Achieving placed-based digital connectivity

Submission to the
Regional Telecommunications Review

October 2021

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Executive Summary

The City of Logan is one of the largest and fastest growing local government areas in Australia, with our population expected to grow from nearly 350,000 to over half a million people by 2041, with several 'new cities' planned for development over the next 30 years. The city comprises 70 suburbs covering 957 square kilometres, and approximately 70 per cent of the city is rural, semi-rural or land for conservation.

The diversity and complexity of the City of Logan's population and growth outlook requires a granular analysis of digital connectivity to understand the issues and identify potential solutions, even to the level of individual suburbs.

To help identify and meet the needs of our residents and businesses, Logan City Council commissioned research that identified the following digital connectivity gaps in our city:

- A clear reliance on copper technology in the more densely populated areas of the city for digital connectivity.
- A pre-dominance of satellite and wireless technology in semi-rural and rural areas that has connectivity constraints for end users.
- A potential mobile coverage gap in the southern and south-western parts of the city area due to the lack of mobile network infrastructure.

To meet the digital connectivity needs of our communities and others, Logan City Council recommends that the Federal Government:

1. **Establishes a policy framework and associated funding to support integrated, multi-year programs of investment in digital connectivity for places with complex needs.**

2. **Investigates options for accelerating private sector investment in digital infrastructure in high growth areas to help achieve its decentralisation objectives.**

3. **Negotiates place-based strategic partnerships with State and local governments to undertake program-based planning and investment in digital connectivity.**

Introduction

The City of Logan is one of 12 local government areas that make up the South East Queensland region. The city comprises 70 suburbs covering 957 square kilometres, and approximately 70 per cent of the city is rural, semi-rural or land for conservation.

The City of Logan is also one of the largest and fastest growing local government areas in Australia, with our population expected to grow from nearly 350,000 to over half a million people by 2041, with several 'new cities' planned for development over the next 30 years.

Our city is a vibrant and diverse community, home to people from 217 different nationalities and cultures, including Aboriginal and/or Torres Strait Islander people, descendants of people born overseas and established and recently arrived migrants. Around 10,000 of our residents identify as Aboriginal and/or Torres Strait Islander and more than a quarter of our residents were born overseas. Country of birth and language spoken are wide-ranging across the city.

Over the next 20 years the City of Logan will continue to accommodate a significant proportion of South East Queensland's population growth. The city's network of activity centres will each play an important role in supporting housing and business development; providing employment; providing options for sport, leisure, culture and entertainment; and delivery of human and health services. These centres are:

- Principal centres: Beenleigh and Springwood
- Major centres: Logan Central, Jimboomba, Browns Plains, Loganholme (Shailer Park)
- Specialist centres: Meadowbrook
- Other centres: Logan Village and Park Ridge
- Priority Development Area (PDA) centres: Flagstone and Yarrabilba

Our digital advocacy objectives

Improving digital connectivity in the City of Logan is a key priority in Council's *Advocacy Strategy 2021-2024*. Our advocacy objective is to work with the State and Federal governments on developing and implementing a program of investment in digital infrastructure and associated capability development that will:

- Ensure businesses have access to a reliable, high-capacity, cost-effective digital network and associated digital skills that enables them to compete globally.
- Provide a platform to grow Logan's emerging innovation and digital economy.
- Ensure residents have access to reliable, appropriate capacity and affordable networks that enable them to undertake work, study, healthcare and other activities in their homes and neighbourhoods.

Our submission

This submission identifies three areas where changes to Federal Government programs could better support improved digital connectivity, including:

1. Supporting integrated, place-based programs of investment in digital connectivity
2. Investigating options for accelerating private sector investment in digital infrastructure
3. Developing strategic partnerships with State and local governments

1. Support integrated, placed-based programs of investment in digital connectivity

The Federal Government should establish a policy framework and associated funding to support integrated, multi-year programs of investment in digital connectivity for places with complex needs.

A shortcoming of the current approach by the Federal Government to funding digital connectivity is that it does not provide a policy framework and associated funding that supports integrated programs of investment in digital connectivity. Instead, the Federal Government's flagship Mobile Black Spot and Regional Connectivity Programs provide project-by-project funding. Moreover, applications to these programs require private sector involvement and these stakeholders are interested in only a part of the digital connectivity picture for a particular place, rather than the whole.

