Attachment B — Consolidated list of questions

What is the merit (or otherwise) of the proposed approach to undertaking first principles analysis in this study?

The Merit:
• Priority access and local control
• Enables more coordinated emergency responses
• Improved situational awareness across the entire incident teams
• Coverage based on geography, not just population
• Coverage solutions for metropolitan and rural areas
• Capacity tailored to expected traffic loads and special event spikes

What domestic or international developments, reports or experiences in PSMB (or related matters) are relevant to consider in this study?

Achieving National Objectives for Interoperability
Mutualink is a unique and innovative solution that, due to its low cost and unique capabilities, can serve as your scalable communication foundation for the implementation of community-wide preparedness and response. It unites federal, state and local first responders along with other critical community and private sector security organizations, such as schools, hospitals, shopping malls, stadiums and executive protection forces. Mutualink incorporates NIMS compliant and intuitive call signs and protocols, which can be utilized by all members of a community to better handle incidents of all sizes and types. Mutualink enables access to these resources whenever assistance is quickly required from additional responders who were not previously connected to the incident. By providing a robust and easy to use multimedia interoperable communications platform at a low cost, Mutualink is quickly adopted for use across entire communities and regions, while providing the scalability required for both day to day incidents and for large-scale emergency incidents. [Underlining added to note objectives fulfilled by the Mutualink solution.] The NECP defines three (3) goals that establish a minimum level of interoperable communications and a deadline for federal, state, local and tribal authorities.

Read More: http://www.mutualink.net/PDF/FirstNet-IRAPP-White-Paper-2-19-13.pdf

Read More: https://www.youtube.com/watch?v=bCOqg6ctaFY

What are the implications (if any) of the Australian Government's review of the spectrum policy and management framework, and ACMA's ongoing work on spectrum allocation matters, for the delivery of PSMB in Australia?

N/A

Are there any other PSAs that should be considered within scope in this study? To what extent are communications between PSAs and the community relevant to this study?
The communications between PSA's and other group and individuals is important.

Critical Infrastructure and Key Resources

Read More: http://www.mutualink.net/PDF/Mutualink-Critical-Infrastructure-and-Key-Resources-NIPP-7-14-10.pdf

Read More: http://push2talk.com.au/could-or-should-local-government-play-a-greater-part-in-public-safety-during-emergency-services-incidents/

How do the organisational and institutional arrangements for PSAs vary between the Australian jurisdictions? What implications (if any) does this have for the way in which PSAs procure, operate and use communications services?

Read More: http://push2talk.com.au/interoperable-communications-for-public-safety-agencies-psas/

What is an appropriate definition of 'mission critical' communication systems and capability for the purposes of this study? What metrics should be used to assess whether capability is being delivered to adequate levels during mission critical circumstances? What evidence is there that existing capabilities are satisfactory or unsatisfactory?

Read More: http://www.9-1-1magazine.com/Boucher-Mutualink-Blog-Project25-ISSI#.VUe4rXS8_ZE.facebook

What applications do PSAs currently use on their LMR networks that are provided for mission critical purposes? Does this differ by jurisdiction?

N/A

How often are PSA narrowband networks (such as LMR networks) renewed or upgraded, and to what extent are different jurisdictions at different points in this process? What are the costs involved in maintaining these networks?

The traditional two way radio networks have been in place for some time and redundancy has been built in. Many groups have spent large amounts on these networks and have invested in employing specialist to support their networks.
We believe that these legacy networks will be in place for some time, but there is an opportunity now to build on and enhance these older technologies with the latest technologies without blowing the budget.

Read More: http://push2talk.com.au/communications-for-emergency-services-a-new-paradigm/

How do the different types of events that PSAs deal with affect their demand for communications capabilities? Can you provide examples or evidence to illustrate this?

The proliferation of smartphones makes possible the sharing of real-time video. While the public safety broadband initiative will accommodate video when deployed, a solution is available and in use today by a public safety organizations who participate in the Interoperable Response and Preparedness.

During emergency situation, having access to critical information and the ability to stream live video across cellular network reduces the unknown and provides real time visual information that would support information transmitted through traditional communication channels.

Live video streaming can help reduce the risk on the frontline and provide greater safety and deliver enhanced situational awareness via the latest multimedia technologies.
With Mutualink's multimedia solutions it's simple to share information across multiple agencies and integrates with legacy communication systems providing a unified strategy for information sharing, whilst maintaining complete sovereignty over your network infrastructure.

