TELSTRA CORPORATION LIMITED

Mobile Black Spot Program—Round 5A— Discussion paper submission

Public version

19/06/2020

[CIC begins] = information not to be released without a confidentiality undertaking

Contents

1. Executive Summary

Telstra welcomes the opportunity to respond to the Mobile Black Spot Program Round 5A Discussion paper.

The mobile black spots program is key to providing mobile coverage to rural and remote areas that are not economic for mobile network operators to invest in. The mobile black spots program has generated over $836 million of investment in mobile infrastructure for rural and remote Australia. This includes $560 million in co-contributions from the industry, state governments and other third parties. Of this $560m Telstra has committed $293m, by far the biggest co-contributor to the program. Success of the program has been achieved through government contributions designed to promote both retail and infrastructure competition while providing the lowest cost to government. We believe there are a range of opportunities available to ensure further success of the program as site economics become more challenging.

We support the focus on new and innovative solutions, areas subject to natural disasters and transport corridors. We believe that to meet these objectives the priority should be new coverage that focusses on areas that more people live, work, or travel through on a regular basis.

The continued focus on new coverage is important as connectivity is essential for rural and remote communities to engage with the broader community. Likewise, it is important that the program continues to maximise the benefits from the public/private co-investment. Providing connectivity where it currently does not exist helps to reduce the digital divide between rural areas and cities, and provides improved access to emergency, business and government services. To ensure the program continues to benefit households, businesses, communities and transport corridors that currently have no coverage at all, overlapping coverage should continue to be discounted by at least 50%.

We believe it would also be appropriate to extend the mobile black spots program to include new indoor coverage in urban fringe, rural and remote areas. A large proportion of coverage complaints relate to patchy, unreliable and/or absent indoor coverage — these complainants believe these shortcomings are a wider black spot. Recognising new in building coverage would address areas where customers find existing coverage does not meet their performance expectations due to natural or physical barriers to mobile signals.

We believe there is significant scope to increase infrastructure sharing. In previous rounds infrastructure sharing has only been discussed by operators after the funding has been awarded. Telstra proposes that for round 5A an accelerated facilities access sharing model should be used where operators engage with each other and/or with third party infrastructure builders prior to bidding for funding (subject to agreeing appropriate mechanisms for compliance with the Competition and Consumer Act 2010 (Cth)). This will allow the sharing of infrastructure costs, lowering the cost to build for each operator, rather than an individual operator having to fully fund each site. Additionally, it will allow carriers to determine the most efficient method of sharing infrastructure at each site, minimising cost to government whilst encouraging innovation by operators through efficient market driven sharing outcomes. We also note that use of any accelerated sharing model would not preclude subsequent colocation using existing facilities access processes.

In addition to the accelerated facilities access sharing, Telstra also supports increased passive infrastructure sharing (potentially including huts, power and backhaul where feasible) to improve the economics of site deployments for both carriers and government. Telstra is currently in the early stages of engaging with other carriers to discuss options for infrastructure sharing.

We do not support mandated active RAN sharing. First, active RAN sharing would require all operators to agree to a common network design — adding unnecessary complexity that could halt or delay a

site build or lead to a lower level of service quality for rural and regional customers when compared to urban customers. Telstra builds its network to provide industry leading reliability, speed and performance for our customers and we could not deliver this where other operators must agree to equipment specifications and network design. Second, customers connecting to sites with active RAN sharing would also suffer upgrade delays as all operators would be required to agree and fund upgrades. And finally, active RAN sharing also has additional upfront costs offsetting any savings, and savings made from active RAN sharing are minimal in remote and rural areas where the majority of cost is passive infrastructure.

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

Telstra supports the principle of providing coverage to non-commercial regional and remote areas and welcomes the use of new approaches to support cost effective coverage rollout to uneconomic areas, including major transport corridors and areas subject to natural disasters.

We fully support the idea that mobile coverage is critical and that it will always be part of the broader solution in providing communications in rural and remote areas where people and businesses are isolated from the rest of the country. The proposed removal of the requirement to deliver 3G coverage will assist in making sites more economic to bid for and aid in delivering coverage in rural and remote areas.

Further we believe that to meet these objectives new coverage that focusses on areas that more people live, work, or travel through on a regular basis should be the priority to ensure the maximum number of people benefit from the government's and industry's investment.

