

## Full NPSTC Meeting | Washington, DC

**Thursday, September 29, 2016**

Call In: (510) 227-1018 | Conference ID: 192 7086

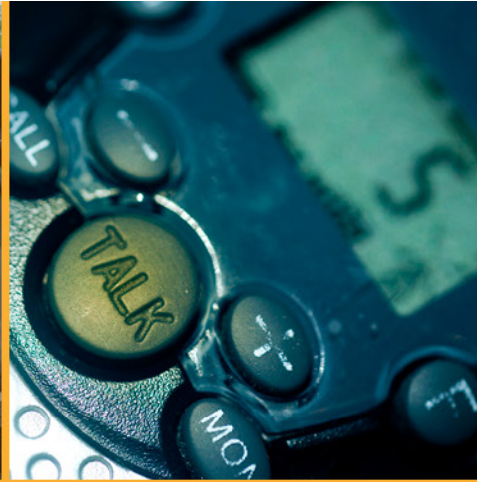
Webinar Access Information : <https://join.me/NPSTCsupport1>

Submit Questions Online

Send email to [support@npstc.org](mailto:support@npstc.org)

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- Reconvene – Ralph Haller, NPSTC Chair



## Federal Partners Update

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# Federal Partners Update

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- 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

# 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
- ***Guidelines for Encryption in Land Mobile Radio Systems*** – Feb 2016  
[www.dhs.gov/technology](http://www.dhs.gov/technology)
- ***Best Practices for Encryption in P25 Public Safety Land Mobile Radio*** – Sept 2016  
[www.dhs.gov/technology](http://www.dhs.gov/technology)
- ***Considerations for Encryption in Public Safety Radio Systems*** – Sept 2016 – [www.dhs.gov/tecnology](http://www.dhs.gov/tecnology)



# FPIC Encryption Document Status

- ***“Best Practices for Encryption in P25 Public Safety Land Mobile Radio Systems” and “Considerations Encryption in Public Safety Radio Systems”***
  - Final Draft documents have been approved by the SAFECOM – NCSWIC Technology Policy Committee and the FPIC and have been published. [www.safecom.gov/technology](http://www.safecom.gov/technology).
  - Final Drafts of the associated “Fact Sheets” for decision makers are approved and have been published. [www.safecom.gov/technology](http://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.
- ***“Operational Best Practices for P25 Public Safety Land Mobile Radio”***
  - 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](mailto:James.downes@dhs.gov)
  - [fpic@hq.dhs.gov](mailto:fpic@hq.dhs.gov)
  - (703) 235-4096

# Backup Slides

## Appendix A: National Reserved SLN Table (6/19/15)

SLN	Algorithm	Use	SLN Name	Crypto Period (Annual key changes are completed on the first working Monday of October)
1	DES	Public Safety Interoperable	ALL IO D	Annual
2	DES	Federal Interoperable	FED IO D	Annual
3	AES	Public Safety Interoperable	ALL IO A	Annual
4	AES	Federal Interoperable	FED IO A	Annual
5	DES	National Law Enforcement State and Local Interoperable DES	NLE IO D	Static
6	AES	National Law Enforcement State and Local Interoperable AES	NLE IO A	Static
7	AES	US – Canadian Fed Law Enforcement Interoperability	FED CAN	Static
8	AES	US – Canadian PS Interoperability	USCAN PS	Static
9	DES	National Tactical Event	NTAC D	Single Event Use – Not to exceed 30 Days
10	AES	National Tactical Event	NTAC A	Single Event Use – Not to exceed 30 Days
11	DES	Multiple Public Safety Disciplines	PS IO D	Static
12	AES	Multiple Public Safety Disciplines	PS IO A	Static
13	DES	National Fire/EMS/Rescue	NFER D	Static
14	AES	National Fire/EMS/Rescue	NFER A	Static
15	DES	National Task Force Operations	FED TF D	One time use as needed for Special OPS
16	AES	National Task Force Operations	FED TF A	One time use as needed for Special OPS
17	DES	National Law Enforcement Task Force (one time only operation)	NLE TF D	One time use as needed for Special OPS
18	AES	National Law Enforcement Task Force (one time only operation)	NLE TF A	One time use as needed for Special OPS
19	AES	Federal – International Law Enforcement Interoperability	FED INTL	When needed by operational requirement
20	AES	Public Safety – International Law Enforcement Interoperability	PS INTL	When needed by operational requirement

# 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

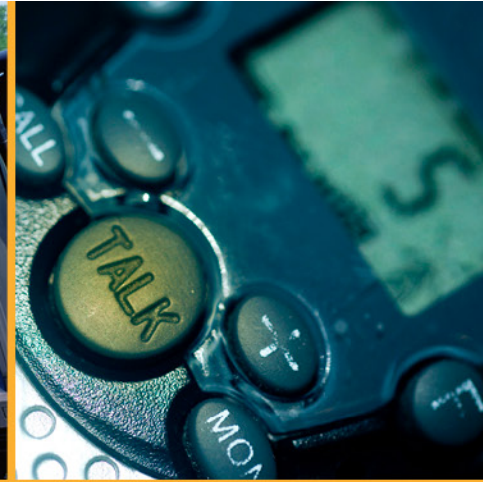
# FPIC Sponsored P25 ISSI/CSSI User and Vendor Working Session (con't)

- 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



# FPIC Sponsored P25 ISSI/CSSI User and Vendor Working Session (con't)

- 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.



