.
- Is not intended to provide network connectivity to public safety first responder units.
- Provides network connectivity between PSAPs, while FirstNet will provide networks and connectivity between PSAPs and Responders.
- Requires the creation of a public safety terrestrial IP network, called an Emergency Services IP Network (ESInet), which can support NG9-1-1 services and other public safety oriented applications. The ESInet is not specific to NG9-1-1, but requires a network with backhaul capability connecting call and data originators and various PSAPS, as well as other entities that need to receive calls, or data about calls (examples could be EOCs, trauma centers, Coast Guard, etc.). Other additional data sources can be connected to the NG9-1-1 system, such as call, caller, or data providers needed for access by PSAPs or other entities.
- The ESInet requires network connectivity to wireless, wireline, and VoIP telecommunications provider networks, behind which are the cellular service tower itself, Wi-Fi, Bluetooth, and other originating service devices.

<u>FirstNet Network Features</u>

- Provides public safety grade connectivity from PSAPs to and between first responder's resources.
- Provides secure network access for first responders to public safety agency systems and interfaces (CAD, NCIC, RMS).
- Provides network connectivity between public safety agencies (wired and wireless network access to systems, interfaces, and databases).
- Allows wireless and wired access to agency and FirstNet applications and services.
- Requires the creation of a FirstNet wireless IP network which also comprises the features of the aforementioned ESINets thus facilitating interoperability, and linking public safety agencies. The FirstNet network requires backhaul capability to connect public safety agencies.

<u>Connection Between Networks</u>

- Telco provider network sends 9-1-1 emergency call from wireline, wireless, VoIP network into the NG9-1-1 service system via ESInet(s).
- NG9-1-1 on the ESInet sends 9-1-1 call to correct PSAP and allows sharing of 9-1-1 call data with other PSAPs.
- 9-1-1 call data is transferred to public safety agency systems via interface (red/green arrows).

- Call Taker/Dispatcher completes call in their internal system (generally CAD or a combination of CAD, NG9-1-1 and Radio console systems), accessing remote databases and files as necessary.
- PSAP systems send data using FirstNet, which routes the secure data to first responders via voice or data transmission.
- First responders can communicate between themselves and also access remote databases connected through FirstNet. These may include data sources from both NG9-1-1, local, state and federal systems.
- Data crosses through the following demarcation points. Carrier network to the NG911 Network.
- NG911 network to the local public safety agency network (e.g., their CAD system).
- Local agency network to the FirstNet work the demarcations may require data standardization. For example, a CAD system must be programmed to accept a standardized NG911 data stream. Other demarcations may only be passing IP traffic to the next network. For example, the public safety agency CAD system may send an IP message through FirstNet to a fire truck's mobile data terminal.

NENA is coordinating the education of the overall changes in the field focusing on these things. Because technological changes are moving forward at such a rapid pace, Christopher Carver, NENA, said NENA is developing materials hourly to support local 911 operators. NPSTC also offered to push out the information from NENA. Mr. Luke asked the Board to review the document in 2 weeks.

Topical Presentation

Federal Partners for Interoperability Communications (FPIC), Jimmy Downes, LMR Standards and Security Coordinator, OEC. Mr. Downes briefed the Board on the FPIC, which serves as a coordination and advisory body to address technical and operational wireless issues relative to interoperability within the federal emergency communications community, as well as interfaces with state and local agencies. The FPIC includes more than 200 federal, state, local, and tribal public safety representatives from over 45 federal agencies, as well as representatives from state, tribal and local entities, focusing on improving interoperability among all levels of government and addressing common public safety related communications issues. FPIC addresses topics and questions concerning interoperable communications, security services, spectrum, and standards.

Federal agencies have had long-standing requirements to provide encrypted communications. Security policies vary by department and component, but are typically driven by National Institute of Standards and Technology (NIST) Federal Information Processing Standards (FIPS) requirements. FIPS requirements have been addressed in the Project 25 standards. FPIC continues to be an active participant in the development of security services within the P25 suite of standards. FPIC introduced the requirements for the Inter-Key Management Facility Interface (IKI) and is driving updates to the Over-the-Air Rekeying standards and test procedures, link layer encryption, and the Security Services Overview.

Federal agencies have seen a surge in encrypted communications as state and local agencies begin to implement security services.

- Increased requirements for privacy to protect law enforcement operations and personal identifiable information (PII).
- Response to academia white papers discussing challenges with land mobile radio security.

- Requires significant coordination between agencies still requiring interoperable communications.
- Reduced the cost delta in providing encryption with digital technologies although the system complexity increased.
- Problems with analog encryption, such as coverage loss or reduced audio quality, are no longer relevant for digital.