2.1. New coverage outcomes

New coverage should continue to be the primary objective of the mobile black spots program. We believe that rural and remote communities that do not currently have any mobile coverage will receive the greatest benefit from the black spots program and therefore should receive a higher priority weighting than overlapping coverage.

Additionally, new indoor coverage should be recognised as part of the program. There are numerous regional and rural/remote communities, and even some communities just beyond the fringe of major cities, where outdoor mobile coverage exists, but indoor coverage is either patchy or absent in homes and small businesses. Around half of the black spots logged by communities on the government website are either mainly or solely due to poor or absent indoor coverage. These sites are more spread-out and hence more distant from the homes they're serving than in the metropolitan suburbs and the presence of intervening terrain and trees is more common, all of which reduces the signal that can reach indoors. Often sites are located on hilltops outside of towns to satisfy the communities' demand for wide area coverage and this (distance) exacerbates the problem of indoor coverage. While important to communities, these black spots do not qualify under the current program guidelines. Recognising new in-building coverage would address areas where customers find current existing coverage does not meet their performance expectations.

2.2. Coverage benefit

Bids that propose to overlap existing coverage areas should continue to be discounted by at least 50%. People living and working in regional, rural and remote areas with no current coverage, or with substantial black spots, deserve a higher priority for funding than people living and working in areas already covered by an operator and without material black spots. Those without coverage will gain much greater value from the government's investment than those who are already covered by an existing provider.

Similar views have been expressed in various government audits. For example, while generally positive when commenting on the mobile black spots program, the Australian National Audit Office noted in its "Award of Funding under the Mobile Black Spot Programme 2016-17" report that "*The criteria used by the department to assess the merits of each proposed base station did not sufficiently target funding toward the expansion of coverage where coverage had not previously existed (for example, 89 of the*

499 selected base stations provided minimal new coverage of additional premises and kilometres of transport routes at a combined cost of $28 million)".

Telstra believes that the proposal to increase the weight that has previously been given to overlapping coverage will also come at the expense of regional and rural communities who naturally have a higher cost to serve. For instance, there could be a situation where two bids were put forward – one adding 10km^2 of new coverage in the 99th percentile of population coverage and the other adding 10km^2 of overlapping coverage in the 80th percentile of population coverage. If overlapping coverage is given the same weight as new coverage, the latter bid would almost always win funding as it would naturally come at much lower cost to the government. However, this outcome would not serve regional and rural customers in the most need of government support for mobile network deployment.

Increasing the priority to overlapping coverage would also harm competition, particularly where the existing coverage was funded by private investment. Funding one operator's investment to compete against an existing coverage provider would undermine the competitive process that led the incumbent to invest in that location in the first place. At best, it could lead operators to think twice about undertaking private investment outside the mobile black spots program, if the future competitive advantage they might gain from that private investment could be undermined by other operators replicating that investment with government subsidies. At worst, it could lead to the crowding out of private investment.

Similarly, the current discount given to overlapping coverage serves as a constraint on bids that involve network deployment that is economic from a private investment perspective and should not attract government funding. If the bid overlaps coverage that another operator has already privately invested in, then that area is by definition economic for at least one operator to privately invest in. Conversely, increasing the weight given to overlapping coverage is likely to result in government funds being allocated to investments that can/are being met by the private sector.

2.3. Transport corridors

Coverage of transport corridors is key for the ability to make emergency calls as well as providing general telecommunications services to vehicles and townships along those corridors. Telstra supports the focus on transport corridors and believes this is an appropriate focus for the mobile black spot program.

As we move to extend coverage in areas that are increasingly uneconomic, it is important that the most cost-effective options are considered for coverage extension. There is a range of ways transport corridors could become more economic.

Allowing bids for groups of sites could improve the economics of investment in certain locations, thereby reducing the associated government contribution. For example, it may be more viable for an operator to place a bid to cover a large stretch of highway including townships along a route, compared to bidding for each individual site along the route.

Further, coverage extension devices can extend the range of existing mobile towers. We estimate that customers would benefit from an additional 10,000 kilometres of 4G coverage along some 60,000 kilometres of national highways and roads, with the use of extension devices. This is discussed in detail in section 3.

2.4. Areas subject to natural disasters

The maintenance of communication services at times of natural disasters can assist in managing and responding to such disasters, as well as being used by people to check that family and friends are safe.

However, providing for this network resilience increases infrastructure costs, without providing additional revenue.