## Organizations Update

### University of Melbourne Centre for Disaster Management and Public Safety (CDMPS) – Geoff Springs, Representative

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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



[www.arcia.org.au](http://www.arcia.org.au)

Australian Radio Communications Association



CommsConnect Conference Organiser



Centre for Spatial Data Infrastructure and Land Administration

### Barriers to Collaboration:

- Distance
- Time

# 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



\$US150M

### 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

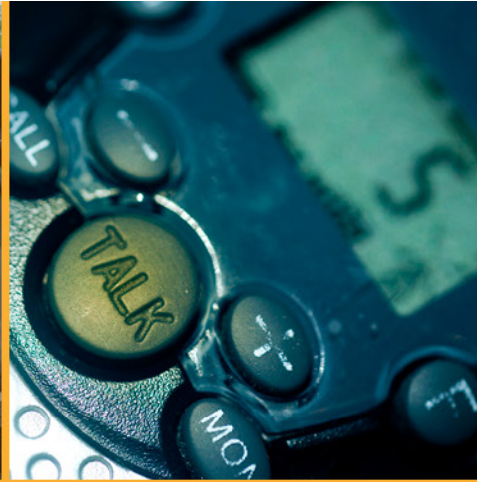


[www.cdmps.edu.au](http://www.cdmps.edu.au)

[geoff.spring@unimelb.edu.au](mailto:geoff.spring@unimelb.edu.au)

**Mob: +61411 130 184**

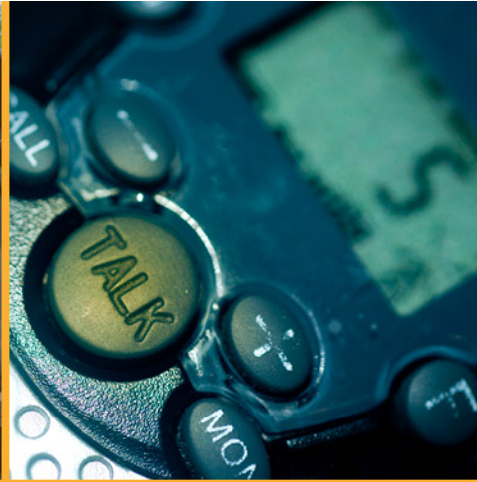




## Federal Partners Update continued

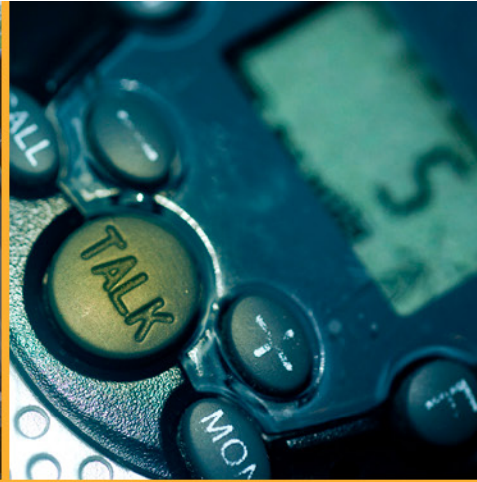
### Public Safety Communications Research (PSCR) – Dereck Orr, Division Chief, NIST Public Safety Communications Research

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# Break

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# Spectrum Management Committee and other Current Topics

**Don Root, Chair**

**Charlie Sasser, Vice Chair**

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# Spectrum Management Committee and other Current Topics

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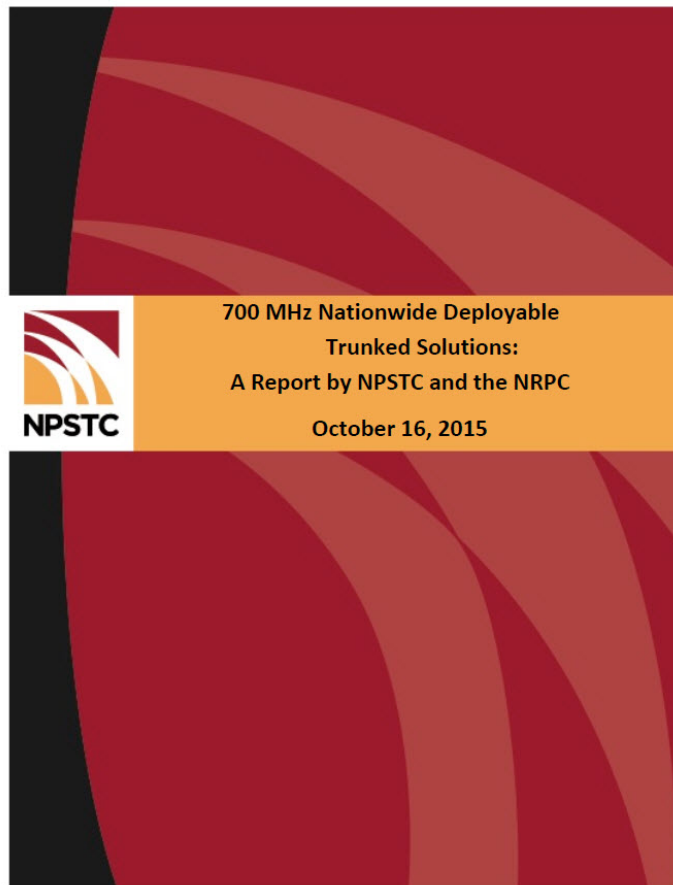
- 700 MHz Deployable Trunked Solutions Report – Don Root
- New Notices of Proposed Ruling Making (NPRMs) Impacting Spectrum – Don Root
  - P25 CAP; 700 MHz Vehicular Repeaters
  - Follow-up on LMCC Recommendations
- Discussion on Spectrum Access System (SAS) - Don Root
- FCC Filing Activity YTD – Charlie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

# Spectrum Management Committee and other Current Topics

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- 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.

