

Full NPSTC Meeting

Tuesday, Jan 09, 2018

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

Screen Share: <https://join.me/NPSTCsupport1>

Submit Questions Online

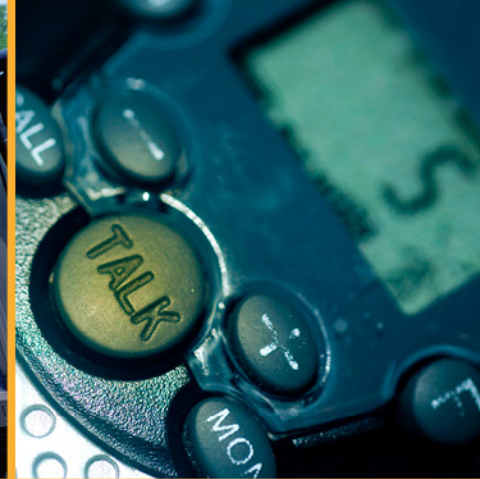
Send email to support@npstc.org

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Welcome and Opening



- Ralph Haller, NPSTC Chair
 - Call to Order
 - Roll Call via attend
- Technical Tips
 - Webinar Access Information: <https://join.me/NPSTCsupport1>
 - Online participants submit questions to support@npstc.org. Do NOT use the the join.me chat bubble, it will be displayed to all.
 - To mute your phone, press *6, NOT hold.
 - Email attendance to attend@npstc.org.



Federal Partners Update

Department of Homeland Security (DHS), Office for Interoperability and Compatibility (OIC)

Denis Gusty, Program Manager and Sridar Kowdley, Program Manager

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DHS SCIENCE AND TECHNOLOGY

The Canada – U.S. Enhanced Resiliency Experiment (CAUSE V)

NPSTC January Meeting
January 9, 2018



**Homeland
Security**

Science and Technology

Denis Gusty
Project Manager
First Responders Group
Science and Technology Directorate

Outline

- Introduction and Objectives
- CAUSE V Scenario
- Technology Demonstrations
- Next Steps
- Q&A

The CAUSE Resilience Series

Overview

CAUSE is a **joint effort** between DHS Science & Technology (S&T) and the Defence Research and Development Canada's Centre for Security Science (DRDC-CSS).

The focus: enhancing cross-border capabilities, including **communications interoperability, shared situational awareness, mutual aid and information-sharing.**



Canadian Safety
and Security Program



Homeland
Security

Science and Technology

The CAUSE Resilience Series

Objectives

- **Connect, test and demonstrate** emerging operational technologies
- **Advance emergency management** and responder situational awareness capabilities
- **Demonstrate value** of federal Science and Technology investments
- Demonstrate **enhanced resilience** through improved interoperable shared situational awareness and mutual aid during major events
- Enhance resilience in border region by **leaving behind** working operational interfaces, processes, training and exercises that will improve shared situational awareness
- Execute CAUSE V as catalyst to **build trust relationships** in support of the Beyond the Border Action Plan

The CAUSE Resilience Series

Background

- June 2011 **CAUSE I:** British Columbia/Washington Earthquake Scenario
- March 2013 **CAUSE II:** New Brunswick/Maine Train Derailment/Industrial Accident Scenario
- November 2014 **CAUSE III:** East – Hurricane West- Wildland Fire Scenarios
- April 2016 **CAUSE IV:** Michigan/Ontario Tornado Scenario
- November 2017 **CAUSE V:** Washington/British Columbia - Volcano Scenario



Project Leads & Partners

Project Leads

- **U.S.:** U.S. Department of Homeland Security Science & Technology Directorate (DHS S&T)
- **Canada:** Defence Research and Development Canada Centre for Security Science (DRDC-CSS)

Partner Agencies

- **U.S.:** DHS Office of Emergency Communications (OEC), CANUS Communications Interoperability Working Group (CIWG), National Information Sharing Consortium (NISC), DHS Social Media Working Group (SMWG), Texas A&M University
- **Canada:** Public Safety Canada, Communications Research Center



Homeland
Security

Science and Technology

Canadian Safety
and Security Program



NISC National Information
Sharing Consortium



Public Safety
Canada

Sécurité publique
Canada

Participants

CAUSE V would be impossible without the contributions of dedicated Partners

Participants in the experiment included representatives from 24 local, state and federal agencies, as well as industry and utility partners.



Regional Significance

- Location of 3 border crossings:
 - 3rd busiest overall along northern border (Blaine-Surrey)
 - 2nd busiest truck crossing
- Major hub for regional energy transmission:
 - Natural Gas pipeline (3.8 billion cubic ft/day)
 - 3 Hydroelectric facilities feeding major metro area
- Agriculture: top producer of berries in U.S.
- Natural Resources: Salmon fishery, timber industry
- Tourism: Mt. Baker Ski resort

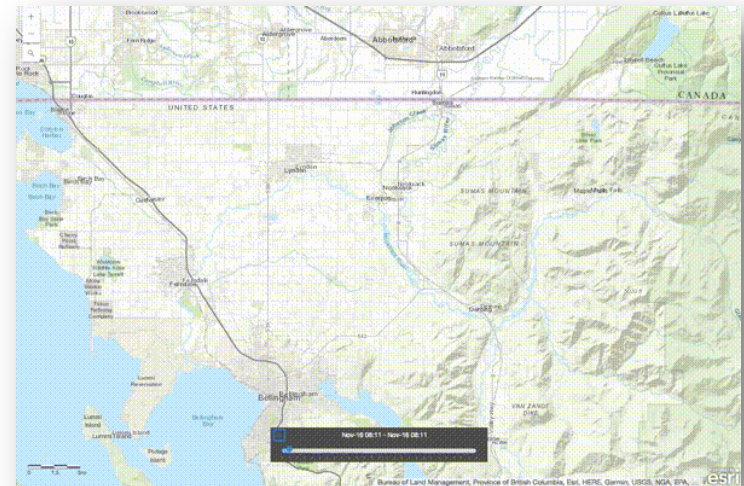


Experiment Scenario

- **Real-life threat** – Mt. Baker is an active volcano, last eruption ~6500 years ago
- Eruption and subsequent collapse of the Sherman Crater on Mt. Baker resulting in lahars extending through the Nooksack River watershed.
- 8-12 feet of lahar deposition across broad area



Image credit: <https://volcanocafe.wordpress.com> (R.Clucas)