To help provide greater network resilience, Telstra supports the proposal to allow operators to provide an additional costed option for extended or standalone power for mobile towers. We also welcome the recently announced resiliency package that will improve power resiliency in earlier rounds of the program. We believe the benefit to the community during times of natural disasters warrants government funding of the additional cost. It will also be important for the government to define which areas, or criteria should be used to define an area subject to natural disasters. Natural disasters can affect all parts of the country, and we believe the best outcomes will be achieved by the government nominating sites where they would like operators to provide a costed option for standalone or extended backup power.

However, Telstra believes that there are additional options to improve network resilience that may be more effective in some natural disaster circumstances compared to standalone or extended backup power supplies. The improved power systems provide resilience in the event of loss of mains power, but there is still the risk that the infrastructure itself may become damaged or damage to other parts of the network critical for its operation may result in loss of communication services.

Alternatively, satellite technology would not be damaged through natural disasters and could provide communications as it does not rely on infrastructure within the disaster area. Telstra believes outside of the mobile black spots program subsidising satellite handsets could assist in providing communications during natural disasters and support local Government and local groups in their disaster management preparation.

2.5. Further ways to improve the economics of mobile black spots

Future mobile black spot sites in regional and remote areas are becoming less cost effective for mobile operators to invest in. Hence the sites are uneconomic even with government assistance. Below are ways the economics of the black spot program could be improved.

- **Remove the government funding cap** – the declining economics of mobile black spots sites makes it more difficult to find sites that are economic to bid for even with government co-contributions. Removing the cap while still awarding funding on a value for money basis would ensure continued competitive tension while supporting new coverage for areas unserved.

- **Extend funding to cover ongoing operational costs** – while the proposed changes to allow government contribution to be put toward some ongoing costs such as satellite and backhaul are supported, this should be extended to cover the higher costs of ongoing operation and maintenance of sites in the remote locations that mobile black spots program sites serve. This could include government contribution for costs to maintain and upkeep primary solar powered systems, and for costs to deploy maintenance staff to sites in very remote and disaster-prone areas especially when this requires unusual seasonal costs in access (e.g. far northern Australia in monsoon areas may require helicopter access during flood season).

- **Allow funding to be allocated for new and upgraded capacity backhaul links where these directly support new or improved mobile coverage** – upgrades to existing fibre backhaul and core capacity should be considered eligible for funding under the scheme where these directly support new or improved (e.g. technology upgrades) mobile coverage in rural and remote areas. These areas of investment will maximise the use of existing infrastructure to support new coverage and provide cost effective solutions to the mobile black spot scheme.

- **Extend black spot qualifying criteria to include public Wi-Fi or public broadband** – additional points could be given to any single carrier deployment proposal that includes the

provision by an operator of public Wi-Fi (or any other mobile network wireless broadband medium) in addition to mobile coverage. This would provide customers of other operators with access to data services outside of their mobile coverage. Calls and texts could be made using voice and SMS over Wi-Fi technology or via over the top (OTT) voice and messaging services through third party applications.

3. New and innovative technologies

Telstra's broader vision for regional connectivity is about ensuring that Australians, including those in regional and remote areas, have the best technologies and networks that will suit their locations and needs to stay in touch, to do business and to study. This won't be delivered through any single solution or emerging technology but building the programs and policy environment to support that will help to facilitate a future that will enable regional Australia to capitalise on the digital changes being witnessed in our world.

New and innovative technologies present opportunities and threats for improved services and expanded coverage both for mobile voice and data services. These new technologies need to be considered as part of the mobile black spots program as well as part of the broader technology roadmap.

We believe that extension devices should be included as part of the mobile black spot program. Many households, businesses, communities and transport corridors have mobile coverage but require extension devices (such as simple external antennae, Telstra Mobile Smart Antenna for in home use, or T-Go repeaters for in-vehicle use) to maximise access to that coverage. For example, handsets have limited ability to operate at the edge of mobile coverage due to the antenna limitations in such devices. Extension devices repeat the existing signal and boost it within the local area providing additional useable coverage. One approach could be allowing an operator to bid for a fixed amount of money to provide discounts on extension devices. As an example, the NSW Government provided $500 rebates that could be used to support the purchase of extension devices as part of a Small Business rebate program offered by SafeWork NSW.

Telstra has received a range of positive feedback on the use of mobile extension devices from customers who gained mobile connectivity once these devices were installed.