# Spectrum Management Committee and other Current Topics

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- 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

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- 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

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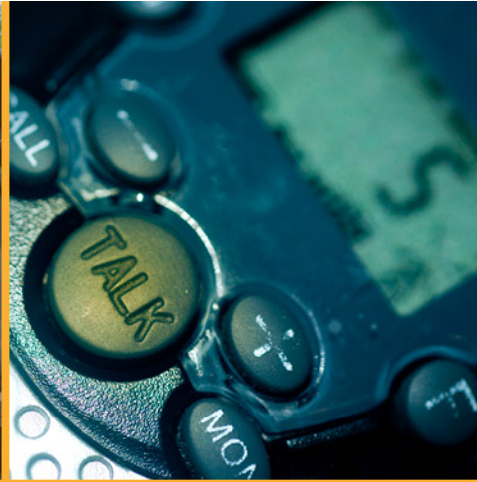
- Spectrum Access System (SAS)
  - SAS has been positioned by others as a means under which different services can share the same spectrum with prioritization assigned for each service.
  - SAS is a new approach; it is being tried in the 3.5 GHz band.
  - Silicon Flatirons Center in Boulder held a recent 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



Date Filed	Topic	Type of Filing
9/12/16	Outage Reporting	Reply Comments
8/11/16	Noise Floor	Comments
7/22/16	5.9 GHz DSRC	Reply Comments
7/13/16	Interference Portal	Letter
7/8/16	4.9 GHz	Ex Parte (#2)
7/7/16	5.9 GHz DSRC	Comments
6/21/16	Ligado 1675-1680 MHz	Comments
6/3/16	T-Band Update Report	Ex Parte
5/23/16	Ligado 1545-1555 MHz	Comments
4/21/16	4.9 GHz	Ex Parte (#1)
1/13/16	Wireless Emergency Alerts	Comments



## 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

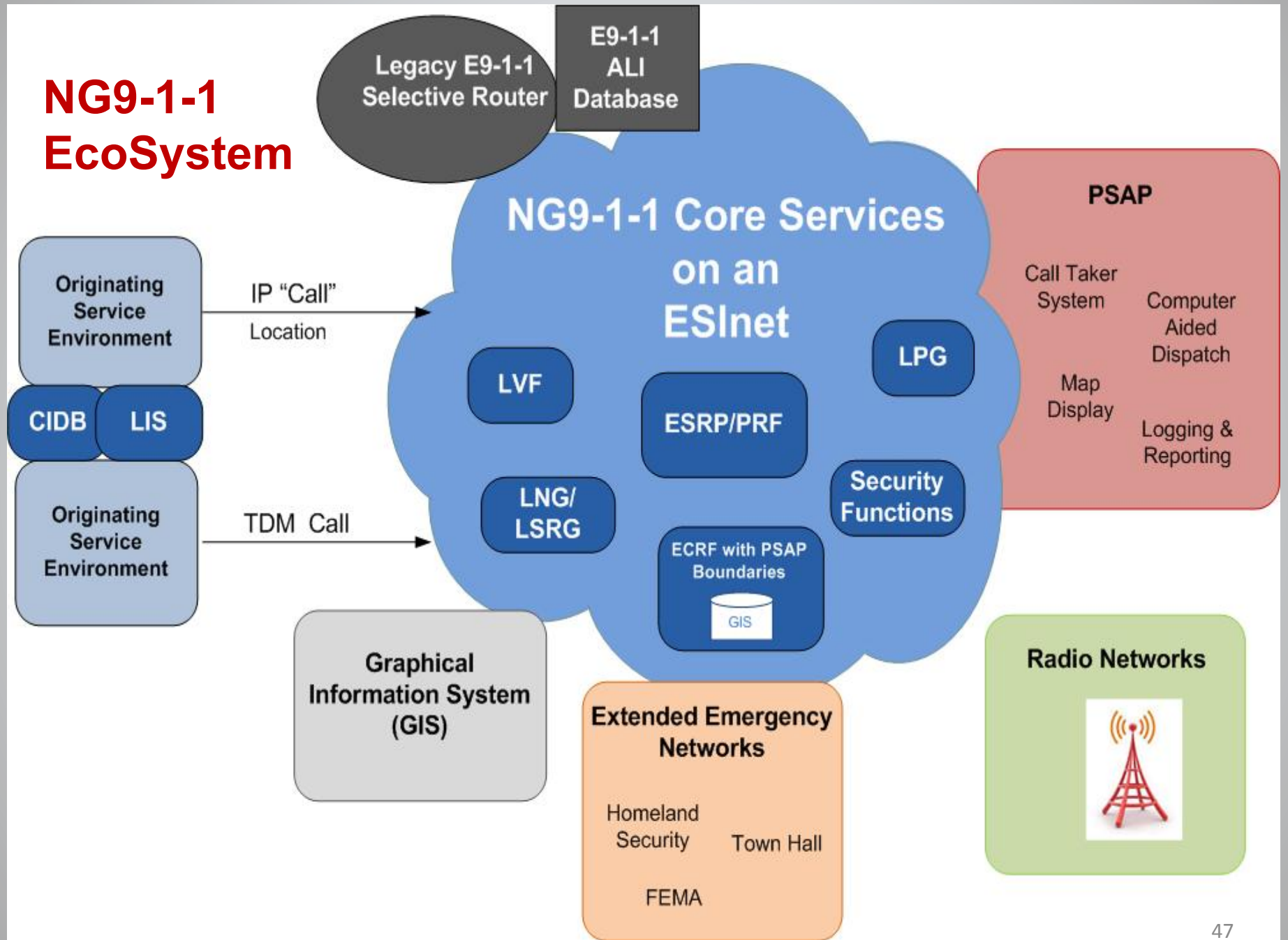
*Fully replace E9-1-1 while retaining the capabilities and functions in place today*