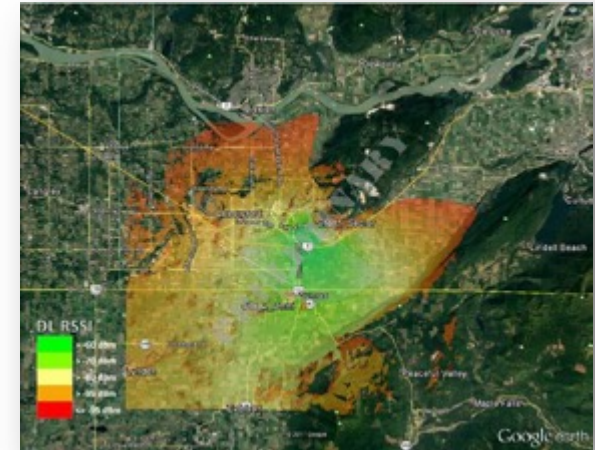
Experiment Objectives

- Leverage **public safety broadband networks** to create a common operating picture to enhance decision making across the many agencies involved;
- **Provide live, or near real time data and imagery from the field** leveraging robots and human to Common Operating Picture (COP) applications in the Emergency Operation Centers (EOC's);
- Explore the use of **digital volunteers to support emergency operations**;
- Test **mutual aid processes**, including moving specialized resources and personnel across the Canada-U.S. border and expediting the pre-vetting process.

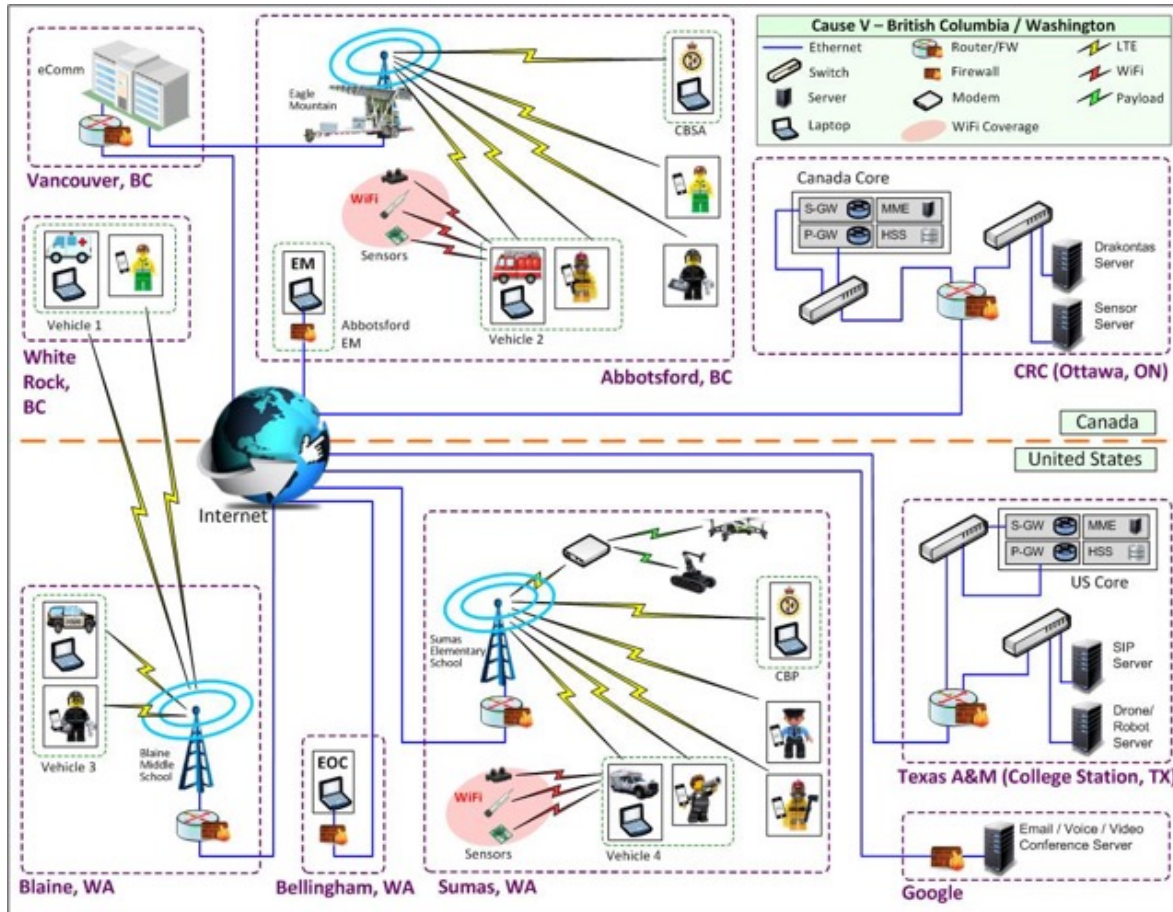


Technology - PSBN Network Overview

- Three public safety broadband wireless (PSBN) bubbles were established at the two border crossings (Blaine and Sumas)
- Participants were provided with PSBN enabled wireless devices to support the following capabilities:
 - GIS-based situational awareness (real-time)
 - Video conferencing/voice/email
 - Information sharing
 - Internet of Things (IoT) – sensors, drones, robots



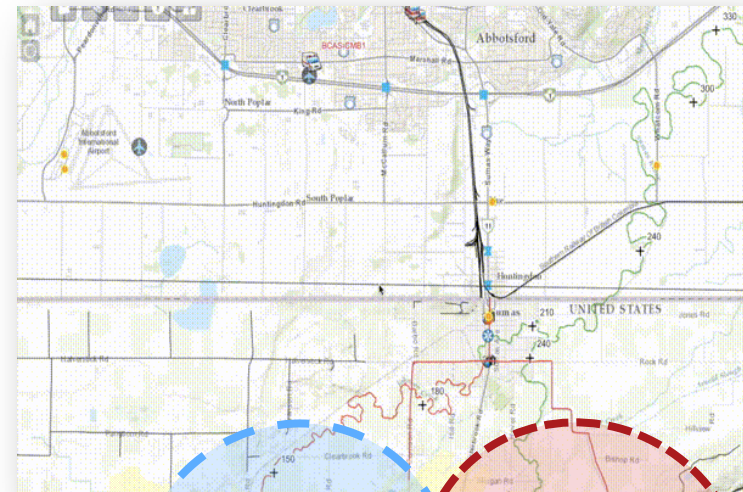
Technology - PSBN Network System Level Diagram



