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• Reconvene – Ralph Haller, NPSTC Chair
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Federal Partners Update

• Federal Communications Commission (FCC) – David Furth, Deputy Bureau Chief, Policy and Licensing Division, Public Safety Homeland Security Bureau (PSHSB)

• Federal Partners for Interoperability Communication (FPIC) – Jim Downs LMR Standards and Security Coordinator, Office of Emergency Communications (OEC)
Federal Partnership for Interoperable Communications

National Public Safety Telecommunications Committee Meeting
September 29, 2016
FPIC UPDATE
Federal Partnership for Interoperable Communications
FPIC

- The FPIC serves as a coordination and advisory body to address technical and operational wireless issues relative to interoperability within the public safety emergency communications community, interfacing with voluntary representatives from F/S/L/T/T.

- The FPIC has an established working relationship with the ECPC, the NCSWIC EC, and the SAFECOM-NCSWIC Technology Policy Committee as a technical advisory resource.

- The FPIC includes more than 200 federal, state, local, tribal and territorial public safety representatives from over 45 federal agencies, as well as representatives from state, tribal, territorial and local entities, focusing on improving interoperability among the public safety community at all levels of government and addressing common public safety related communications issues.

- Address topics and questions concerning Interoperable Communications, Security Services, Spectrum (related to interoperability), and Standards.
Topics for Today - FPIC Current Activities

- LMR Sustainment, Interoperability, and Cooperative Partnerships
- Spectrum Activities
- Encryption Activities
Importance of LMR Sustainment

• The sustainment of resources and operational capability supporting LMR is vital to public safety mission-critical communications

• It is important that government leaders and public safety managers recognize sustained funding is critical to keep LMR systems functional

• The FPIC, in coordination with OEC, is working closely with the NCSWIC to address LMR issues at all levels of public safety that include technology, funding, governance and others
Cooperative Partnerships

- Reduced Federal and State/Local budgets force agencies to seek opportunities to achieve cost effective solutions and operational efficiencies by securing partnerships with statewide and regional public safety systems
  - Enhanced coverage
  - Better interoperability with state and local agencies
  - Typically provides a multi-vendor environment for standards compliant equipment
  - Resource sharing

- The partnership in Wyoming is a prime example of how the FPIC has supported cooperative opportunities resulting in enhanced communications for all concerned. Other partnerships include Alaska, Connecticut, Missouri, South Carolina, and Washington

- The FPIC has promoted these initiatives for many years and is embarking on a new initiative with the NCSWIC to identify assets for potential future partnerships
FPIC Spectrum Activity

- The Federal I/O channels in 162-174 MHz and 406.1-420 MHz bands can be used by S/L/T Public Safety agencies to enable joint Federal/Non-Fed interoperability. NTIA Manual 4.3.16 governs new rules that allow a simplified process to coordinate that use through the SWICs.

- An MOU between Federal Department and each State/Territory SWIC allows all S/L/T PS agency to use those channels for operating with a federal agency (no need to coordinate with every single public safety agency in the State)

- In coordination with NTIA, OEC/FPIC is drafting an MOU template reflecting NTIA Manual changes allowing S/L/T agencies to use LE/IR channels

- Draft MOU has been provided to NTIA/OSM for comment and has gone through legal review

- Draft MOU will be coordinated with Federal Spectrum Managers and NCSWIC through the FPIC Spectrum Subcommittee

- Further coordination with federal agencies and SWICs is required to identify signatories for each MOU
FPIC Spectrum Activity –cont’d

- FPIC is currently working with the FCC and NTIA to identify I/O Channels that can be used nationwide for immediate and unencumbered use. This is different from the use of the LE/IR channels mentioned in the previous slide.
- A preliminary search of existing LE/IR and AGA4 assignments identified some candidate channels
- FCC has agreed to consider pairing these channels with FCC part 90 IO channels
- Further coordination will be conducted through the FPIC Spectrum Subcommittee
- FPIC is developing strategies for identifying cross-border interoperability channels with Canada
  - Based on recent suggestions to NTIA from Region 9, the FPIC Spectrum Subcommittee also agreed to address cross-border IO channels with Mexico
Encryption Guidance
Documents

- The FPIC Security Working Group has teamed with SAFECOM and NCSWIC to develop a series of documents addressing Encrypted Communications in a P25 environment

  www.dhs.gov/technology

  www.dhs.gov/technology

FPIC Encryption Document Status

  - Final Draft documents have been approved by the SAFECOM – NCSWIC Technology Policy Committee and the FPIC and have been published. www.safecom.gov/technology.
  - Final Drafts of the associated “Fact Sheets” for decision makers are approved and have been published. www.safecom.gov/technology.

- ”Guidelines for Encryption in Land Mobile Radio Systems”
  - Document was published in February 2016 and available on SAFEOM Web site. An associated Fact Sheet is in final review.