*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*

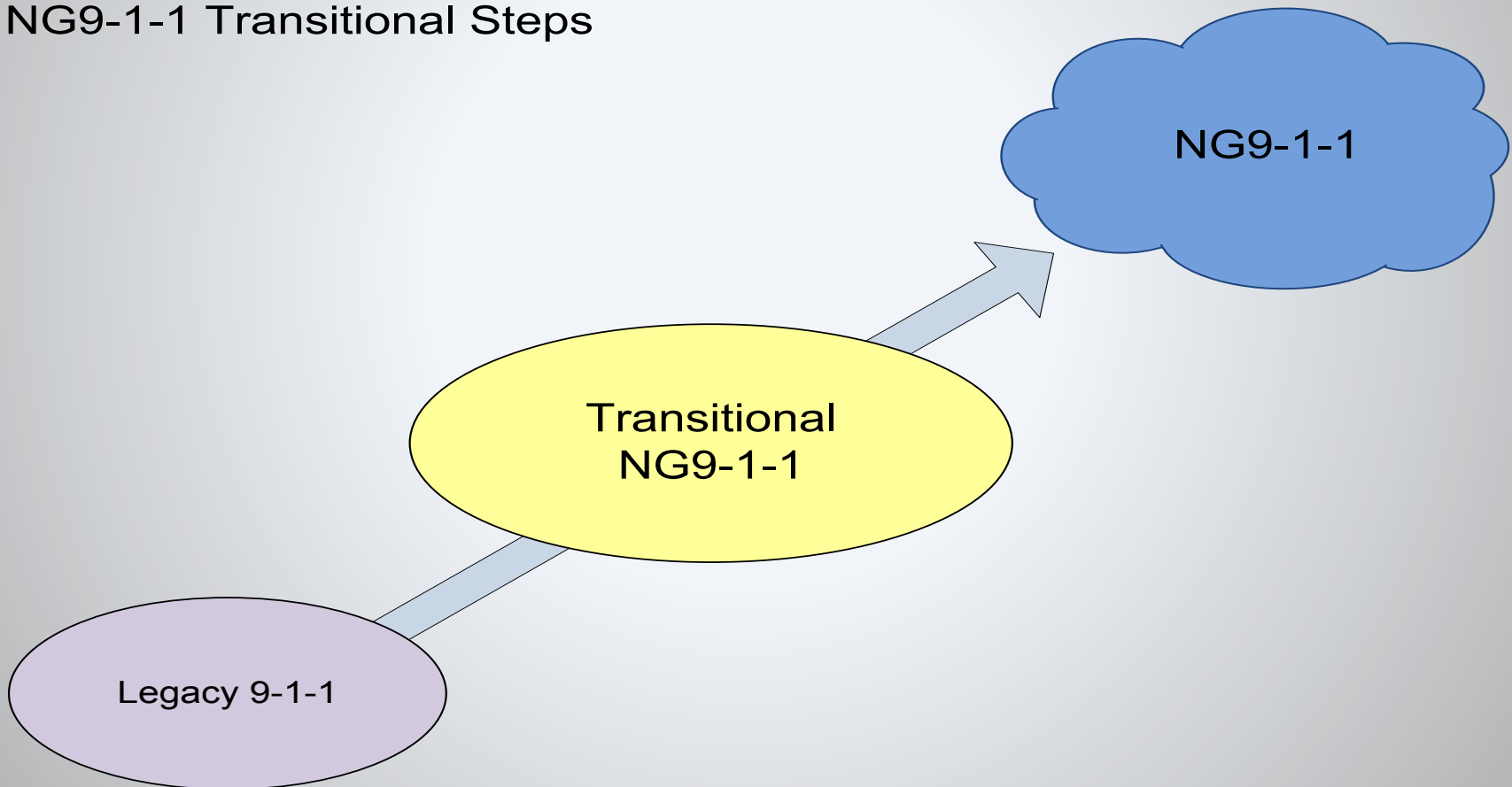
*Add capabilities to integrate and interoperate with emergency entities beyond the PSAP*

