

CHAPTER 3

Generational change in the emergency services world

3.1 Without exception, all witnesses to the inquiry recognised the need for PSAs to access sufficient and appropriate spectrum to enable the deployment of dedicated mission-critical mobile broadband capability.¹ The need to ensure that PSAs are provided adequate capabilities to respond efficiently and effectively when disasters occur has been agreed by all Australian governments.²

3.2 While it is recognised that achieving a national dedicated PSMB network requires that historical problems be addressed, namely the lack of a common platform for public safety agencies and the communication capabilities between them, the advantages amount to a generational change in the world of emergency services. This chapter explores the advantages and challenges for PSAs in relation to spectrum for PSMB.

Operational benefits

3.3 Access to next-generation technology provides PSAs with the capability to access real-time, accurate information and realise tailored mobile broadband connection speeds, while utilising rich-media applications with the appropriate level of prioritisation from advanced collaborative data services.³ Such technology has the potential not only to make policing and emergency responses more efficient but also to safeguard the public. Mr Mark Burgess, Chief Executive Officer of the 57,000 member strong PFA explained:

With things such as video streaming, you can imagine that in high speed pursuits safety is involved not only for officers but for the community. There is the issue of body-worn cameras in a whole range of scenarios, not the least of which is general policing but certainly in major incident events. Then there are cameras on vehicles and other features in vehicles such as facial recognition and automatic numberplate recognition systems. All of those things are going to add significant value to the ability of police to operate into the future. This is a generational opportunity for policing to get access to such technology.⁴

3.4 Mobile broadband has the capacity to provide information by way of voice and video in real time to police and emergency officials in the field.⁵

1 Orange Horizons Pty Ltd, *Submission 1*; Police Federation of Australia, *Submission 2*; Motorola Solutions, *Submission 10*; Ericsson, *Submission 3*; Western Australian Government, *Submission 4*; ACT Government *Submission 12*; Telstra, *Submission 11*.

2 Western Australian Government, *Submission 4*, p. 1.

3 Motorola Solutions, *Submission 10*, p. [9].

4 Mr Mark Burgess, PFA, *Committee Hansard*, 17 June 2013, p. 2.

5 Assistant Commissioner Peter Barrie, NSW Police Force, *Committee Hansard*, 17 June 2013, p. 9.

3.5 Assistant Commissioner Peter Barrie of the NSW Police Force commented that spectrum for PMMB was part of a full information and communications technology (ICT) solution that PSAs require to provide services in the future, look after its workforce, and provide a better community and public safety response.⁶ He explained the differences for police between receiving voice information and that of video and visual images:

So the difference might be, in responding to a bank robbery, looking for a male dressed in dark clothing who is perhaps 188 centimetres tall and of 92 kilos, or average build as opposed to having an image of the chap that you are looking for. That is powerful stuff in terms of looking after the interests of the people that are responding, enhancing public safety and our ability to, if we encounter that individual, confine the situation.⁷

3.6 Ericsson noted that there were two key aspects to public safety operations which can be enhanced through utilisation of mobile broadband including enhanced situation awareness and achievement of a common operating picture.⁸ Furthermore, as Ericsson explained:

As LTE can deliver high-speed mobile broadband, a range of rich communications services are enabled, including video, presence and voice—all delivered over a native IP network. Due to the open standards upon which LTE is based, it will be possible in the future to deploy new, innovative apps, thereby further enhancing the utility of any mobile broadband network. The availability of this additional level of detailed information has the potential to improve incident assessment and response management.⁹

3.7 Access Economics identified three key areas which would benefit from the use of video links and emerging technology for PSAs including incident response, incident management and control, and post-incident review. The benefits that would result from improvements in each of these areas would include:

- improved coordination of a range of emergencies (such as fire or storms), with reduced loss of life and property;
- more effective crowd control, with implications for both costs and outcomes;
- more effective and less costly surveillance; and

6 Assistant Commissioner Peter Barrie, NSW Police Force, *Committee Hansard*, 17 June 2013, p. 9.

7 Assistant Commissioner Peter Barrie, NSW Police Force, *Committee Hansard*, 17 June 2013, p. 10.

8 Ericsson, *Submission 3*, p. 9.

9 Ericsson, *Submission 3*, p. 9.

- improved care for accident victims at the scene and in-transit to medical facilities.¹⁰

3.8 Tait Communications argued that access to mobile information creates a wider situational awareness that can contribute to operational efficiency and officer safety. It provided the following examples:

...streaming video from accident site to dispatchers to deploy appropriate apparatus, ambulatory staff streaming video and patient health to hospital staff while en-route, central dispatch pushing pictures and mapping locations of suspicious persons to in-field commanders, real-time identity checks of vehicles, suspects and locations, and providing full visibility to central fire command of resource availability and response time during volunteer call outs. Maximising operational frontline hours and minimising administrative hours through automation of reporting using mobile devices will deliver results to the community as front-line staff will have more time to patrol and respond to emergencies.¹¹