  - First draft (outline) will be developed by FPIC Security Working Group
Encryption Guidance

- The FPIC Security Working, in coordination with the NLECC and other public safety agencies, developed a standardized SLN assignment list for National Encrypted Interoperability (June 2015)
- This guidance is not mandatory but is important to maintaining encrypted discipline and avoiding conflicts
- The FPIC encourages PS agencies who are going to implement encryption to coordinate with NLECC SLN, Key, and KeyID assignments. A National database can be developed to avoid conflicts and improve encrypted interoperability
- It is important to coordinate with your adjacent jurisdiction
- After the LMR sustainment survey is complete, the FPIC will attempt to populate a SLN database to avoid conflicts with neighboring jurisdiction. This information will be protected and distributed on a need-to-know basis.
Encrypted Interoperability Requires

- A desire to interoperate between agencies
- Knowledge and understanding of encryption and key management
- Coordination between agencies
- Coordination with the National Law Enforcement Communications Center (NLECC) and/or Statewide Interoperability Coordinators (SWIC) for I/OP keys
- Coordination planned through SWICs for easier access to information
Encryption Interoperability Planning

- Theoretically, different entities could have different SLNs refer to the same Traffic Encryption Keys

- Storage Location Number (SLN)
  - A common method to refer to an encryption key. In an OTAR system, each SLN contains two TEK keysets (one active/one inactive). This is a decimal value between 0 and 4095.

- Example:
  - Agency A: SLN 0001  KID: 12AF  TEK:1234567890ABCDEF
  - Agency B: SLN 1234  KID: 12AF  TEK:1234567890ABCDEF
  - Agency C: SLN 4095  KID: 12AF  TEK:1234567890ABCDEF
  - These all refer to the same traffic key!
  - Even though the SLNs do not match, the radio will decode the audio since the KIDs and TEKs are the same

*Note:* Single key radios will increase the operational complexity and require additional coordination
Encryption Interoperability Planning (continued)

- Different agencies with uncoordinated SLN/KID/TEK assignments can create an interoperability nightmare

- Example:
  - Agency A: SLN 0001  KID: 0001  TEK:ABCDEF1234567890
  - Agency B: SLN 0001  KID: 0001  TEK:1234567890ABCDEF
    - Same SLN and KIDs all refer to different traffic keys!
    - The radio will attempt to decode audio with unsuccessful results and will not interoperate
  - Agency C: SLN 0001  KID: 0002  TEK:ABCDEF1234567890
    - Same TEK but the Key ID does not match. Still will not interoperate

Note: Multi-band environments will increase the operational complexity and require additional coordination
Contact Information

- Jim Downes (Convener)
  - DHS OEC
  - James.downes@dhs.gov
  - fpic@hq.dhs.gov
  - (703) 235-4096
Backup Slides
## Appendix A: National Reserved SLN Table (6/19/15)

<table>
<thead>
<tr>
<th>SLN</th>
<th>Algorithm</th>
<th>Use</th>
<th>SLN Name</th>
<th>Crypto Period</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>DES</td>
<td>Public Safety Interoperable</td>
<td>ALL IO D</td>
<td>Annual</td>
</tr>
<tr>
<td>2</td>
<td>DES</td>
<td>Federal Interoperable</td>
<td>FED IO D</td>
<td>Annual</td>
</tr>
<tr>
<td>3</td>
<td>AES</td>
<td>Public Safety Interoperable</td>
<td>ALL IO A</td>
<td>Annual</td>
</tr>
<tr>
<td>4</td>
<td>AES</td>
<td>Federal Interoperable</td>
<td>FED IO A</td>
<td>Annual</td>
</tr>
<tr>
<td>5</td>
<td>DES</td>
<td>National Law Enforcement State and Local Interoperable DES</td>
<td>NLE IO D</td>
<td>Static</td>
</tr>
<tr>
<td>6</td>
<td>AES</td>
<td>National Law Enforcement State and Local Interoperable AES</td>
<td>NLE IO A</td>
<td>Static</td>
</tr>
<tr>
<td>7</td>
<td>AES</td>
<td>US – Canadian Fed Law Enforcement Interoperability</td>
<td>FED CAN</td>
<td>Static</td>
</tr>
<tr>
<td>8</td>
<td>AES</td>
<td>US – Canadian PS Interoperability</td>
<td>USCAN PS</td>
<td>Static</td>
</tr>
<tr>
<td>9</td>
<td>DES</td>
<td>National Tactical Event</td>
<td>NTAC D</td>
<td>Single Event Use – Not to exceed 30 Days</td>
</tr>
<tr>
<td>10</td>
<td>AES</td>
<td>National Tactical Event</td>
<td>NTAC A</td>
<td>Single Event Use – Not to exceed 30 Days</td>
</tr>
<tr>
<td>11</td>
<td>DES</td>
<td>Multiple Public Safety Disciplines</td>
<td>PS IO D</td>
<td>Static</td>
</tr>
<tr>
<td>12</td>
<td>AES</td>
<td>Multiple Public Safety Disciplines</td>
<td>PS IO A</td>
<td>Static</td>
</tr>
<tr>
<td>13</td>
<td>DES</td>
<td>National Fire/EMS/Rescue</td>
<td>NFER D</td>
<td>Static</td>
</tr>
<tr>
<td>14</td>
<td>AES</td>
<td>National Fire/EMS/Rescue</td>
<td>NFER A</td>
<td>Static</td>
</tr>
<tr>
<td>15</td>
<td>DES</td>
<td>National Task Force Operations</td>
<td>FED TF D</td>
<td>One time use as needed for Special OPS</td>
</tr>
<tr>
<td>16</td>
<td>AES</td>
<td>National Task Force Operations</td>
<td>FED TF A</td>
<td>One time use as needed for Special OPS</td>
</tr>
<tr>
<td>17</td>
<td>DES</td>
<td>National Law Enforcement Task Force (one time only operation)</td>
<td>NLE TF D</td>
<td>One time use as needed for Special OPS</td>
</tr>
<tr>
<td>18</td>
<td>AES</td>
<td>National Law Enforcement Task Force (one time only operation)</td>
<td>NLE TF A</td>
<td>One time use as needed for Special OPS</td>
</tr>
<tr>
<td>19</td>
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<td>Federal – International Law Enforcement Interoperability</td>
<td>FED INTL</td>
<td>When needed by operational requirement</td>
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<tr>
<td>20</td>
<td>AES</td>
<td>Public Safety – International Law Enforcement Interoperability</td>
<td>PS INTL</td>
<td>When needed by operational requirement</td>
</tr>
</tbody>
</table>
FPIC P25 ISSI/CSSI Activity

