Mobile Black Spot Program—Round 5A—Discussion paper

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Introduction

The Government is seeking input from the telecommunications industry, all levels of government and other interested stakeholders on the design of the next round of the Mobile Black Spot Program (the MBSP), Round 5A.

The objectives of the MBSP are to improve mobile coverage and competition across Australia. The MBSP funds new telecommunications infrastructure to deliver new and improved coverage in regional and remote Australia.

The intended outcomes of the MBSP are to provide mobile telecommunications users in regional and remote Australia with:

• access to increased handheld and external antenna mobile coverage

• greater choice of mobile network.

The first five rounds of the MBSP have achieved these objectives through the funding of 1,229 new base stations, which are delivering hundreds of thousands of square kilometres of new coverage to regional and remote Australia. The funding enables mobile network operators to expand coverage into areas where new infrastructure would have been otherwise uneconomic to deploy.

While the MBSP has been highly successful, the economics of new base stations is shifting as the program moves into more commercially marginal markets. At the same time, operators are seeking to migrate from 3G services and deploy new types of services. Internationally, new infrastructure sharing models are emerging that promise the delivery of competitive mobile coverage to previously uneconomic regional and remote areas.

It is an appropriate time to seek stakeholder views on the design of the next round of the MBSP, to identify opportunities and lessons learnt, in order to ensure it continues to deliver high value outcomes to regional and remote Australia.

Submissions from stakeholders, including responses to the key questions raised within this discussion paper will help inform consideration of potential methods of allocating funding, to ensure it best meets the policy objectives and achieves value for money.

Background

The Australian Government has committed $380 million to the MBSP over six rounds.

Over the first five rounds, the MBSP is generating over $836 million of investment in mobile infrastructure for regional and remote Australia. This includes $560 million in co-contributions from the industry, state governments and other third parties.

The Round 5 outcomes were announced on 21 April 2020, with 182 base stations being awarded funding, at a total cost to the Commonwealth of $36.8 million. The Commonwealth allocated $80 million to Round 5, and a proportion of the remaining uncommitted funds could be allocated to Round 5A.

Round 6 of the MBSP will follow Round 5A.

MBSP Round 5A—Key Design Principles

The proposed design of Round 5A of the MBSP reflects the following key principles:

1. Delivering coverage benefits for non-commercial regional and remote areas.
2. Promoting competition outcomes.
3. Funding is available for the capital costs of proposed solutions and some operational and maintenance costs.
4. Funding is available for mobile network operators, and for mobile infrastructure providers with priority given to solutions offering services from at least two mobile network operators.
5. Support for state government and third party co-contributions.
6. Mobile Services need to be provided for a minimum period after Asset Completion.

1. Delivering coverage benefits for non-commercial regional and remote areas

The MBSP targets delivering coverage to regional and remote Australia. It has generally deliberately excluded areas defined as 'Major Urban' in the Urban Centres and Localities geographical units classified by the Australian Bureau of Statistics, i.e. with a population of 100,000 or more.

Round 5A will continue to focus on delivering coverage in regional and remote areas.

Previous rounds of the MBSP included criteria to encourage applicants to target specific coverage issues. For example, Rounds 1 and 2 awarded additional points to solutions that addressed Priority Black Spots nominated by Members of Parliament. The Priority Locations Round identified specific priority coverage issues to be addressed, including quality of service issues. Rounds 4 and 5 included a focus on addressing coverage issues at Public Interest Premises.

It is proposed that Round 5A will divide the available funding into three components, addressing the following three priority areas:

a. high priority natural disaster prone areas including those affected or prone to bushfire
b. new technology solutions in areas where low population densities have discouraged applications under earlier rounds
c. major regional and remote transport corridors.

It is proposed Round 5A will reserve a portion of the available funding for each target type and include specific criteria to reflect the specific challenges of each type. For example additional funding per solution could be made available for solutions in very remote areas.