Read More: http://push2talk.com.au/if-a-picture-is-worth-a-thousand-word-then-what-is-the-value-of-video/

How, and to what extent, are PSAs using mobile broadband capability provided over commercial networks, and related products and applications, to support their operational activities? Are there any lessons or insights from these experiences, including the benefits that are being realised?

Read More: http://www.mutualink.net/Mutualink_s-collaboration-platform-part-of-New-Jersey_s-deployable-public-safety-LTE-solution.asp

How do other large organisations (such as government and corporate organisations with certain requirements which may be similar to those of PSAs) currently use mobile broadband services provided on commercial networks?

Read More: http://www.mutualink.net/FirstNet-related-Tactical-LTE-Communications-System-at-Urban-Shield-Exercise.asp

What lessons or insights can be taken from the previous trials of Telstra's LANES model, including during the G20 summit in November 2014?

This trial could be seen as successful but the solution is proprietary in that it was on a single network and the communications equipment was from a single vendor.
True interoperability should include all network vendors and all communications systems vendors and should have the ability to connect any smartphone or tablet devices independent of operating system software, plus be able take data, images and video from any enterprise.

Can commercial network solutions that involve dedicated spectrum for PSAs (and prioritised capacity in other spectrum bands during emergency incidents) allow for interoperability between networks operated by other mobile carriers and/or for end user to roam across multiple networks? Are there any technical, institutional or commercial barriers that would prevent this outcome?

Public safety operations are becoming increasingly information-driven, requiring access to a widening range of text, imaging and video applications. Although legacy emergency services radio networks support secure and highly reliable services, the technology is not suitability for real-time video or other high speed data applications.

It's a given that operational data should be transported over mission critical networks. It's also important to look at how a unified TETRA and Public Safety Broadband network should be implemented and what features and cost benefits it needs to deliver.

Current Surveys show that Emergency Services and Public Safety Groups should be looking for solutions that allow the use of Multimedia (voice, video, radio, text and other applications) to deliver greater safety, productivity and value to a mobile workforce.

In recent times emergency services may have needed multimedia solutions in situations that are seen as a mission critical environment, but as always the networks providing communications must be supported by a robust and highly secure communications infrastructure.

Read More: http://push2talk.com.au/communications-for-emergency-services-a-new-paradigm/

What applications could PSAs use if they had access to PSMB capability? How could this be expected to vary across PSAs?

The combination of affordability and the elegant simplicity of the Mutualink solutions changes the way that agencies, groups and communities across the country communicate.
At the heart of every community essential personnel from diverse organizations interact under a wide range of critical circumstances. While conventional solutions to communication interoperability focus on first responders, Mutualink's revolutionary approach enables all critical organizations within a community to participate in incidents as required. Mutualink's interoperable communities include:

- All levels of local, state and federal government
- Fire, police, and EMS
- Hospitals
- Critical infrastructure such as utilities
- Schools and universities
- School buses and mass transit
- Airports, ports and shipping
- High value community assets

Read More: http://push2talk.com.au/today-there-is-no-reason-that-any-organization-should-limit-its-ptt-infrastructure-to-traditional-two-way-radio-systems/

To what extent could these applications replace or supplement the capability and systems currently used by PSAs on their narrowband networks?

The Game Has Changed
Mutualink's multimedia solutions allow interoperable communications via Smartphone, PDA and Tablet PC which converge with traditional a 2-way radio allowing sharing of voice, video, text and data files.

Read More: http://push2talk.com.au/when-a-traditional-2-way-radio-with-simple-talk-functionality-may-not-be-not-enough/

How important are communications between PSAs and the community during emergency incidents?

See how police to use new surveillance technology in Boston.

Read More: https://www.youtube.com/watch?v=KsCNM7pAy6U

Critical Infrastructure and key resources

Read More: http://www.mutualink.net/PDF/Mutualink-Critical-Infrastructure-and-Key-Resources-NIPP-7-14-10.pdf

Read More: http://www.mutualink.net/PDF/Mutualink-Critical_Infrastructure_and_Key_Resources-NIPP.pdf

What PSMB capability characteristics should be considered in this study?