Encryption and interoperability are NOT mutually exclusive. Encrypted interoperability requires:

- A desire to interoperate between agencies. Project 25 Standards-based security solution using Advanced Encryption Standard (AES 256-bit)
- Knowledge and understanding of encryption and key management
- Coordination between agencies: Planning, implementation, following standards and templates, communication, and cooperation.
- Coordination with the National Law Enforcement Communications Center (NLECC) and/or Statewide Interoperability Coordinators (SWIC) for I/OP keys.
- A key distribution system: Key Fill Device (KFD) and/or OTAR or KFD configured in accordance with National Law Enforcement Communications Center (NLECC) Guidelines.

Security Terminology:

- Traffic Encryption Key (TEK). The TEK is the unique hexadecimal key used to encrypt and decrypt voice and data traffic. The length of the TEK depends on the algorithm used.
- Key ID (KID). Provides a unique address to identify a Traffic Encryption Key. This is expressed as a hexadecimal value between 0000 and FFFF (65,535 keys total, some are reserved for Over-the-air rekeying [OTAR] system use). The KID, along with an algorithm identification value, is as part of the P25 data stream. The radio uses the KID to understand which key to use to decrypt information received. The KID is EXTREMELY important and can be more important than the SLN number.
- Storage Location Number (SLN). A common method to refer to an encryption key slot in a subscriber unit. In an OTAR system, each SLN contains two TEK keysets (one active/one inactive). This is a decimal value between 0 and 4095. The SLN is used mostly for subscriber programming. When the radio is trying to decrypt messages, the radio ignores the SLN. Note: Motorola uses the term Common Key Reference (CKR) interchangeably with SLN.

How to manage encrypted interoperability on a national level?

- The DHS-CBP National Law Enforcement Communications Center in Orlando, Florida, generates, manages, and distributes operable and interoperable encryption keys on a national level. It manages SLN and KID assignments.
- Coordinates with Regional Coordinators and SWICs.
- Establishes a Public Safety Communications Security Advisory Council consisting of federal, state, and local representatives with a focus on land mobile radio operational and technical security services.

FPIC Security Working Group recommendations:

- FPIC is developing nationwide best practices white paper for the use of Storage Location Numbers (SLN) and associated KeyIDs. [DES-OFB and AES].

- FPIC recommends the use of interoperability keys generated by the National Law Enforcement Communications Center (NLECC) in Orlando, Florida.
- FPIC recommends adoption of the SLN Database for national use for federal, state, and local SLNs.
- FPIC recommends adopting the KeyID database for national distribution and use. Protection of information needs to be addressed.

Mr. Sorley asked if there was a guide for best practices. Mr. Downes said the FPIC Security Working Group has developed a series of documents addressing Secure Communications in a P25 environment.

- *Considerations for Encryption in Public Safety Radio Systems* – ready for publication.
- *Guidelines for Encryption in Land Mobile Radio Systems* – Sept 2013 – revised version pending publication.
- *Key Management Guidelines and Best Practices* – under development.

National Information Sharing Consortium (NISC), Charles Werner, Chair. Launched in June 2012, the National Information Sharing Consortium (NISC) strives to improve the state of public safety and emergency management information sharing and interoperability through its commitment to four areas of responsibility—sharing, connecting, innovating, and leading. No single function is performed in isolation—they are all interconnected, collectively enabling the NISC to foster capacity building to all of our members on multiple levels. As an independent consortium, the NISC brings together organizations involved in all aspects of homeland security, public safety, emergency management and emergency response. Members come together to improve technology and governance related to information sharing. By working together they are able to leverage each other's experiences to save resources and collaborate on building new solutions and best practices.

Chief Werner said NPSTC became the 100th member when it recently joined NISC. Through organizations like NPSTC and SAFECOM, NISC can gather information. NISC participated in CUSEC [Central U.S. Earthquake Consortium] and through that project learned how states brought together information. NISC did some simple conversions of information, and once the common keys were changed, they were able to understand what the information meant. NISC has also assembled the information gathered from Virtual USA. The NISC sharing model is cloud-based and but they will also have controlled access to data libraries.

Chief Werner asked NPSTC and any of the member organizations to comment on what the essential elements of information are and review the work NISC has done to date. Mr. Sorley asked how close to real time the data is and whether the data includes traffic management data. Chief Werner said it does not include traffic data currently. Mr. Fontes said DHS has a pilot project that can report 9-1-1 calls, in near real time, from the State of California. It is valuable because it shows when a cascading of calls are coming in, demonstrating an event of greater magnitude.

Mutualink, Joe Boucher, Chief Technology Officer. Mr. Boucher discussed Mutualink, an IP-based interoperability/collaboration platform for inter-and intra-agency collaboration. It is multi media: Voice/LMR/PTT, video, chat, files, GIS/location, and data. The heavy focus is on the inter-agency aspect of the tool. The architecture is distributed, allowing agencies to maintain complete sovereignty and

control over their assets. Mutualink is operational worldwide in public safety, critical infrastructures, military, and the New Jersey Broadband Technologies Opportunity Program (BTOP).