In this way, the Government aims to use Round 5A to test three different approaches to allocating MBSP funding.

a. High priority natural disaster prone areas including those affected or prone to bushfire

The 2019 / 2020 bushfires have again demonstrated the valuable role mobile services can play during the response and recovery to a disaster event. It is proposed that the first component of Round 5A will allocate funding to areas that are highly prone to natural disasters, with a focus on macro cell base stations.

Key design points

- **Eligible areas—**Round 5A will seek to improve coverage in natural disaster prone areas including:
  - bushfire prone or affected areas

  - flood prone areas

  - emergency disaster coordination zones

  - rural and regional emergency service premises

  - evacuation and assembly points

- **Endorsement—**The applicant must provide a letter of endorsement from the relevant:
  - state or territory government

  - local council, or

  - emergency service organisation

b. New technology solutions in areas where low population densities have discouraged applications under earlier rounds

Under the MBSP, funded solutions have typically extended coverage into areas with higher populations as these offer the greatest economic return, or they have been tailored bespoke solutions utilising small cells.

It is proposed a second component of Round 5A will reserve funding and potentially offer higher levels of funding to solutions that deliver services to low population areas.

It is proposed that the round will also prioritise solutions using a shared Radio Access Network (RAN) model[1]. (Further discussed at 2 below).

The New Zealand Regional Connectivity Group (RCG) initiative[2] is an example of where a RAN sharing model has been used to cost effectively deliver improved coverage and competition to rural areas.

Key design points

- **Eligible areas**—Round 1 and 2 of the MBSP reserved funding and awarded points to solutions that addressed coverage issues in remote and very remote areas[3]. This worked well to encourage solutions that focused on less populated and higher cost areas.

  It is proposed that Round 5A would use the same approach when identifying remote and very remote areas to be targeted.

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[1] The GSM Association provides a short overview of different types of infrastructure sharing, including RAN sharing www.gsma.com/futurenetworks/wiki/infrastructure-sharing-an-overview/.

[2] The RCG website provides information about the New Zealand initiative including its RAN sharing model www.thercg.co.nz/.

[3] Round 1 and 2 used the Australian Bureau of Statistics' 2011 Remoteness Structure to identify remote and very remote areas.

- **Types of solutions**—Deploying mobile infrastructure in remote and very remote areas can present unique challenges, both economic and technical. It is proposed that Round 5A be designed to encourage and support new innovative methods of mobile service delivery in these areas.

c. Major regional and remote transport corridors

It is proposed that a third component of Round 5A will reserve funding to target coverage along major regional and remote transport corridors, including to communities along these corridors. Many coverage issues along these corridors have not been addressed under earlier rounds of the MBSP. The economics of these routes made them less attractive for applicants compared to targeting specific communities. For example, mobile phone usage (demand for services) along a road is lower compared to a town or gathering spot.

This approach is consistent with the National Freight and Supply Chain Strategy National Action Plan[4], released in August 2019, which identified improved mobile coverage along major freight corridors as an Australian Government priority.

Key design points

- **Eligible areas**—In order to maximise benefits, this component of Round 5A will seek to prioritise transport corridors that deliver recognised economic and social benefits to the community. Rounds 1 to 5 used Pitney Bowes StreetPro Display to identify major road and rail routes. However, this data set does not prioritise routes by economic and social benefit.

    It is proposed Round 5A would target transport corridors defined in the Roads of Strategic Importance[5] initiative and National Land Transport Network[6], which identify significant transport corridors that deliver economic and social benefits to Australia.

    Continuous and/or consistent coverage—This component of Round 5A will seek to provide coverage along transport corridor sections (e.g. greater than 80 km) or potentially an entire route. It is assumed that proposed solutions may require more than one base station to address a section or route. The Tasmanian Great Eastern Drive Project[7] is an example of a mobile coverage project targeting a transport corridor.