# NG9-1-1 EcoSystem



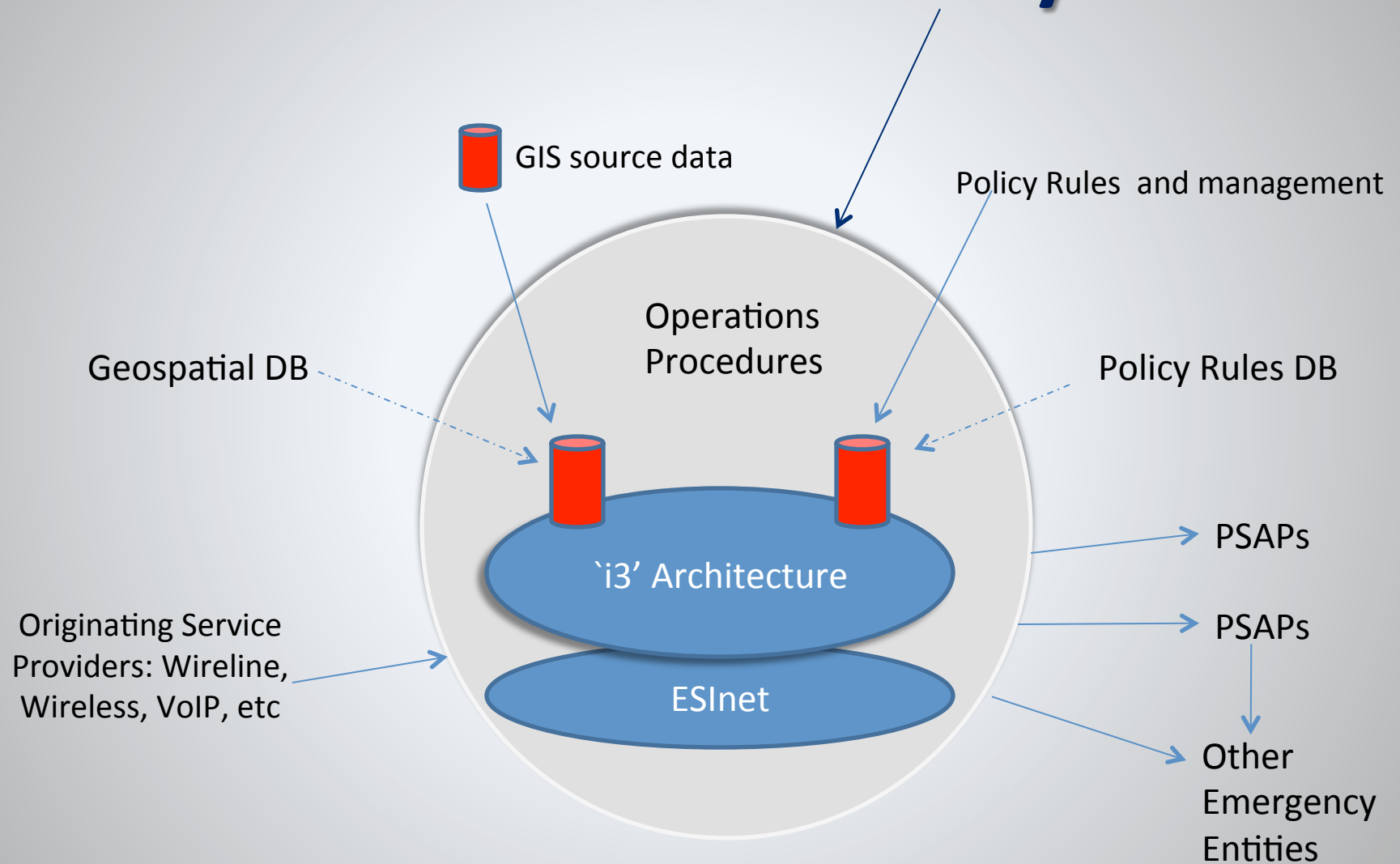
# NG9-1-1 Transition Steps

NG9-1-1 Transitional Steps





# NENA NG9-1-1 Core System



NG9-1-1, ESInet, and 'i3' are *not* equivalent terms !

# 9-1-1 Today & Tomorrow

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



\* These services require next generation originating networks as well as Next Generation 9-1-1

# ***NG9-1-1 DATA EVOLUTION***

- ***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 NEW CAPABILITIES***

***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***



# ***NG9-1-1 NEW CAPABILITIES***

***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***

# *NG9-1-1 NEW CAPABILITIES*

## **Data Sharing & Situational**

**Sharing**



**Av**

**dat**

**management of  
large scale incidents**

**Increasing opportunities for mutual aid and**

**PSAP collaboration/cooperation**



# *NG9-1-1 NEW CAPABILITIES*

## *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)**

# ***NG9-1-1 NEW CAPABILITIES***

## ***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

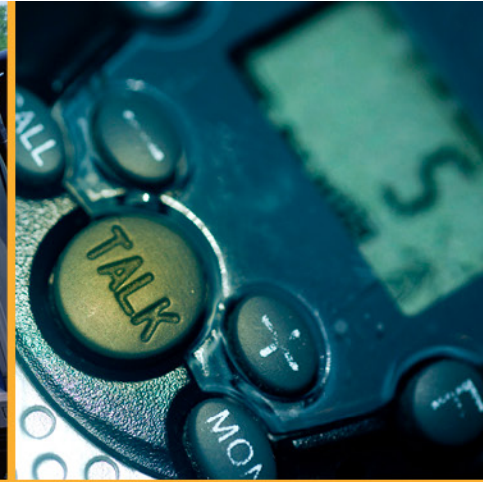


# Resources

- 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>.
- National Emergency Number Association (NENA) - *Funding 9-1-1 Into the Next Generation: An Overview of NG9-1-1 Funding Model Options for Consideration*, March 2007. <http://www.nena.org/sites/default/files/NGFundingReport.pdf>
- 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-planning>
- National Emergency Number Association (NENA) – *Next Generation 9-1-1 Policy Implementation Handbook* - available on the NENA website
- National Association of State 9-1-1 Administrators (NASNA) - *Model State 9-1-1 Plan*, July 2008. [http://www.nena.org/sites/default/files/NASNA\\_Model%20State%209-1-1%20Plan.pdf](http://www.nena.org/sites/default/files/NASNA_Model%20State%209-1-1%20Plan.pdf)
- Texas Commission on State Emergency Communications (CSEC) - *Next Generation 9-1-1 Master Plan*, February 2009. [http://www.911.state.tx.us/files/pdfs/ng911\\_master\\_plan\\_feb\\_2009.pdf](http://www.911.state.tx.us/files/pdfs/ng911_master_plan_feb_2009.pdf)

