Victorian Government Submission

To the Productivity Commission

Public Safety Mobile Broadband

Study to meet the long term needs of Australia's

Public Safety Agencies

Draft Report

November 2015

Introduction

1. Victoria welcomes the Productivity Commission's (the Commission) Draft Report into the most effective way to secure a mobile broadband capability to support the safety, wellbeing and economic access of all Australians.

2. This submission provides the Victorian Government's formal response to the Commission's Public Safety Mobile Broadband (PSMB) Draft Report. This Submission reiterates positions consistent with Victoria's original submission to the Commission and previous positions to the Commonwealth on PSMB issues. In preparing this submission, relevant Victorian departments and agencies were consulted.

3. The Commission's Draft Report adds significant analysis and observation to understanding the challenges and merit of deploying a national PSMB capability. Victoria contends that further detail is necessary to clarify the key assumptions underpinning the analysis. This submission will seek to take and use the Draft Report's analysis and offer suggestions in relation to turning the Draft Report's analysis into practical steps towards implementation.

4. The Victorian Government welcomes the Draft Report's economic perspectives in what has previously been a narrow discourse around public safety and service requirements. Victoria acknowledges the economic and financial considerations drawn out in the Draft Report, but contends that to be effective, they need to be translated to realistic scenarios that reflect State and Territory (Jurisdictions') service imperatives.

5. Victoria agrees that one size does not fit all Jurisdictions' circumstances and that flexibility is needed. However, the Draft Report's analysis takes an averaging position that does not capture the real world challenges Public Safety Agencies (PSAs) face. The analysis is based on a median that assumes a uniform requirement across the country and assumes that the assumptions apply equally across Australia. It is in effect a theoretical construct which does not readily transfer to any one geographic location or jurisdictional service delivery imperatives.

6. Recognising the different jurisdictional needs across Australia, Victoria considers that the Draft Report has not built enough flexibility into its analysis. The Final Report would benefit from a more robust sensitivity analysis and the examination of some more realistic PSMB deployment scenarios (discussed below).

7. Victoria considers the following matters are key omissions in the Draft Report's analysis:
   - A 20 year time horizon requires planning to transition to a mission critical PSMB service.
   - Victoria and other jurisdictions currently have mission critical voice capabilities, which should be used as a reference for minimum requirements of a PSMB network.

- Use of spectrum that the Commonwealth spent considerable effort in internationally harmonising for Public Protection and Disaster Relief purposes has not been considered.
- There are no technical standards referred to in the Draft Report that allow immediate access to commercial networks in all public protection and emergency circumstances. Victoria notes there is no evidence provided of these standards in place anywhere internationally.
- There is no consideration of existing State public safety and other communications infrastructure and investment.

8. In this Submission, Victoria identifies the following five areas that should be addressed in the Final Report:
   - The transition of voice to a PSMB capability.
   - The PSMB capability is under-specified.
   - Procurement and competition.
   - The Commonwealth's role in delivering a PSMB capability.
   - Spectrum and Opportunity Cost.

9. Victoria maintains that a hybrid model, including an allocation of spectrum, must be part of the solution, at least during the transition phase to 2020. As the market evolves, other delivery options may become available; however, utilisation of solely commercial carrier networks is not a practical starting point.

10. Clearer statements around the limitations of the analysis and how the report should be used by policy makers should be provided in the Final Report. In addition, the Final Report should provide clearer direction on the policy steps to achieve a more efficient, effective and economical PSMB capability.

11. Victoria has diligently responded and contributed to these deliberations and will continue to do so in coordination with all jurisdictions.

12. Victoria welcomes the opportunity to respond to the Commission's Draft Report and looks forward to working collaboratively with the Commission, the Commonwealth Government and all jurisdictions to develop effective and efficient PSMB arrangements.

Victorian Government's Key Points in response to the Draft Report

Voice must be incorporated into a PSMB capability

13. The Draft Report's analysis must be re-visited to incorporate the transition of voice services over to a PSMB capability.

14. *"It is too early to consider delivering mission critical voice services (such as 'push to talk' and 'group calling' applications) over a PSMB network" (PSMB Draft Report pg. 12).*
This statement in the Draft Report is out of step with the practical implementation of PSMB. Voice is a critical omission from the analysis. The transition of voice services from existing narrowband networks will occur within the 20-year planning horizon for a national PSMB capability. Most major jurisdictions are planning to replace Land Mobile Radio (LMR) networks within the next five to fifteen years, well within the Commission's 20-year planning horizon.

15. Like many other jurisdictions, voice over 4G Long-Term Evolution (LTE) is a key part of Victoria's long term planning for PSA communications, with options to transition from LMR networks before 2025. The key objective of Victoria's Emergency Management Operational Communications Program (OCP) is to consolidate the State's multiple voice and narrowband data networks to a single, state-wide, integrated voice and narrowband network and high quality, high availability broadband data network for all PSAs. The OCP also notes that Victorian PSAs must make savings in the current voice arrangements to afford future data capabilities.

16. All major international jurisdictions, the International Telecommunications Union and mobile carriers recognise that delivering voice over mobile broadband is a long term requirement for PSAs. By only considering the data requirements of PSAs within its analysis, the Draft Report has not addressed the PSAs long term needs.

17. There is likely to be significant benefits in moving public safety voice on to common networks and spectrum, with additional benefits available if the duplicative LMR networks can be eventually shut down. Victorian PSAs currently spend approximately $150 million per annum on voice communications networks. If Victorian PSA voice communications were to transition to a PSMB capability by 2025, the Victorian Government estimates cost savings in the order of between $590 and $850 million[1] over the 20 year planning horizon. There are also significant spectrum efficiencies associated with consolidating networks, which aligns strongly with Commonwealth spectrum policy objectives. Existing State assets can also be re-tasked/leveraged to deliver a PSMB capability, with cost savings associated with the leveraging of LMR fixed infrastructure estimated to be 10 per cent of total build costs.

18. Victoria agrees that future PSA data requirements are uncertain. Therefore, to provide certainty, it proposes that mission critical voice specifications are used to determine requirements of a PSMB capability. The inclusion of voice would avoid the uncertainty of mission critical data specifications, which are currently being determined globally. The public safety sector knows today that voice is mission critical and has a deep understanding of the

[1] Present value savings from LMR shut down, voice delivered over LTE in 2023 – 2025 utilising Commission's Discount Rates.

requirements around this capability. The Final Report needs accommodate voice services in its specifications.

19. **The Commission's Terms of Reference and the duration of the Commission's analysis clearly bring voice into scope. Jurisdictions are driving towards voice over mobile broadband. The Final Report's recommendations should accommodate the transition of voice and the cost modelling should account for the significant cost offsets that exist in consolidating voice on to common networks and spectrum.**

The PSMB capability is under-specified

20. In addition to the exclusion of voice, the Draft Report's coverage, capacity and availability assumptions do not meet the current requirements of PSAs dealing with 'mission critical' situations on a daily basis.

21. Jurisdictions have provided a substantial amount of information (both on a confidential and public basis) relating to the specification for a PSMB capability. There is little evidence that the Draft Report has considered this information in its analysis and specification of a PSMB capability. The Final Report needs to clarify the use of confidential information within its analysis. If confidential information provided has not been used to inform the Draft Report, this is a key weakness of the analysis.

22. The Draft Report has recognised that public safety networks have enhanced coverage, capacity and network availability needs over and above commercial networks. However, the Draft Report has used commercial network benchmarks to determine their starting definition of 'mission critical'. Victoria understands that it is necessary to specify a PSMB capability to conduct a like-for-like analysis. However, the reference case is too low to provide practical guidance to deliver a PSMB capability.