For places with complex needs such as the City of Logan, a project-by-project approach to funding digital infrastructure has clear limitations. As described previously, Logan has eight different activity centres that range in maturity from densely populated centres such as Springwood and Beenleigh, to Priority Development Areas (PDAs) that currently have smaller populations but collectively are expected to absorb 170,000 new residents over the next 20-30 years. In addition to these more densely populated areas, a substantial portion of the city, by geographical area, is expected to remain either rural or semi-rural, with these residents and businesses requiring different technological solutions to support digital connectivity.

Complex places require holistic planning and investment

The diversity and complexity of the City of Logan's population and growth outlook requires a granular analysis of digital connectivity to understand the issues and identify potential solutions, even to the level of individual suburbs.

To this end, Logan City Council commissioned a study by Grex Consulting that provided expert advice on Logan's digital infrastructure and connectivity requirements over a 10-year period, including a prioritised list of projects and high-level implementation plan. This study concluded that the City of Logan is lacking the digital infrastructure and connectivity necessary to support existing and future requirements of our city's businesses and residents. The identified gaps include:

- A clear reliance on copper technology (HFC, FTTN, FTTC) in the more densely populated areas of the city for digital connectivity.
- A pre-dominance of satellite and wireless technology in semi-rural and rural areas that has connectivity constraints for end users.
- A potential mobile coverage gap in the southern and south-western parts of the city area due to the lack of mobile network infrastructure.

It also identified the expected benefits and limitations of the current NBN program of upgrading copper and other digital technologies, and the gaps that require additional solutions.

Logan City Council is already working with the Queensland Government to improve the city's digital connectivity. Building on the research undertaken by Logan City Council, the Queensland Government has committed $2.5 million to a program of investment aimed at identifying opportunities to build or extend networks in priority greenfield, residential and industrial development areas such as Greater Flagstone and Yarrabilba.

However, significantly more investment is required – from both the government and the private sectors – to overcome identified digital connectivity gaps. Research commissioned by the City of Logan outlines a program of investment including:

- Expanding fixed wireless coverage
- New base station sites to overcome mobile 'blackspots'
- Trial sites for Low Earth Orbiting (LEO) satellite technology
- Opportunities to construct new 'edge' data centres[1].

Figure 1 provides a high-level overview of the digital connectivity opportunities identified in this research.