3.9 Assistant Commissioner Barrie from the NSW Police Service noted that access to such technology would maximise investigative effort and specialist resources. He explained that with a limited pool of experts in areas such as forensics and accident investigation, police services were unable to deploy such resources to every location. However, video streaming is one mechanism that can allow specialists to remotely examine crime scenes and in real-time, immerse themselves from a central location into that scene and provide the necessary expertise.¹² Without the need for specialists to travel to a crime scene, access to such technology will reduce the length of an investigation and costs to both the community and the state.¹³ From a daily policing perspective, moreover, substantial enhancements can be utilised as Assistant Commissioner Barrie explained:

...in terms of maximising our investigative effort, realising our responsibilities to provide evidence to the court and to the coroner, but at the same time having an awareness of the commercial impact of our activities—if you take that to the investigation of a fatal accident that has occurred on a major arterial route, it is a fine balance. You want to be able to realise all the evidence that is there. You want to investigate that matter thoroughly. You want to look after the welfare of anyone who may have been injured. Certainly you want to look after the first responders in terms

10 Access Economics, *Radiofrequency Spectrum Options for Public Safety Agencies*, September 2010, p. 5,

<http://www.ag.gov.au/RightsAndProtections/FOI/Documents/Access%20Economics%20Report%20dated%2010%20September%202010%20entitled%20Radiofrequency%20Spectrum%20Options%20for%20Public%20Safety%20Agencies.pdf> (accessed 10 July 2013).

11 Tait Communications, *Submission 8*, p. 6.

12 Assistant Commissioner Peter Barrie, NSW Police Force, *Committee Hansard*, 17 June 2013, p. 11.

13 Assistant Commissioner Peter Barrie, NSW Police Force, *Committee Hansard*, 17 June 2013, p. 11.

of any hazards that might be in that area, if it is a tanker, say, or something that is carrying a hazardous material. But also we are well aware of the impact on the state, or on businesses that are trying to operate, perhaps across the Sydney basin or Melbourne or the like, who are caught up in these massive traffic jams. Essentially, business comes to a stop.¹⁴

3.10 Assistant Commissioner Barrie also explained that the technologies that align with mobile broadband capability, such as spatial technology, are developing at an equivalent pace. These technologies provide the capability to gather information about an event such as a fire or a flood and to model it against what is already known in order to identify the location of critical infrastructure and potential hazards. For example, information from members of the public provided through various media including social media, telephone and triple zero calls, as well as that from first responders in the field and data agencies such as the Bureau of Meteorology concerning the likely impact of impending weather events can be mapped and made available to decision makers at operational centres in real time.¹⁵

3.11 Deputy Commissioner Michael Phelan of the Australian Federal Police (AFP) similarly noted that decision making is improved if better quality information is provided. He explained that:

If we go back to natural disasters in the ACT, to the fires 10 years ago, then one could imagine that it would be much easier to make decisions in the operations centre if you have high-quality video coming from the field.¹⁶

3.12 Motorola Solutions provided the following list of applications identified by PSAs that will assist in policing, emergency operations and upholding community safety.¹⁷

14 Assistant Commissioner Peter Barrie, NSW Police Force, *Committee Hansard*, 17 June 2013, p. 11.

15 Assistant Commissioner Peter Barrie, NSW Police Force, *Committee Hansard*, 17 June 2013, p. 16.

16 Deputy Commissioner Michael Phelan, AFP, *Committee Hansard*, 17 June 2013, p. 17.

17 Motorola Solutions, *Submission 10*, pp [10–11].

Figure 3.1: Applications identified by public safety organisations

Application	Feature	Public safety example
Video	Video streaming, live video feed, Download/Upload of video clips	Video clips
		Patient monitoring (may require dedicated link)
		Video feed of in-progress incident
		Video communications from wireless clip-on cameras used by in building fire rescue
		Image or video to assist remote medial support
		Surveillance of incident scene by fixed or remote controlled robotic devices
		Assessment of fire/flood scenes from airborne platforms
Real-time multimedia Intelligence	Real time optimisation of video or other multimedia content	Optimise throughput capacity by adjusting rich media content to available bandwidth and devise screen size
Imagery	Download/upload of High resolution images	Downloading earth exploration-satellite images
		Real-time medical imaging
		Biometrics (finger prints)
		ID picture
		Building layout maps
Voice	Person-to person	Selective calling and addressing
	Push-to-talk	Push-to-talk
	Instantaneous access to voice path	Push-to-talk and selective priority access
Group Voice	One-to-many	Dispatch & group communication
Direct Mode Voice	Talk-around/direct mode operation	Groups of portable (mobile-mobile) in close proximity without infrastructure
Direct mode operation of video & data	Direct unit to unit video & data communication without infrastructure	Direct handset to handset, on-scene localized command & control

Interoperability

3.13 As noted in Chapter 1, interoperability has remained an historical challenge for PSAs and was highlighted as a key concern in evidence to the committee. The WA Government drew attention to the 2009 Victorian Bushfire Royal Commission and the review of the 2010–11 Flood Warnings and Response which noted positive impacts resulting from improved information sharing between agencies and the community before, during and after emergency incidents. The Queensland Flood Commission of Inquiry recognised the provision of broadband spectrum to Australia's emergency services organisations as vital.¹⁸