23. **A PSMB network operated at the service levels defined by the Draft Report would significantly increase the risk of communications failure (loss of network access) in an emergency situation and result in an unacceptable risk to public safety.**

24. As discussed above, Victoria considers that voice should be used as the benchmark for a PSMB capability. From a Victorian perspective, a PSMB capability must address the coverage, capacity and availability requirements outlined below. Australian regional and rural communities will not accept the consequences of PSMB implementation taking PSA communications capabilities backwards.

    Coverage

25. Victorian PSAs will not regress in their communications capability. Victoria expects a PSMB capability to be of an equivalent coverage footprint to its existing networks. Today, Victoria's LMR networks cover greater than 99 per cent of Victoria's population (95 per cent of geographic coverage – 15 per cent more landmass coverage than the nearest commercial network). According to the 2015 Regional Telecommunications Review, there is no commercial network that can provide this coverage without significant investment. The table on the next page demonstrates the level of investment required for two of the Eastern Seaboard States to bring mobile coverage to the same level as current LMR coverage.

26. Victoria estimates that NSW and Victoria, which make up at least 50 per cent of Australia's population, need augmentation of their commercial network coverage.

State	Population	Km^2	LMR % Coverage	LMR (Km^2)	Mobile % Coverage	Mobile (Km^2)	Minimum increased investment required in commercial coverage (Km^2)	Minimum increased investment required in commercial coverage (%)
NSW	7,544,000	809,444	63%	509,950	28.2%*	227,939	282,010	124%
VIC	5,971,000	237,629	95%	225,748	80%	190,103	35,644	19%

*Mobile coverage for NSW has been assumed to be the national Telstra footprint normalise to omit the known Victorian footprint.

27. The Draft Report's use of population as the determinant for PSMB coverage is flawed. Victorian PSA coverage requirements are determined by risk, rather than population. During emergency events, to protect lives and property, PSA activity and communications needs are often adjacent to or outside of commercial coverage areas. **The weakness of using population to determine coverage requirements of a PSMB capability is highlighted by the recent fires in Lancefield, Victoria. The town of Lancefield has high quality 4G mobile coverage; however, PSAs responding to the fire were operating in areas with no mobile coverage (i.e. National Park and low population areas). The mobile blackspots surrounding Lancefield where the fire burned were not ranked in the top 6000 Mobile Black Sport Programme (MBSP) blackspots nationally due to the criteria set by the Commonwealth which highly valued population.**

Capacity

28. To respond to emergency events effectively, PSAs require access to communications networks at all times. It is not clear in the Draft Report how PSAs will be guaranteed access to commercial networks in times of peak demand.

29. The Draft Report assumes that there is sufficient spectrum/capacity within commercial networks to meet public safety direct and overflow demand. This assumption does not align with the many referenced examples of commercial networks becoming unavailable due to commercial capacity limitations in peak demand events. The Final Report needs to address this concern.

30. Priority access calls made on commercial mobile networks continues to grow. Australia's largest Triple Zero operator, Victoria's Emergency Services Telecommunications Authority (ESTA), has experienced 5 per cent growth in mobile originated Triple Zero calls over the last three years with 59.9 per cent of all Triple Zero calls now originating from mobiles. Growth in mobile calls from the community will continue to stretch commercial networks in emergency events.

31. The Draft Report does not make it clear how commercial networks will allow PSAs access when capacity is saturated. The market has not yet offered a prioritised access product. At this point in time, the technical capabilities, risk and liability, costs and Service Level Agreements (SLA) are unknowns. Victoria is concerned that unfavorable arrangements would eventuate in a single supplier market. The Draft Report has not demonstrated how the mechanism for these arrangements will operate and if any costs will be imposed by the carriers on the Jurisdictions.

32. The Draft Report has augmented commercial networks with additional infrastructure to reuse spectrum for additional capacity. Victoria cannot determine how this compares to a dedicated network and spectrum and seeks to understand how it has been determined that sufficient capacity exists within commercial networks to meet PSA demand.

33. **Victoria stands by its historical position that the Commonwealth should allocate at least 20MHz of spectrum to realise the community safety benefits from a PSMB capability. Victoria recognises that spectrum facilitates the telecommunications capability and that the capability needs to be available and accessible within the service parameters. Equally, it must be affordable to maximise the public value. Victoria recognises that a minimum allocation is necessary to maintain a core capability to leverage for extreme events.**

Availability

34. The Draft Report's proposed 99.9 per cent availability is not regarded as "always available" with unplanned outages of up to 40 minutes per month considered by industry as a best endeavors network. Victoria's Mobile Data Network's (MDN) core network service availability has performed well in excess of 99.99 per cent over the last nine years.

35. Victoria has not seen any evidence that commercial networks can meet PSA coverage and capacity requirements. The Final Report needs to augment the commercial network option to increase coverage and capacity, as it does not currently meet PSA requirements (spectrum availability and additional infrastructure and electronics must be provided for).

36. Victoria is concerned that the Draft Report specifies a capability that it deems as being adequate for PSAs. The Final Report needs to be explicit that this capability will not meet the requirements of all Australian PSAs. The Draft Report exposes PSAs to the risk that the commercial market will be able to determine what is sufficient for PSAs. This risk is already apparent within the current market, as carriers refuse to offer any SLAs for use of 3G/4G services.

37. In seeking to undertake a like-for-like analysis between delivery options, the Commission has specified a PSMB capability at a very low level. That is, a capability based on the requirements of the jurisdictions with the lowest level of accepted service standards. No jurisdiction will regress on its requirements. PSAs deal with significant risk daily and are currently mitigating this risk through existing LMR networks. Victoria stresses that regressing would expose Jurisdictions to unacceptable risk.

38. The Final Report needs to explicitly state that the PSMB capability it has specified is a base case analysis and should not limit Jurisdictions' abilities to pursue a more advanced PSMB capability. Victoria considers it would be prudent and very beneficial if the Final Report were to analyse other scenarios reflecting greater service requirements or alternatively reflect the additional costs within the commercial network approach.

Procurement and competition

39. In principle, the Draft Report's procurement recommendations are theoretically sound. However in practice, they are unlikely to be sufficient in the current market context. The Draft Report's findings and recommendations do not address the lack of contestability of the current market, nor the Commonwealth's role, powers and responsibilities.

40. Victoria already manages commercial risks through contracting and procurement processes. However, without the necessary competition within the market or alternatively the powers to mitigate lack of competition, it continues to be exposed to adverse outcomes.

41. The commercial market in its current state is not in a position to deliver a PSMB capability. A sole supplier solution is implied in the Draft Report specification and proposed commercial option for delivering a significant portion of the PSMB network. Victoria believes that where sole sourcing arrangements exist (e.g. Defence), the Final Report should examine and benchmark these arrangements.

42. Victoria agrees that within metropolitan areas, there is greater contestability within markets. However, outside densely populated metropolitan areas, telecommunications markets are very different, often with only one supplier. Victoria points to the recently completed 2015 Regional Telecommunications Review, which highlighted the differences in these markets and the need for greater Commonwealth intervention in regional and rural markets across Australia.

43. Victoria would actively seek to leverage a competitive market, but in many areas it does not exist. Relying on a depth of market to deliver competitive procurement as demonstrated by other jurisdictions may not deliver the Draft Report's envisaged outcomes. The market analysis provided in the Draft Report shows Telstra's market dominance in regional Australia, but this problem is not addressed in the findings and recommendations of the Draft Report.

44. Victoria notes that even in more competitive markets internationally, jurisdictions have had to rely on sole sourcing arrangements due to a lack of market depth. For example, in the UK tender for network services to six prequalified invitees, only one participant elected to bid.