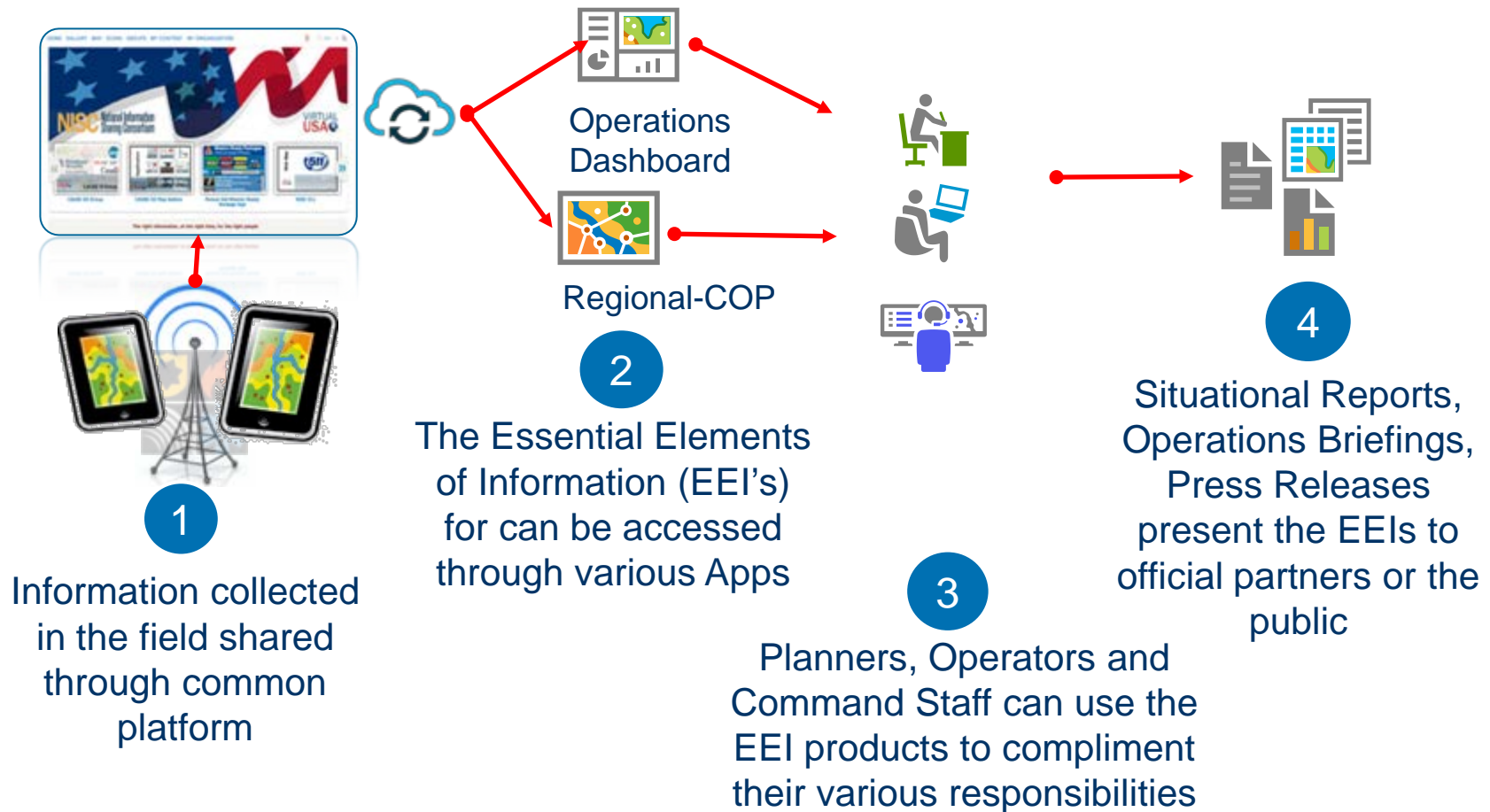
The PSBN provided the backbone for participants to share voice/data from field, and supported robot and sensor integration.

Technology - PSBN Network Highlights

- Participants successfully performed field tests to demonstrate:
 - Traffic prioritization,
 - Load balancing,
 - Pre-emption,
 - Network Access
- *Improvements are still needed in order to enable high-bandwidth applications (e.g., streaming high-resolution aerial imagery), as well as stability improvement in the handheld devices.*

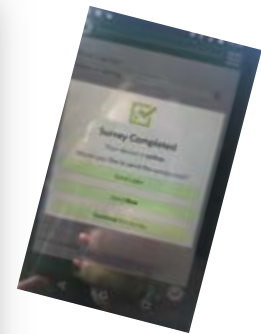
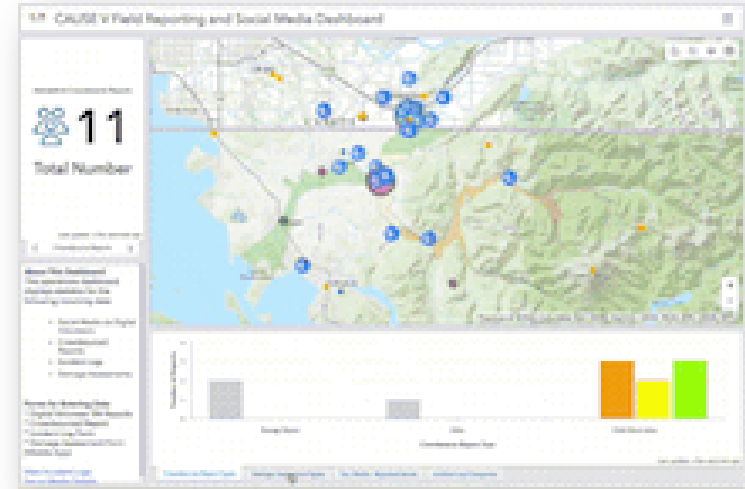