The benefits of integrated, placed-based digital connectivity programs

As indicated by our research, places such as the City of Logan that have complex digital connectivity requirements need Federal Government support for integrated, multi-year programs of investment in digital connectivity. Such a framework could be developed using a stage approach, with funding programs developed for different stages using different combinations of public and private investment:
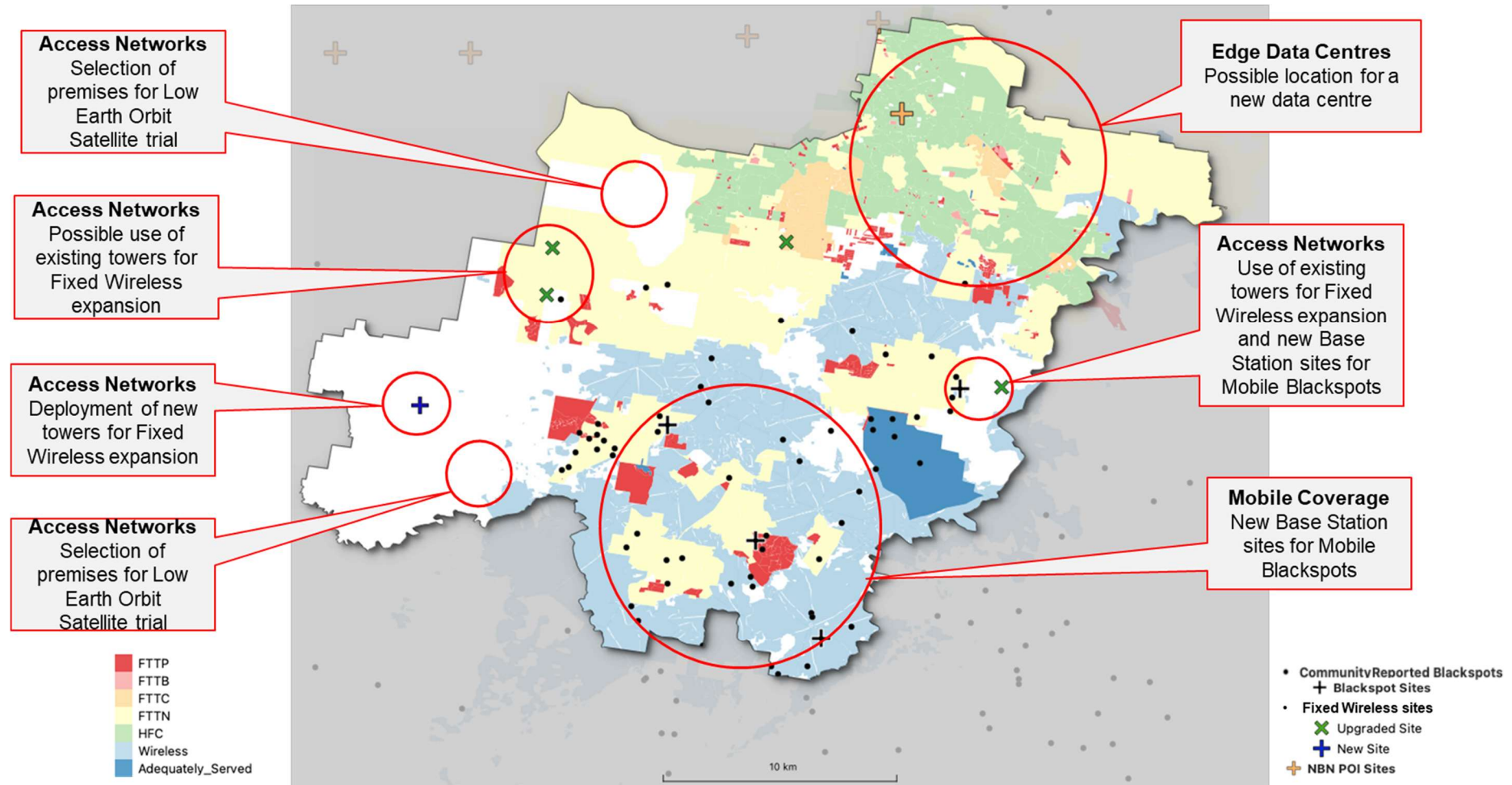
- Stage 1: Present and future state analysis of digital connectivity for places with complex needs
- Stage 2: Negotiating a multi-year program of investment based on this analysis
- Stage 3: Implementing the agreed program investment
- Stage 4: Monitoring and review to measure outcomes

Using a program-based approach to funding digital connectivity infrastructure and associated programs would provide the following benefits:

- Identify best value technological solutions without being constrained by the commercial objectives of a particular business partner.
- Identify where private-public partnerships can support a multi-year investment program, rather than one-off investments.
- Integrate decisions on funding digital connectivity with other policy objectives, for example in relation to decentralisation, access to health and education services, and industry and business development.
- Pilot new technologies and access arrangements in areas that are currently underserved in terms of digital connectivity.
- Adjust investment objectives and funding based on the outcomes of pilot programs and technological advances, ranging from new satellite technologies to Internet of Things (IoT) trials to support decision-making and data management.

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[1] An edge data centre is a small data centre 'at the edge': close to the people, processes and technologies that generate and use data.

Figure 1: City of Logan Digital Connectivity Early Investment Opportunities *(Source: Grex Consulting)*

Access Networks
Selection of premises for Low Earth Orbit Satellite trial

Access Networks
Possible use of existing towers for Fixed Wireless expansion

Access Networks
Deployment of new towers for Fixed Wireless expansion

Access Networks
Selection of premises for Low Earth Orbit Satellite trial

Edge Data Centres
Possible location for a new data centre

Access Networks
Use of existing towers for Fixed Wireless expansion and new Base Station sites for Mobile Blackspots

Mobile Coverage
New Base Station sites for Mobile Blackspots

Legend:
- FTTP
- FTTB
- FTTC
- FTTN
- HFC
- Wireless
- Adequately_Served

- Community Reported Blackspots
- + Blackspot Sites
- Fixed Wireless sites
- X Upgraded Site
- + New Site
- + NBN POI Sites

10 km

2. Investigate options for accelerating private sector investment in digital connectivity

The Federal Government should investigate options for accelerating private sector investment in digital infrastructure in high growth areas to help achieve its decentralisation objectives.