    There is also demonstrable benefit where mobile phone users can access consistent handheld coverage at stopping points along a route. For example, a proposal could offer handheld coverage to townships as well as around truck stops, rest areas and major points of interest for tourists along a corridor. Priority will be given to proposals that offer near continuous coverage along a route / section, subject to value for money considerations.

- **Corridor coverage**—A mobile base station can be optimised for highway coverage by focusing its sectored antennas along the route. While this is an efficient approach for a highway coverage, it can reduce the coverage benefits for communities along the route.

    Round 5A will seek to encourage solutions that deliver coverage both along the transport route and to communities in the corridor.

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[4] www.freightaustralia.gov.au/sites/default/files/documents/national-action-plan-august-2019.pdf
[5] https://investment.infrastructure.gov.au/key_projects/initiatives/roads_strategic_importance.aspx
[6] https://investment.infrastructure.gov.au/about/the_national_land_transport_network.aspx
[7] http://www.premier.tas.gov.au/releases/improving_mobile_coverage_on_tasmanias_great_eastern_drive

For all solution types the overall coverage benefit offered by each solution will be measured against the total amount of new unique and overlapping[8] coverage offered by the solution.

> **Question 1**
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> Are there any comments on the coverage areas proposed to be targeted?
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> **Question 2**
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> Are there any comments on the types of proposals that would be eligible for funding, including the required coverage outcomes?

2. Promoting competition outcomes

The MBSP seeks to improve competition in regional and remote Australia to provide consumers with a greater choice of mobile service providers.

The first five rounds have promoted competition outcomes by encouraging MNOs to co-locate on funded base stations. This included providing other MNOs with the opportunity to participate in the pre-design stage on base stations where they wanted to co-locate, agreed minimum technical specifications for co-location, subsidised backhaul, an independent dispute resolution process and requiring co-location to be offered where technically feasible.

To date around 28 per cent of Round 1 to 4 solutions offer co-location or are co-locating on existing infrastructure.

It is proposed that Round 5A will prioritise funded solutions that provide a service from at least two MNOs.

Key design points

- **Multi MNO outcomes—**The Program provides incentives to make it more commercially attractive for MNOs other than those awarded funding to deliver services from funded tower infrastructure.

   Under this approach, co-locating MNOs typically engage after funding has been awarded, when the type of solution and nominal site location has already been decided by the funding recipient. This can reduce the attractiveness of a site for co-location as the selected solution and nominal location may not complement other MNOs' existing networks.

   It is proposed Round 5A will prioritise solutions that provide coverage from more than one MNO.

   In some cases the funded solution could also provide complementary services from a third party in addition to the two MNOs (see below).

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[8] New overlapping coverage refers to coverage that is new to the applicant's network but overlaps with coverage from another MNO.

- **Support for proposals that offer complementary services**—Other telecommunications services can offer complementary benefits when deployed with a mobile service. For example, fixed wireless broadband services can supplement mobile broadband services for communities in the corridor. Encouraging co-location of these types of services on funded solutions will offer benefits to communities including increased choice. Complementary deployments may also improve the economics of a proposed solution by providing an additional revenue source.

  Proposed solutions that also offer complementary telecommunications services from a third party would only receive Commonwealth funding for the costs associated with the mobile service offering.

- **Sharing models**—Co-location, or tower sharing, is the standard industry model for infrastructure sharing in Australia. Typically it occurs on an ad-hoc basis with co-location decisions being made tower by tower. The Victorian Regional Rail Connectivity Project[9] provides an alternative approach where the MNOs worked together co-operatively sharing towers to cover targeted rail routes. We understand this approach provided substantial savings to all parties involved and delivered competitive outcomes for consumers.

  Internationally, there has been a move to more advanced infrastructure sharing models to deliver mobile services in non-commercial areas.

  It is proposed that funded solutions should employ active RAN sharing models.

Question 3

Is the RAN model an effective sharing model for Australia?

Question 4

What other design options could be considered that provide multi-provider outcomes?