Technology - Situational Awareness Overview



Technology - Situational Awareness Overview

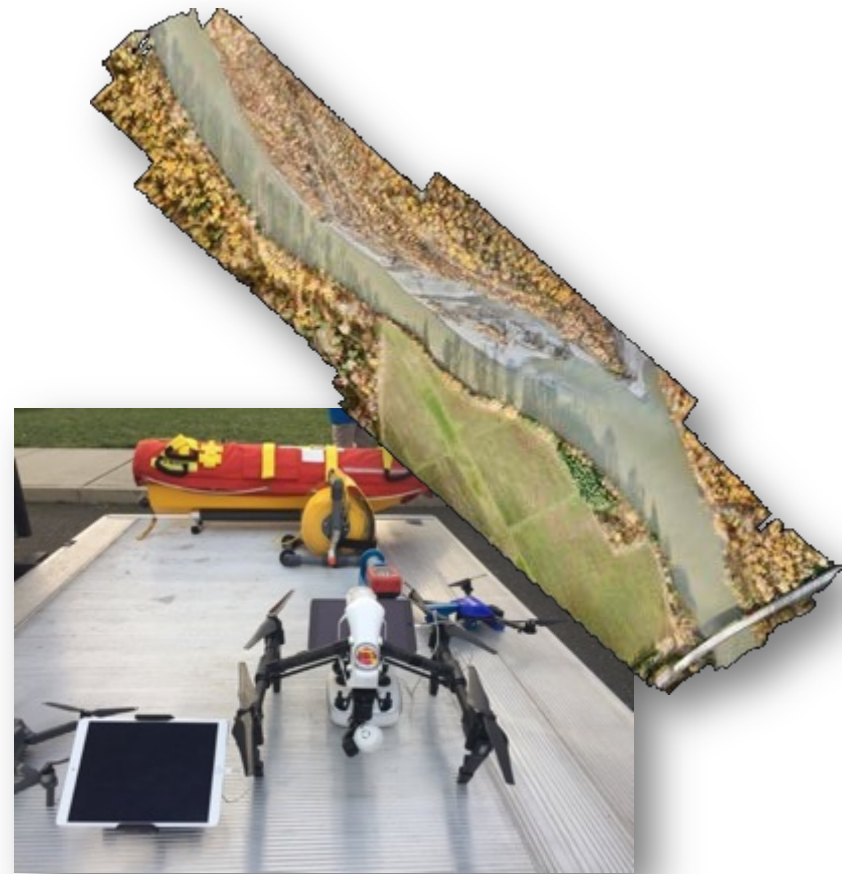
- Tracked location of personnel and vehicles in real-time – shared information back to the EOC
- Reports from the field submitted through digital forms and displayed in interactive dashboards
- Time-based lahar map provided support for planning efforts



Technology - Situational Awareness

Robots / UAV and UAS Missions

- 12 missions conducted during the experiment
- Unmanned Aerial Vehicles (UAVs) streamed videos to EOC over test PSBN and captured imagery for ortho-mosaic maps
- Unmanned Submersible Vehicles (UAS) conducted water-based search and rescue missions



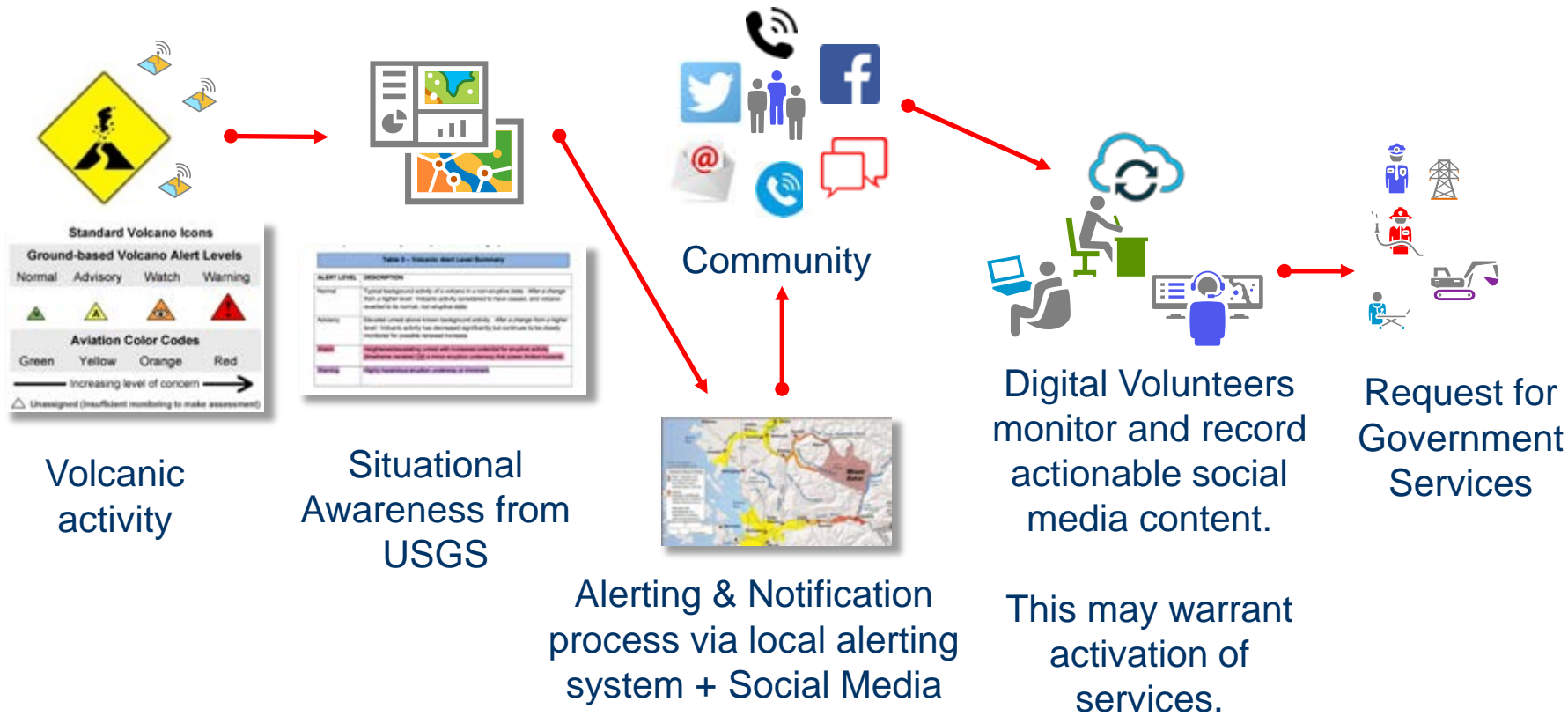
Technology - Situational Awareness Highlights

- **Information from field responders, robots and digital volunteers was successfully shared** over a common platform and visualized by all participants.
- *Participants suggested more work is still needed to integrate single sign-on capabilities, standardize symbology, and optimize viewers to prevent information overload while still letting them drill down into the information to get the detail needed.*