Currently, residents and businesses in high growth areas of Logan are experiencing poor digital connectivity due to a lack of infrastructure that will only be constructed by the private sector once the population and economy grows sufficiently to justify the investment. This lack of digital infrastructure not only adversely impacts current residents, it also adversely impacts the desirability of moving into these areas. Poor digital connectivity can therefore lead to a vicious circle of slower population and business growth, leading to slower private sector investment in digital infrastructure which in turn further slows growth.

Given the Federal Government's desire to decentralise populations away from major cities and into outer urban and regional areas – in part due to the availability of more affordable housing for residents and cheaper land for businesses – policy innovation is required to accelerate private sector investment in digital infrastructure in high growth areas.

Improve digital connectivity for high growth areas

The City of Logan has several high growth areas, including two State Government Priority Development Areas (PDAs) – Greater Flagstone and Yarrabilba. These two areas alone are expected to become home to 170,000 people over the next 20 to 30 years. Research commissioned by Logan City Council has identified that high growth areas often have poor digital connectivity, particularly in the Greater Flagstone PDA (refer to Figure 2). While these areas are likely to be Fibre to the Premise (FTTP) these and surrounding areas are considerably underserved, and in some cases have access only to satellite and no mobile coverage. Such shortcomings in digital infrastructure will be detrimental to attracting new residents and businesses, thereby undermining the Federal Government's decentralisation ambitions.

Current NBN GEO satellites have significant connectivity limitations and are also expected to be retired at the end of this decade or early in the 2030s. Given both the connectivity limitations and limited lifespan of existing technologies, there is a critical need to expand access to fixed wireless technology and identify replacement satellite technology for areas that are unsuited to connections via fixed networks. As well as trialling Low Earth Orbit (LEO) satellite technology in these areas, research commissioned by Logan City Council identified expanding access to fixed wireless technology as being critical to improving digital connectivity (refer to Figure 1).

Good digital connectivity is critical to liveability, including maintaining contact with friends and family, undertaking basic household tasks (e.g., internet banking) and accessing digitally based services (e.g., on-line education and telehealth services). Digital connectivity also facilitates flexible work arrangements that allow people to 'work from anywhere'. For many people, increased access to flexible work arrangements have enabled them to move into more affordable housing further away from major city centres, as they are no longer required to undertake a long commute to jobs in inner-city areas (or at least not be required to commute as often).

Outer urban high growth areas are falling through the cracks of the Federal Government's digital connectivity programs: current population density is not yet sufficient to support commercial investment in upgrading digital infrastructure, but projected population growth is such that these areas will clearly support commercial investment in digital infrastructure in the future. In the meantime, shortcomings in digital infrastructure will be detrimental to attracting new residents, thereby undermining the Federal Government's decentralisation ambitions.

Improve digital connectivity to support business growth

The availability of land in outer urban areas also makes these areas attractive to businesses requiring space to undertake light industrial activities such as advanced manufacturing or transport and logistics. However, good digital connectivity is essential to these and other businesses that wish to access interstate and overseas markets or have a business requirement for substantial data storage and/or complex data manipulation.