- There has been increased interest in implementing the P25 Inter RF Subsystem Interface (ISSI) and the Console Subsystem Interface (CSSI) to interconnect P25 Systems
- There has been significant misunderstandings and negative reports concerning the capabilities and purpose of the ISSI and CSSI, particularly when implementing *multi-vendor* P25 ISSI and CSSI interconnections.
- While there is still significant standards activity still in progress, there have been a number of implementations by a number of users
- Reports varied on the success of these implementations and numerous questions came up among users
FPIC Sponsored P25 ISSI/CSSI User and Vendor Working Session

- FPIC, with support from OEC, sponsored a two-day User Working Session, hosted by Interior Department at the Denver Federal Center.

- The working session provided public safety entities a forum to voice experiences and address concerns identified when implementing the P25 ISSI/CSSI between radio systems provided by different manufacturers.

- To share information relevant to implementation successes and challenges, including how these challenges were addressed, the FPIC assembled a panel of knowledgeable users experienced with the planning, implementation, and/or testing of the ISSI or CSSI interconnected between multiple vendor products.
FPIC Sponsored P25 ISSI/CSSI User and Vendor Working Session (cont’d)

- The first day was limited to government (all levels) users focused on experiences in planning and implementation, including successes and areas for additional consideration.
- There were 16 invited users that made up the “core panel” and a total of 42 users participated (36 in person, 6 on conference bridge).
- There was significant sharing of information and a number of “success stories” were presented.
- Successful implementations included interconnections among Motorola, Harris, EF Johnson, and Cassidian/AirBus in multiple configurations, as well as CSSI implementation with Zetron and Pantel with multiple RF Systems.
- The challenges that were encountered were also provided.
The second day the users returned and representatives from Project 25 equipment manufacturers and system providers, specifically those that have ISSI/CSSI product offerings and implementation experiences.

This was a collaborative session, attended by 14 representatives from 8 companies, that provided an opportunity for users and manufacturers to openly discuss the topics that were identified during the user session.

There was extensive discussion concerning the sharing of information during implementations that required programming changes or standards related revisions.

Users expressed an interest in “roaming” capabilities across an ISSI and a briefing was provided by the TIA TR8 Chair.

Compliance Testing and availability of test procedures/results was a concern that initiated extensive discussion.
The users raised concern with the field implementation and testing among different manufacturers and how potential standards revisions were documented and implemented in TR8.

There was also extensive discussion concerning how different features and services from different vendors were addressed in the ISSI.

Users and manufacturers felt a document addressing “basic interoperability features/services” should be developed by the FPIC and submitted thru the P25 UNS.

The users also expressed a need to address the number of options that are provided and identify possible solutions to minimize options that impact interoperability.

The group agreed to form a FPIC Focus Group to address next steps.

A second meeting is tentatively planned in the Sep/Oct time frame in Dallas.
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Meeting 29 September 2016
Activities Update

Geoff Spring
Senior Industry Advisor
Centre for Disaster Management and Public Safety
Australian Mission Critical Public Safety Communications

Key Principles:

• **Policy and Regulation Frameworks:**
  Agile, dynamic, informing regulatory regimes with minimal prescription, maximum certainty and clarity to drive innovation meeting needs of future users.

