Public Safety Advisory Committee (PSAC) Meeting
September 11, 2013 (8:30 a.m. – 5:30 p.m. PDT)
San Diego Environmental Services Department, 9601 Ridgehaven Court, San Diego, CA
Meeting Summary

Document Purpose

On September 11, 2013, the First Responder Network Authority (FirstNet) Public Safety Advisory Committee (PSAC) membership held its first daylong in-person meeting to:

- Discuss progress on PSAC activities
- Receive information and engage in discussions on:
  - The FirstNet organization's business plan, approved budget, and schedule
  - Technical briefings from FirstNet Consultants regarding the Core Network, User Applications, Radio Access Network, and User Devices

There were 32 members of the PSAC in attendance at the meeting.

This document provides a high-level summary of the meeting. More detailed meetings notes including a list of participants are available for reference by members of the PSAC.

PSAC Activity Update

Chief Harlin McEwen, PSAC Chair, provided an update of current PSAC activities and discussed open action items. Specifically:

- The PSAC is organized under the Federal Advisory Committee Act as an exempt intergovernmental committee; therefore, each PSAC member is required to file a completed certification document showing eligibility to serve on such a committee.
- DHS Office of Emergency Communications (OEC) staff is compiling information gathered from the over the horizon/human factors template
- Use cases templates for law enforcement, fire, and EMS incidents will be available shortly to members for input
- FirstNet factsheets have been completed, and a PSAC-specific factsheets is in development
- An identity management concept paper was developed and will be distributed to members
- A Homeland Security Information Network (HSIN) website was created as a PSAC repository and contains meeting notes and additional information only accessible to members of the PSAC and staff
- Members are encouraged to identify available, no cost, meeting spaces for future PSAC in-person meetings
- On September 5th, the State, Territorial, Tribal, and Local (STTL) subcommittee conducted a teleconference call

FirstNet Business Plan

Mr. Bill D'Agostino, FirstNet General Manager, discussed the FirstNet Business Plan, current activities, and operating plan for fiscal year (FY) 2014. Highlights of the operating plan and the subsequent remarks by Mr. D'Agostino include:

- The focus for FY 2014 is to move the FirstNet mandate forward by:
  - **Building, operating, and maintaining Core network**: An expected expenditure of $54M (of the FirstNet's $194M budget) is for development of the Core network; he stressed that significant testing and validation will occur prior to any capital expenditures
  - **Conducting State and Tribal Outreach:** This is a major focus for the upcoming year. FirstNet is working to hire regional staff (in teams of three) that align to the existing FEMA Regional structure. The teams will be the FirstNet representatives for all things, including an

interface to public safety agencies, engineering, and sales and services. Six of the 10 initial teams will be positioned in the same metro areas as the FEMA Regional Offices

- o **Delivering State Plans, which trigger opt in and opt out decisions:** The technical plans will be unique to each State and will be built from the bottom up. FirstNet will work within the next 60 days to define requirements regarding what it means to "opt in" along with an accelerated process for those that are ready to work with FirstNet
- FirstNet has released a plethora of requests for information (RFI) and has received numbers of responses (e.g., the partnering RFI had over 50 respondents)
- FirstNet completed a memorandum of understanding with the Public Safety Communications Research (PSCR) Program to be the lab for FirstNet
- The strategy to address the mandate to provide 99% coverage of the population, including all metro areas, and major highways includes portable/transportable assets; however, this 99% coverage would not include about 30% of the nation's land area. The envisioned strategy is to fill in the areas not covered by terrestrial services by use of satellite services and to have the network travel with the First Responders to address the first response and subsequent network need and will be fully vetted and tested in 2014. There is a need to inventory existing portable/transportable communications capabilities available at the local, State, and Federal levels

FirstNet Technical Briefing

Technical Overview

Mr. Craig Farrill, FirstNet Board Member/Acting Chief Technical Officer, provided a FirstNet technical overview briefing. Highlights of his remarks include:

- The essential elements of the envisioned network include: communications, applications, services, and capabilities
- FirstNet would be the element that outsources and provides the nationwide access to public safety applications and information resources
- The requirement to get to various public safety/criminal justice databases and their information resources stored (i.e., "Big Data" problems) necessitates the use of cloud storage. FirstNet intends to provide storage capabilities to States for their desired use; because of lessons learned during real-world events (e.g., Oklahoma tornado response, Hurricane Sandy) – more useful and better tools are necessary
- FirstNet is bringing enormous amounts of capacity moving wireless data operations from very narrowband channels to large bandwidth capabilities
- The Core Network is the brain and connects to the Radio Access Network (RAN) or more commonly thought of as cells or base stations. Then, the effort will be to deploy the entire network across the nation and distribute devices only to public safety to enable access to the network and the provision of applications to access information
- A few partnership efforts are under consideration, specifically:
  - o The use of cloud technologies to support and integrate other existing networks through other network (i.e., Internetworking) via trusted and certified interfaces
  - o Using existing utility networks as the vetting of a large number of network partners continues