- NSW Farmers President, James Jackson says the Telstra Go Repeater is *"a terrific product, where I have experienced significant improvement for data and voice use, it has benefitted everyday life"*.

- Former Country Women's Association NSW President, Annette Turner, echoes his sentiments. *"The Telstra Go Repeater is a game-changer for anyone travelling or living in regional Australia who need to boost their coverage."*

- National Farmers' Federation President, Fiona Simson, says *"the Telstra Go Repeater is a very handy device that can help boost coverage for anyone living or travelling in regional Australia."*

- ICPA Queensland Vice President, Louise Martin, says *"the installation of the Telstra Go in my car means I now have service for the entire 900km of my journey when I travel from Tambo to Brisbane. It gives me a real sense of security knowing I am able to reach out for assistance if I need to."*

Below shows a comparison of Telstra coverage maps with and without a mobile extension device.
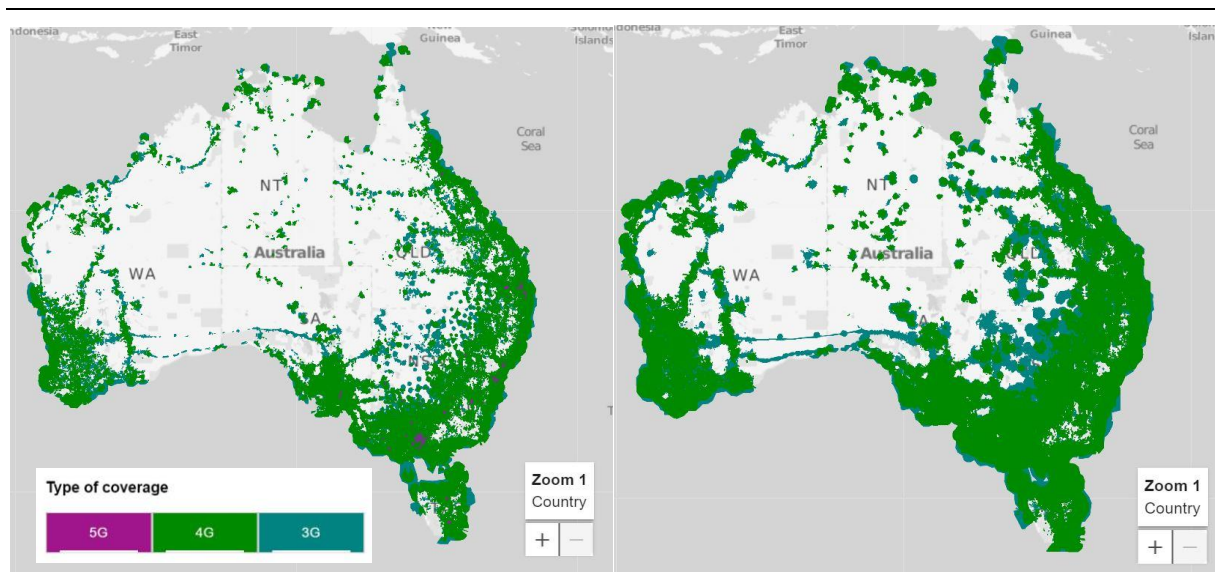
Figure 1 Left: Mobile handset coverage, Right: Mobile coverage with external antenna

Coverage extension devices are included in the range of products Telstra allows customers to purchase through their monthly plans. Since launch, Telstra has seen sales steadily increase.

Additionally sites built under the program can deliver much greater IoT service coverage reach than mobile voice and broadband data can on a per site basis and this amounts to a much larger coverage area per site and overall; while our combined 3G/4G mobile services cover 2.5M sq. km. of the Australian landmass, our LTE-M (Cat M1) and Narrow band IoT cover 3.5M and 4M sq.km. respectively.

The Cat M1 and Narrow band IoT network provides connectivity of IoT for important regionally based sectors, such as agriculture where digitisation has the capacity to provide significant efficiency improvements in production. In fact, Telstra supported the development of the *Talking 2030* roadmap by the National Farmers Federation, which outlines a vision to grow the Australian agriculture sector to be a $100 billion in farm gate output by 2030.

Part of this growth in the agriculture sector will come through increased digitisation. For example, smart watering systems can be used to measure soil moisture levels and automatically water when required, improving water efficiency. If IoT is recognised as an additional service for assessing coverage, then this could improve the economics for operators and promote more operator participation. It will also recognise the importance of enabling IoT for businesses operating in rural and remote areas.