Technology - Situational Awareness Highlights

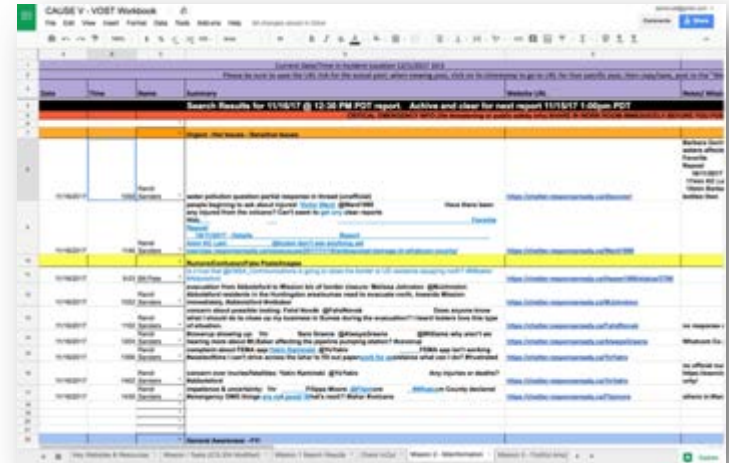
- **Participants used the technology available during the experiment to create new analyses and maps and shared these with other players during the experiment over the common platform and help provide valuable input to decision makers.**
- *Participants indicated that additional hands-on training was important to fully leverage the technology tested during the experiment.*

Digital Volunteer Support Workflow for Reporting Actionable Information



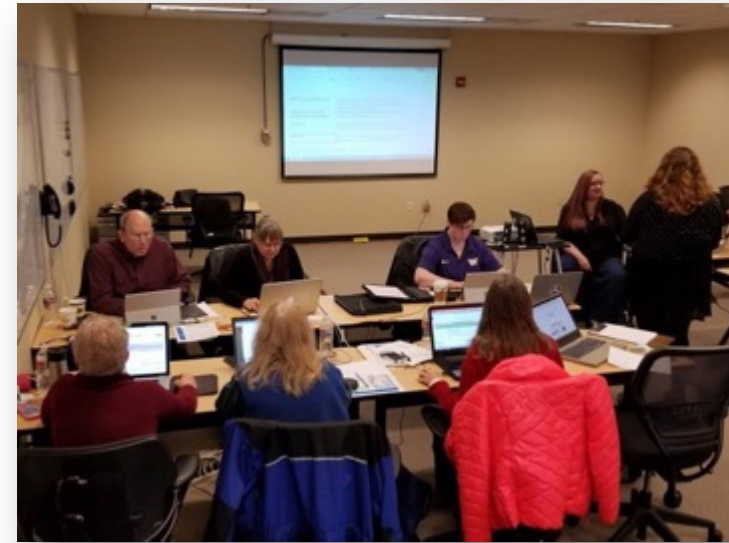
Digital Volunteer Support Highlights

- Two trained Digital Volunteer / Virtual Operations Support Teams (VOSTs) monitored simulated social media platform to identify misinformation, and other topics
- Identified >100 messages with mission-critical information from > 700 social media posts
- Shared information to the EOC using digital forms



Digital Volunteer Support Highlights

- Since the experiment concluded, members from these teams have activated twice to support real-life response activities.
- *For the digital volunteer teams to be fully operational, procedures need to be implemented to ensure coordination with Public Information Officers (PIO) and the Joint Information Center (JIC).*



What's Next?

- After Action Report and Video
– March/April 2018
- Transition CAUSE leave-behinds to the National Information Sharing Consortium (NISC)



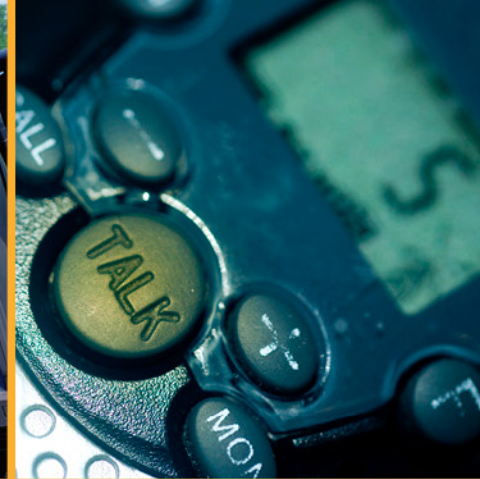
Questions & Answers





Homeland Security

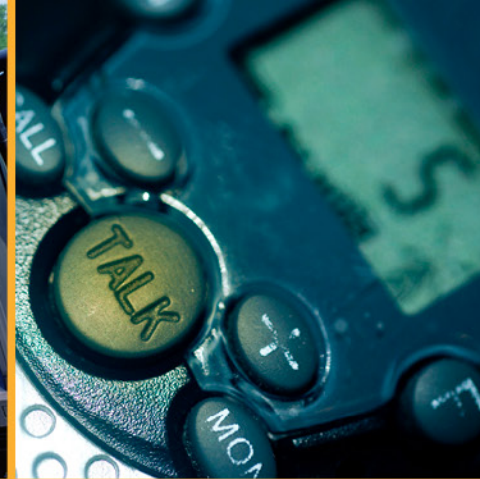
Science and Technology



Federal Partners Update *(continued)*

Department of Homeland Security (DHS), Office of Emergency Communications (OEC) – Ron Hewitt, Director

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FirstNet NPSBN Development

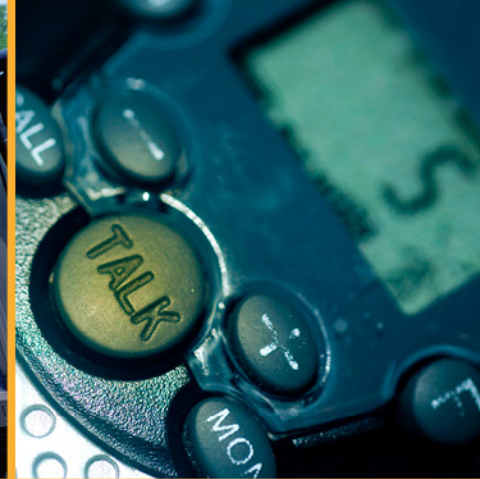
FirstNet

Kevin McGinnis, Board Member

Public Safety Advisory Committee

Tom Sorley, Committee Chair

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Technology and Broadband Committee

**Kim Coleman Madsen, Committee Chair;
Andy Thiessen, Vice Chair, Dr. Michael Britt, Vice Chair**

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Public Safety Communications Research (PSCR)

Dereck Orr, Acting NIST CTL Lab Director, PSCR Division Chief

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LMR LTE Integration and Interoperability Working Group

Chris Kindelspire, Chair

LMR to LTE Integration and Interoperability Working Group



- The LMR LTE Integration and Interoperability Report has been approved by the Governing Board.
 - The report will be transmitted to the FirstNet PSAC for review.
 - The report will be transmitted to TIA for consideration of recommendations.
- Additional Governing Board comments on report?
- Chapter 5 of the report contained recommendations for additional work by the LMR LTE Working Group.

LMR to LTE Integration and Interoperability Working Group



- Recommendation:
 - Page 45: PSAP Consoles:
Additional first responder input is needed to help define needed capabilities for these devices (dispatch consoles).
 - **Recommendation:** NPSTC produced an early report on LTE console functionality that should be refreshed.