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3. Funding is available for the capital costs of proposed solutions with funding recipients and some ongoing costs

The first five rounds of the MBSP awarded funds for the capital costs[10] of deploying solutions, with a Commonwealth funding cap of $500,000 (GST incl.) per solution.

Applicants were also expected to make a substantial financial (cash) co-contribution towards the capital costs of building each funded solution.

Key design points

- **Funding cap**—The existing funding cap has been suitable for solutions that require a single base station to address a targeted issue, with co-location possible on that base station. However, where the solutions require multiple base stations, for example to address a road section, a higher level of Commonwealth funding may be required. Similarly, a higher cap may be required to support a RAN solution in a remote or very remote area.

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[9] https://www.victrack.com.au/projects/past-projects/regional-rail-connectivity
[10] In the case of base stations that utilised satellite backhaul, applicants were permitted to include the capitalised Indefeasible Right of Use of the backhaul for the ten year period of operation in the costs of building the base station.

- **Operational and backhaul costs**—Earlier rounds required the funding recipient to meet the operational and maintenance costs for the proposed solutions over the operational period of the base station.

  Under Round 5, funding recipients were permitted to capitalise the cost of satellite backhaul for the ten-year operational period of funding solutions.

  It is proposed that Round 5A will permit funding recipients to capitalise the costs of leased optical fibre and microwave backhaul. Applicants will remain responsible for ongoing operational and maintenance costs for base stations.

Question 5

Are there any comments on the funding cap for Round 5A and eligible costs?

4. Funding is available for mobile network operators, and for mobile infrastructure providers with priority given to solutions offering services from at least two mobile network operators

The MBSP has encouraged both mobile network operators and mobile infrastructure providers to apply for funding to deliver improved mobile coverage.

Mobile network infrastructure providers must have a service agreement with at least one MNO to provide mobile services from the proposed solution for the operational period.

Priority will be given to solutions offering services from at least two mobile network operators.

Round 5 was the first round to award funding to an infrastructure provider under the MBSP.

Key design points

- **Eligibility for funding**—The funded solution must provide new and improved mobile coverage to non-Major Urban areas. In accordance with the Australian telecommunications regulatory regime, an MNO must be involved in the delivery of mobile services in Australia.

- Infrastructure providers, including joint ventures, partnerships and other infrastructure delivery vehicles, are encouraged to work with MNOs to develop proposals for Round 5A.

Question 6

Are there any comments that you wish to make in relation to eligibility to apply for funding?

5. Support for state government and third party co-contributions

A key aspect of the program has been the ability for state governments and third parties to work with potential applicants on proposals, including offering financial co-contributions to encourage proposals that address specific state or local priorities.

Key design points

- **Encouraging co-contributions—**Round 5A will continue to encourage co-contributions from state and territory governments and third parties. Consistent with previous rounds, these co-contributions will not be mandatory for a proposal to be successful.

- **Co-contribution negotiation by applicants**—It will be up to the applicant to negotiate any co-contributions with a state or territory government and/or third party. Co-contributions will not be included in the cost over coverage formula used by the assessment process. Historically, co-contributions work to reduce the cost to the Commonwealth making the proposal more competitive in the assessment process by providing greater value for money for the Commonwealth.

> **Question 7**
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> Are there any comments that you wish to make regarding ways the program could assist potential state government and third party co-contributors?

6. Mobile Services need to be provided for a minimum period after Asset Completion

The first five rounds of the program required funded solutions to provide services for a minimum of 10 years after the Asset has become operational. The minimum operational period for Round 5A has not yet been determined.

Industry is expected to transition away from 3G services during the proposed operational period of Round 5A. In addition, there are new technologies in development that may change the way communications can be delivered in regional and remote Australia.

The Government is proposing to move to 4G as the minimum service to be provided for the funding agreement and coverage assessment purposes.

Consistent with earlier rounds, funding recipients will be permitted to upgrade to newer technologies provided service and coverage requirements are met.