- The network design team is working with some newly acquired, state-of-the-art tools for radio frequency (RF) engineering coverage predictions. The team is also working with OEC's technical assistance branch to provide coverage workshops for each of the States and Territories, and with Broadband Technology Opportunities Program (BTOP) grantees regarding the network infrastructure and devices design and capabilities requirements
- No State is the same and there is not a one size fits all model, as incidents are inherently local and the tools provided need to match local incident policies
- Additional observations discussed included:
  - Very diverse needs and relationships exist with tribes and States
  - A continuing risk of terroristic incidents
  - Multifaceted responses heighten State's concerns,
  - First responders in many rural areas are underserved, and are the largest group in need of FirstNet's envisioned services

Core Network

Mr. Marc Levante (FirstNet Consultant) continued the technical presentation discussing the elements of the Core network including discussing support of voice communications services, location services, and user identity management. Highlights of Mr. Levante's remarks include:

- The various components that makeup the Core network include the services layer, control mechanisms, the evolved packet core (EPC), transmission, and the data centers
- Research continues to potentially enable Mission Critical Voice (MCV) services over Long Term Evolution (LTE) networks; current research and documentation produced by the National Public Safety Telecommunications Council (NPSTC) and the FCC includes many specifications to achieve MCV. Commercial carriers appear to want to be able to provide mission critical voice eventually; and some commercial suppliers have demonstrated proprietary solutions to certain aspects in very controlled environments.
- Push-to-talk (PTT) over LTE and LTE interoperability with Land Mobile Radio (LMR) systems is progressing as the proof of concept is established, but how to standardize and leverage technology going forward has yet to be determined
- Of the utmost concern from stakeholders includes the belief that someday the Nationwide Public Safety Broadband Network will be able to replace all LMR based MCV. Mr. Farrill reiterated that LMR is going to with us very long time and that until MCV is proven as an LTE service; FirstNet will not state that it can support MCV. It must be a proven and robust service for public safety adoption.
- White papers and frequently asked questions on some hot topic items (e.g., MCV position, non-critical PTT, information regarding the continual funding of public safety LMR systems) will be developed in the future
- FirstNet is looking for best location based services solution for ubiquity, functionality, and that it must possess very quick link times regarding location services; currently commercial carriers and services do not provide this type of capability
- Regarding user identity management, FirstNet is working not to invent something new, but study and research existing technologies that will allow the identity of the device, and more importantly the identity of the user of the device. Initially, FirstNet is researching current technologies that

use IDs/certificates that are trusted documents and he envisions that in FirstNet, a key biometric such as a fingerprint would provide a token that would be received and provide the profiled services to the authenticating users

User Applications
Mr. Peters Suh (FirstNet Consultant) provided brief remarks regarding FirstNet's work with user applications followed by a spirited discussion aimed at gathering feedback about the usability of applications by the public safety community. Highlights of Mr. Suh's remarks include:

- The applications (apps) team continues to work closely with public safety representatives and associations to identify public safety oriented apps that are currently available in the public domain and are essentially being marketed by word of mouth
- FirstNet's work is embracing a non-proprietary position and embracing open standards in app develop and is cognizant that "one size does not fit all" especially when it comes to the usability of applications
- FirstNet is approaching interface and integration with existing legacy systems such as Computer-Aided Dispatching (CAD) systems and Police and Fire/EMS Records Management Systems (RMS) and the apps team has identified some prototype apps and is working on methods to interface/integrate with the wide plethora of existing CAD/RMS
  - The importance of these activities is to access data from existing systems CAD/RMS through existing applications programming interfaces (API) and reformat that data from existing presentations on devices while not incurring or requiring changes of backend systems as agencies do not have the ability (i.e., desire, funding) to change existing public safety systems
  - The team is looking at the usability of the data when received at the device due to the form factor differences. This may necessitate the incorporation of "at a glance" methods to best provide the display of the accessed data