In a recent report by David Krebs (Executive Vice President) at VDC Research he has outline some of the major issues regarding the challenge of providing interoperable communications. The report is US centric but I believe the same issue are concerning PSA's around the world.

- Mobile apps have the potential to substantially impact public safety workflows and enable faster response, greater workforce productivity and increasingly improved citizen services.
- Interoperability and inter-agency communication remains a huge and largely unresolved pain point for public safety organizations.
- Advancing situational awareness for public safety organizations for better emergency response preparedness is driving requirements to integrate data from a variety of public and private sources.
  The report is worth a read: down load the report

How should 'national interoperability' be interpreted in this study? Does it include interoperability between networks, devices and applications used by PSA in different jurisdictions? Does it extend to integrating communications services between different local PSAs (for example, police, fire, ambulance and other responders)?

Interoperable Communications Requirements Have Changed

Read More: https://www.youtube.com/watch?v=O4pWM1eVIlg

Does delivering a PSMB capability raise any new opportunities for achieving national interoperability?

Mutualink is designed to be user-friendly, simple to operate and quick to learn. The simplicity of the Mutualink design makes installations and maintenance easy and inexpensive. With Mutualink, dispatchers from separate participating agencies can communicate using an IP connection such as a LAN with either voice or text messaging. Communication can be conducted behind the scenes or over the air to coordinate emergency incidents including fires, civil incidents, accidents, and special events, such as parades, concerts or political events. Mutualink provides the ability to link radio channels and other communication resources from one agency to the channels of another allowing communication between multiple agencies such as police, fire, DOT etc, at the click of a mouse.

Goals for an Ideal Solution
- Recognize that silos will always exist, so don't fight against them – work with them!
- Silos are not only LMR or voice - video, GIS, and data systems have the same problem, so need a media agnostic solution
- Enable "selective" information flow between silos
- Ensure security with access control and encryption
- Maintain sovereignty of owning agencies
- Enable ad-hoc/on-scene sharing under control of agency personnel

Would the benefits, costs and risks of achieving national interoperability vary under different deployment options? If so, how?

The future has arrived for first responders and emergency support agencies. The new LTE networks will help liberate PSA's by providing guaranteed broadband connectivity, which in turn allows for innovative and important applications to be delivered to the field. Smartphones and wearable computing devices with multimedia and information-aware applications will rapidly augment the legacy land mobile radio dominated environments. Enabling situational awareness on the ground and at command/control points in real time will vastly enhance overall emergency response. Mutualink sees the future and is helping bring about next-generation technologies that will empower first responders and make them safer. Mutualink's capabilities are effective, affordable, and available today – and they integrate seamlessly into current and future PSMB deployments.

What progress has been made in putting in place arrangements to better coordinate emergency communications within and across PSAs and jurisdictions?

Elegance can be described as making a complex problem's solution look easy. In terms of communications systems interoperability and collaboration, Mutualink has done the same thing allowing users to establish multi-agency collaboration sessions in seconds.

Read More: https://www.youtube.com/watch?v=ssikEKayHQI

What level of network coverage do the existing networks used by PSAs (for narrowband voice and low-speed data capability) currently provide? How does this vary across jurisdictions?

Emergency Services and Public Safety Groups can now merge mission-critical voice features with multimedia applications. Disparate systems are now able to communicate and agencies can have complete sovereignty over their resources and networks. These pervasive technologies like smartphone, tablet PC's, semi rugged and rugged technologies are now seen as common place and have the ability to provide multimedia applications and other push to talk technologies to frontline personal. These new capabilities will now change for ever the way Emergency Services and Public Safety Groups respond to incidents, improve their efficiency and provide greater safety to first responders and their support personal delivering greater situational awareness.

What level of mobile broadband network coverage do PSAs require across metropolitan and regional Australia? Does this vary for different PSAs?

As incidents are reported and local agencies begin to respond, the need for other resources, perhaps many miles away, may not be known for quite some time. Having the ability to alert and collaborate with other agencies during the initial response period can save precious response time.

Read More: https://www.youtube.com/watch?v=0EzQEQn9dKo

What is the most appropriate measure of network coverage for use in this study?

Currently most agencies believe that operational data should be delivered by mission critical networks, so it's important to look at how you could converge these legacy networks and other technologies like 3G/4G/LTE mobile networks and satellite networks, and what benefits could be delivered by converging these technologies.