Key design points

- **4G services**—Round 5A will require solutions, as a minimum, to provide 4G mobile phone services; 3G services will be optional.

- **Coverage equivalence**—If a proposed solution relies on existing 3G coverage in its proposal to deliver services to an area, the funding recipient will be required to provide equivalent 4G services before that relevant 3G coverage is switched off. For example, if an applicant is relying on existing 3G coverage in its transport route coverage claims.

- **Coverage standards**—Proposed 4G reference power levels for handheld and external antenna coverage have been developed (see) to replace the 3G reference power levels used for Rounds 1 to 5.

  This reference level will be used when assessing coverage claims.

  Funding applicants will be required to model the coverage outcomes for their proposed solutions against these levels.

  Consistent with Rounds 1 to 5, coverage claims will be tested against the MNOs public 3G and 4G coverage maps.

Question 8

Are there any comments regarding the need for a shorter minimum operational period, particularly in remote and very remote areas?

Question 9

Are there any comments on the proposed equivalency requirement and 4G reference power levels for handheld and external antenna coverage?

7. Other design principles

Network resilience

The MNOs design substantial capacity and resilience into their mobile networks including the provision of backup power. The MNOs' response and recovery plans also include the deployment of generators to cover extended outages.

Since the Priority Locations Round, the macro cell base stations funded by the Program have been provisioned with at least 12 hours of auxiliary backup power in the event of the loss of mains power.

The recent natural disaster events in Australia have shown power outages can lead to prolonged outages of telecommunications networks. For example, MNOs may also face delays deploying generators to base stations if it is unsafe to enter an area.

In addition to backup power arrangements, some base stations may also benefit from having redundant backhaul arrangements during disaster events.

Key design points

- **Auxiliary backup power**—All funded solutions should provide at least 12 hours of auxiliary backup power.

- **Extended backup power resilience**—Applicants will be asked to identify key sites in their proposed solutions that would offer benefits if extended backup power was available during an extended disaster event. Applicants will be asked to provide a costed option for deploying power solutions that can operate independently of the power grid indefinitely. This would include utilising solar power or other innovative solutions. Round 5A funding will prioritise funding these options.

We are also interested in understanding the extent to which redundant backhaul arrangements could also improve base station resilience during disaster events.

Question 10

What criteria should be used to identify key sites where independent power systems or redundant backhaul could be funded?

Question 11

Are there any comments regarding the requirement for at least 12 hours of auxiliary backup power for small cells?

Proposed assessment criteria

To be competitive, each funded solution will need to address all of the merit criteria.

Criterion 1—New coverage outcomes

Consistent with earlier rounds of the MBSP, all eligible solutions must provide new coverage outcomes to non-Major Urban areas to be eligible for funding. The Government will test the coverage provided by a solution against the applicant's own 3G and 4G coverage public coverage maps to determine the amount of new coverage the solution provides within the applicant's mobile network.

The Government will also test the proposed solutions against the other MNOs' public coverage maps to determine the amount of entirely new coverage the solution provides i.e. coverage where there is no existing coverage from another mobile network operator.

Not all base stations in a proposed solution will need to provide new coverage if the overall solution provides new coverage outcomes. However, if one or more base stations in the proposed solution do not provide new coverage, the applicant must provide evidence that any such base station is required to be included in the solution. For example, the base station provides microwave backhaul connections for other base stations in the solution.

Criterion 2—Coverage benefit

The Priority Locations Round, and Rounds 4 and 5, used a cost over new coverage formula to rank proposed solutions on their merit lists.

A similar formula will be used for Round 5A to rank proposals. For each individual solution, we would independently measure the new coverage outcomes for each MNO at that base station and then add them together when applying the formula.

The formula could also be modified so that overlapping coverage could be equally weighted to entirely new coverage. The current formula applies a discount factor of two for overlapping coverage.