45. Victoria considers that Commonwealth policy instruments are likely to provide a more effective means to achieve the most cost-effective PSMB capability in the current market. Other jurisdictions are leveraging comparable broadband and mobile in-fill initiative to leverage a cost-efficient PSMB build.

46. The Commonwealth is addressing market failure in other telecommunications markets by intervening with initiatives such as the National Broadband Network (NBN) and MBSP. Such initiatives fall well short of supporting the level of coverage and market competition required to implement the Draft Report's recommended commercial option. However, they do provide a precedent for Commonwealth intervention**. Effective Commonwealth intervention could allow Jurisdictions to pursue many of the other procurement recommendations within the Draft Report. But without an effective response to market failure, the Draft Report's current procurement recommendations are insufficient.**

The Commonwealth's role in delivering a PSMB capability

47. In the long term, a commercial model for delivery of PSMB could emerge as a practical option. However, the risks that are likely to be realised with the Draft Report's commercial approach to delivering a PSMB capability by 2020 include:
    a. Coverage offered by commercial carriers is inadequate.
    b. Limited capacity and conflict with other users means PSA communications is inadequate (inadequate service levels for PSA requirements).

c. Lack of competition in commercial mobile market leads to inefficient pricing and prohibitive costs.
d. A fit-for-purpose commercial product for the Australian market is not developed in a reasonable time frame, particularly when this is not a common approach amongst other jurisdictions.
e. Lack of national coordination undermines the interoperability objective of PSMB.

48. The Draft Report is largely silent on how these risks can be mitigated. That is, what should Commonwealth and Jurisdictions' agencies do when these risks are realised and the option of the commercial model is blocked. The Final Report should be explicit about how these issues should be managed, consistent with making significant progress on implementation by 2020.

49. These risks cannot be mitigated by Jurisdictions through procurement. They must be addressed by the Commonwealth, Jurisdictions, mobile carriers and vendors. The Draft Report provides little guidance to these stakeholders on their respective roles in addressing these risks in the short, medium and long term.

50. From every example within the Draft Report of international jurisdictions implementing PSMB, national governments are playing a strong role to ensure the enablers of PSMB are in place.

51. The Commonwealth must play a significant and effective role in delivering a PSMB capability for Australian PSAs. The Commonwealth has clearly defined responsibilities (and available mechanisms) in delivering an effective market for a PSMB capability and ensuring adequate spectrum is available to PSAs. The Draft Report fails to link the market conditions necessary for its recommended approach to PSMB to any action from the Commonwealth to achieve those market conditions.

52. Victoria points to the recently released 2015 Regional Telecommunications Review which recommends greater Commonwealth intervention in non-commercial telecommunications markets and the leveraging of Commonwealth investment to help deliver policy objectives. The Final Report should consider the Commonwealth precedent set by the MBSP co-funding arrangements to deliver broader economic benefit and public safety.

53. There are a number of other directly related Commonwealth inquiries and programs into telecommunications. Some of these include:
    a. the National Spectrum Review;
    b. spectrum harmonisation processes;
    c. the ACMA review;
    d. 2015 Regional Telecommunications Review;
    e. Attorney-General's Department governance review;
    f. Infrastructure Australia;
    g. the NBN program;
    h. the Commonwealth's review of loss making telecommunications services; and
    i. the National Infrastructure Resilience Strategy.

    In making implementation recommendations, the Final Report should be more explicit on how these processes should be aligned with PSMB.

54. Further, the Commonwealth must actively participate in governance arrangements for a national PSMB strategy. Coordination is critical to delivering interoperability across the nation. Interoperability extends beyond technical and operational into the commercial, financial, economic and, ultimately the governance arrangements.

55. **The Commonwealth has clearly defined responsibilities in delivering an effective market for a PSMB capability and ensuring adequate spectrum is available to PSAs. The Final Report must deliver strong recommendations to the Commonwealth, clearly defining the Commonwealth's role and associated responsibilities in delivering a PSMB capability.**

56. **If this does not happen, the Jurisdictions will not be able to pursue the Commission's recommendations as they will carry all the risk, without possessing any levers or power to mitigate risk or achieve an effective PSMB capability.**

57. The commercial model proposed by the Draft Report does not offer like-for-like capability compared with the dedicated and hybrid models. In some emergency circumstances, PSAs will not be able to access the commercial network.

Spectrum – Opportunity Cost

58. Spectrum is a key input for every option to deliver a PSMB capability. The Commonwealth, State and Territories and the Australian Communications and Media Authority (ACMA) are looking for practical guidance on the process and principles for the allocation of spectrum for public safety purposes.

Allocating spectrum

59. Victoria notes that the Draft Report has not addressed the question of allocating spectrum for public safety purposes. Spectrum is a public resource and the Commonwealth Government has a responsibility to ensure the adequate provision of spectrum for public safety. The Draft Report appears to overlook this Commonwealth obligation.

60. The ACMA is looking to the Commission for direction on the allocation of spectrum for public safety. ACMA has the statutory responsibility to consider the requirement for PSMB spectrum, both the quantum and location. It is ACMA that needs to draw upon a wider analysis (including the Commission's economic analysis in addition to ACMA's role in determining the public interest value). It is in this context that the Commission's analysis and its underpinning assumptions need to correlate to ACMA's analysis and their assumptions. The Draft Report does not do this. The Commission needs to be explicit in its assumptions.

61. The Draft Report and PSAs have demonstrated that at times commercial networks become saturated. However, the Draft Report has not shown how PSAs achieve prioritised access to open commercial networks in peak demand. Victoria notes that Telstra has conducted several demonstrations of LANES. However, Jurisdictions have yet to see any results from these demonstrations. These LANES demonstrations do not appear to have tested the capacity of the network to meet high level demand during an emergency event.

62. **A mission critical PSMB network cannot be supported without sufficient allocation or 'availability' of spectrum; therefore, the Commission needs to make recommendations about the allocation of spectrum for PSMB use.**

63. **The Draft Report obfuscates the Commonwealth's duty to allocate adequate spectrum to ensure safe and resilient communities. The Final Report needs to explicitly address the Commonwealth's responsibilities relating to spectrum to safeguard PSA's ability to communicate effectively into the future.**

Opportunity cost

64. In principle, Victoria agrees with the Draft Report's views on price signals, allocative efficiency and the concept of valuing spectrum at its opportunity cost generally. However, Victoria strongly opposes the Commission's notion of valuing spectrum used for public safety purposes at the opportunity cost of providing commercial 3G and 4G revenue generating services.

65. The Draft Report states that any spectrum allocated for public safety should be provided at its opportunity cost, but in doing so, it does not consider or provide any direction to ACMA on the public interest value of spectrum. The public benefit of a safe and resilient community is considerable and should be reflected in the cost benefit analysis. Otherwise the analysis is merely a cost-efficiency analysis, which fails to meet the terms of reference.

66. Further, international standards and interoperability requirements, regulated through the International Telecommunications Union (ITU), are moving towards allocating spectrum within regions for public safety use only. This sits starkly against statements around the opportunity cost of spectrum which are predicated upon a market value, as it limits alternative uses and the potential value of spectrum used/reserved for public safety.

67. Victoria suggests that unless there is capacity through regulation to provide for other complementary uses of public safety spectrum, there is no contestable market and hence no alternative value for this spectrum. Victoria is not aware of any other international jurisdiction which has sought to value PSMB spectrum on an equivalent commercial basis[2]. With no alternative market, the price for public safety spectrum should reflect the Commonwealth's direct and indirect costs.

68. PSA communications services and a future PSMB capability are non-elastic services. Victoria invests to cover risks and investment decisions are often made despite exorbitant costs. The Jurisdictions have established a requirement to build some dedicated network; pricing spectrum creates further barriers to build dedicated networks in fiscally constrained environments. The Draft Report does not provide any evidence to demonstrate that pricing spectrum will lead to efficient allocation of spectrum resources.