# 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](http://www.its.dot.gov/ng911/ng911_pubs.htm)
  - *Next Generation 9-1-1 System Initiative Procurement Tool Kit*.  
[http://www.its.dot.gov/ng911/pdf/USDOT\\_NG911\\_Procurement\\_ToolKit\\_2009.pdf](http://www.its.dot.gov/ng911/pdf/USDOT_NG911_Procurement_ToolKit_2009.pdf)
  - *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](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*.  
[http://www.its.dot.gov/ng911/pdf/USDOT\\_NG911\\_FINAL\\_System\\_Design.pdf](http://www.its.dot.gov/ng911/pdf/USDOT_NG911_FINAL_System_Design.pdf)
  - *Next Generation 9-1-1 System Initiative - Transition Plan*.  
[http://www.its.dot.gov/ng911/pdf/NG911\\_Transition\\_PlanFinal.pdf](http://www.its.dot.gov/ng911/pdf/NG911_Transition_PlanFinal.pdf)
  - *Next Generation 9-1-1 System Initiative - Proof of Concept Testing Report*.  
[http://www.its.dot.gov/ng911/pdf/NG911\\_POCTesTReport091708.pdf](http://www.its.dot.gov/ng911/pdf/NG911_POCTesTReport091708.pdf)



## Organizations Update continued

### Project 25 Technology Interest Group (PTIG) – Steve Nichols, Director

The member organizations of the National Public Safety Telecommunications Council are grateful to the Department of Homeland Security's Science and Technology Directorate, Office for Interoperability and Compatibility (OIC) and the National Protection and Programs Directorate, Office of Emergency Communications (OEC) Points of view or opinions expressed are those of the originators and do not necessarily represent the official position or policies of the U.S. Department of Homeland Security.





**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](http://www.project25.org)**



# Project 25 Technology Interest Group

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Friday, September 23, 2016

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- PURPOSE
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### The Latest News

**P25 Foundations and P25 User Experience IWCE PPTs now available**

**MissionCritical Communications Publishes P25 E-Book**

**PTIG Publishes Updated Frequently Asked Question (FAQ) Resource v1.3**

**Project 25 Testing Update Report by Compliance Testing LLC**

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

### Upcoming Events

P25 Standards Meetings TIA TR-8 Philadelphia PA  
October 18 - 20, 2016

IWCE 2017 Las Vegas NV  
March 27 - 31, 2017



## Welcome to the Project 25 Technology Interest Group

The Project 25 Technology Interest Group (PTIG) brings you this web site to provide information on all topics concerning Project 25.

Please register on the site for access to additional information. If you previously registered prior to June 2010, a new registration is required. This is to assure we have current and accurate information.

Registration is required to maintain a spam free site for you. No Fees are required for website registration.

**PTIG MEMBERS NOTE:** When your individual registration is validated for affiliation to a paid membership or a commercial member company, your registration will provide member access privileges.

Use the dialog box titled **"Contact Us"** on the home page for any inquiries about registration and membership.

**This site is the official home of PTIG and our P25 community.** Your suggestions and comments are always welcome. Use the dialog box titled **"Contact Us"** on the home page to make your suggestions, offer comments, or seek more information.

- List of P25 Trunking Systems
- List of P25 Conventional Systems
- P25 Frequently Asked Questions
- P25 Feature Translator
- P25 Standards latest Update
- P25 Steering Committee Approved List of Standards
- P25 Capabilities Guide

## What is Project 25?

Project 25 (P25) is the standard for the design and manufacture of interoperable digital two-way wireless communications products. Developed in North America

## Why P25?

Project 25 enables successful fulfillment of these factors so critical to public safety operations and use of two-way radio communications in the field.



[WWW.Project25.org](http://WWW.Project25.org)

New Documents available at [www.Project25.org](http://www.Project25.org)



## P25 Frequently Asked Questions (FAQ) Update Sept 2016

- 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.

New Documents available at [www.Project25.org](http://www.Project25.org)



## P25 Frequently Asked Questions (FAQ) Update Sept 2016

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.

New Documents available at [www.Project25.org](http://www.Project25.org)



## P25 Frequently Asked Questions (FAQ) Update Sept 2016

### 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?

New Documents available at [www.Project25.org](http://www.Project25.org)



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

- 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 Documents available at [www.Project25.org](http://www.Project25.org)



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

### Trunking System List Format

System Totals: P25 839 Trunking Systems P25 Phase 1: 693 systems P25 Phase 2: 146 systems						
STATE	SYSTEM NAME	P25	P25	Comments	System User	Freq. Band
<b>Alabama</b>	Alabama Regional Communications Sys	Phase 1		New	Public Safety	800
	Center for Domestic Preparedness	Phase 1			1st Responders	UHF Lo
	Dothan	Phase 1			Public Safety	800
	Fort Benning Military	Phase 1			DOD	UHF Lo
	Fort Rucker	Phase 1			DOD	VHF
	Gadsden & Etowah County	Phase 1			Public Safety	700
	Jefferson County	Phase 1			Public Safety	800
	Marshall Space Flight Center	Phase 1			Fed Agency	UHF Lo
	Maxwell Air Force Base	Phase 1			DOD	UHF Lo
	<b>10</b>	Montgomery Metro Comm Coop District	Phase 1			Public Safety
	<b>Alabama First Responder Network</b>		Phase 2		Public Safety	700/800
	<b>Anniston Army Depot ANAD</b>		Phase 2		Public Safety	UHF Lo
<b>3</b>	<b>Shelby County First Responders</b>		Phase 2		Public Safety	VHF

New Documents available at [www.Project25.org](http://www.Project25.org)