Criterion 3—Overall value for money

As a final evaluation step, the Government will undertake a value for money assessment of each proposed solution on the draft merit list to ensure each proposal offers value for money to the Commonwealth. A solution may be removed from the merit list if it does not offer value for money.

Factors to be considered in the value for money assessment include, but are not limited to the:

- degree to which a solution addresses the targeted coverage issue. For example:
  - the amount of continuous handheld and external antenna coverage provided to the transport route
  - the degree of coverage provided to an area prone to natural disasters
- degree to which the proposal provides service from more than two providers
- cost to the Commonwealth of the Proposed Solution
- amount of new and overlapping handheld coverage (km2)

- number of premises to receive new and overlapping handheld coverage

- amount of new external antenna coverage (km2).

> **Question 12**
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> Do you have any comments on the proposed assessment criteria?

Next steps

Preparing submissions

All interested stakeholders wishing to have their views considered on possible implementation methods for delivering the Round 5A are invited to provide a submission to the Government. All submissions must include the name and contact details of the person making the submission and the organisation they represent (if applicable).

All submissions and comments, or parts thereof, will be treated as non-confidential information unless specifically requested, and acceptable reasons should accompany each request. Email disclaimers will not be considered sufficient confidentiality requests.

Respondents lodging a submission should be aware that submissions (excluding any information agreed to be treated as confidential information) will be made publicly available, including on the Department of Infrastructure, Transport, Regional Development and Communication's website. Submissions and comments will be subject to freedom of information provisions. Despite a submission being identified as confidential or sensitive, submissions may be disclosed where authorised or required by law, or for the purpose of parliamentary processes.

Questions raised in this Discussion Paper are intended as a guide only. Respondents are welcome to provide more general comments on the issues raised in this paper.

Lodging submissions

Submissions can be sent to the following email address: MBSPRound5@communications.gov.au.

The closing date for lodging submissions is 5:00pm (AEST) 19 June 2020.

All submissions lodged will be acknowledged by the Department by email. Respondents lodging a submission who do not receive acknowledgement of their submission should contact the Department. Submissions which are not acknowledged by the Department as being received may not be considered. Respondents should be aware that emails greater than 10Mb may not be successfully delivered.

Contact us

For further information about the Mobile Black Spot Program or to discuss any elements of this Discussion Paper, please contact the Department via the above email address.

Glossary

Term	Definition
Asset	The telecommunications network infrastructure specified in the Funding Agreement to be constructed by the Funding Recipient.
Asset Completion	The date on which the Funding Recipient confirms that the Retail Services are able to be provided in accordance with the Funding Agreement.
Assessment Criteria	The assessment criteria the Department will use to assess applications.
Backhaul	A link between the core or backbone of a network and sub-networks, transporting data from a series of disparate locations to a more centralised location.
Funding Agreement	A document with contractual effect specifying the responsibilities of Funding Recipients, the Commonwealth and State or Territory government (as the case may be) under the Program.
Funding Recipient	An applicant who has been successful in obtaining funding under the Round 5A of the MBSP.
Funded Solution	Telecommunications infrastructure selected for funding under Round 5A of the MBSP, and where the context applies an Asset.
Proposed Solution	Telecommunications Infrastructure that the funding applicant has applied for funding to construct through Round 5A of the MBSP.
Retail Services	The telecommunications services that are made available to retail customers as a result of the funding provided through Round 5A of the MBSP.

Attachment A—Proposed 4G reference power levels for handheld and external coverage

Table 1 sets out the proposed 4G handheld and external antenna coverage on outdoor Reference Signal Received Power (RSRP) at a 90 per cent confidence level for the cell area.

Table 1: RSRP Coverage Modelling Requirements

Coverage category	Channel bandwith	Threshold (dBm)
Handheld	5	>-100
Handheld	10	>-103
Handheld	15	>-105
Handheld	20	>-106
External Antenna	5	>-117
External Antenna	10	>-120
External Antenna	15	>-122
External Antenna	20	>-123