Silos will always exist, so Mutualink works with them to enable selective information flow that is media agnostic between silos. The platform connects gateways to media/information systems desired to be shared and interconnects gateways via IP networks in a distributed manner. Mutualink allows authorized users to control gateways and to direct what information should be shared with which other gateways or users. All sharing occurs within an incident session. Any user can create an incident and invite in the desired agencies via drag and drop via GUI. The invited users may accept or reject that invitation. Users add their desired resources, via gateways, to the incident, which initiates the resource sharing. For voice or LMR, incident members can now listen and transmit to the resource. Multiple LMR or voice resources are effectively "patched" together. For video, these resources are now viewable by incident members.

Mutualink also can share arbitrary opaque data streams with an incident session. Streams may be message based or connection based. The system is JITC certified for use on Department of Defense (DoD) networks. All media/information is encrypted end-to-end with dynamically-generated symmetric keys (AES-256 by default). Mr. Boucher provided examples of use in Hurricane Sandy, Super Bowl 48, and the Boston Marathon.

FirstNet NPSBN Development

Public Safety Advisory Committee (PSAC), Harlin McEwen, Chairman. Chief McEwen reported on the current assignments of the PSAC.

- Priority and Preemption Task Team (Kicked off 2/26): FirstNet is seeking advice from the PSAC regarding an initial framework for implementing access prioritization, user preemption, and prioritized application use in the NPSBN. *The PSAC Task Team is basing their work on a report and recommendations from NPSTC.*
- Public Safety Grade Task Team (Kicked off 2/27): FirstNet is seeking advice from the PSAC regarding an initial methodology and framework for prioritizing and implementing NPSTC's public safety grade recommendations in the NPSBN. *The PSAC Task Team is basing their work on a report and recommendations from NPSTC.*
- User Equipment Tasking (Kicked off 3/4): FirstNet is seeking advice from the PSAC on functional objectives for and ergonomic considerations of Band 14 broadband user equipment that will meet the operational needs of first responders. *The PSAC EC is currently addressing this task.*

The next PSAC meeting will be held in San Diego, June 1, 2015, prior to the FirstNet Board meetings and Public Safety Communications Research (PSCR) Workshop. The meeting, held from 8:30 am–3:00 pm, will be open only to PSAC members, FirstNet Board Members, and FirstNet staff. The meeting will be open from 3:00 pm–5:00 pm to those members of public safety and the public who pre-registered to attend. Jim Goldstein, International Association of Fire Chiefs (IAFC), said Chief Gene McCarrahar reported to him that the last PSAC meetings were excellent. Chief McEwen agreed saying the quality of discourse and interaction has improved tremendously.

Governing Board Representatives Update

ATIS IP Transition Task Force, Paul Patrick, NPSTC 2nd Vice Chair. Mr. Patrick said the task force has been studying various technology and policy issues affecting the IP Transition including those specifically impacting public safety. An RFI was released, with a goal to: Develop an overall picture of solutions for public safety related applications in the all IP-transition; provide a catalogue summarizing currently available solutions, with the goal of providing an array of alternative solutions for specific applications; and identify roadblocks and challenges that highlight areas that lack technical solutions. The survey closed April 30.

Federal Partners Update

Federal Communications Commission (FCC), William Davenport, Deputy Chief, Enforcement Bureau. Mr. Davenport reported on the planned closing of field offices by the FCC's Enforcement Bureau. Mr. Davenport explained how the Bureau performed the field office review and how the recommendations will be implemented. Field operations comprise the largest part of the Enforcement Bureau. There are currently 108 employees in 23 field offices, with 60 field agents, 21 managers, 10 administrative, and 8 engineers. It costs $21 million annually to operate. The current model of the field was built 20 years ago, based on a regulatory model that no longer exists. The Bureau has been eliminating positions and offices through attrition. The FCC is operating within a flat budget.

In response, the Bureau engaged consultants to interview many stakeholders, review previous studies, and field ops of other agencies. The Bureau learned that Enforcement Bureau work is not being prioritized. The priority is the resolution of RF interference; however, the field agents were only spending 40 percent of the time on interference issues; of that time less than 10 percent involves public safety RF interference resolution. The offices generally receive only one case of interference per month. Agents are conducting routine tower inspections instead. Field officers spend 25 percent of their time doing non-operational work such as preparing sanctions or doing online training. The management structure is overloaded and inefficient. Twenty percent of Bureau expenses are related to large office spaces that are not needed anymore. There are significant overhead expenses, some as great as $77,000 per FTE.