What options are there for extending the mobile coverage of commercial networks?

The NBN could provide a unique opportunity for PSAs to access additional broadband capacity, in addition to network redundancy. As the NBN is being deployed and connectivity could be to the vast majority of homes, schools and business across the nation, easy access could be enabled for PSA's to use during incidents at major venues or random locations. The NBN could provide a unique solution for the Australian environment providing superior capacity as well as network redundancy, if used in conjunction with these new networks being rolled out by the major network providers.

Would the benefits, costs and risks associated with achieving an acceptable level of network coverage for PSAs vary under different deployment options? If so, how? And with what operational consequences?

Mission critical communications do require mission critical networks that guarantee:

COMMUNICATIONS NETWORK:
Converging legacy radio and mobile telephone systems into a unified network must deliver dramatically enhanced efficiency and effectiveness of any agencies.

EXTENDED COVERAGE:
Network coverage must be widespread, spanning the entire area of responsibility.

INSTANT COMMUNICATIONS:
Network connectivity must be easy and fast to setup, plus allow for group and individual calls with easy sharing multimedia data.

NETWORK CONTROL:
Agencies need to be able to control how, when and where they communicate, but also have the ability to connect to any disparate system. Communication needs to be prioritized and pre-empted on a per user basis, in real time.

INTEROPERABILITY:
PSA response units must be able to communicate with each other, allied agencies, and cross border organizations.

SECURITY:
Communications must be able to satisfy national security requirements.

HIGH AVAILABILITY:
Networks must be highly resilient, offering multiple layers of redundancy.

RUGGED, SEMI RUGGED and CONSUMER GRADE DEVICES:
Rugged and or semi rugged devices may be required but any consumer graded device (smartphone, tablet or laptop) should also be considered. Any solution being considered must have the ability to support all software operating systems and not be limited to proprietary software and hardware.

The questions are: How can you? :
- *Provide interoperability between disparate groups and systems.*
- *Converge legacy radio networks with the latest LTE multimedia services.*
- *Preserve network investments and avoid network obsolescence.*
- *Reduce capital and operational costs without compromising service.*

These are some of the benefits:

ENSURE SAFER FRONTLINE OPERATIONS:
During an incident, video recorded by a camera in a vehicle or captured via mobile device is accessed on demand from a supervisor in the field or in HQ. The real time video allows the supervisor to determine the need for additional resources and minimize risks to frontline staff.

IMPROVE INFORMATION SHARING WITH REAL-TIME COLLABORATION:
Dispatchers and frontline personal can pro-actively target areas via video surveillance cameras (agency or private) by sharing annotated maps and images in real time to smart devices or guide first responders to an incident using handheld smart devices.

IMPROVE INCIDENT RESPONSE TIMES:
During a multi-agency incident, the controlling commander requests a live video feed from a fixed or mobile surveillance camera. The system provides this critical live video data. The live video stream is then further distributed by the commander to incident talk group participants equipped with smart data devices.

BENEFITS OF A BOYD SOLUTION:
Leverage a wide array of devices to support numerous use cases, including 3G/4G smartphones and tablets; rugged and semi rugged devices; fixed location devices; and range of TETRA portable and mobile radios.

PROVIDE WIDER MISSION CRITICAL MULTI MEDIA COVERAGE:
Mobile data devices can converge with TETRA and 3G/4G/LTE networks to expand coverage and to provide additional multimedia layers of redundancy for mission critical data applications.

IMPLEMENT A STREAMLINE PROCESSES:
To simplify and make more resilient operations no single point of failure should occurs.
A dedicated server solution can provide a single point of failure.
Only having one network provider has its limitations also.

Legacy radio networks and 3G/4G/LTE networks can converge to provide a mission critical broadband services that builds on your core TETRA and P25 systems

How could voice services — traditionally carried on narrowband networks — be integrated into a mobile broadband network capability? What challenges and risks need to be accounted for? Are the challenges at the local level (due to legacy factors) greater than those at the national level?

Read More: https://www.youtube.com/watch?v=15Y2cwG6yQg&feature=youtu.be

What challenges or opportunities arise (from a technical, institutional and/or commercial perspective) from such integration, and would the benefits, costs and risks vary under different options for PSMB? If so, how?