• **Stakeholder Identification:**
  Clearly identifiable and transparently involved in policy development and regulation.

• **Technology:**
  The Emergency Management Sector has to be able to identify a need for a technology capability based upon open standards, data interoperability and spatial enablement.

• **Leadership:**
  The identification of Leaders able to achieve the significant culture change required.
Collaboration

- NPSTC-CDMPS MOU executed March 2015

- P25 Steering Committee
- P25 Technology Interest Group

- Research Roadmapping
  - Location Based Services
  - Data Analytics
  - User Interface/Experience

- Conference participation
  - Emergency Services Network
  - Public safety apps
  - NG999
  - eCall

- Conference participation
  - NG911
  - P25

- Connected vehicles

Barriers to Collaboration:
- Distance
- Time

www.aria.org.au
Australian Radio Communications Association

CommsConnect Conference Organiser

Centre for Spatial Data Infrastructure and Land Administration
Research

Current CDMPS Ph.D. Research Projects:

• Integrated 3D Indoor and Outdoor Situational Awareness for Emergency Management.

• 3D Indoor Visualisation systems for monitoring and guiding victims and staff during an evacuation on mobile devices.

• Supporting natural disaster management utilizing real time information.

• Crowd sourced geographic information for emergency response.

• Next generation disaster management

• Optimising Diversion Costs in Road Network Recovery.

• Fire Incident Reporting Visualisation.

These Research Projects are supported by the Integrated Disaster Decision Support System (iDDSS) Platform developed by the Centre.
Informing and Influencing

Australian Government Department Discussion Papers:

Submissions made in response to Discussion Papers:

• Productivity Commission Inquiry into Public Safety Mobile Broadband
  Awaiting response to recommendations.

• Next Generation Triple Zero
  Tender deferred for two years

• SMART ICT Inquiry
  Recommended that the Australian Government recognise public safety mission critical communications as “critical infrastructure and continue to support the development of these systems, including funding research, promoting implementation, and providing national coordination.

• Spectrum Review.

• Radio Communications Bill

Submissions currently being Worked on:

• Compatible – Intelligent Transportation Systems (C-ITS)

• Expression of Interest for Location Based Services for Triple Zero.

CDMPS is analysing submissions to Government to clearly identify the stakeholder group
The Road Ahead
2018 - 2025
A New Business Model

Research Competitive Challenges – being used to drive innovation

Crowdsourced Research

($US 300M for R&D for FirstNet)

$US150M

Public Safety Communications Research Laboratories

Centre of Excellence for Collaborative Innovation

Problem Definition
- Location Based Services
- Data Analytics
- User Interfaces

Problem Statement

Challenge Design

Problem Solutions

MIT Study found 70% of solutions come from outside industry

Could crowdsourced research Be used for NG Triple Zero?
Thank you for your attention

www.cdmps.edu.au

goeff.spring@unimelb.edu.au

Mob: +61411 130 184
Federal Partners Update continued

Public Safety Communications Research (PSCR) – Dereck Orr, Division Chief, NIST Public Safety Communications Research

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Spectrum Management Committee and other Current Topics

Don Root, Chair
Charlie Sasser, Vice Chair
Spectrum Management Committee and other Current Topics

- 700 MHz Deployable Trunked Solutions Report – Don Root
- New Notices of Proposed Ruling Making (NPRMs) Impacting Spectrum – Don Root
  - P25 CAP; 700 MHz Vehicular Repeaters
  - Follow-up on LMCC Recommendations
- Discussion on Spectrum Access System (SAS) - Don Root
- FCC Filing Activity YTD – Charlie Sasser
700 MHz Deployable Trunked Solutions Report

- Report identified six deployable channels and designated two of six for control.
- FCC negotiations underway re southern border may place control channels in the “Mexico Primary” block.
- Channels for control need to be revised.
- Request Governing Board approval to develop and issue revision with NRPC.
• Reconsideration Order and Further NPRM, PS Docket No. 13-87, released 8/22/2016
• Comments Due 10/26/2016; reply comments due 11/10/2016
  – P25 CAP compliance must now be completed before equipment is marketed or sold.
  – States may delegate administration of 700 MHz air-ground channels to 700 MHz RPCs.
  – FNPRM seeks comment on DHS P25 CAP Advisory Council list of 15 feature sets for conventional operation.
  – FNPRM also asks what 700 MHz rules need to be changed to help enable vehicular repeaters.
  – Committee held special call 9/23/16 to discuss.
Spectrum Management Committee and other Current Topics

- NPRM, WP Docket No. 16-261, released 8/18/2016
- Comments due 11/22/2016; reply comments due 12/22/2016
  - NPRM in response to LMCC recommendations
  - Proposes to extend conditional licensing to 700, 800 and 900 MHz bands
  - Proposes that existing licensees be allowed to apply prior to new applicants for 800 MHz band expansion and guard band channels
  - Recommend that NPSTC support both proposals
    - 700 and 800 MHz band applications would receive RPC approval before submission to FCC
Spectrum Management Committee and other Current Topics

• Spectrum Access System (SAS)
  – SAS has been positioned by others as a means under which different services can share the same spectrum with prioritization assigned for each service.
  – SAS is a new approach; it is being tried in the 3.5 GHz band.
  – Silicon Flatirons Center in Boulder held a recent conference on SAS with speakers from FCC, NTIA, Hill staff and industry.