Under the new plan, agents will spend more time in the field focused on RF interference issues as their priority. Mr. Davenport explained the Tiger Team, which will provide support to the field offices. The Tiger Team will handle response in the Mid-Atlantic region and conduct spectrum studies. The number of managers drops from 21 to 5, with FTEs increasing from 4 to 10. The Bureau is concentrating agents in heavily populated areas and expanding a pilot program with pre-positioned vehicles and equipment in various cities. The Federal Aviation Administration (FAA's) Spectrum Engineering Services Group has seven agents who travel to solve problems. The FAA model focuses its resources on the highest priority cases. The seven agents resolved 2,700 monitoring equipment issues in various cities last year. The Enforcement Bureau will do the same thing.

What about the loss of a local presence? The Bureau will handle those problems the same way they are handled now. They plan to hire electrical engineers who are more capable of handling complex problems. The Bureau will increase training and provide better equipment. Public safety is worried about accessibility and transparency in the field now. The Bureau is trying to address these concerns as the changes are implemented. They will set up a method to track complaints and improve the Bureau's

visibility. They will improve technology and expertise and add monitoring equipment in areas that are more distant from the field offices that will remain.

If the Commission approves the plan, implementation will begin immediately. This is the first phase of a larger project—to improve the field.

Dave Buchanan, Chair, Spectrum Management Committee, said the Enforcement Bureau is a service organization. He said he was unhappy that public safety heard about this decision and plan after it was developed. The Bureau should have alerted public safety. He said the Bureau does need to change the structure. He also questioned Mr. Davenport's comment on "so few complaints from public safety." To the contrary, Mr. Buchanan said he hears agencies quit calling the FCC because their response has been so delayed. Public safety is in the protection business, not tracking down interference. As the Bureau goes forward, can we say to our constituents that the FCC will be more responsive in the future, he asked. Mr. Davenport agreed that smaller agencies often do not know how to contact the FCC. The Commission would also like to create a position whose sole responsibility is to ensure these delays don't happen.

Don Root, San Diego County, echoed Mr. Buchanan's remarks. There has been a disconnect in the field between the offices and the public safety agencies that work with them.

Mr. Fontes thanked Mr. Davenport for his presentation. Historically many of the reorganizations of the field were well planned but did not work within the realities of the budget, noting the budget can change from year to year dramatically.

Stu Overby, Vice Chair, Spectrum Management Committee, said the field office is the FCC to people outside of the beltway, asking if there is an item on circulation and where is it. Mr. Davenport said the Commissioners are considering the proposal and various stakeholder groups have met with them. If the Commission adopts the plan, it will issue an order. Because this is in the rules, the FCC would need to follow up with Congress to re-purpose funds and will need to negotiate with the union for 120 days. If a deal is not struck following that mediation, then the issue would go into arbitration.

Mr. Sorley said the plan includes improvements that will cost money. Public safety might be more supportive of the plan is there was a provision to allocate some funds saved by these improvements.

Award Presentation and Break

Participant's Award *Sponsored by NASEMSO.* NPSTC presented the Participant's Award to Paul Patrick, Lloyd Mitchell, Michael Britt, and Nick Brown for their service to the public safety community.

Leadership Award *Sponsored by NASEMSO.* NPSTC presented the Leadership Award to Dereck Orr for his exceptional leadership and devotion to the public safety community.

Hertz Award *Sponsored by APCO International.* NPSTC presented the Heinrich Hertz Award to ARRL for its exceptional devotion to the activities of NPSTC and unwavering support of the public safety community.

DJ Atkinson Technical Award *Sponsored by Jeff Bratcher.* NPSTC presented the DJ Atkinson Technical Award to David Eierman in recognition of his exceptional technical support and dedication to the public ssafety communications community.

Chairman's Award *Sponsored by Ralph Haller.* NPSTC presented the annual Chairman's Award to David Buchanan for his consistent unwavering support and dedication to the public safety community.

Richard DeMello Award *Sponsored by IMSA.* NPSTC named Tom Sorley the winner of the annual Richard DeMello Award in recognition of his personal dedication, professional leadership, and devotion to improving the local and state public safety communications community. The award ceremony will occur at the Radio Club of America dinner in November 2015.

Interoperability Discussion, John Lenihan, Interoperability Committee Chair; Don Root, Vice Chair
Emergency Medical Services, Paul Patrick, Chair. Mr. Patrick reported on the EMS questionnaire. The Working Group is currently reviewing prehospital video capabilities and use cases. There are differences in how EMS, medical directors, and hospitals see video and image implementation. The EMS Video Telemedicine Questionnaire was released by NPSTC for 30 days, closing on April 24, with 670 responses received: 491 from EMS and 170 from physicians, medical directors, and hospitals.

Respondents were asked about their role in the medical community, the population of the area they serve, and the typical transport time of patients to the receiving hospital. There were a number of questions on interoperability where respondents could answer multiple times. A number of themes emerged from the responses.