Cellular networks can become overwhelmed and ineffective during high demand periods at emergency scenes. Any public safety LTE network could also be overwhelmed, if coordinated incident scene wireless data traffic isn't maintained. Mutualink's video and data sharing solutions solve this problem.

Read More: https://www.youtube.com/watch?v=IZbLWzMwlgY

The Commission understands that there is currently work underway to develop voice applications for 4G/LTE networks for use in mission critical circumstances. When are these applications likely to become available?

The goal of connecting disparate groups and communities through the 3G/4G? LTE network is clearly in the public's best interest. However, many entities besides public safety agencies need to be able to intercommunicate. Mutualink's Interoperable Response and Preparedness Platform can complement all or any LTE network to make that happen.

Read More: https://www.youtube.com/watch?v=r2xwMe1-Vxo

What factors are important in ensuring the integrity and security of communications for PSAs? To what extent does this differ for different types of PSAs?

Control communications between all Mutualink nodes is encrypted and mutually authenticated using standards-based public-key cryptography.

All media communications (voice, video, files and messages) are encrypted end-to-end using the highly-secure AES cipher (approved by the NSA for encryption of classified information), thereby preventing unauthorized access to any incident traffic.

Only external endpoints explicitly authorized may communicate with nodes within the Mutualink network.

Well-defined addresses, ports, and packet signatures make firewall configuration straightforward and secure.

Secure IPSEC tunnels may be used to place Mutualink nodes behind existing firewalls.

Suspicious network traffic is detected and can generate alerts to user-configurable locations

Mutualink nodes may be segregated from existing LANs by using any combination of: 8 Separate physical LANs or virtual LANs (VLANs) 8 IPSEC/GRE tunnels between various locations

Would the costs and risks associated with ensuring the integrity and security of communications differ depending on how a PSMB capability is delivered? If so, how?

Four new requirements for interoperability systems have emerged over the past several years - borderless communications, real-time, bi-directional video sharing, multiple device support, and cost effectiveness. The Wide Area Common Protocol Interconnection approach is the only alternative that can meet these new requirements

Read More: https://www.youtube.com/watch?v=FOBz2afW6Yk

What methods or metrics could be used to define and/or measure the level of security provided over a network that delivers mobile broadband capability?

"*Very best in cybersecurity – during a 2014 US DoD exercise the system was attacked over 3 million times in a two week period with zero intrusions or degradations – 100% mission success*."

Security: DoD JITC certified for IA and IO as well as certified for operations on NATO BICES. Mutualink provides state of the art security. All communications, voice, data and video is encrypted using NIST AES 256 ciphers. Encryption is dynamically generated for each communications session instance. The session key is distributed securely to participating endpoints for the session, and periodically rekeyed during the session. Mutualink's operating system is a secure Linux variant (CentOS) and the system utilizes dedicated equipment, providing protection from intrusion and malicious attacks. The system employs PKI based mutual authentication with each endpoint generating 2048 bit private keys. The corresponding public key is signed by an authorized Certificate Authority (CA) and distributed to other endpoints via the distributed peer infrastructure.

What additional security needs do PSAs have compared to other sectors with high security requirements for their communications?

All PSA's require the highest cyber security solution available especially if non agency data, video or voice communications is provided over any network.
Mutualink's solution provide the highest levels of security and have been subjected to rigorous testing during national and international military exercises in 2014 and 2015.

"According to members of the Joint On-demand Interoperability Network (JOIN) team, this was the first time in 21 years that all parties – the services, state emergency centres, first responder, allies, and other partners – were able to securely communicate while cyber-bandits were actively assaulting the network. Mutualink successfully defended against more than 3 million real-world cyber-attacks while simultaneously providing uninterrupted collaboration during several training scenarios to include a simulated earthquake and a wide-spread power outage."

How should PSA demand for mobile broadband capability be estimated in this study, including their expected demand requirements into the future?