69. Victoria questions whether 'public interest' spectrum used for public safety purposes should be priced at the opportunity cost of commercial mobile services. This does not appear to provide allocative efficiency, but rather, simply maximises Commonwealth revenue.

70. Victoria notes spectrum used for a PSMB capability is non-revenue generating where the benefits of use are not readily quantifiable. Therefore, it is extremely difficult for '*PSAs to weigh up the benefits of using a PSMB capability against the costs*' as the Draft Report recommends. This is reinforced by the Draft Report's inability to determine the benefits of a PSMB capability.

71. **Opportunity cost pricing, which does not account for public interest, leads to the risk that PSAs are priced out of integral spectrum (due to rent seeking behaviour) and an effective PSMB capability is not delivered, leading to greater loss of life, serious injury or significant**

[2] For example, the US National Telecommunications and Information Administration has approved the build, deployment and operation of a nationwide high speed first-responder network (FirstNet) dedicated to public safety, using dedicated spectrum. Similarly, the Canadian Government has announced the allocation of both spectrum and funding to establish a PSMB network.

damage to valuable or strategic assets. The mitigation of these risks through effective PSA communications is not price driven. Victoria contends that the Final Report make strong recommendations to guard against this risk. Otherwise it will not provide a pathway to implement a PSMB capability by 2020.

72. The Commonwealth's proposed spectrum reforms, outlined in the Spectrum Review Final Report March 2015, recognise the importance of spectrum's public interest value. The Final Report must acknowledge the social benefit of allocating spectrum for the 'public interest' (as anticipated in the Commission's Terms of Reference) and incorporate it into its findings and recommendations.

Conclusion

73. Victoria encourages the Commission to consider in its Final Report the following five areas:
    - The transition of voice to a PSMB capability within the planning period of 20 years.
    - The utilisation of mission critical voice specifications to provide certainty.
    - Procurement of PSMB on commercial networks in an imperfect market structure.
    - The Commonwealth's role in ensuring and delivering a PSMB capability.
    - Spectrum allocation and opportunity cost of spectrum that is internationally harmonised for Public Protection and Disaster Relief purposes.

74. Victoria maintains that the Final Report should:
    - Accommodate flexible build and buy arrangements, recognising the different jurisdictional mission critical voice and data capability needs (both current and future), and affordability
    - Maximise the synergies between the Commonwealth related activities to the benefit of community, PSAs and governments
    - Recognise the commercial mobile capability and imperfect market, which has been in operation for nearly a decade, and the unique PSMB voice and data capability and capacity requirements and consider what additional conditions need to be in place to meet PSMB needs.

75. Under any scenario, Victoria maintains that a hybrid approach will be required to meet the PSA's coverage and capacity requirements to protect Australians.

76. Victoria looks forward to working collaboratively with other jurisdictions and the Commission to identify PSMB arrangements that will operate efficiently and effectively to maximise public value and address the current and future needs of PSAs and the community.

77. Due to long term consequences and the importance of the Final Report, Victoria has not made comment on areas outside its authority or expertise, such as international standards.

Section B: Victorian Government Response to the Productivity Commission's Findings and Recommendations

Mobile broadband offers significant potential benefits

DRAFT FINDING 2.1
The land mobile radio networks used by PSAs are reliable and have extensive geographic coverage (voice only). However, they only support low speed data applications, and they lack technical interoperability. This can prevent PSAs from communicating with one another, and means that radio equipment does not work upon crossing jurisdictional borders.

Victoria agrees with this statement, noting that Victoria's long term communications plan envisages that within the 20 year horizon all networks (including voice) will be consolidated onto a mission critical broadband network. In the immediate term, Victoria will continue to invest in LMR for the next five to ten years.

Jurisdictions are committed to achieving interoperable operational communications and has invested in the 400Mhz Government spectrum harmonisation plan. Also note that the Eastern Seaboard states share common technology in their metropolitan networks.

The extensive geographic coverage of LMR is significant as Australian PSAs and Jurisdictions will not accept a reduction in geographic coverage of a PSMB capability in the transition to PSMB-based voice services. Note that a precondition of the UK utilisation of commercial networks for public safety is that the replacement network will have equivalent coverage as the existing LMR network (the current UK LMR network is quoted as covering 99 per cent of the UK land mass).

Victoria believes the Final Report must incorporate the transition of voice off LMR networks and onto a PSMB capability in this finding.

DRAFT FINDING 3.1
PSA use of mobile broadband applications has the potential to improve the quality of public safety services, the operational efficiency of PSAs and the safety of officers.

In outlining the benefits, the Draft Report fails to mention the potential significant cost savings of transitioning voice off dedicated LMR networks to a unified mobile broadband network. The Draft Report has acknowledged in public presentations that LMR networks will be in existence for the next five to ten years, and because the study is planning for a 20 year horizon, the cost benefits of consolidating the LMR networks on the PSMB network must be considered in the scope of the Final Report.

Victoria recommends the Final Report utilise mission critical voice as a benchmark for the definition of requirements for coverage, capacity and availability.

There are two LMR cost offsets that must be considered: avoided costs of continuing the LMR networks and infrastructure reuse.

DRAFT FINDING 3.2
PSAs' uptake of mobile broadband applications is limited at present due to concerns about the quality of commercial mobile services. Critical issues include the ability of PSAs to get priority access to — and sufficient capacity on — commercial mobile networks during times of congestion, and the reliability of commercial networks relative to land mobile radio networks.

Victoria agrees with the Draft Report's finding that commercial mobile networks do not currently deliver acceptable service levels to PSAs during periods of congestion, making them unsuitable for PSA use. This finding, and its identification of capacity constraints, does not align with the Draft Report's cost analysis. The Draft Report has assumed that there is sufficient capacity/spectrum within commercial networks to cater for PSA demand as the Draft Report has not costed into the commercial approach access to networks in times of high demand/capacity constraints. The build options (fully dedicated or partial hybrid networks) will necessarily require spectrum and network investment. The Draft Report has assumed in its cost modelling on capacity that there is sufficient head room available for use by PSAs at all times in regional areas.

It appears that the Draft Report has found that there is adequate capacity in the commercial networks to meet public safety needs. Victoria would request that these findings and underlying analysis are made available. It is not clear how capacity constraints of commercial networks or access rights to commercial networks in surge events will be handled for public safety agencies as there are no policy or regulatory incentives to achieve this. In addition, there is no cost premium proposed by the Draft Report for PSAs to access networks in time of commercial network capacity constraint.

The Draft Report has utilised infrastructure infill of commercial networks as a like for like replacement for dedicated (reserved) capacity in partial or full dedicated network models. There are issues with scalability as this infill capacity is not available immediately nor is it partitioned from commercial use.

Victoria requests the Commission provides the evidence of how a full commercial solution would work to ensure that adequate reserved capacity exists. It is unclear if the Draft Report is suggesting a cross subsidisation of the build. If so, will PSAs have exclusive rights to the sites, or will the commercial carriers be able to use the infrastructure paid for by the government for commercial gain?

A PSMB capability must support mission critical situations

DRAFT FINDING 4.1
The communications needs of PSAs are characterised by high and non-predictable peak periods. PSAs can (and do) employ strategies to reduce their demands on communications networks during peak periods without any significant loss of benefits. Provisioning a PSMB network to meet relatively infrequent peak events would be prohibitively expensive.