- Plus: Live video is needed for stroke assessment validation/enhancement.
- Plus: Best use for Community Para-medicine and "gray zone" patient presentations.
- Plus: Best use for patient refusals and risk management documentation.
- Plus: Situational awareness from EMS to PSAP and ED will be enhanced.
- Plus: Best use in rural areas with extended transport times, EMS staff who do not have high call volumes for skills maintenance.
- Plus: Cameras create a more professional interaction (EMS and patients "behave" better).

- Minus: Time delay for EMS to use the equipment (activation time, process time).
- Minus: Time needed in ED to conduct video consultations (physicians are too busy).
- Minus: Big Brother syndrome, surveillance, over reach by Medical Control.
- Minus: Liability, HIPPA.
- Minus: Cost.
- Minus: Will not improve medical care outcome (protocols handle all situations now).

More feedback from the questionnaire provided this information.

- Physician and Hospital responses tracked EMS results.
- Physicians and EDs expressed more interest in live video than in a video clip or still image, which was especially true for stroke patient assessment.

- Physicians saw the greatest benefit in: Community Para-medicine Programs, patient diversion to Urgent Care or Clinic vs. ED, patient refusal risk management, and enhanced patient care documentation.
- Respondents expressed concern regarding HIPPA compliance (who owns the video?), the potential for increased litigation, and the time to manage video conference calls (staffing).

Mr. Sorley said the ETHAN [Emergency TeleHealth and Navigation] is a demo program in Houston using video to look for candidate patients who could be diverted from the ER. Physicians will sit in the dispatch center and help paramedics, EMTs, and firefighters evaluate the needs of people who dial 911, but aren't necessarily having a medical emergency that requires a trip to the ER. The goal is to take calls from different locations and preserve them in one location. This is an emerging area with a lot of applicability to public safety. Mark Schroeder, Chair, Radio Interoperability Best Practices Working Group, added that some PSAP centers are soliciting pre-arrival information from their residents. When EMS responds to a situation, Tempe, AZ, already has their medical information.

Common Channel Naming, Don Root, Chair. Mr. Root presented the revised Channel Naming updates which have been finalized and distributed to the Board. The approved document is to be submitted to APCO for use in an updated ANSI standard. Updates to this document include:

- Updated introduction to acknowledge 2014 FCC order.
- Integrate 700 MHz Air-Ground Channels “AG”(7AG78, 7AG80,7AG85, 7AG88 including “D”).
- Reformat Appendix Tables to follow NIMS ICS-217A format.
- Add 155.1600 as a common-use channel for SAR (VSAR16).
- Clarified PL code of 156.7 with allowance for 136.5 for transportable relay stations on the VTAC channels.
- Correct a number of typos in the tables.

Motion and Vote: John McIntosh, Association of Fish and Wildlife Agencies (AFWA), moved to approve the revised Channel Naming report. Rick Comerford, International Association of Emergency Managers (IAEM), seconded the motion. Approved.

Mr. Buchanan asked if this revision will include the 700 Deployable Channel Names. Mr. Root said this will be handled as a best practice since those are not interoperability channels. The report will go to APCO which initiates the American National Standards Institute (ANSI) review process. Mr. Downes asked if the NTIA channels being discussed could be included. Mr. Root said APCO could potentially make that change as part of the ANSI review process. The review process may be from 90 to 120 days.

Next steps for this Working Group will address 700 MHz Transportable Trunking System Talkgroups, including identifying common Talkgroup (TG) names, two zones to support flexible operations and use of two systems, and Calling TG, Command TG, Emergency TG, and 13 Tactical TGs assigned by the COML.

Cross Border Working Group, Barry Luke. Mr. Luke reported that the presentation of the Cross Border report is in wide circulation and has been presented at the Canada/U.S (CANUS) meeting
Report approved by NPSTC Governing Board and released in March. Presentations on the document have been made at SAFECOM EC, March 26, in Portland, OR; CANUS CIWG, April 30 in Washington, D.C.;

SAFECOM ERC, May 13 in Jacksonville, FL; and APCO Canada, November 4 in Niagara Falls. There are talks to find a VHF and UHF frequency pair that might be used along the border for interoperability and a process for how to place a base station along the border. They are reviewing licensing procedures along the border. The Border Interoperability Demonstration Project (BIDP) had to return grant money to OEC because it was unable to license equipment.

700 MHz Deployable Trunked Systems Task Force, David Buchanan, Chair. Mr. Buchanan reported NPSTC and the National Regional Planning Council (NRPC) filed joint comments with the FCC identifying six nationwide channels for deployable trunked systems. The FCC issued a Public Notice April 23 approving the NPSTC/NRPC recommended channels. They are working on several operational and technical issues including the WACN ID number assignment, subscriber ID number management, licensing options (managed by the states), and Talkgroup channel names (with the NPSTC Channel Naming Working Group). The Working Group is also developing a best practices document.