LMR to LTE Integration and Interoperability Working Group



- Recommendations, continued:
 - Page 46: Digital Voice Encryption
Digital voice encryption is an important component for certain communications occurring exclusively on MCPTT talkgroups. Certain technical, standards, and policy issues must be addressed and more information is needed on how encryption is managed on a nationwide network and to what extent local public safety agencies will have control over management of local encryption keys. Most public safety agencies tightly manage these resources and limit the sharing of encryption keys with other agencies. However, the NPSBN will allow nationwide MCPTT interoperability and thus introduce challenges with the effective implementation of encryption.
 - **Recommendation:** NPSTC should task the LMR LTE Integration and Interoperability Working Group to further study this issue.

LMR to LTE Integration Working Group



- Recommendations, continued:
 - Page 46: LTE Talkgroup Management
Work is needed to assess technical and policy issues regarding the creation and management of LTE talkgroups. As the Working Group was discussing the need to interconnect LMR and LTE talkgroups, it became apparent that the NPSBN will be supporting thousands of LTE talkgroups. Management of LTE talkgroups, including Talkgroup IDs and Talkgroup Aliases are needed to prevent technical and operational challenges involving duplicate IDs and names.
 - **Recommendation:** NPSTC should task the LMR LTE Integration and Interoperability Working Group to further study this issue.

LMR to LTE Integration and Interoperability Working Group



- Recommendations, continued:

- Page 46: Talkgroup PTT ID

A nationwide standard is needed to define creation of PTT IDs by public safety agencies. As the Working Group was discussing the need for MCPTT IDs to be exchanged with LMR PTT IDs, it became apparent that a standard will be needed to manage this information. This includes procedures for regionalization of nationwide LTE talkgroup coverage and the establishment of regional (state or multi-county) LTE interoperability talkgroup standards. FirstNet is providing a nationwide interoperable communications network that will allow first responder devices to operate virtually anywhere. The identity of the first responder is a critical safety feature and some form of identification is needed for itinerant users who have traveled outside of their home agency service area.

- **Recommendation:** NPSTC should task the LMR LTE Integration and Interoperability Working Group to further study this issue.

LMR to LTE Integration and Interoperability Working Group



- Action Needed:
 - Governing Board approval of Chapter 5 recommendations to allow LMR LTE Integration and Interoperability Working Group to continue their efforts.



Public Safety Internet of Things (IoT) Working Group

Barry Fraser, Chair

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Public Safety Internet of Things (IoT) Working Group



- Transition from survey of the landscape to development of deliverables:
 - Goal: Develop use cases specific to LE, Fire, EMS, and PSAP operations.
 - Goal: Continue focused investigation of specific technology solutions and challenges.
 - Goal: Produce targeted outreach materials for LE, Fire, EMS, PSAP highlighting the capabilities and limitations of actionable intelligence.
 - Goal: Determine need for additional Work Group Activities.



Unmanned Aircraft Systems (UAS)/Robotics Working Group

Dr. Michael Britt , Chair

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Unmanned Aircraft Systems (UAS)/Robotics Working Group



- Monitoring the current state of Public Safety UAS
 - First Responder use of UAS devices.
 - Regulatory landscape changes with the FAA.
 - Use of UAS by criminals and drug gangs.

Los Angeles (12/26) reports Riverside, California, police “say they really haven’t seen anything like this before: An alleged drug operation that used a drone to deliver narcotics to customers waiting in a church parking lot.” After the drugs were delivered, “neighbors say, the customers would drive by the home and throw money onto the front lawn.” Police were alerted after neighbors started seeing the drone, and arrested two people on felony drug charges.

Unmanned Aircraft Systems (UAS)/Robotics Working Group



- Monitoring activities of the National Council on Public Safety UAS.
- Finalizing the UAS Aerial Communications Platform report.



Broadband Emerging Technologies Working Group

Kim Coleman Madsen, Chair
Presenting: Dr. Michael Britt

Broadband Emerging Technologies



- Continuing to monitor FirstNet activities and the proposed FirstNet device and application ecosystem.
- January 24th session will feature a Town Hall presentation to discuss public safety agency use of social media during disaster events.
 - Outbound social media messaging to the public.
 - Intelligence gathering from crowd source social media data.
 - Responding to inbound social media messages requesting emergency response.

Broadband Emerging Technologies



- PIO's from several agencies will address their response to these events:
 - Hurricane Harvey
 - Hurricane Irma
 - California Wildland Fires
 - Pulse Nightclub Shooting
- Town Hall Event:
 - Wednesday, January 24th
 - 12:00 noon to 1:30 pm Eastern Time Zone
 - Conference Line Details on NPSTC website, www.npstc.org.



Radio Programming Compatibility Requirements Working Group

Dan Robinson, Chair
Presenting: Dr. Michael Britt

Radio Programming Compatibility Requirements Working Group



- Monitoring TIA efforts to create a standardized process and schema for radio manufacturers to export and import basic radio programming data.
- Working Group will be reviewing Version 7 of the PAM Tool later this month.
 - Will provide updates regarding industry consolidation.
 - Some vendors have merged and changed product lines.
- January meeting of the Radio PCR Working Group was changed to:
 - Thursday, January 25, 2018 | 2:00 p.m. ET



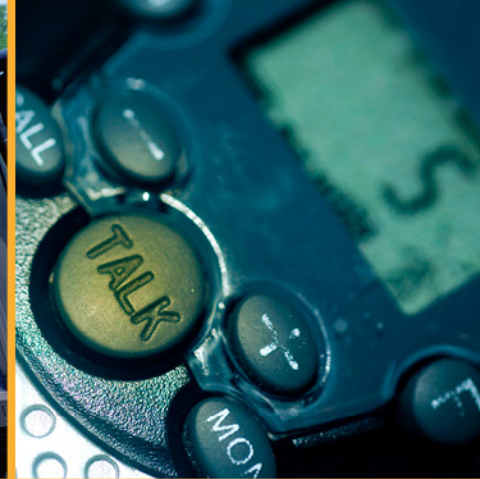
Video Technology Advisory Group (VTAG)

John Contestabile, Chair
Presenting: Dr. Michael Britt

Video Technology Advisory Group (VTAG)



- Working with DHS S&T VQiPS as they plan their annual conference.
 - Tentatively scheduled for May 9 – 10 in Albuquerque, New Mexico
 - Full details to be announced soon.
- Quarterly Working Group meeting will occur on Thursday, January 25, 2018 | 11:00 a.m. ET
 - Presentation on video analytics and redaction.