Despite a decade of significant investments and concerted efforts, a pervasive, national communications interoperability solution for emergency response has remained a bridge too far with, at best, small pockets of interoperable communications ability existing among a few select agencies. Emergency events such as the World Trade Centre attacks, the Columbine School shootings, Hurricane Katrina, the Deepwater Horizon oil spill, the Aurora, CO movie theatre shootings and host of other natural, accidental and man-made incidents exposed and will continue to expose the persistent and prevailing problem of a lack of effective coordinated communications between first responders and other emergency support and critical infrastructure organizations that are critical to responding to, mitigating and recovering from disasters. Perhaps we have been trying to solve the wrong problem, or at least we have been trying to solve it the wrong way. In this paper, Mutualink argue that a broad-based national interoperable communications and multimedia collaboration platform can be achieved quickly and affordably through an everything-over-IP (EOIP) sovereign-controlled, peer-based virtual network. This approach leverages existing communications and media infrastructure as well as next generation broadband efforts, including FirstNet, to create an adaptive, resilient and scalable collaboration framework that achieves ubiquitous capabilities among first responders as well as critical infrastructure entities.

Read More: http://www.mutualink.net/PDF/FirstNet-IRAPP-White-Paper-2-19-13.pdf

What methods or metrics could be used to define and/or measure the level of service capacity provided to PSAs?

Discover the benefits of communications collaboration with Mutualink's Interoperable Response and Preparedness Platform. Each of the videos below address a specific topic relating to Communications Interoperability.

Read More: http://www.mutualink.net/Interop-Challenges-Videos.asp

What level of capacity will PSAs need for a PSMB capability, and how will this differ between business as usual activities and large scale emergency incidents?

Discover the benefits of communications collaboration with Mutualink's Interoperable Response and Preparedness Platform. Each of the videos below address a specific topic relating to Communications Interoperability.

Read More: http://www.mutualink.net/Community-Wide-Interop-Videos.asp

How might the demand for PSMB capability differ between types of PSAs?
How could competing demands amongst PSAs be managed?
Should particular uses be prioritised?

Interoperability - Simple But Not Easy
Allowing agencies to intercommunicate during emergencies is easy to understand but hard to implement. Technology eliminates some barriers but other factors need to be considered. The jurisdictional boundaries that define public agencies and private enterprise need to be respected.

Read More: https://www.youtube.com/watch?v=nY8ktW9i7_A

How would the benefits, costs and risks of ensuring sufficient capacity vary under different deployment options?

N/A

What level of resilience do PSA narrowband networks usually provide and how does this differ from commercial mobile broadband networks?

Four new requirements for interoperability systems have emerged over the past several years – borderless communications, real-time, bi-directional video sharing, multiple device support, and cost effectiveness. The Wide Area Common Protocol Interconnection approach is the only alternative that can meet these new requirements.

Read More: https://www.youtube.com/watch?v=cAZ3vgrP7W0

Also Read: https://www.youtube.com/watch?v=FOBz2afW6Yk

What methods or metrics could be used to define and/or measure the level of resilience provided by the networks used to deliver PSMB?

For communications interoperability, the most flexible and cost-effective approach, available from multiple suppliers, is Wide Area Common Protocol Interconnection approach. Common Radio Protocol interoperability can mimic radio swapping, radio patching and wide area common radio system usage.

Read More: https://www.youtube.com/watch?v=me6Qbb-Bt7A

What priority should be given to the capacity to stand up a replacement service within a specified timeframe in the event of a physical or network based disruption?

N/A

Are there any barriers (for example, institutional, informational and/or technological) to, or challenges associated with, delivering a resilient PSMB capability? How might this differ between different deployment options?

Four new requirements for interoperability systems have emerged over the past several years – borderless communications, real-time, bi-directional video sharing, multiple device support, and cost effectiveness. The Wide Area Common Protocol Interconnection approach is the only alternative that can meet these new requirements.

Read More: https://www.youtube.com/watch?v=FOBz2afW6Yk

How could future developments in technology, or growth in demand for mobile broadband services and capacity, affect the sustainability of PSMB capability under different deployment options?
How will the convergence of voice and data services affect the sustainability of PSMB capability under different deployment options?

Communications interoperability issues commonly occur during incident responses. Interoperable solutions can be divided into four general categories to help organizations select the best approach to meet their needs.

Read More: https://www.youtube.com/watch?v=cAZ3vgrP7W0

What challenges are involved with delivering a mobile broadband capability to PSAs by 2020? Do these differ under alternative deployment options?

Although many communications systems are now using IP as the their underlying technology, systems and end user devices are diverging providing widely varying capabilities. An effective community-wide interoperability system must be able to accommodate the wide variety of legacy and new systems and devices as they exist today and tomorrow.