Further, there are other technologies available to provide communications beyond the mobile network in remote areas. In some cases, it may be more viable to use alternative technologies such as satellite phones to provide coverage.

4. Promoting competitive outcomes

Promoting competitive outcomes is an important element in any government funded investment in a competitive market. Network coverage forms a major part of mobile competition in Australia – both Telstra and Optus have areas of unique coverage, which forms part of their value proposition to consumers. VHA also competes vigorously against Telstra and Optus on other dimensions that are of value to segments of the market.

Australia has benefited significantly from this competitive tension between mobile operators through early investment in new technologies, superior coverage in rural and remote areas and network innovation and features. This was recognised by the ACCC in the Mobile Roaming Declaration Inquiry Final Report, where it stated *"There is also evidence that Telstra and Optus are actively competing in respect of network quality in many regional areas and this trend is likely to continue, leading to incremental improvements in the quality of mobile networks in regional areas."*

That said, the areas likely to benefit from mobile black spots program round 5A are highly uneconomic. For this reason, Telstra supports a process to accelerate existing facilities access under colocation agreements earlier in the bidding cycle and/or more efficient or enhanced forms of passive infrastructure sharing to optimise carrier investment and minimise government funding to achieve coverage outcomes and improve competition. We don't support mandated active RAN sharing for reasons outlined later in this section.

4.1. Accelerating facilities sharing earlier into the bidding process will improve the competitive outcomes of round 5A

Telstra considers that there is a very practical opportunity for an Accelerated Facilities Sharing (AFS) model that would result in a higher proportion of round 5A sites being shared by two or more carriers.

Under previous mobile black spot rounds, sites are proposed by operators independently of each other, and successful sites are chosen by Government and only infrequently in areas where all operators would have a shared interest in expanding coverage. Therefore, at the beginning of the tender process, an operator might expect to fund 50% (including local and state government contributions) of the physical infrastructure at a mobile black spot site (assuming the federal government funds the remaining 50%).

Under an AFS model, operators would identify sites where there is likely to be a joint interest in expanding coverage before the mobile black spots program tender begins (subject to agreeing an appropriate *Competition and Consumer Act* 2010 (Cth) compliant frame. In the case of three operators investing in a site, each would expect to fund around 17% (including local and state government contributions) of the physical infrastructure (again assuming the federal government funds the other 50%).

As a consequence, where there is a joint interest in expanding coverage and more mobile black spot sites would become economic for operators under the mobile black spots program. Our initial and independent analysis has identified there would be potentially <mark>[CIC begins][CIC ends]</mark> additional sites that become more economic for Telstra to bid on if the criteria are adjusted as proposed above.

4.2. Active RAN sharing is just one type of many commercial agreements to share costs, but one which would leave regional and rural communities and Telstra's customers worse off

Telstra supports operators' use of sharing models as they can help reduce the cost of investment. We support increased sharing of passive infrastructure, however, we do not support entering into active RAN sharing agreements for the reasons discussed below.

4.2.1. RAN sharing would require all mobile operators to agree to use the lowest common denominator of preferred network design

Sharing active infrastructure would require all mobile operators to agree to use the same network design, vendor equipment and pooled spectrum. Given each operator has different network design focusses, spectrum holdings (including non-adjacent frequencies) and vendor relationships, the sacrifices operators would have to make to reach agreement would quickly outweigh any benefits relative to other forms of infrastructure sharing.

There would inevitably be some technical mismatch between the capabilities of the lowest common denominator of shared active infrastructure and the rest of Telstra's network. This mismatch would result in poor customer experiences and ultimately result in rural and regional customers only having access to second rate networks when compared to their urban counterparts.

It is also likely that the shared network management and monitoring of operational systems would not be directly compatible with the systems from other vendors adding complexity and cost into Telstra's overall management of its networks.

The need for consensus between three separate operators on each deployment complicates construction, forcing customers to wait longer for mobile access. In New Zealand progress has been slow. Two years in, only 90 small cells have been built.[1] This compares to Australia, where Telstra alone built around 300 Macro black spots during this time.