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

### Conventional System List Format

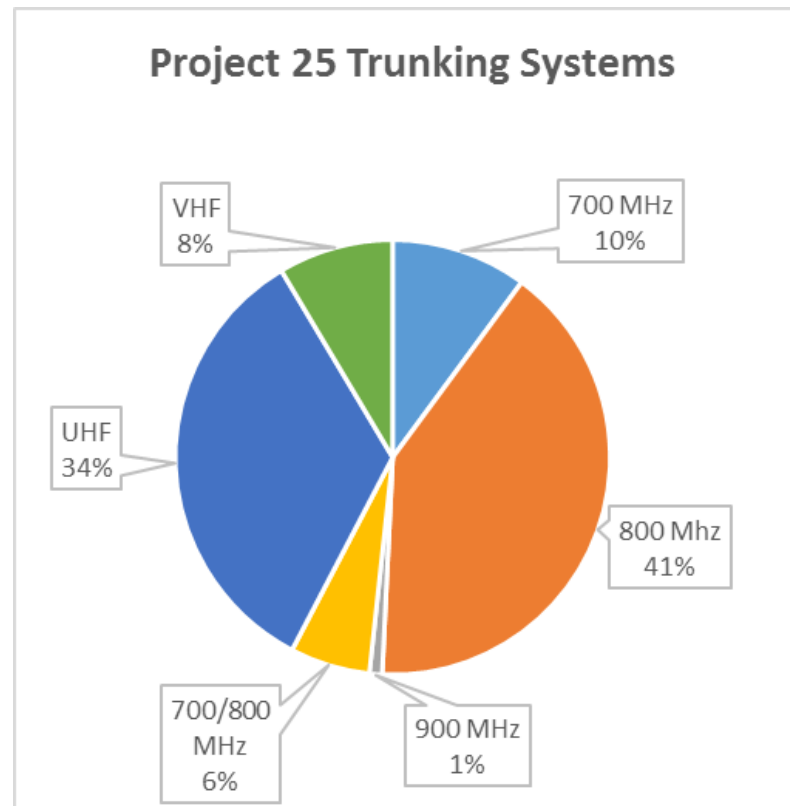
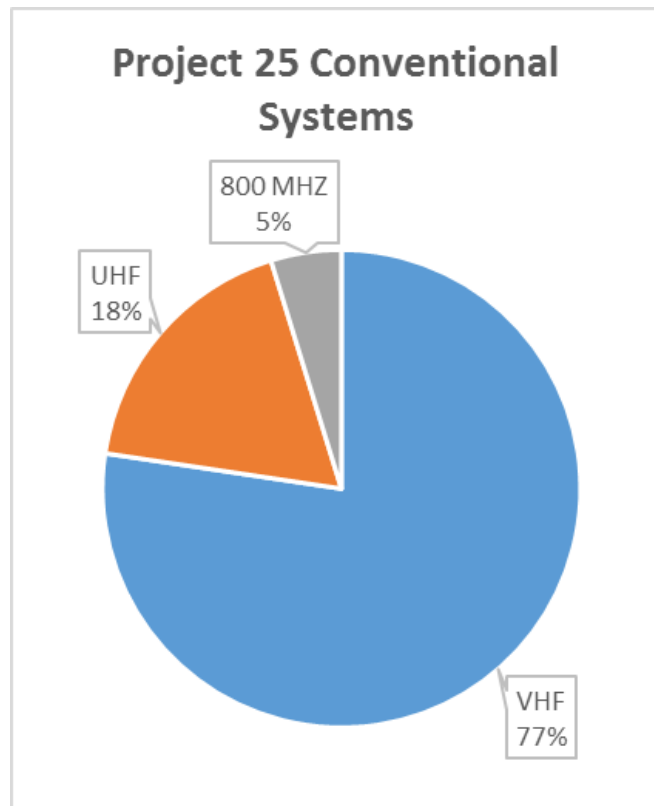
<b>Florida</b>	<b>FL Dept. of Corrections Reg 1</b>	<b>Phase 1</b>	<b>Mix Mode</b>	<b>Corrections</b>	<b>800</b>	
	<b>Region 3</b>	<b>Phase 1</b>	<b>Mix Mode</b>	<b>Corrections</b>	<b>800</b>	
	<b>Civil Air Patrol</b>	<b>Phase 1</b>	<b>Mix Mode</b>	<b>CAP</b>	<b>VHF</b>	
	<b>Customs &amp; Border Protection</b>	<b>Phase 1</b>		<b>Federal</b>	<b>VHF</b>	
	<b>FBI</b>	<b>Phase 1</b>		<b>Federal</b>	<b>VHF</b>	
	<b>United States Coast Guard</b>	<b>Phase 1</b>	<b>Mix Mode</b>	<b>Federal</b>	<b>VHF/UHF Lo</b>	
	<b>National Park Service</b>	<b>Phase 1</b>		<b>Federal</b>	<b>VHF</b>	
	<b>Bay County - Lynn Haven</b>	<b>Phase 1</b>		<b>Law Enforcement</b>	<b>UHF Lo</b>	
	<b>Brevard County - Port Canaveral</b>	<b>Phase 1</b>	<b>Mix Mode</b>	<b>Security</b>	<b>VHF</b>	
	<b>Broward County - Fort Lauderdale</b>	<b>Phase 1</b>	<b>Mix Mode</b>	<b>Public Safety</b>	<b>UHF Lo</b>	
	<b>Calhoun County</b>	<b>Phase 1</b>	<b>Mix Mode</b>	<b>Public Safety</b>	<b>UHF Lo</b>	
	<b>St. Lucie County</b>	<b>Phase 1</b>		<b>College</b>	<b>UHF Lo</b>	
	<b>West Palm Beach</b>	<b>Phase 1</b>	<b>Mix Mode</b>	<b>Law Enforcement</b>	<b>800</b>	