Radio Interoperability (I/O) Best Practices Working Group, Mark Schroeder, Chair. Mr. Schroeder said, using the Interoperability Continuum, the Working Group first defined what a best practice is to clarify what is meant by the terminology. Thirteen Best Practice Statement concepts have been identified with two completed. Each Best Practice statement continues to be developed by volunteer sub groups. Completed Best Practices statements will be routed to the full Interoperability Committee for feedback before being submitted to the Governing Board for approval. Approved Best Practices Statements will be packaged in an individual report, posted on NPSTC's website, and searchable by key words (e.g., "radio cache"). The work has been shared and developed using NIIX (National Interoperability Information Exchange).

Radio IO Best Practices Statements:

- BP # 1: Nationwide I/O Channel Naming and Usage.
- BP # 2: Radio Channel Assignment and Use within High Risk Incident Environments.
- BP # 3: Documentation of Availability and Use of National I/O Channels by Local, State, and Regional authorities.
- BP # 4: Change Management on I/O Infrastructure.
- BP # 5: Time Phased Deployment of I/O Resources.
- BP # 6: Infrastructure Management –Readiness, Resiliency, and Availability.
- BP # 7: Subscriber Management.
- BP # 8: I/O Channel Assignment Based on System Coverage.
- BP # 9: Critical Incident Communications Talk Path Control and Staffing.
- BP # 10: Competency-based Training for Use and Management of I/O Systems.
- BP # 11: After Action Reviews to Identify Operational and Technical Issues.
- BP # 12: Governance and Formal Relationships.
- BP # 13: Managing Encryption during I/O Events.

The Working Group seeks more Best Practices, volunteers, and other written materials. Mr. Luke said the initial list of Best Practices began by review of what was described as problems in the After Action Reports (AARs) of the Yarnell Fire and the Navy Yard shooting.

Executive Session Level Four

The meeting moved into recess and into Executive Session, with the Open Session to resume the next morning.

May 7, 2015

Reconvene. Mr. Haller reconvened the meeting after roll call confirmed a quorum was present.

Federal Partners Update

Federal Communications Commission (FCC), Roberto Mussenden, Attorney-Advisor, Policy and Licensing Division, Public Safety Homeland Security Bureau (PSHSB). Mr. Mussenden reported on PSHSB work on location accuracy for 9-1-1. The Bureau is working to determine an implementation process and develop a technology testbed. This will require the PSAPs to upgrade to respond to the rules. 9-1-1 cannot be a silo but will need to be integrated with FirstNet. The Commission is discarding rules on non-initialized handsets and determining how to phase it out and whether or not to do it. Mr. Mussenden said spectrum work is the baseline of other work at the Commission. There have been less dramatic rulings in public safety, but the Bureau is still working on issues to make sure the work gets done, e.g., processing 1,000 renewals.

Regarding 700 MHz, the Bureau has eliminated the need for further narrowbanding, is researching T-Band issues trying to find access to other spectrum and ways to make this work, and looking at updating a number of technical rules. Work continues on the 4.9 GHz band, using NPSTC's plan, seeking to maximize utility of the band. The Bureau is creating incentives for manufacturers to develop equipment, but this is a work in progress, with no dates for completion yet.

The Commission adopted a Notice of Proposed Rulemaking (NRPM) to create interstitial channels in 800 MHz, and continues to work on completing rebanding, particularly on the Mexican border. There are 104 of 116 licensees which have completed rebanding on the Canadian border. They are also considering whether or not to allow vehicular repeaters on certain VHF flutter frequencies; whether or not to apply the Commission mask H in the National Public Safety Planning Advisory Committee (NPSPAC) band, and considering a way to allow the railroad police to use public safety channels. The Bureau is not renewing wideband channels; generally the licensee has done the work to narrowband the system but hasn't updated or known how to update the license.

Mr. Haller said the Land Mobile Communications Council (LMCC) and NPSTC are working cooperatively to develop coordination standards for 800 MHz interstitials. He said they will not make the Comment deadline of May 11, asking if that can be extended. If filing an Extension Request, Mr. Mussenden said the filer should explain why the filing is not done yet and state when it will be completed. Mr. Buchanan said NPSTC would like to do an update on 4.9 GHz at APCO in August, asking for an update from the FCC for that presentation. He also asked if the cancellation of licenses that have not narrowbanded has helped to free up spectrum for new licensees.

Spectrum Management Discussion, David Buchanan, Chair; Stu Overby, Vice Chair.

FirstNet Second Notice Response, Stu Overby. Mr. Overby reported that this is a complicated public notice focused on two major themes: Devices and state opt out issues. NPSTC's response was filed on

April 28, stating NPSTC's general concurrence with FirstNet interpretations regarding devices. Public safety will need various types of interoperable devices. NPSTC stated FirstNet network policies, proposed coverage/capacity, spectrum lease requirements, and business plans need to be available to the Governors for proper decision making. Information should be made available concurrently when a plan is presented to a state.