Read More: https://www.youtube.com/watch?v=qFk-myeGGf0

What potential obstacles exist to a mobile broadband network being fully compatible with a range of end-user devices? Does this depend on the network deployment option?

Organizations that are involved in emergency incident responses can vary in size from a small, rural fire department to a public or private organization that is responsible for a large metropolitan area or even the entire nation. Mutualink's family of Edge products, is available in multiple capacities and configurations to meet these widely varying needs.

Read More: https://www.youtube.com/watch?v=tLhuhIHUs4w

Also Read: https://www.youtube.com/watch?v=wv_yzmGn9Kg

How does the method of ensuring interoperability impact on the cost of the system to PSAs?

Allowing agencies to intercommunicate during emergencies is easy to understand but hard to implement. Technology eliminates some barriers but other factors need to be considered. The jurisdictional boundaries that define public agencies and private enterprise need to be respected.

Read More: https://www.youtube.com/watch?v=mFiL48PE1uU

Four new requirements for interoperability systems have emerged over the past several years – borderless communications, real-time, bi-directional video sharing, multiple device support, and cost effectiveness. The Wide Area Common Protocol Interconnection approach is the only alternative that can meet these new requirements.

Read More: https://www.youtube.com/watch?v=FOBz2afW6Yk

What detailed options should be evaluated in this study? What underlying assumptions and key parameters would be associated with each option?

As first responders arrive at an incident scene and begin to forward video and data, control of the distribution of these data streams becomes critical. Outbound data directional control is equally important. Mutualink provides a resource sharing solution to complement any network and legacy systems.

Read More: https://www.youtube.com/watch?v=qkDZmVgpe7o

Cellular networks can become overwhelmed and ineffective during high demand periods at emergency scenes. FirstNet public safety LTE network could also be overwhelmed, if coordinated incident scene wireless data traffic isn't maintained. Mutualink's video and data sharing solution is IP-based, enabling peer-to-peer control to FirstNet and legacy systems.

Read More: https://www.youtube.com/watch?v=IZbLWzMwlgY

What (if any) assumptions or parameters should be 'common' across all options?

Mutualink creates networks of interoperable communities that are, at an instant, capable of sharing voice, text, radio, video, data and telephone communications in a secure environment.

Read More: http://www.mutualink.net/Our-Solution.asp

What are the sources of costs relevant to this study?

N/A

In what ways could delivering a PSMB capability affect non PSA users? How would these effects differ across deployment options? What methods could be used to estimate these effects?

Discover the benefits of communications collaboration with Mutualink's Interoperable Response and Preparedness Platform. Each of the videos below address a specific topic relating to Communications Interoperability.

Read more: http://www.mutualink.net/Community-Wide-Interop-Videos.asp

Is it appropriate to consider option values as part of the cost benefit analysis in this study? If so, how? What information or data is relevant?

N/A

Are the network cost elements identified in box 4 relevant for this study? What specific cost items would fall within these categories? What other network costs should be considered? What is the nature and materiality of these (and other relevant) costs under alternative PSMB options?

Low Cost
The Mutualink system has been developed over a six year period to be cost efficient and consists of the selection and implementation of a combination of commercial, off-the-shelf hardware components and custom developed components specifically targeted at multimedia collaboration.

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Cost Effective Solution
Recognizing the increased value of the wide-spread adoption of a multiagency/entity collaboration network, the system has been priced to encourage participation with each agency/entity required to purchase only the communications endpoint equipment that it needs at that time. Additional devices and workstations can be implemented as individual modules as system expansion warrants.

What method(s) should be used to estimate the network costs of different deployment options for delivering PSMB? What studies should inform the Commission's thinking in this area?

Combining FirstNet and IRAPP to Fulfill the Promise of National Policy and Create a National Vision for an Inclusive Interoperable Communications Sharing Platform

Read More: http://www.mutualink.net/PDF/FirstNet-IRAPP-White-Paper-2-19-13.pdf

What network cost components are interdependent with other costs, or other parameters (such as assumptions about the amount of spectrum allocated)? What is the nature of these interdependencies?

N/A

What data sources could be used to estimate expected PSMB traffic requirements, and the network infrastructure elements required to deliver PSMB capability under different deployment options?

N/A

What data sources could be used to estimate the cost of the infrastructure, equipment and operation in delivering PSMB capability under different deployment options?