4.2.2. Cell sites subject to RAN sharing would suffer from lack of innovation and delayed network and technology upgrades

Any upgrading of the shared active cells would need to be agreed and funded by all parties. This would stifle the introduction of new features, spectrum, capabilities and competitive differentiation. In turn, this would reduce the incentive to roll out and invest, thus slowing the introduction of 5G and its evolving capabilities which could disadvantage rural and remote communities.

Telstra adopts a robust, competitive approach to network and technology upgrades. Our core strategy to deliver better customer service than our competitors, particularly when it comes to the active network, would be significantly undermined if we had to negotiate the terms and timing of any upgrades for sites subject to RAN sharing. This would be an unnecessary complication and cost for Telstra and will disadvantage customers by slowing down the rollout of new technologies.

4.2.3. The incremental savings from RAN sharing are minimal

The majority of the costs involved in deploying new cell sites in rural and remote areas are in facilities such as site access tracks, towers/masts, shelters, backhaul transmission and power. These facilities are often shared by operators. In metro areas some studies have suggested that cost savings from RAN sharing are in the order of 35%, however given the additional costs of deploying infrastructure in rural and remote areas Telstra estimates these savings are 10-15% maximum per site for MBSP sites. These incremental cost savings are outweighed by the additional cost and complexity associated with the management and implications of sharing the RAN between multiple operators

The small incremental cost savings from RAN sharing relates only to the radio equipment at the site, which represents a small proportion of the overall cost. Further active RAN sharing requires significant

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[1] https://www.thercg.co.nz/rcg-liven-sites-during-covid-19-lockdown/

additional investment in new core network architecture to support multiple carriers - multiple operator carrier network (MOCN) core. This cost neutralises any cost advantage active RAN sharing has over passive infrastructure sharing.

Additionally, there are significant increases in planning and design costs involved in sharing active infrastructure as it requires ongoing multi-carrier discussion and agreement. There would need to be significant rollout of active infrastructure sharing to offset the costs of planning and design.

Notwithstanding Telstra's decision to not enter into RAN sharing agreements with other operators, if other operators enter into RAN sharing agreements, then their bids should be given the same weight as that of operators that adopt other approaches, including passive infrastructure sharing approaches. What is important is that the mobile black spots program achieves improved coverage outcomes at the lowest cost to government and the individual operators (as this encourages participation and program success), and government should be impartial as to how operators deliver the better outcomes at lower cost. All forms of bids should be judged on their merit for regional and remote areas and cost to government, not on the structure of any commercial agreement between operators.

4.2.4. Enhanced passive infrastructure sharing delivers most of the economic benefits without the increased complexity, lack of ongoing innovation, and degraded customer experience, that accompanies active RAN sharing

The costs of passive infrastructure such as site access tracks, towers/masts, shelters, backhaul transmission and power makes up [CIC begins][CIC ends] of the incremental costs of establishing new sites in remote areas. Sharing of these costs alone will deliver substantially more economic benefits for carriers than active RAN sharing, and for smaller rollouts may in fact be cheaper as there is no requirement for investment in MOCN core architecture.

At the same time enhanced passive infrastructure sharing means that participating carriers retain control over the technology, capabilities and features that they offer their customers, and can choose to differentiate their service from that of the other carriers to ensure a consistent experience across their entire network. This means faster deployment, incentive to invest, and better customer choice and outcomes.

For these reasons we advocate enhanced passive infrastructure sharing as a better approach to improve the economics of future MBSP sites (where shared coverage is needed) and therefore the propensity for operators to participate in the mobile black spot program and deliver more multi-carrier sites.

This approach could be either carrier led or utilise non-carrier third parties to provide the passive infrastructure, however, with the question of economics in mind it should be noted that the addition of a further profit-seeking party may add other incremental costs.

5. Other considerations

5.1. Support from state government and other parties

Telstra welcomes the continued inclusion of state government and other party co-contributions. The non-commercial nature of mobile black spots means operators rely heavily on contributions from state and local governments to make investment viable — these contributions are often the critical deciding factor.