Discussion: The committee seeks Governing Board input on questions important to Public Safety as NPSTC studies and evaluates SAS.
## NPSTC Filings with FCC in 2016

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<th>Date Filed</th>
<th>Topic</th>
<th>Type of Filing</th>
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<td>9/12/16</td>
<td>Outage Reporting</td>
<td>Reply Comments</td>
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<tr>
<td>8/11/16</td>
<td>Noise Floor</td>
<td>Comments</td>
</tr>
<tr>
<td>7/22/16</td>
<td>5.9 GHz DSRC</td>
<td>Reply Comments</td>
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<tr>
<td>7/13/16</td>
<td>Interference Portal</td>
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<td>5.9 GHz DSRC</td>
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<td>6/3/16</td>
<td>T-Band Update Report</td>
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<td>Ligado 1545-1555 MHz</td>
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<td>4/21/16</td>
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<td>Ex Parte (#1)</td>
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<tr>
<td>1/13/16</td>
<td>Wireless Emergency Alerts</td>
<td>Comments</td>
</tr>
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</table>
Topical Presentation

Next Generation 9-1-1 – Roger Hixson, ENP, National Emergency Number Association (NENA)

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NG 9-1-1 Update

NPSTC  Sept 29, 2016

Roger Hixson ENP – Technical Director
rhixson@nena.org
Core Purposes of NG9-1-1

- Fully replace E9-1-1 while retaining the capabilities and functions in place today
- Add capabilities to support changes for current and new types of Originating Service Providers
- Add flexibility for PSAPs and 9-1-1 Authorities to manage calls, share costs and applications
- Add capabilities to integrate and interoperate with emergency entities beyond the PSAP
NG9-1-1 EcoSystem

NG9-1-1 Core Services on an ES|net

- Legacy E9-1-1 Selective Router
- E9-1-1 ALI Database
- Originating Service Environment
  - CIDB
  - LIS
- TDM Call
  - Location
- IP "Call"
- Graphical Information System (GIS)
  - GIS
- Extended Emergency Networks
  - Homeland Security
  - FEMA
  - Town Hall
- ESRP/PRF
- LPG
- LNG/LSRG
- Security Functions
  - ECRF with PSAP Boundaries
- PSAP
  - Call Taker System
  - Computer Aided Dispatch
  - Map Display
  - Logging & Reporting
- Radio Networks
NG9-1-1 Transition Steps

NG9-1-1 Transitional Steps

Transitional NG9-1-1

Legacy 9-1-1

NG9-1-1
NENA NG9-1-1 Core System

NG9-1-1, ESInet, and \textit{i3}' are \textit{not} equivalent terms!
## 9-1-1 Today & Tomorrow

<table>
<thead>
<tr>
<th>9-1-1 CAPABILITY</th>
<th>E9-1-1</th>
<th>NG9-1-1</th>
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<tbody>
<tr>
<td>Voice Calls</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Text/Multimedia/Sensors/IoT</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Transfer Mis-Routed Calls</td>
<td>Limited Capability</td>
<td>Yes</td>
</tr>
<tr>
<td>Virtual PSAPs</td>
<td>Limited Capability</td>
<td>Yes</td>
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<tr>
<td>Additional Data</td>
<td>No</td>
<td>Yes*</td>
</tr>
<tr>
<td>Data Sharing across regions</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Data Sharing with Responders</td>
<td>Limited Capability</td>
<td>Yes</td>
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<tr>
<td>Policy Based Call Routing</td>
<td>Managed by E9-1-1 SSP</td>
<td>Managed by 9-1-1 Authority</td>
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<tr>
<td>Location Delivered with Calls</td>
<td>No</td>
<td>Yes*</td>
</tr>
<tr>
<td>Standard IP Interfaces</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* These services require next generation originating networks as well as Next Generation 9-1-1
• Some new data will naturally come into play as new service types appear

• Each type of service may also involve additional optional data beyond what is naturally associated with that call type

• Each 9-1-1 Authority will have to decide which optional additional data is to be used in the operations for their PSAPs

• And what training will be required to support it
NG9-1-1 allows for additional data to be acquired from multiple sources. Data can be used to identify initial responders for dispatch, make immediate notification to other agencies, provide information to help increase responder safety, and improve call processing.
Examples of Additional Data include:

- **Caller Provided Medical Data**
- **Floor Plans**
- **Telematics**
- **Fire Control Panels**
- **Building/Fire Code Inspections**
- **Hazardous Materials**
- **Sensor Locations and Data**
- **Historical Data**
- **Surveillance Camera Locations**
- **Campus / Facility Layouts**
NG9-1-1  NEW CAPABILITIES

Ability to transfer calls, with data, anywhere necessary

Increased interoperability between applications and organizations

Ability to share workload dynamically
NG9-1-1  NEW CAPABILITIES

Ability for call takers/dispatchers to work together from different physical locations  (Virtual PSAP and Responder Broadband Networks)

More options for contingency planning / disaster recovery

Ability to collaborate with regional PSAPs and Standardize Training
Data Sharing & Situational Sharing

Increasing opportunities for mutual aid and PSAP collaboration/cooperation

NG9-1-1 NEW CAPABILITIES

Awareness management of large scale incidents
What has to happen to realize these capabilities?

- NG9-1-1 features able to support them must be installed

- Multimedia (beyond voice) will be a progression, as the Originating Service Providers develop the capability to bring text and video through their networks to NG9-1-1

- But – when it happens, it will happen fast! Pent up demand

- NENA and Public Safety Authorities need plans and identified Transition steps to support changes when and as they occur

- Public Safety Authorities must be ready - don’t be the roadblock
NG9-1-1 NEW CAPABILITIES

What has happened recently?

• 2015 FCC TFOPA Report: NG9-1-1 and PSAP Optimization options and pros and cons

• 2015 thru 2016: National 9-1-1 Office develops NG9-1-1 Maturity steps for NG9-1-1 Transition

• 2016 TFOPA Task Force: Expand 2015 Report and provide planning methods at all levels of 9-1-1 Authorities, utilizes Maturity steps in an NG9-1-1 Readiness Checklist covering major facets of planning and implementation

• 2016 CSRIC WG1: Identified and evaluated options to provide caller location based routing of 9-1-1 calls

• 2014 thru 2016: Development of the National Emergency Address Database (wireless indoor location augmentation)
What has happened recently at NENA?

- Completion of NG9-1-1 Core Services Architecture v2 (i3)
- Development of NG9-1-1 RFP Guidelines
- Development of Emergency Incident Data Document (EIDD)
- Development of Monitoring and Managing NG9-1-1 Service and Systems documents
- Updating of PSAP 9-1-1 Operations Standards
- Development of NG9-1-1 System Operations Standards
- Several other Standards
Q & A
Resources

• National Emergency Number Association (NENA) - *Next Generation 9-1-1 Project:* Detailed information on all aspects of NG9-1-1 can be found at [http://www.nena.org/ng911-project](http://www.nena.org/ng911-project).


• National Emergency Number Association (NENA) - *Next Generation Transition Planning Committee (NGTPC).* Detailed information relating to NG9-1-1 system transition issues being developed by the NGTPC can be found at [http://www.nena.org/technical-committee/next-generation-transition-transition-planning](http://www.nena.org/technical-committee/next-generation-transition-transition-planning)

• National Emergency Number Association (NENA) – *Next Generation 9-1-1 Policy Implementation Handbook* - available on the NENA website


Resources

- U.S. Department of Transportation, Research and Innovative Technology Administration (RITA) - Next Generation 9-1-1 Initiative:
  http://www.its.dot.gov/ng911/ng911_pubs.htm

- Next Generation 9-1-1 System Initiative Procurement Tool Kit.

- Next Generation 9-1-1 System Initiative - Final Analysis of Cost, Value, and Risk.
  http://www.its.dot.gov/ng911/pdf/USDOT_NG911_4-A2_FINAL_FinalCostValueRiskAnalysis_v1-0.pdf

- Next Generation 9-1-1 System Initiative - Final System Design.

- Next Generation 9-1-1 System Initiative - Transition Plan.

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Organizations Update continued

Project 25 Technology Interest Group (PTIG) – Steve Nichols, Director
NPSTC General Meeting in Washington DC
September 29, 2016

Project 25 Technology Interest Group (PTIG)
Update for 2016

Presented by:
Stephen Nichols, Director PTIG
www.project25.org

– PTIG offers the FAQ tool to Public Safety and government users who need to deliver a simplified, top level, answer to typical P25 questions received from non-technologist personnel including Police Officers, Fire fighters, administrators, procurement contracting officers.

– This Updated FAQ document has 14 new questions and significant changes to P25 testing questions reflecting input from the recent Compliance Assessment Program (CAP) open meeting.

– The document has been reconfigured to categorize the questions by topic making the document easier to use for quick reference.

The document has been reconfigured to categorize the questions by topic

- **P25 Standards Overview**, including a question on how the P25 Standards are created.
- **P25 Compliance testing** has been updated to reflect the latest DHS OIC Web links and document availability.
- **Benefits of P25**
- **Relationship of P25 to other radio technologies**
- **Interoperability** possible through the numerous Project 25 interfaces
- **Multi-Vendor P25 solutions** with real world examples of existing systems
- **Project 25 Security Services** available.
Examples of P25 FAQ Questions.