Victoria confirms the Draft Report's finding that PSAs employ strategies to reduce their demands on communications networks during peak periods. If PSA communications are migrated to commercial carriers, it is not clear if similar strategies would be employed in the commercial environment to regulate demand. There is no recognition in the Draft Report's findings that Jurisdictions will need a commercial or regulatory mechanism (e.g. pre-emption rights,

priority, etc) to ensure that capacity is consistent with emergency services requirements. The Draft Report has established that PSAs adopt strategies to reduce traffic on their own networks and they have also established that commercial networks become inaccessible in peak commercial demand. However, the Draft Report does not offer a remedy or strategy for the occasions commercial networks are congested; e.g. what are the strategies commercial networks will utilise when their networks are so heavily congested that no user (commercial or public safety) is able to access the network, otherwise, the logical conclusion is that commercial users have priority on the network at times of peak demand. Further, if commercial networks degrade their service levels to commercial users to allow public safety users access, how will commercial networks price this opportunity cost (direct and indirect costs of lost revenue and consequential customer churn). Has the Commission considered the cost of indemnity and warrantees that may be a consequence of these arrangements?

Victoria is unaware of examples from other jurisdictions where PSAs successfully utilise commercial networks with prioritisation/pre-emption mechanisms in place, and would be grateful if the Final Report could provide such examples. These examples should demonstrate that commercial networks and spectrum are fit-for-purpose for PSAs in an unregulated market.

DRAFT FINDING 4.2
PSAs' use of mobile broadband services and applications would likely increase significantly if a PSMB capability were available. However, the level of network capacity that PSAs would use is highly uncertain, as are the benefits of that use.

Victoria agrees with the Draft Report's finding in relation to the uncertainty of data adoption and that there are relatively few benchmarks that can be utilised for public safety broadband data adoption. However a number of developed nations, such as the US and Canada, have already made spectrum allocations in scarce spectrum supply markets, on the basis of predicted data adoption rates and expected benefits.

Given that public safety voice over broadband must be considered in the 20 year planning period, and the utilisation of public safety voice over broadband is highly predictable, the characteristics of the current voice LMR networks should be used as an initial benchmark for coverage and availability.

The Draft Report has highlighted the uncertainty surrounding the future network capacity needs of PSAs. Therefore, Victoria questions how the Draft Report can determine that there is sufficient capacity within commercial networks to cater for future PSA demand. Can this uncertainty around capacity be addressed through a more robust sensitivity analysis?

Of particular relevance to the emergency services sector is the coverage and capacity of networks with a known level of resilience to fire, flood, terror threat, etc.

There has been considerable work undertaken at international forums, led by the International Telecommunications Union (ITU), related to the standardisation of spectrum allocations for the purposes of Public Protection and Disaster Relief (PPDR). As noted their response to the Draft Report, ACMA has been a key contributor to this spectrum harmonisation initiative, specifically ensuring that Australia's interests are accommodated through the allocation of adequate spectrum for PPDR within the Asia Pacific (Region 3). Should Australia divert from the principle of assigning dedicated spectrum for PPDR, it will be operating against the international standards and principles that it assisted in developing. It will also be contrary to the recommendations

of the Joint Senate Committee that recommended an allocation of dedicated spectrum for PSMB.

It is a requirement of the ACMA to ensure that adequate spectrum is provided for PPDR purposes. ACMA's ability to meet this requirement may potentially be compromised if the Final Report recommends that no dedicated spectrum is provided for PSMB. In addition to constraining the ACMA from fulfilling its role, such a recommendation may, as described above, constrain Australia's ability to conform to the international harmonisation work it contributed to.

DRAFT FINDING 4.3
PSAs expect a PSMB capability to deliver a standard of service that would allow them to use mobile broadband data applications in 'mission critical' situations (where there is a material risk of loss of life or severe injury).
However, operationalising the concept of a mission critical data network is difficult. The Commission has proposed a starting point definition for service quality. Specifically:

- **the network should be available 99.9 per cent of the time, and cover at least 99 per cent of the population**
- **PSAs should be provided with priority access to (and capacity on) PSMB networks, with scope to change these arrangements in real time**
- **PSAs should be able to communicate with each other (within and across jurisdictions), including by accessing PSMB networks upon crossing jurisdictional borders communications over a PSMB network should be secure.**

The Draft Report has not addressed the long term needs of Australia's PSAs as it has not considered the long term capabilities of a "secure mobile broadband capability". The Draft Report has only considered the data requirements of PSAs and has concluded that voice will not be a long term requirement (as LMR networks will remain in place). All major international jurisdictions recognise that mobile broadband is a long term requirement projecting beyond 2025. All major international jurisdictions including the UK and US are planning to deliver voice over broadband (VOLTE) in the future, utilising the same spectrum and networks as those utilised for data services. The ITU is working with all jurisdictions to ensure there is an agreed international standard for mission critical voice over LTE. Commercial carriers, including Telstra, are adopting VOLTE. There may be significant benefit in moving public safety voice on to common networks and spectrum. There are also additional benefits available if the duplicative LMR networks can be eventually shut down for Victoria alone, the potential offset from LMR would be in the order of $590 and $850 million[3].

The Draft Report's starting point definition for service quality in relation to 'mission critical' situations is not adequate. The mission critical requirements the Draft Report are seeking comment on are under-specified.

The Draft Report has recognised that public safety networks have enhanced coverage, capacity and network availability needs over and above commercial networks. However, it appears the Draft Report has used characteristics of commercial networks as the determinant for their starting definition of 'mission critical'. Recognising that PSAs will not accept a reduced level of network capability (which includes capacity, availability and coverage), 'Mission critical' coverage requirements should be greater than the 99 per cent population coverage. Coverage requirements need to be determined on a risk basis. Significant risk exists in non-populated areas of Victoria (e.g. fire), for this reason the current LMR coverage is 95 per cent of Victoria's geographic area.

[3] Using a discount rate of 7% over a 20 year time horizon (consistent with the Commission's model)

PSA activity and communications needs are often adjacent or outside commercial coverage areas to protect lives and property, so population is not a good proxy for where risk of natural hazards emanates. For example, the recent fires near Lancefield, Victoria occurred mainly in an area with no mobile coverage, and of the 6000 priority sites across Australia for mobile blackspots, it did not feature. The Final Report should utilise current voice networks as benchmark for coverage and resilience (capacity as a minimum). The State would be grateful if the Final Report could demonstrate on a first principle basis how the existing commercial networks meet the PSA requirements.

In relation to the Draft Report's 99 per cent population coverage requirement, there is only one commercial supplier that meets the 99 per cent population coverage requirement, so the Draft Report inadvertently guarantees a one carrier solution.

Defining 'mission critical' requirements appropriately and determining an approach which delivers a mission critical PSMB capability which delivers appropriate coverage, capacity and resilience is fundamental. Any emergency event can escalate, anywhere, any time and PSAs need to plan for that.

INFORMATION REQUEST
The Commission is seeking feedback on how it has operationalised the concept of a mission critical mobile broadband data network (draft finding 4.3).

Please refer to Victoria's response to Draft Finding 4.3.

The Draft Report's current definition of a 'mission critical' solution is inadequate for an effective PSMB capability - the current LMR voice networks should be used as the benchmark for coverage and availability.

Availability – The proposed 99.9 per cent availability (40 min outage per month) is not regarded as "always available" and is considered by the industry as a best endeavours network. The current Service Level Agreements (SLAs) for Victoria's Mobile Data Network (MDN) network exceeds this level of service, with core network service availability performing well in excess of 99.99 per cent over the last nine years. Note - Motorola is penalised if any device is not able to access the network for greater than 41 minutes per month.