Spectrum Management Committee

Don Root, Chair

Charlie Sasser, Vice Chair

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Spectrum Management Committee

- Committee Issue Update
 - Don Root
- FCC Forum on Cellular Interference
 - Dave Buchanan, NPSTC and APCO Delegate
 - Jason Matthews NPSTC Delegate
- Federal Communications Commission (FCC) Filings
 - Don Root

Spectrum Committee Update



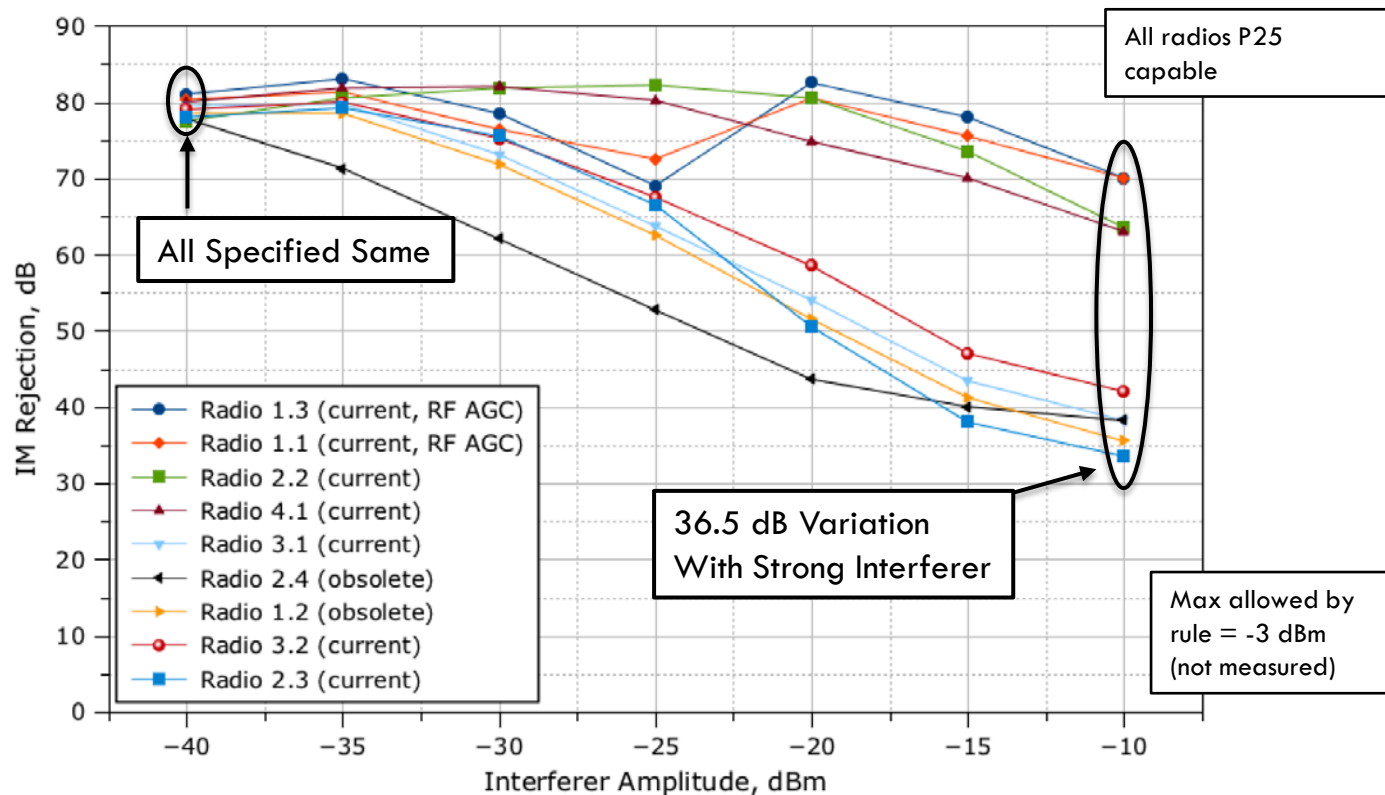
Committee Issue update

- FCC Public Notice Dec. 1 on TAC Spectrum Policy Recommendations
 - Comments due January 31; replies due February 15
 - If ultimately adopted, TAC recommendations would cause major changes in spectrum policy:
 - Greater involvement of receiver standards.
 - “Some interference can be expected and tolerable”.
 - “Quantitative risk assessment can be applied successfully even where safety-of-life is paramount.”
 - Quantitative analysis of interactions between services a pre-requisite to set levels of protection.
- Discussing response on January 12 committee call.

FCC Forum on Cellular Interference

- Follow-up on 800 MHz Cellular Power Level Decision
 - FCC issued a decision March 24, 2017 allowing cellular systems to use power flux density and higher power.
 - Multi-Stakeholder Forum held November 6, 2017.
 - Dave Buchanan and Jason Matthews participated in Forum for NPSTC and APCO

Strong Signal Intermodulation



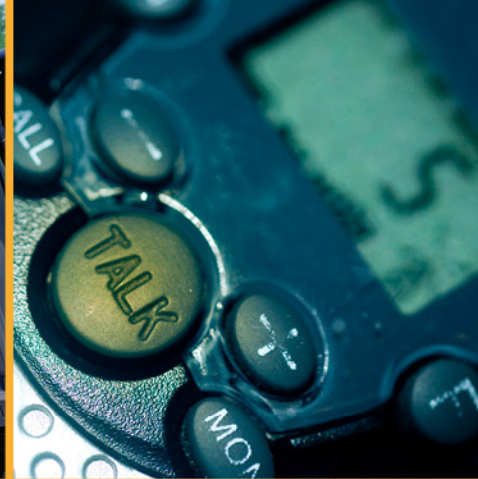
Slide Shown by Pericle Communications Company at FCC Forum

13 NPSTC Regulatory Filings in 2017



Date Filed	Topic	Type of Filing
11/09/17	WRC-19 Draft Positions	Comments
10/30/17	TAC Inquiry on Technical Rules	Comments
10/2/17	3.7-24 GHz Flexible Use NOI	Comments
7/31/17	Blue Alerts	Comments
7/31/17	Arizona Pub Svc Co (Utility)	Comments
6/03/17	WRC-19/LMCC 460-470 MHz	Letter, FCC
5/24/17	Broadband Healthcare	Comments, FCC
5/01/17	700 MHz A-G Border	Comments, FCC
4/12/17	V2V Mandate & Standardization	Comments, DOT/NHTSA
3/24/17	Wilson/Cellular Boosters	Comments, FCC
3/06/17	Higher Ground	Comments, FCC
1/27/17	North Dakota on-VLAW 31	Comments, FCC
1/22/17	P25 Encryption Capabilities	Letter, DHS/OIC