– How do I find which operational requirements and features are covered in the P25 Suite of Standards?
– What is the status of the P25 Phase 2 Standard suite?
– What are RCATs?
– A new P25 system is building out in my region. I have a P25 radio, how do I get access?
– Why do we have a P25 system but my system operator says we can only buy one brand of radio?
– Does the future FirstNet LTE broadband data network make P25 obsolete?
– What is the range comparison between P25 digital and narrowband analog?

- List of known P25 Systems in the USA, Australia, Canada, New Zealand, and the UK.
- The significant change to this update is the addition of a new list of P25 Conventional systems. **The P25 Conventional systems total is 1299**
- The P25 Trunking system list has grown from 711 systems last November to 842 systems today.
- **The grand total is 2141 Project 25 Systems from both lists combined.**
- Both P25 systems lists are organized by state, and territory.
- Information: System name, System user type (Federal, Tribal, Public Safety, Utility, Campus Police etc.), and Frequency band.
- P25 Trunking systems are identified as P25 Phase1 or P25 Phase 2.
- P25 Conventional systems are identified as digital only or mixed mode analog and digital.

**New List of P25 Trunking and Conventional Systems, June 2016**

**Trunking System List Format**


<table>
<thead>
<tr>
<th>STATE</th>
<th>SYSTEM NAME</th>
<th>P25</th>
<th>P25</th>
<th>Comments</th>
<th>System User</th>
<th>Freq. Band</th>
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</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>Alabama Regional Communications Sys</td>
<td>Phase 1</td>
<td>New</td>
<td>Public Safety</td>
<td>800</td>
<td></td>
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<td></td>
<td>Center for Domestic Preparedness</td>
<td>Phase 1</td>
<td></td>
<td>1st Responders</td>
<td>UHF Lo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dothan</td>
<td>Phase 1</td>
<td></td>
<td>Public Safety</td>
<td>800</td>
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</tr>
<tr>
<td></td>
<td>Fort Benning Military</td>
<td>Phase 1</td>
<td></td>
<td>DOD</td>
<td>UHF Lo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fort Rucker</td>
<td>Phase 1</td>
<td></td>
<td>DOD</td>
<td>VHF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gadsden &amp; Etowah County</td>
<td>Phase 1</td>
<td></td>
<td>Public Safety</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Jefferson County</td>
<td>Phase 1</td>
<td></td>
<td>Public Safety</td>
<td>800</td>
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</tr>
<tr>
<td></td>
<td>Marshall Space Flight Center</td>
<td>Phase 1</td>
<td></td>
<td>Fed Agency</td>
<td>UHF Lo</td>
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<tr>
<td></td>
<td>Maxwell Air Force Base</td>
<td>Phase 1</td>
<td></td>
<td>DOD</td>
<td>UHF Lo</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Montgomery Metro Comm Coop District</td>
<td>Phase 1</td>
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<td>Public Safety</td>
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<tr>
<td></td>
<td>Alabama First Responder Network</td>
<td>Phase 2</td>
<td></td>
<td>Public Safety</td>
<td>700/800</td>
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<td>Anniston Army Depot ANAD</td>
<td>Phase 2</td>
<td></td>
<td>Public Safety</td>
<td>UHF Lo</td>
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<tr>
<td>3</td>
<td>Shelby County First Responders</td>
<td>Phase 2</td>
<td></td>
<td>Public Safety</td>
<td>VHF</td>
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</table>

Conventional System List Format

<table>
<thead>
<tr>
<th>Location</th>
<th>System Name</th>
<th>Phase</th>
<th>Mode</th>
<th>Department</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida</td>
<td>FL Dept. of Corrections Reg 1</td>
<td>Phase 1</td>
<td>Mix Mode</td>
<td>Corrections</td>
<td>800</td>
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<tr>
<td></td>
<td>Region 3</td>
<td>Phase 1</td>
<td>Mix Mode</td>
<td>Corrections</td>
<td>800</td>
</tr>
<tr>
<td>Civil Air Patrol</td>
<td></td>
<td>Phase 1</td>
<td>Mix Mode</td>
<td>CAP</td>
<td>VHF</td>
</tr>
<tr>
<td>Customs &amp; Border Protection</td>
<td></td>
<td>Phase 1</td>
<td></td>
<td>Federal</td>
<td>VHF</td>
</tr>
<tr>
<td>FBI</td>
<td></td>
<td>Phase 1</td>
<td></td>
<td>Federal</td>
<td>VHF</td>
</tr>
<tr>
<td>United States Coast Guard</td>
<td></td>
<td>Phase 1</td>
<td>Mix Mode</td>
<td>Federal</td>
<td>VHF</td>
</tr>
<tr>
<td>National Park Service</td>
<td></td>
<td>Phase 1</td>
<td></td>
<td>Federal</td>
<td>VHF</td>
</tr>
<tr>
<td>Bay County - Lynn Haven</td>
<td></td>
<td>Phase 1</td>
<td></td>
<td>Law Enforcement</td>
<td>UHF Lo</td>
</tr>
<tr>
<td>Brevard County - Port Canaveral</td>
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<td>Phase 1</td>
<td>Mix Mode</td>
<td>Security</td>
<td>VHF</td>
</tr>
<tr>
<td>Broward County - Fort Lauderdale</td>
<td></td>
<td>Phase 1</td>
<td>Mix Mode</td>
<td>Public Safety</td>
<td>UHF Lo</td>
</tr>
<tr>
<td>Calhoun County</td>
<td></td>
<td>Phase 1</td>
<td>Mix Mode</td>
<td>Public Safety</td>
<td>UHF Lo</td>
</tr>
<tr>
<td>St. Lucie County</td>
<td></td>
<td>Phase 1</td>
<td></td>
<td>College</td>
<td>UHF Lo</td>
</tr>
<tr>
<td>West Palm Beach</td>
<td></td>
<td>Phase 1</td>
<td>Mix Mode</td>
<td>Law Enforcement</td>
<td>800</td>
</tr>
</tbody>
</table>
New Documents available at  www.Project25.org