Coverage – The Victorian LMR networks cover greater than 99 per cent of population with over 95 per cent of the Victorian land mass covered by at least one LMR network. The importance and necessity of this geographic coverage is evident by how much of the Black Saturday fires fell outside of Telstra's commercial network coverage. The Draft Report has utilised the best available commercial network coverage, Telstra, as the benchmark for public safety coverage. The Telstra network covers approximately 30.6 per cent of the Australian land mass, whereas the next best commercial coverage, Optus, covers less than half this area with only approximately 12 per cent of the Australian land mass covered (Victorian Supreme Court evidence February 2014). The Commission has modelled an outcome that would reduce the current public safety coverage, this is untenable. The UK for example has committed to deliver greater or equivalent coverage to PSAs when utilising commercial networks. The table below demonstrates the investment required to bring commercial network coverage up to the level currently enjoyed by LMR users.

State	Population	Km^2	LMR % Coverage	LMR (Km^2)	Mobile % Coverage	Mobile (Km^2)	Minimum increased investment required in commercial coverage (Km^2)	Minimum increased investment required in commercial coverage (%)
NSW	7,544,000	809,444	63%	509,950	28.2%*	227,939	282,010	124%
VIC	5,971,000	237,629	95%	225,748	80%	190,103	35,644	19%

*Mobile coverage for NSW has been assumed to be the national Telstra footprint minus the Victorian footprint.

Victoria has provided substantial information to the Commission on current coverage, capacity and resilience of voice networks, which must be taken into consideration given this is in-scope over the study's 20-year planning horizon.

Capacity – The Draft Report has assessed that the commercial carriers have sufficient spectrum and network capacity to meet public safety direct and overflow needs as there are no costs for either spectrum or increased base stations/transmitters (noting that the Telstra LANES concept cited by the Commission as a potential commercial solution requires dedicated capacity and spectrum). The Commission and PSAs have referenced examples of commercial networks becoming unavailable due to commercial capacity limitations in peak demand. It appears that the Draft Report has found that there is adequate capacity the commercial network to meet public safety needs. We would request that these findings and underlying analysis are made available.

Options for delivering a PSMB capability

DRAFT FINDING 5.1

The costs of delivering PSMB under any option can be reduced by:

- **maximising use of existing infrastructure**
- **sharing network capacity among PSAs in real time (that is, a non-partitioned network)**

allowing for flexible use of spectrum across users.

Victoria agrees that existing assets can be leveraged to deliver a PSMB capability through a hybrid or build approach. This should be incorporated into the cost analysis for the build and hybrid approaches. Early estimates suggest that Victoria would be able to leverage 150 State-owned radio sites, at a minimum, to reduce the infrastructure build costs. Use of these existing infrastructure would have a sizeable impact on the costing of these approaches.

DRAFT FINDING 5.2

Providing a permanent PSMB capability in areas not currently covered by commercial mobile networks would be very costly. There are lower cost options that can be pursued to provide a level of mobile broadband coverage and capacity (such as transportable equipment or satellite broadband), albeit not to a 'public safety' standard.

Victoria agrees with the Draft Report that alternatives would not be of a 'public safety' standard. Transportable equipment cannot be offered as a solution to meet an equivalent voice service, since it cannot be practically rapidly deployed for most business-as-usual PSA activities outside the current commercial network footprints. It has already been established that the Final Report must consider the replacement of LMR voice over the 20-year planning horizon. As a minimum, public safety requires a like for like replacement (coverage, capacity and resilience) for voice services, and the deployment lag of deployable solutions is unworkable in most emergency events.

Victoria's LMR network footprint has been determined using risk-based assessments. Any reduction in the footprint would result in an increased risk to the operations of the State's PSAs, and the community at large.

DRAFT FINDING 5.3

There are technical and institutional barriers to interoperability that will need to be overcome.

- **Technical interoperability across mobile broadband networks requires compatibility of network equipment, end user devices and software. A common and agreed set of technical standards can facilitate this.**

Agencies will need to develop protocols and procedures for storing and sharing information, both with other agencies in the same jurisdiction and with interstate counterparts.

Victoria agrees with finding regarding the barriers to interoperability.

Victoria considers that the Commonwealth is best placed to lead the process (with input from Jurisdictions and PSAs) to achieve interoperability across mobile broadband networks across jurisdictions. The PSMB National Implementation Plan – Developing National Interoperability, October 2012, agreed that multijurisdictional bodies will be established to oversee the capability form planning through to implementation. The Plan also noted that governance of procurement, trial, implementation and reviews has yet to be proposed and agreed.

DRAFT FINDING 5.4

It is technically feasible to deliver a PSMB capability under a dedicated, commercial or hybrid approach. However, the ability of commercial mobile carriers to provide PSAs with 'guaranteed' network access and priority over other traffic without dedicated spectrum is yet to be demonstrated.

Victoria agrees with high level finding, but questions some aspects of the Draft Report's detailed analysis.

It is not clear from the Draft Report what sort of commercial arrangement is being considered as having the best cost benefit outcome. The Draft Report has utilised two international reference cases; Belgium and the UK. In both cases the commercial solutions have utilised commercial wholesale carrier arrangements by leveraging Mobile Virtual Network Operator (MVNO) models. A MVNO allows abstraction of services from the carrier network, along with the ability to deliver value added services, such as provisioning and network monitoring, it allows for a more "cost-plus" pricing model. The Final Report should consider if a MVNO model is available in Australia to meet the mission critical needs of public safety (noting that Telstra does not offer a 4G MVNO solution in the market presently).

It is also not clear from the Draft Report how Australian public safety spectrum needs differ from other developed nations. The Draft Report has recognised that there is little actual local or international data available to model spectrum and capacity requirements. However, most other major international jurisdictions recognise that the allocation of spectrum (and in some cases sufficient funding) is necessary, with North America mandating a 20MHz allocation and the European Community seeking a similar allocation.

Victoria's comments relating to capacity in response to other findings are relevant. The Draft Report's assumptions around capacity do not align. Detailed analysis states that there is not enough capacity or at the least capacity needs are very uncertain, however in the cost analysis there is assumed adequate capacity.

The Draft Report comments on allocative responsibility of ACMA for spectrum but is silent on its duty to ensure sufficient spectrum/capacity.

Victoria requests the Final Report provide a first-principles analysis demonstrating the technical feasibility of a commercial network providing service of an acceptable standard for PSAs.

INFORMATION REQUEST
To what extent do the current LTE standards support dynamic adjustment of the prioritisation of users or applications in real time? Can dynamic adjustment of prioritisation be on the basis of a user's role, agency or location? Using non-proprietary technology, is it possible for dynamic prioritisation to feature in commercial delivery approaches?

Victoria recommends the Commission seeks information regarding international standards from appropriately qualified sources, but notes that a first principles approach should be used to determine on an evidence basis if real time access can be achieved.

Victoria believes deeper research is required before definitive recommendations can be made with regard to the use of prioritised commercial networks. One supplier claims to hold patents that allow near real time discrimination at the base station (BTS layer). Victoria understands that there is progressively more lag and less real time adjustment depending upon where the prioritisation decision is made at the base station, network or information layer.

DRAFT FINDING 6.1
A commercial approach is the most cost effective way of delivering a PSMB capability to PSAs. Preliminary analysis indicates that a dedicated network is nearly 3 times more expensive than a commercial option.
A hybrid option is also more expensive than a commercial option, though the cost difference narrows as the size of the dedicated network component of the hybrid option decreases.

The Draft Report notes that prices that Jurisdictions pay may differ from the actual cost of providing the PSMB capability. Victoria considers that the cost to the end-user of the service is a more effective comparison as these costs are the dollars that will be coming out of State budgets. The quantum of investment the private sector makes to deliver PSMB capability is somewhat irrelevant as the addition of profit margins/premiums and the consequences of minimal/no competition within the market can have significant effects on the actual cost to an end-user of procuring a PSMB capability. Victoria would

argue this is not like-for-like comparison with the costs quoted for the commercial approach to delivering a PSMB capability.