If a state opts out, the state needs to file that intention with the FCC, then go to the National Telecommunications and Information Administration (NTIA) for a spectrum lease. The Governor should have a draft spectrum lease before the process begins. Mr. Buchanan asked why the state should go to NTIA for a lease if the spectrum is leased to FirstNet. Mr. Overby said some of the states made that statement in their filings.

FirstNet Third Notice Response, Stu Overby. Mr. Overby reported on the Third Public Notice from FirstNet issued April 24, 2015. The PN seeks information on who is eligible as public safety on the network, furthering the discussion and interpretation on this issue from FirstNet Notice #1, to which NPSTC responded on October 27, 2014. FirstNet has preliminarily concluded there can be employees or groups of employees eligible in an organization even if the organization as a whole is not eligible. FirstNet seeks comments on this interpretation and on how to administer it. Comments on the Third Notice are due 30 days after publication in Federal Register. The Notice was published May 4; comments are due on June 3, 2015.

NPSTC may need to expand earlier comments. Mr. Comerford asked that the NPSTC response include notice of the non-traditional first responders such as public works. Mr. Sorley said providing a broad definition of who gets access doesn't define who has priority. The goal is to make the Nationwide Public Safety Broadband Network (NPSBN) as affordable as possible, with particular attention to a prioritization scheme for first responders. Mr. Buchanan said he has been working with the Priority Working Group, noting that with LTE priority access occurs automatically. Allowing others on the NPSBN is to public safety's benefit with proper priority access controls. Mr. Comerford said state and local plans generally list non-traditional first responders by name.

Ms. Ward asked APCO to collaborate in writing the comments. Mr. Wright said APCO believes primary users should be police, fire, and EMS. APCO does not have an issue with *secondary* users on the NPSBN. If NPSTC includes secondary users in the comments, APCO will want to add a footnote to the filing and file their own comments. Mr. Wright said if we open the door to utilities, they may argue they are public safety and entitled to public safety access.

Mr. Comferford said there is a clear delineation between government and private organizations. Mr. Buchanan said Part 90 rules on public safety covers an expanded list of roles. Mr. Luke asked if the rules would allow a private for profit ambulance assist a county on the network. Mr. Buchanan said they could be on the county's network. Mr. Wright said he understands the business model is to use the spectrum, available to public safety first, and if there is a surplus, then allow secondary users on the network, but APCO's biggest issue is not identifying them as public safety. Brent Lee added that APCO will provide feedback on the comments earlier in the process. Mr. Overby will provide a draft.

Interference Protection Working Group, Don Root

Clarification on Scope of Working Group, Don Root. Mr. Buchanan said the focus of this group is on policy and regulatory issues involving interference and policy discussions on federal/non-federal spectrum sharing. The Working Group will not be involved in interference issues with an individual licensee or in individual frequency coordination. NPSTC will issue an email seeking volunteers for this group.

Federal Frequency Issues, Dave Buchanan. The Bureau of Land Management (BLM) requested use of VMED28/155.340 MHz. BLM was looking for a replacement channel for an air-to-ground channel that was taken away. Mr. Patrick asked how often VMED28 is still used, how BLM will use it, and whether it will cause interference. A questionnaire was issued to the states that included a question on how often the VMED28 channel was used. Mr. Luke said NTIA took away an air-to-ground channel from BLM some years ago. BLM said the channel would be used for search and rescue and medical transport, not for regular operations. Mr. Luke will set up a conference call with Chris Lewis, Department of Interior, to discuss further. Also under discussion is a DHS proposal for assignment of a VHF and UHF interoperability nationwide pair and a FCC/NTIA proposal for interoperability sharing.

Energy-Efficient Lighting Interference, Dave Buchanan. The Working Group has created a draft report and will meet with the FCC to discuss. This is not a huge problem but it is a growing problem. The question is: Are the rules up to date regarding LED technology. The Working Group will review and finalize the report. Mr. Tilles said this has been discussed with the Commission at the LMCC meeting. The FCC had assembled manufacturers and cellular providers and formed a working group on this issue. The Commission is working to re-energize the working group. The Commission has no definition of harmful interference currently. NPSTC also had a meeting planned with FCC staff on the energy-efficient lighting interference issue for May 7, following conclusion of the NPSTC meetings.

FCC NPRM on 800 MHz Interstitials, Dave Buchanan. Mr. Buchanan said Comments were due May 11 and Reply Comments on May 26. Comments were drafted and distributed to the Governing Board. Issues addressed include support for the proposed addition of interstitials and the need to protect main channel licensees through frequency coordination. NPSTC supports the use of standard contours/mileage separations first, with the option for engineering studies if that fails to allow interstitials. The comments address eligibility and the need for protection criteria among interstitials. Mr. Haller said the frequency coordinators, excluding American Association of State Highway and Transportation Officials (AASHTO), discussed the eligibility of the channels. Originally they proposed eligibility be based on who was licensed on the neighboring channel but the coordination would be very onerous. He suggested NPSTC change the wording on eligibility to have the Interstitial carry the same designation as the lower adjacent existing channel as shown in the FCC Rules, and as proposed by the FCC.