Frequency Bands in Use for P25

User Categories for P25

**Project 25 Conventional Systems**
- Federal: 23%
- Public Safety: 67%
- Military: 4%
- Other: 2%
- Schools/Univ: 2%
- Public Works: 2%

**Project 25 Trunking Systems**
- Public Safety: 60%
- Military: 16%
- Federal: 13%
- Other: 3%
- Utilities: 3%
- Industrial: 2%
- Airport/Trans: 3%
Project 25 Technology Interest Group (PTIG)

Other P25 Resource Documents available at
www.Project25.org

• P25 Capability Guide
  Added Infrastructure interfaces and links to Statement of Requirements. Remains the best tool for managing P25 features and capabilities for system planning and RFP development

• P25 Standards Update Summary
  Summary of the latest TIA TR-8 P25 Standards Meetings with user benefits defined

• P25 Steering Committee Approved List of Standards
  Updated from the most recent P25 Standards meeting

• P25 Feature Translator
  link to NPSTC PAM tool
Recent PTIG P25 Whitepapers at www.Project25.org

• Now is a good time to revisit the use of P25 technologies on the Fire ground

  Benefits of using P25 mission critical radio equipment include:

  Improved performance in background noise, Tone Signaling – DTMF, Knox and single tone is now supported, P25 Paging receivers are now available, Improved Coverage, Enhanced Signaling, Location Services.

• Benefits of P25 (Update)

  Over the years, the most often selected article on the Project 25 website, www.project25.org, is the one describing Technology Benefits of P25. This article has been recently updated to include the new wireline interfaces (ISSI, CSSI, FSI) and new operational capabilities recently added to the P25 suite of standards.

  The Whitepaper covers the background and history of the P25 Standard, original goals and objectives, a summary overview of the standards and how they translate into benefits for the Public Safety community.
Project 25 Technology Interest Group (PTIG)

Other News at www.Project25.org

• Project 25 Testing Update Report by Compliance Testing LLC

The Project 25 Technology Interest Group welcomes Compliance Testing LLC as a new Commercial member of PTIG. Compliance Testing LLC has prepared a report detailing the P25 Testing Update presented by DHS OIC and the Compliance Assessment Program Advisory Panel at their open meeting held during the APCO 2016 conference in Orlando.

• Project 25 Technology Interest Group Elects a New Board of Directors and Officers for 2016-2017

The Project 25 Technology Interest Group (PTIG) held it’s Annual Meeting on August 14th. At that meeting, a Board of Directors and Officers were elected. A number of new Board members were elected from the Public Safety Radio User Community. These include: Christie Bielby-Texas DPS, Scott Wright-State of Connecticut, Brent Finster-University of Hawaii. Todd Perdieu from Harris was elected as a new Commercial Board member.

• P25 Standards Meeting TIA/TR-8 Summary, June 2016

The Project 25 Technology interest Group (PTIG) has published the latest summary of P25 Standards Meetings proceedings from the June Meetings held in Kansas City. This document highlights TR-8 accomplishments and work in progress for 2016. The document is updated after every TR-8 face to face meeting occurring in 2016.
Steve Nichols, Director
Project 25 Technology Interest Group

director@project25.org
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Administrative Discussion

• Future Meetings
  – Teleconference – Tuesday, January 24, 2017
  – IWCE – Friday, March 31, 2017
Executive Level IV Session

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Executive Level IV Session

• LEVEL IV
  - NPSTC Chair
  - NPSTC Vice Chairs
  - NPSTC Executive Director
  - NPSTC Deputy Executive Director
  - Committee Chairs
  - Committee Vice Chairs
  - Voting Organization Representatives and Alternates
  - Associate Representatives
Adjourn

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