Combining FirstNet and IRAPP to Fulfill the Promise of National Policy and Create a National Vision for an Inclusive Interoperable Communications Sharing Platform

Read More: http://www.mutualink.net/PDF/FirstNet-IRAPP-White-Paper-2-19-13.pdf

What is the appropriate approach (or approaches) to model the opportunity costs of spectrum under different deployment options? What issues does 'spectrum sharing' raise for estimating these opportunity costs, and how might they be addressed?

N/A

What data sources could be used to estimate the opportunity costs of spectrum under different deployment options for PSMB?

N/A

What is the appropriate discount rate, or range of discount rates, to use in this study?

N/A

How far into the future should costs and benefits be measured?

N/A

What are the sources of benefits relevant to this study?

N/A

How can the potential benefits of PSMB capability (in terms of PSA outcomes) be estimated? Is scenario analysis useful? How should scenarios be constructed to reflect an appropriate range of situations faced by PSAs?

During any type of critical or emergency situation, time is always the enemy. The lack of information or worse, inaccurate information, generally results in lost time and erroneous decisions that can adversely impact incident responses. Therefore, the collection and dissemination of information in a collaborative, real-time environment is absolutely essential. The Mutualink Collaborative Communications System can play an important role in facilitating communications between many diverse agencies and entities during these pressure-packed times. Although the Mutualink System is remarkably easy to learn and use, it is imperative that all users maintain a high level of familiarity with the system and can instinctively use the system's many features and capabilities during these high stress situations. During an emergency there is no time or inclination to revert to instruction manuals or even on-line help descriptions.
The entire public safety industry is well aware of the need for all participants to be fully trained to carry out their assigned tasks during emergencies as well as during normal day-to-day operations. The industry has embraced the concept of scenario based training exercises as a very effective way of keeping personnel familiar with operating procedures and proficient with the available tools and systems. Exercises that mimic real-world scenarios have become common-place. Private enterprises, especially those that fall under the Department of Homeland Security's definition of Critical Infrastructure and Key Resources (CIKR), have also embraced scenario exercises as an effective method of keeping their personnel current and ready to respond to emergencies when required. The SED Tool provides a framework for the development of scenarios that can be used by all personnel involved in responding to incidents that utilize the Mutualink System.

Overview
The SED Tool is based on the Master Event Scenario List (MSEL) format used in the US Joint Chiefs of Staff sponsored Collation Warrior Interoperability Demonstration (CWID) Program. In this highly successful program, war fighters from difference branches of the military took on roles of certain individuals and participated in a number of pre-defined scenarios. The scenarios were defined with detailed scripts (MSELs) with each participant performing the defined actions in the sequence specified.
The CWID scenarios involved a number of different events including military operations, terrorist activity responses, and natural disasters. Different role-players with different assignments took part in the exercises. Most role players had no experience with the various systems being demonstrated except for some brief, on site, exposure prior to the actual ten day trial. Mutualink was one of the participants in the June 2011 CWID Program with interconnected systems at eleven different domestic and international locations.

Can you identify any trials or pilot programs of PSMB capability? Are there any insights to draw from these experiences about potential benefits (or costs)?

Yes,

Mutualink's collaboration platform part of New Jersey's deployable public-safety LTE solution

Read more at: http://www.mutualink.net/Mutualink_s-collaboration-platform-part-of-New-Jersey_s-deployable-public-safety-LTE-solution.asp

Can you identify evidence or examples that illustrate the effects of PSMB capability on PSA outcomes?

Yes,

Mutualink Tactical Collaboration Nodes to Power First-Ever Public Safety Grade Mobile 4G LTE Network for the State of New Jersey

Read more at: http://www.mutualink.net/Mutualink-Tactical-Collaboration-Nodes-to-Power-First-Ever-Public-Safety-Grade-Mobile-4G-LTE-Network-for-the-State-of-New-Jersey.asp

What method(s) should be used to value the effects of PSMB capability on PSA outcomes? Is there research that considers how the costs of responding to natural disasters, crime or other events could be affected if PSAs had access to mobile broadband?

Discover the benefits of communications collaboration with Mutualink's Interoperable Response and Preparedness Platform. Each of the videos below address a specific topic relating to Communications Interoperability.

Read More: http://www.mutualink.net/Videos.asp#interop_videos