The Draft Report states - "*Market prices are of limited use in this analysis, because the prices actually paid in markets do not always reflect the underlying costs*" (pg. 91) *"market prices… may reflect the cost of past investment – or imperfections in the market".*

The Draft Report models incremental commercial network investment on a cost plus basis, with no price premium. Commercial carriers are unlikely to operate in this manner and will seek to maximise shareholder returns and price based on what the market will bear with commercial mobile carriers seeking to maximise the price public safety will pay knowing the cost public safety avoids if it does not have to fund the build of a dedicated network.

The Draft Report estimate costs of delivering a PSMB capability relative to status quo. This approach does not examine or incorporate costs of current PSA communications networks (e.g. LMR networks). Victorian PSAs have committed to transition legacy communications networks to one unified mobile broadband (voice and data) network. The Draft Report has not accounted for voice and its transition, which is explicitly stated in its Terms of Reference ("*integrate voice communications that are traditionally carried on narrowband networks*"). The Draft Report notes that voice integration is likely at some stage but will determined by a number of factors and left at that. The Final Report needs to examine the associated cost savings of transitioning voice and bring them into the equation. This could be a significant cost avoided to the community and can be diverted into developing a PSMB capability. The Final Report should recommend voice integration with PSMB.

The starting point of the Draft Report's cost analysis is very beneficial for the commercial approach as it coincides with maturity of Telstra's and the other carrier's mobile networks and 4G rollout. As the Draft Report does not reflect all costs but only those post-2017, Victoria assumes that PSAs would pay a price that reflects only these incremental costs to carriers then.

In the commercial approach, outside commercial coverage, alternative communications (transportable equipment and satellite) are not costed.

Commercial risks associated with a commercial network approach been not been factored into costs, which include pricing in a market with a lack of competition.

The Draft Report does not appear to have included existing State assets and investments (including LMR networks) to offset the hybrid or build approach in the cost modelling.

The operational costs of the hybrid option do not account for a service charge, and costs are mainly made up of backhaul rental. The Draft Report has priced opportunity cost of spectrum into the hybrid and build approach but not the cost/value of diverted commercial spectrum in the commercial approach. The use of commercial spectrum requires policy environment to gain access to commercial spectrum and carriers will price "avoided cost" to PSAs. The Draft Report's assumptions need to be consistent across approaches, or if not, this needs to be explicitly stated.

DRAFT FINDING 6.2

There is risk and uncertainty associated with delivering a PSMB capability. Relevant risks include:

- **technical risk (whether the capability meets PSA service requirements)**
- **commercial risk (supplier 'lock in' and difficulties in contracting)**

- **third party risk (potential impacts on non PSA mobile users).**

The nature and magnitude of risk varies across PSMB delivery options. For example, the risk of governments becoming locked in to using a single supplier is most pronounced under a commercial approach, while a dedicated network is most susceptible to delays and technological obsolescence.

Victoria agrees with the high level finding, however there are gaps and inconsistencies in how risk is applied across approaches.

Mission critical terms and conditions will be very important.

Considering that the magnitude of the commercial risk (supplier 'lock in' and difficulties in contracting) is significant, Victoria considers that estimating the cost to an end-user of a commercial PSMB capability would lead to a more effective analysis, rather than the incremental cost to MNOs of providing a PSMB service/capability?

There are significant technical risks which vary between models, but which have not been adequately addressed. As mentioned previously, the ability for the prioritisation and pre-emption mechanisms in LTE to adequately meet PSA capabilities is yet to be demonstrated.

Victoria is particularly concerned with the liability, indemnity and commercial implications if commercial networks implement a prioritisation mechanism for Jurisdictions that affects their commercial customers. These issues have not been addressed by the Draft Report and may have serious implications for Jurisdictions.

Good implementation is essential to get the most out of PSMB

DRAFT FINDING 7.1

Prices that reflect the cost of providing a PSMB capability would encourage PSAs to use it efficiently.

LMR is a relatively inelastic service, purchase and network investment decisions are based upon risk mitigation not price. In other words pricing spectrum for PSA use only forms a disincentive to build the necessary networks required to mitigate public safety risks as it reduces the states and territories scarce funding resources. In the same way, PSA demand for a PSMB capability (and by extension spectrum) is relatively inelastic. Price is not a good lever to ensure utilisation of scare spectrum.

A PSMB capability is a non-revenue generating capability where benefits of use aren't known or quantifiable yet. Therefore, it is very hard for "PSAs to weigh up the benefits of using PSMB against the costs" as the Draft Report recommends. The Draft Report states that the benefits of a PSMB capability cannot be determined, therefore it is incomprehensible to expect or understand how PSAs could do this. Victoria considers that PSAs need to be incentivised to implement a PSMB capability.

A PSMB capability will greatly assist PSAs to avoid loss of life, serious injury or significant damage to valuable or strategic assets. However, at this point in time, it cannot be determined how beneficial (quantitatively) the capability will be. What is known is that international jurisdictions consider that PSAs need a PSMB capability and that it needs to meet the mission critical definition. Therefore, Victoria believes that the Final Report should be concerned with how

to provide the capability at the least cost to Jurisdictions and the community. Victoria notes that models are not equal in operational certainty. The Draft Report has not demonstrated unfettered access to commercial networks and cost of doing so if technically possible.

DRAFT RECOMMENDATION 7.1
If state and territory governments decide to deploy a PSMB capability, police and emergency services ministers in each jurisdiction should set clear expectations and deadlines for PSAs to develop formal inter agency protocols for:

- **sharing information, including security procedures to safeguard sensitive information**
- **prioritising specific agencies, users, devices and applications, where a PSMB capability is shared among agencies**

specifying responsibility for administering these arrangements and exercising dynamic control over network settings.

In principle Victoria agrees with this draft recommendation, noting that these arrangements should also involve the Commonwealth. The PSMB National Implementation Plan – Developing National Interoperability, October 2012, agreed that multi-jurisdictional bodies will be established to oversee the capability form planning through to implementation. The Plan also noted that governance of procurement, trial, implementation and reviews has yet to be proposed and agreed. Victoria is already engaged through the federal Attorney-General's Department in review of PSMB governance.

DRAFT FINDING 7.2
Using procurement processes for PSMB to target policy objectives other than value for money — such as promoting competition in parts of the broader mobile broadband market or meeting equity objectives — would be a blunt, costly and non-transparent way to meet those objectives. Other policy instruments are likely to provide more effective alternatives for achieving additional objectives.

The Final Report may determine that targeting policy objectives through the PSMB process would be ineffective, but it must consider how the preferred approach and findings affect other objectives such as competition in parts of the broader mobile broadband market or meeting equity objectives.

In addition, relying on procurement processes to achieve a PSMB capability which meets PSA requirements would be futile in a non-competitive market (note Regional Telecommunications Independent Review Committee (RTIRC) findings in non-metro markets). Victoria considers that Commonwealth policy instruments are likely to provide a more effective means to achieve the most-effective PSMB capability.

The recent Commonwealth-State Mobile Blackspots Programme demonstrated how appropriate intervention can produce outcomes which benefit the community. In addition, the recently completed RTIRC review recognised that regional Australia has a different telecommunications market structure to urban Australia. Market mechanisms which operate effectively in urban areas cannot be relied upon in regional areas. To this end, the 2015 Regional Telecommunications Review recommends government co-investment "to support upgrades to regional state-based public safety wireless networks that could also deliver mobile coverage improvements". This recommendation pre-supposes the existence of public safety wireless networks, which are used to support mobile network improvements.