Figure 2 Contributions to mobile black spots program (Telstra awarded sites)
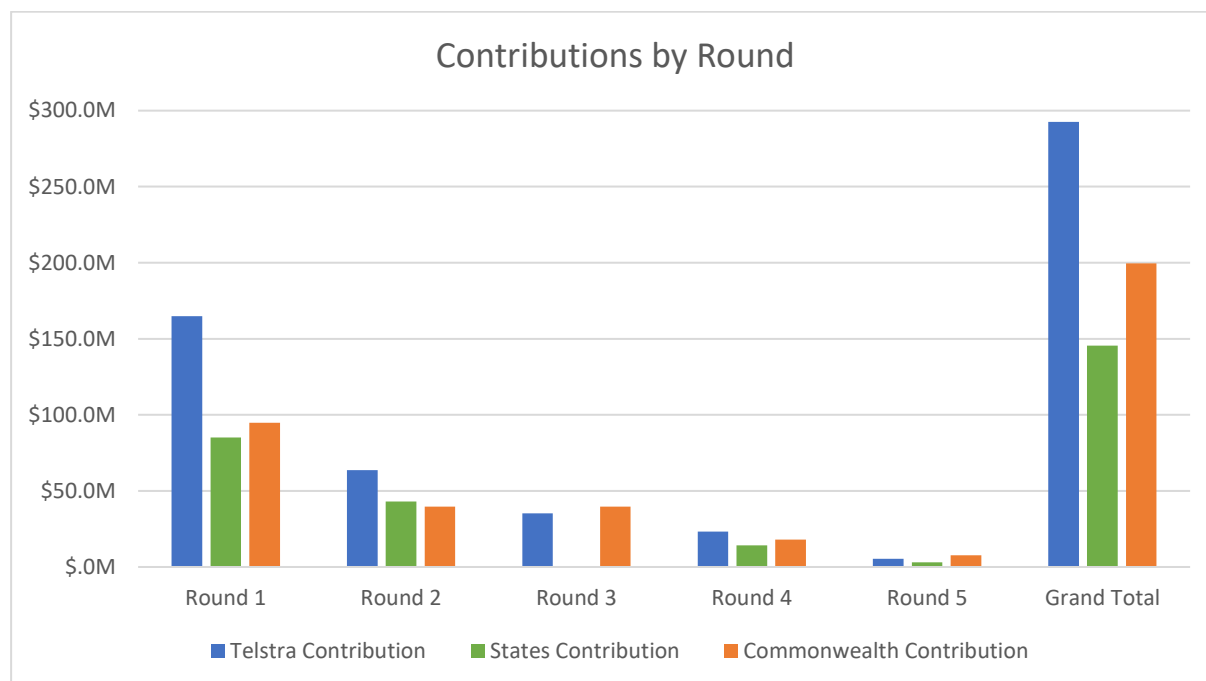
Further, site approval can cause significant delay and additional cost to the deployment of sites. Although difficult to obtain, commitment from the community and local councils to an additional mobile site will mean operators are more likely to bid for those sites.

Additionally, facilitation of permits and community commitment to site locations by local government will go a long way to providing regulatory certainty for operators, reducing the cost to deliver mobile coverage.

5.2. Mobile services need to be provided for a minimum period after asset completion

An important part of any government investment scheme is to ensure that it gets value in return for its investment. A minimum period of operation gives investment certainty to government and allows operators to better assess the cost of investing in a site by providing certainty on the investment requirements. Telstra recommends that we continue with the current 10-year requirement for mobile services from MBSP sites. This requirement should allow upgrades in mobile technology and allow the shutting down of obsolete networks provided operators continue to provide equivalent coverage during the required 10 year period of support. Telstra has announced our intention to shut down the 3G network in June 2024, and at some point in the future MNOs will likely consider closing 4G networks as new generations of network roll out (5G, 6G etc). There should be nothing preventing the shutdown of old mobile technology generations provided coverage is maintained.

5.3. Overall value for money

Telstra supports the government's criteria for value for money. Any government investment in competitive infrastructure should be designed to enhance competition in the market. By awarding funding to sites at the lowest cost to government first there is competitive tension between operators, driving down investment costs while providing incentives to innovate.

5.4. Support for 3rd party infrastructure providers

Telstra welcomes the involvement of infrastructure providers in the mobile black spots program. Infrastructure providers form an important element of competition in the market.

Third party infrastructure providers are incentivised to have multiple operators co-locate on each site providing competitive tension between MNO and infrastructure provider owned towers. Third party infrastructure providers additionally help to alleviate concerns over co-location being difficult on competitor's towers.

Co-location provides efficiencies by using shared infrastructure to lower the cost to build new cell coverage, however while this can reduce costs for operators, it does not increase the level of revenue generated at each site (which is divided amongst the number of operators); a point that is exacerbated if additional third parties are involved also seeking margins.