Mr. Tilles said interstitial licensing can't happen in the border areas until rebanding is complete and the freeze is lifted, which will not be complete for at least 5 years. He suggested NPSTC revisit work on the Mexican border once the freeze is lifted based on the experience in the use of interstitials in the meantime.

Motion and Vote. Mr. Comerford moved to adopt the draft comments prepared on the 800 MHz interstitial channels, with the exception on channel eligibility above added. Mr. Goldstein seconded the motion. Approved.

Potential 700 MHz Commercial Spectrum for UAVs, Stu Overby. Mr. Overby reported on March 16, Access 700, LLC, filed an ex parte that notes the potential use of 700 MHz commercial upper A block spectrum for control of UAVs or drones. The A block (757-758/787-788 MHz) sits between the 700 broadband block used primarily by Verizon and the public safety broadband spectrum. Access 700 has offered to present their concept to NPSTC at a future meeting.

FCC PSAP Architecture Task Force, Bob Brown, NPSTC Representative, *via teleconference.* More than 6,000 PSAPs exist in the U.S. On April 28, there was a status meeting with the FCC. Mr. Brown is working on three Working Groups: Optimal Cyber Security for PSAPs, Optimal PSAP Architectures, and Optimal Resource Allocation.

Working Group 1, Optimal Cyber Security for PSAPs: As Public Safety Answering Point (PSAP) 9-1-1 networks transition from TDM-based to IP-based architecture they will face increasing exposure to cyber threats and vulnerabilities that did not exist in the legacy 9-1-1 environment. Based on the NIST Cybersecurity Framework (NCF), the ongoing work of CSRIC, and the documents such as the NENA Security for Next Generation 9-1-1, cyber risk management strategies are being developed for the communications sector that will benefit the NG911 ecosystem as a whole. However, NG9-1-1 cyber risk management strategies must also be implemented at the PSAP level, taking into consideration available PSAP resources and levels of expertise

To fulfill the mission of Working Group 1 it was divided into three initiatives.

- Initiative 1- High level cybersecurity strategy recommendations based on architectures developed by WG2, utilizing manageable and scalable core network elements distributed to the PSAP level, or if so desired implemented at the PSAP level.

- Initiative 2 – (Appendix 1) Will provide a set of use cases designed to illustrate the critical impact cybersecurity has on PSAP operations at all levels.

- Initiative 3- (Appendix 2) Will provide a checklist to the PSAP community enabling self assessment and fostering adoption of a unified set of cyber requirements while prompting the PSAP community to become proactive in the implementation of Cybersecurity practices. Appendix 3 will provide PSAPs with additional resources as they undertake their self-assessment and planning missions.

Working Group 2, Optimal PSAP Architectures, will do the following:

- Develop recommendations on how PSAPs can improve 9-1-1 functionality and cost effectiveness through consolidated NG911 network architecture design and operation.

- Develop recommendations as appropriate for: optimal NG9-1-1 network system and network configurations for range of existing PSAP use cases (e.g. large, urban, rural).

- Develop projected costs and transition periods associated with optimized configuration ensuring and improving access to NG9-1-1 for people with disabilities.

- Update previous best practices for legacy PSAPs identified by CSRIC to address the specific requirements that PSAPs will face in the NG9-1-1 environment

Working Group 3, Optimal Resource Allocation has a mission to focus on the following:

- 9-1-1 funding must be predictable, stable, and dedicated only for that purpose as needed.

- An associated 9-1-1 fee shall be assessed monthly, per device or service, in a competitively neutral manner on all technologies utilized to place a 9-1-1 emergency request for assistance to a public safety answering point through an emergency communications network.

Mr. Luke said he is glad to hear the Working Group is looking at virtual consolidation as well as physical consolidation, and glad they are looking at greater efficiencies rather than trying to move everyone into one PSAP.

Closing Remarks. Mr. Haller thanked APCO for sponsoring this meeting. John Wright, APCO, said it was APCO's pleasure to host NPSTC. APCO is hosting a conference on August 16-19, in Washington, D.C. and an Emerging Technology Forum, in Atlanta, GA, on November 17-18, 2015.

Upcoming Meeting. Ms. Ward said SAFECOM asked to coordinate its meeting with NPSTC's in Norman, OK, in September. This is contingent upon coordinating the travel into one process for both meetings. NPSTC will move to two meetings in person per year, one at IWCE and the second in September, either in Washington, D.C. or in Florida. The remaining two meetings will be held by teleconference.

Adjourn. Motion and Vote: Mr. Patrick moved to adjourn the meeting; Mr. Goldstein seconded. Approved. Mr. Haller adjourned the meeting.