DRAFT RECOMMENDATION 7.2
To facilitate an interoperable mobile broadband capability for PSAs, state and territory governments should task police and emergency services

ministers with agreeing to a set of minimum common technical standards within one year. These standards should have the objective of facilitating national interoperability and should build on the National Framework to Improve Government Radiocommunications Interoperability 2010–2020.

All Jurisdictions agreed to a PSMB Implementation Plan in 2012 – awaiting the Commonwealth's decision on spectrum allocation.

Victoria seeks to understand whether interoperable roaming arrangements were assumed in the Draft Report to make the network coverage of the commercial solution work. The Draft Report specifies a 99 per cent population coverage as a minimum mission critical need and the importance of interoperability to ensure public safety, however, the Draft Report also notes that there is only one supplier that has sufficient coverage that meets a 99 per cent population coverage, noting that the nearest competitive network covers approximately 98.5 per cent of the population but is of half the land mass coverage size, it is not clear how interoperability is established in 50 per cent of the geographic area covered. As noted above, the recently completed Regional Telecommunications Review recognised that regional Australia has a different telecommunications market structure to urban Australia. There is no policy or regulatory framework proposed by the Draft Report to facilitate the interoperability.

The Commonwealth, with input from Jurisdictions, is best placed to lead the process to achieve interoperability across mobile broadband networks across jurisdictions. The Commonwealth can pursue this more efficiently and effectively than Jurisdictions.

DRAFT RECOMMENDATION 7.3
If the Australian Communications and Media Authority allocates spectrum for PSMB, it should be priced at its opportunity cost.

The Draft Report makes comment on the roles of the Commonwealth and ACMA, but does not offer a view on the Commonwealth's obligation to ensure adequate spectrum for defence or national security of Australia, law enforcement or emergency services.

Victoria agrees with the Draft Report findings on price signals and allocative efficiency in relation to radiofrequency spectrum and the use of market mechanisms where appropriate. By extension it also agrees with the concept of valuing spectrum at its opportunity cost. However, the State does not agree with valuing spectrum used for public safety purposes at the opportunity cost of providing commercial services which are largely driven by social and entertainment demand. This process is likely to maximise the revenue generated by the Commonwealth but not the public value derived from the spectrum.

Spectrum used for a PSMB capability is non-revenue generating where the benefits of use aren't known or quantifiable yet. Therefore, it is very hard for "PSAs to weigh up the benefits of using PSMB against the costs" as the Draft Report recommends. The Draft Report states that the benefits of a PSMB capability cannot be determined, therefore it is incomprehensible to expect or understand how PSAs could do this. The danger is that PSAs are priced out of integral spectrum and an effective PSMB capability is not delivered, leading to loss of life, serious injury or significant damage to valuable or strategic assets. Jurisdictions are prepared to transition from LMR to an international standard-based LTE capability, recognising the cost offsets of operation and leveraged infrastructure are subject to available spectrum. Jurisdictions will have more cost synergies and certainty in offsetting a dedicated build.

A number of factors that drive the commercial value of spectrum through market-based mechanisms are not efficient, can distort markets and create negative externalities. The Commonwealth's proposed spectrum reforms recognise the importance of spectrum's public interest value and that the public

benefit derived from spectrum must be an important consideration of the review and the principles for reform. The acknowledgement of the significant public benefit resulting from the use of spectrum (which is not necessarily reflected in its market value) is crucial to realising 'highest value' use and recognising that this cannot always be facilitated through purely a market-based approach focused on maximising spectrum's financial return. The Draft Report has not considered the social benefit of allocating spectrum for the "public interest" as anticipated in the scope of the study. The Final Report must acknowledge this and incorporate it into findings and recommendations.

In addition, international standards and interoperability requirements for public safety limit any secondary markets and the potential value of spectrum used/reserved for public safety. Opportunity cost pricing of spectrum assumes that there is another market/another use for the spectrum. If there is no other use for this spectrum then the price charged should reflect the Commonwealth's direct and indirect costs, not the cost of spectrum in other bands used to provide revenue generating commercial services.

DRAFT RECOMMENDATION 7.4
If state and territory governments decide to deploy a PSMB capability, they should maximise value for money in procurement by using competitive procurement processes. In doing so, they should adopt strategies to increase the number of potential bidders (such that all Australian commercial mobile carriers would be able to participate) and reduce the risk of becoming 'locked in' to a single supplier.
Strategies available to governments include:

- **benchmarking bids against other cost data and making tender processes transparent**
- **splitting up tenders by service and/or region**
- **negotiating on behalf of their PSAs**
- **leveraging their infrastructure and spectrum holdings in negotiations**

using short term contracts that require adherence to national technical standards and the ability of public safety officers to roam onto other networks.

As evidenced in the recent RTIRC review, there is not a homogenous competitive commercial mobile market, nor competitive breadth and depth to the market. There is not competitive coverage for example (as exists in the UK – to allow a commercial service to be legitimately considered), nor is there depth to the market with competitive wholesale or MVNO offerings not existing (as exist in the UK – to allow a commercial service to be considered).

Victoria considers the mobile market can be divided into three tiers, where different market conditions exist. These are:

- The metro market, where full competition exists
- The regional market, where limited or no competition exists
- Areas of no coverage – no market exists.

In moving to a fully market-based mechanism, consideration must be given to the likely detrimental outcomes from the second and third tiers described above.

As there are substantial and material differences in the land mass coverage of individual communication carriers there is a lack of diversity in the commercial market, a market hegemony is well developed. In over half the land mass covered by commercial carriers there is no alternative commercial

supplier. The benefits cited by the Draft Report utilising competitive market tension in procurement are not ubiquitous, which in turn risks monopolistic behaviours and the envisaged benefits of effectively leveraging existing commercial infrastructure.

Victoria notes that in half the mission critical coverage scenarios there is no alternative supplier. The Regional Telecommunications Review 2015, noted that the coverage of non-metropolitan areas is lower than in urban areas (3G; Telstra 98 per cent, Optus 96 per cent, Vodafone 87 per cent. 4G; Telstra 74 per cent, Optus 60 per cent, Vodafone 50 per cent). Therefore, the Final Report should consider the cost/benefits of a sole sourcing commercial arrangement. The Final Report could provide best practice examples of 'smart' sole sourcing practices (i.e. Defence contracts may be a useful reference and how these have reduced costs over standard commercial arrangements).

PSA procurement history tells us that it is very hard to minimise cost/drive value out of procurement process within current market.

An alternative for the Final Report to consider could be the Belgium and UK PSMB examples and the utilisation of competition at the wholesale layer with the effective use of MVNOs to achieve PSMB on commercial carrier infrastructure. The Final Report should consider if this market will be available or could be developed in Australia.

DRAFT RECOMMENDATION 7.5

If state and territory governments decide to deploy a PSMB capability, they should take a phased approach to implementation by first trialling a capability on a small scale. Trials would provide an opportunity to:

- **demonstrate the technical feasibility of a commercial approach**
- **evaluate the costs, benefits and risks of PSMB**
- **develop protocols and procedures for information and capacity sharing by PSAs**
- **develop the business case for a wider scale rollout.**

Land mobile radio networks are expected to continue operating in all jurisdictions for at least five years, creating a relatively low risk environment for experimentation with PSMB.

The recommended slow and steady trial approach will impose significant cost on Jurisdictions as there are large delay costs associated with a deferral of a PSMB capability. For example, any delays to the transition of legacy communications networks and the integration of voice over to a mobile broadband capability defers significant benefit in avoiding the cost of maintaining and operating a range of legacy dedicated networks. This needs to be addressed in the Final Report and examined within the cost modelling. Given that the Draft Report appears to have assessed commercial networks as a viable solution, Victoria questions what purpose a trial will serve.

If such trials prove the commercial solution is not feasible and Victoria would welcome information on the Commission's proposed fall back solution.