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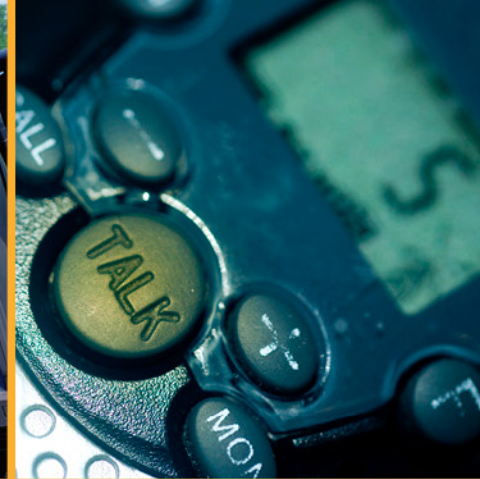


Federal Partners Update *(Continued)*

Federal Communications Commission (FCC)

Michael Wilhelm, Chief, Policy and Licensing Division, Public Safety and Homeland Security Bureau

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Interoperability Committee Discussion

John Lenihan, Interoperability Committee Chair
Jason Matthews, Vice Chair

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Common Channel Naming Working Group

Don Root, Chair

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Common Channel Naming



- Examining how Nationwide LTE Interoperable Talkgroups may function and what type of naming standard may be needed.
 - What is the LTE equivalent of 8CALL90 or UCALL40?
 - What is the LTE equivalent of a nationwide simplex channel?
- First meeting held in December to examine current use of LMR nationwide interoperable channels.
 - Reviewing barriers and challenges with current use.
 - (ex: Does a first responder know if the specific LMR resource is active in that area and is monitored by a dispatch center?)
- January meeting will explore how LTE talkgroups are configured and options for nationwide use.



Emergency Medical Services Working Group

Paul Patrick, Chair

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Emergency Medical Services Working Group



- Continuing to monitor new technology and it's impact on first responders.
 - Published outreach paper on sensor based medical alarms and impact to EMS agencies.
 - Following the deployment of a mobile Tele-stroke unit in the LA area.
 - Used to diagnose and treat stroke patients.
 - Has a broadband data connection to the hospital that support CT scan imaging.
 - Updating the EMS Broadband Applications list created for FirstNet in 2014.



Radio Interoperability Best Practices Working Group

Mark Schroeder, Chair
Presenting: John Lenihan

Radio Interoperability Best Practices Working Group



- Three additional Best Practice Statements were approved by the Governing Board in November:
 - Best Practice #8 – Radio Device Management
 - Best Practice #9 – Deployment for Interoperability Resources
 - Best Practice #10 – Communications Span of Control
- Three final Best Practice Statements were finalized and distributed to the Governing Board last week, in advance of this meeting.
- The last set of reports distributed completes the 13 reports of the Radio Interoperability Best Practices Statements which completes the initial set of recommendations by the Working Group.

Radio Interoperability Best Practices Working Group



- Action Needed:
 - Governing Board approval of the three final Best Practice Statements:
 - Best Practice #11 – Managing Encryption for Interoperability Resources
 - Best Practice #12 – Channel Assignment in High Risk Environments
 - Best Practice #13 – Interoperability Resource Information – Storage and Access

Radio Interoperability Best Practices

Final List of Reports



Radio Interoperability Best Practices Master Report

BP #1 – Nationwide Interoperability Channel Naming and Usage

BP #2 – Interoperability Systems Change Management Practices

BP #3 – Training and Proficiency in the Management and Usage of Interoperability Equipment and Systems

BP #4 – Interoperability Relationships

BP #5 – Infrastructure Management

BP #6 – Channel Assignment Based on Infrastructure Coverage

BP #7 – Interoperability Resources – After Action Reviews

BP #8 – Radio Device Management

BP #9 – Deployment for Interoperability Resources

BP #10 – Communications Span of Control

BP #11 – Managing Encryption for Interoperability Resources

BP #12 – Channel Assignment in High Risk Environments

BP #13 – Interoperability Resource Information – Storage and Access

Radio Interoperability Best Practices Working Group – Next Steps



- The 14 documents will be combined and published as a single document.
- **Action Requested:** Vote to move the Working Group into a monitoring status and to be managed in the Interoperability Committee.
- The Working Group will reactivate as necessary to address radio interoperability best practice issues.
- Special thanks to all of the working group participants who contributed to this process, including researching AAR documents, finding expert recommendations and helping develop these statements.



Cross Border Working Group

Steve Mallory, Chair
Presenting: John Lenihan

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Cross Border Working Group



- Monitoring outcome of recent CAUSE V cross border interoperability experiment sponsored by DHS OIC and OEC and the Canadian government.
 - Simulated explosion and lava flow from Mount Baker at the Washington/British Columbia border.
- In February, will hear a report on the recent meeting of the Western Border Interoperability Working Group (WBIWG) Meeting held at the Coutts/Sweetgrass Border Crossing between Montana and Alberta.
- Continuing to compile a cross border communications channel inventory across the northern border areas.

Cross Border Working Group

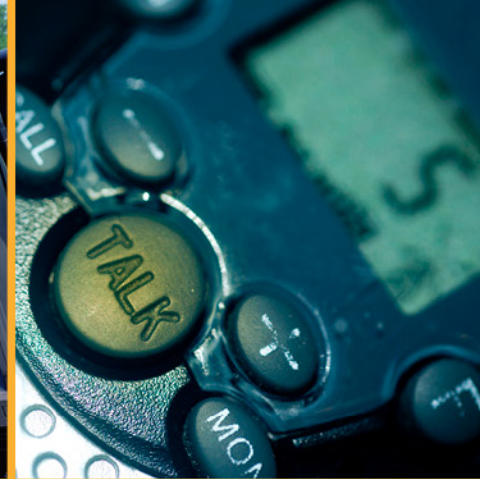


- Waiting for feedback from the cellular carriers on the 9-1-1 data sharing document. Deadline was extended until February when additional smaller carriers along the border were added to the review list.
- Working with the Spectrum Management Committee to monitor FCC actions regarding changes proposed by Canada to the 700 MHz Air to Ground frequencies.
- Working with the Spectrum Management Committee to monitor availability of additional VHF interoperability channels at the U.S./Canadian border.



Upcoming Meetings

Friday, March 9, 2018 | Orlando, FL at IWCE | In Person
Tuesday, May 15, 2018 | Teleconference | Proposed
Wednesday, September 6 & Thursday, September 7, 2018 |
Washington, DC at OCTO | Confirmed



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.