3.14 Similarly, the states and territories which gave evidence to the inquiry recognised the need for a higher level of information interoperability between emergency services now and into the future. The WA, ACT, Victorian and NSW governments highlighted that broadband spectrum will form the basis for the applications driving this higher level of information sharing.¹⁹

3.15 In their report to COAG, the Natural Disaster Arrangements Working Group and the NCCGR noted that improvements to interoperability arising from the national framework will enable government radiocommunications users to:

- more effectively use their own equipment across jurisdictions, enabling more effective and efficient cross-jurisdictional operations and more rapid deployment of emergency responders;
- more effectively undertake their daily operations covering responses to routine public safety such as building fires that may require support from several agencies within a jurisdiction or during police vehicle pursuits that may cross boundaries requiring cross-jurisdictional assistance;
- seamlessly switch from day-to-day communications to multi-agency and/or cross jurisdictional communications required in an emergency situation such as natural disasters, catastrophic accidents, large scale incidents, and similar events that may occur without much warning; and
- take advantage of new and emerging technologies that support improved interoperability as a result of a nationally consistent coordinated approach to improving interoperability.²⁰

18 Queensland Floods Commission of Inquiry, Final Report, March 2012, p. 399, http://www.floodcommission.qld.gov.au/_data/assets/pdf_file/0007/11698/QFCI-Final-Report-March-2012.pdf (accessed 15 July 2013).

19 Western Australian Government, *Submission 4*, p. 3; ACT Government, *Submission 12*, p. 3; Victorian Government, *Submission 15*, p. 3; NSW Government, *Submission 16*, p. 3.

20 Natural Disaster Arrangements Working Group and National Coordinating Committee for Government Radiocommunications *National Framework to Improve Government Radiocommunications Interoperability*, , 2009, p. 6, <http://www.em.gov.au/Documents/National%20Framework%20to%20Improve%20Government%20Radiocommunications.pdf> (accessed 19 June 2013).

3.16 Interoperability was of particular importance to the AFP which noted that currently, the AFP voice network is compatible with that of some jurisdictions and not with others.²¹ Furthermore, interoperability for the AFP would amount to a cost saving as the AFP would not have to maintain and utilise different equipment to operate in different states. Deputy Commissioner Michael Phelan further observed that:

To be quite frank, the Australian Federal Police does next to nothing on its own anymore without working with its state and territory and other Commonwealth partners in all of the jurisdictions in which we work. To have incompatible data systems along with incompatible radio systems makes no operational sense as far as we are concerned.²²

Occupational health and safety of first responders

3.17 There are 400,000 emergency services personnel in Australia.²³ The PFA described the provision of 21st century mobile broadband communications as 'vital' to the work, health and safety of the police force and in particular, officers working on the front-line.²⁴ Police officers need the best intelligence about the offenders they are pursuing, up-to-date situational awareness, and data, video and other forms of critical information to operate to maximum effectiveness and safety in the interests of both the community and their own welfare and wellbeing. As the PFA noted:

Police officer health and safety is one of the key reasons why adequate spectrum for Australia's law enforcement agencies is essential.²⁵

3.18 The NSW Police Force explained that there are innovative solutions available to significantly enhance the safety of first responders deployed in hazardous situations. These include the use of technology to monitor their personal welfare and identify their surrounds in order to identify potential threats. Real time collection and analysis of data against existing information holdings would provide improved modelling, enhanced information sharing and more accurate risk assessment. Within this context, the NSW Police Force concluded that:

The provision of accurate and timely information through the operation of mobile broadband technology will be a key element in the future protection of first responders operating in hazardous environments.²⁶

3.19 Mr Robert Waites, Consultant with the PFA, explained that the provision of adequate spectrum would be a 'game changer' in the way PSAs operate. He noted that:

It gives police officers, fire officers and ambulance officers a lot more information, and access to a lot more information, to do their jobs much more efficiently. And in being more efficient they will save lives, save

21 Deputy Commissioner Michael Phelan, AFP, *Committee Hansard*, 17 June 2013, p. 19.

22 Deputy Commissioner Michael Phelan, AFP, *Committee Hansard*, 17 June 2013, p. 20.

23 Mr Vince Kelly, PFA, *Committee Hansard*, 17 June 2013, p. 2.

24 Police Federation of Australia, *Submission 2*, p. 12.

25 Police Federation of Australia, *Submission 2*, p. 13.

26 NSW Police Force, *Submission 17*, p. 3.

money for the community, and look after their own members at the same time.²⁷

3.20 Mr Burgess of the PFA noted that it was an expectation that police and emergency officers were given as much available information as possible before they attend the scene of an incident. The ability to send and receive appropriate data and vision is paramount for policing and the safety of police officers. For example, in the future, police cars could carry cameras for video in addition to other cameras around the car, to enable clear identification of what is happening in and around a particular scene at any given moment.²⁸

27 Mr Robert Waites, PFA, *Committee Hansard*, 17 June 2013, p. 3.

28 Mr Mark Burgess, PFA, *Committee Hansard*, 17 June 2013, p. 6.