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

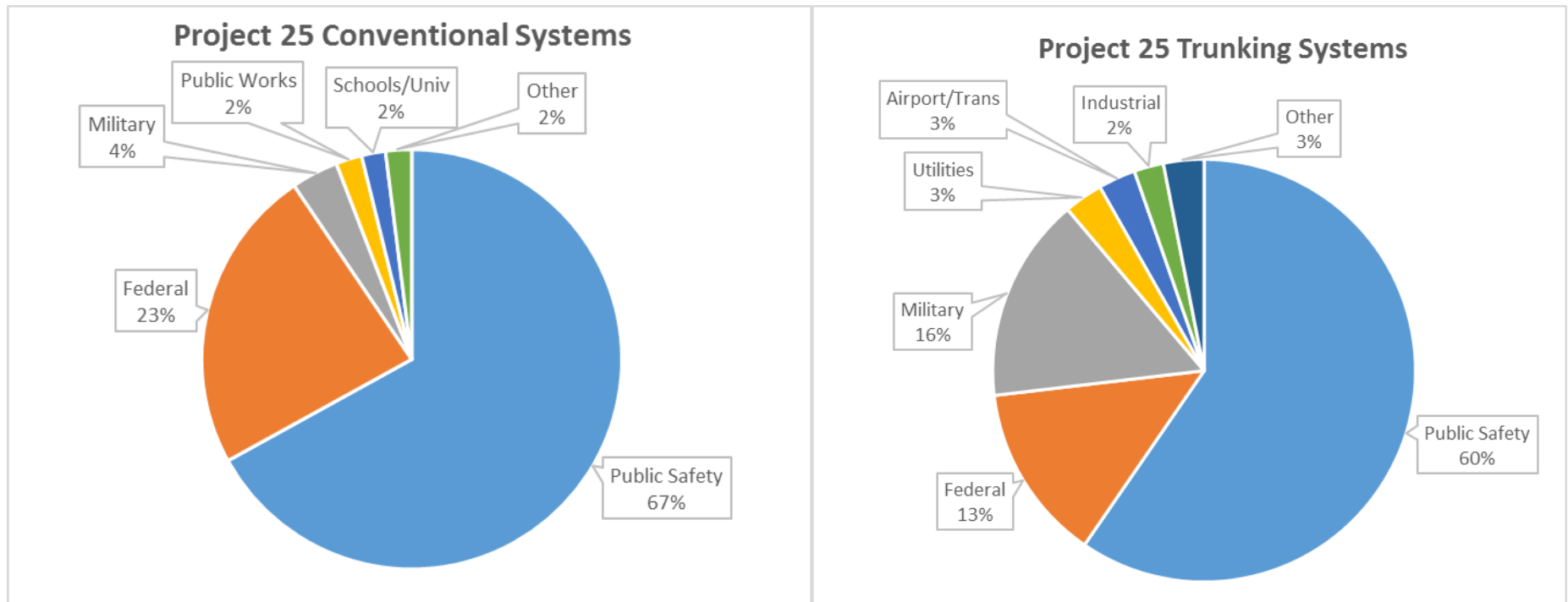
### Frequency Bands in Use for P25





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

### User Categories for P25



# Project 25 Technology Interest Group (PTIG)



## Other P25 Resource Documents available at [www.Project25.org](http://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*

# Project 25 Technology Interest Group (PTIG)



## Recent PTIG P25 Whitepapers at [www.Project25.org](http://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](http://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](http://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](mailto:director@project25.org)



# Administrative Discussion

The member organizations of the National Public Safety Telecommunications Council are grateful to the Department of Homeland Security's Science and Technology Directorate, Office for Interoperability and Compatibility (OIC) and the National Protection and Programs Directorate, Office of Emergency Communications (OEC) Points of view or opinions expressed are those of the originators and do not necessarily represent the official position or policies of the U.S. Department of Homeland Security.

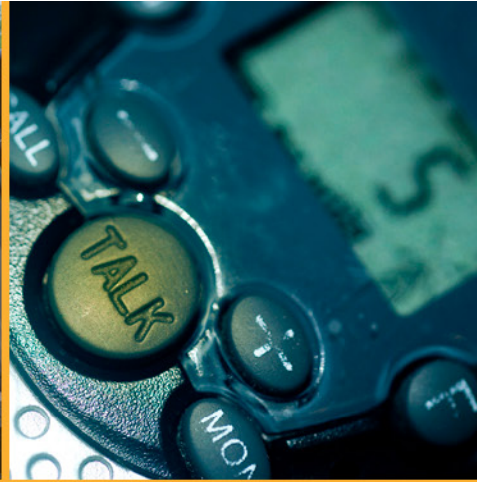
# Administrative Discussion

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- Future Meetings
  - Teleconference – Tuesday, January 24, 2017
  - IWCE – Friday, March 31, 2017





## Executive Level IV Session

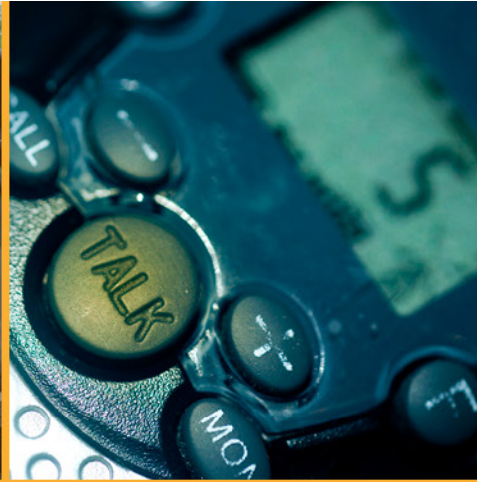
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# Executive Level IV Session

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- 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

The member organizations of the National Public Safety Telecommunications Council are grateful to the Department of Homeland Security's Science and Technology Directorate, Office for Interoperability and Compatibility (OIC) and the National Protection and Programs Directorate, Office of Emergency Communications (OEC) Points of view or opinions expressed are those of the originators and do not necessarily represent the official position or policies of the U.S. Department of Homeland Security.