State Consultation Briefing
Mr. TJ Kennedy (FirstNet Deputy General Manager) provided a briefing about FirstNet's ongoing and upcoming State Consultation efforts. Highlights of Mr. Kennedy's remarks include:

- FirstNet is actively engaged in trying to share as much information as possible and gather as much feedback as possible; this is essential to support building a network that is going to be used by public safety; the PSAC is a key part of this process
- FirstNet continues to work through the information sharing hurdles while pursuing its mandates to balance speed and urgency of deployment with necessary data gathering and analysis
- Additional outreach planning is underway to support individual meetings with each State and Territory
- FirstNet will continue to push information out from the website and directly to the PSAC

FirstNet Technical Briefings (continued)
Radio Network
Dr. Tony Chadney (FirstNet Consultant) provided a discussion regarding the work the FirstNet Technical Team is doing with regard to the RAN. Highlights of Dr. Chadney's remarks include:

- The NPSTC documents provide information regarding the coverage requirements for the public safety community; additional information and validation of these coverage requirements would

be achieved through the State outreach program during the State and Local Implementation Grant Program (SLIGP) Phase 1
- FirstNet would provide population and critical infrastructure data to the States to assist them in gathering coverage information, which will provide base line coverage objectives and will solicit State feedback; this process will be familiar should the State chose to participate in an OEC coverage workshop
- FirstNet has been building capacity/coverage planning tools to assess propagation of RF coverage using a tuned planning tool; it is critically important to have a planning tool that is accurate and there are different degrees of accuracy; FirstNet is now working to calibrate the coverage/capacity modeling tools
- Sites are being considered for planning purposes, using current LMR sites identified from FCC license database
   - The present analysis incorporated over 500,000 licenses of which provided 140,000 unique site locations and some 55,000 licensees of which there were about 35,000 sites with a single license
   - The team is finding that using existing LMR sites may not be most effective; high sites are good to have for rolling out coverage quickly in areas that are relatively flat and an examination of the FAA database found over 5,000 sites with a height over 200 feet
   - A dialogue with commercial electrical power providers to potentially provide sites is ongoing
- Ongoing critical discussions with the vendor community are continuing concerning user priority and pre-emption capabilities where a user's priority is considered when a site is at maximum capacity while striving to maintain current users on the loaded site

User Devices
Mr. Dave Marutiak (FirstNet Consultant) discussed the User Device and Ecosystems technical presentation and solicited feedback from the PSAC. Highlights of Mr. Marutiak's presentation included:
- The results of the RFI, which contained 400 specifications, had 55 respondents; the technical team is looking to share additional information with the PSAC and with BTOP grantees that are at the device selection phase; the team is also looking for more flexibility for Band 14 standalone, multiplicity devices and is working with vendors and FCC
- In 2014, the team will concentrate on in-vehicle routers and portable devices; characteristics of the in-vehicle routers describing bands and spectrum capabilities, simultaneous uses, support of over the air programming and the presence of high output power devices
- FirstNet would likely have to create an operational standard for alternate routing for the in-vehicle routers describing how it would be accomplished to ensure the required security while not diminishing the network functionality; presently, there is no specific recommendation for the Industry, just initial information for consideration
- The RFI yielded 13 responses for smartphones, nine of which were presented as confidential with most proposed devices either pre-production or prototypes; a substantial amount of work still to be accomplished in the smartphone and tablet category as this market category is nascent and device are not really developed and available

Public Safety Advisory Committee (PSAC) Meeting
September 11, 2013 (8:30 a.m. – 5:30 p.m. PDT)
San Diego Environmental Services Department, 9601 Ridgehaven Court, San Diego, CA
Meeting Summary

- RFI responses for Tablets, which are fixed component offerings, with OEM aftermarket upgrades; there were 11 offerings, five of which were confidential and most of which were commercial offerings or military/defense repurposed, which potentially may not meet the right use case
- Vendors offered 10 modem devices in a single form factor making it a versatile device for manufacturers; three chipset manufacturing companies exist with QualComm leading the pack; additionally, there is a known intermodulation issue between the Global Positioning System (GPS) band and Band 14 in the second harmonic that has the potential to interfere with the GPS band. There are identified technical solutions to address this interference issue
- The FCC is continuing to examine and compile FCC type acceptance regulations for Band 14 equipment, which affects engineering and manufacturer's progress in bringing Band 14 capable equipment to the marketplace

Following the presentations, PSAC members engaged in a question and answer session with the presenters. The next in-person PSAC meeting is scheduled for the week of December 9, 2013.