While there are medium sized data centres north of Logan, there is also an opportunity to provide data hub facilities to enable and provide edge data aggregation and interconnection of digital services for the city (refer to Figure 1). This investment would improve connectivity and accessibility to major networks, content and cloud service providers (such as AWS, Google and Azure). Establishing such a centre would also provide the opportunity to incorporate digital workspace and learning, as well as a training centre and test lab opportunity for 5G/6G technologies.
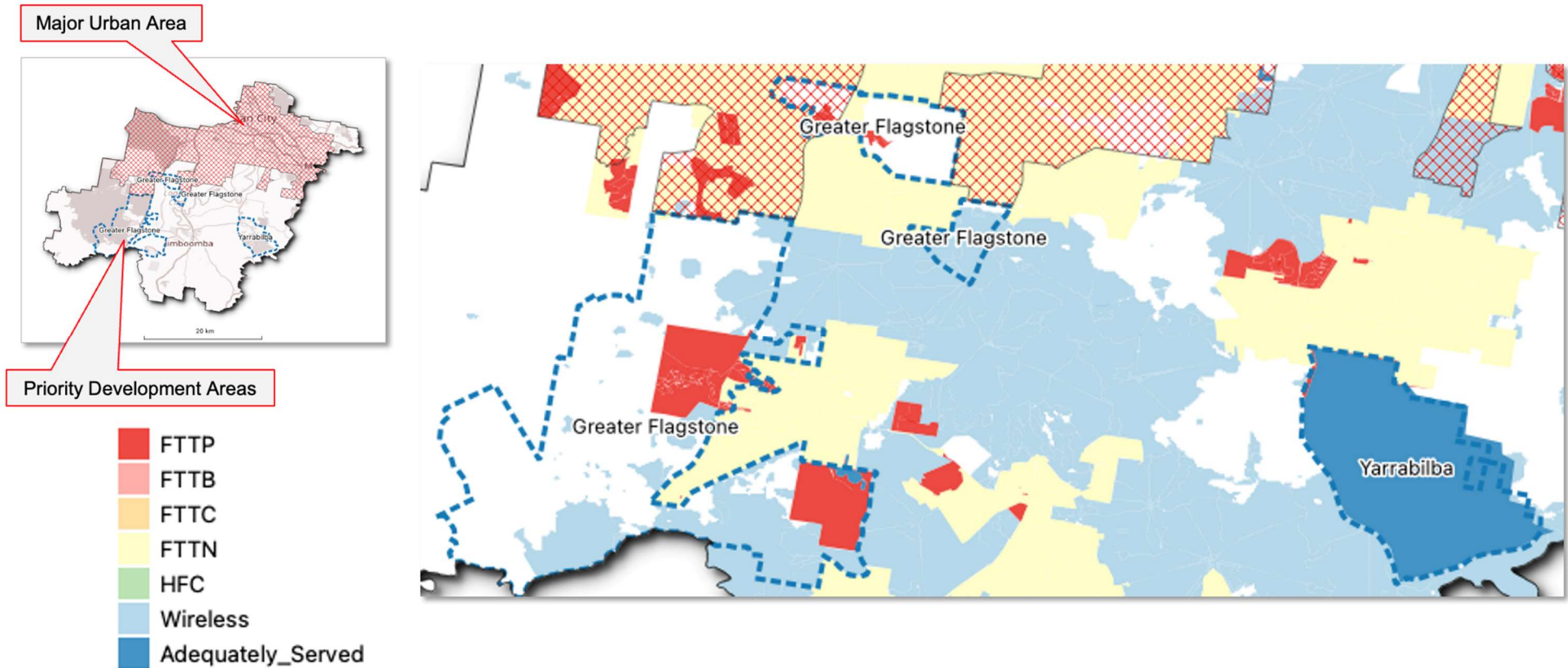
Accelerate private investment in digital infrastructure

Policy innovation is needed to accelerate private investment in digital infrastructure for high growth areas as a critical enabler of the Federal Government's decentralisation agenda.

In this context, there are precedents for the Federal Government in establishing financing arrangements and other incentives to support businesses in undertaking desired activities where commercial financing arrangements are unsuited to the risks involved and there is a clear public benefit to business undertaking the activity. Examples include Export Finance Australia (which provides financial expertise and solutions to facilitate export-related opportunities) and the Northern Australia Infrastructure Facility (which provides debt or equity finance for projects in northern Australia).

In the case of digital connectivity, such arrangements could involve, for example, establishing a statutory authority with specialist expertise that can assess projects and negotiate debt financing arrangements to businesses on concessional terms, including longer loan terms, deferral of interest and principal repayments, security and/or cashflow subordination and concessional pricing. Unlike grant programs, such as the Regional Connectivity Fund, under these arrangements, projects must demonstrate that funds can eventually be either repaid or refinanced. Additional incentives should also be explored to support piloting new digital technologies and access arrangements where existing technologies fall short.

Figure 1: Priority Development Areas (Greater Flagstone and Yarrabilba) with current nbn multi-technology mix overlay
(Source: Grex Consulting)

3. Develop strategic partnerships with State and local governments

The Federal Government should negotiate place-based strategic partnerships with State and local governments to undertake program-based planning and investment in digital connectivity.

Financial constraints on local government

Local governments face considerable financial challenges in funding large-scale infrastructure projects compared to state and federal governments. For example, research by the Australian Local Government Association (ALGA) found that council rates, the sole tax levied by local governments, makes up just 3.4% of tax raised by all levels of governments.

This is exacerbated in high-growth regions like the City of Logan, where pressure already exists on local governments to deliver important community infrastructure to areas experiencing rapid population increases. Logan has two Queensland Government controlled Priority Development Areas (PDAs) that will bear the brunt of decentralisation and population growth in South East Queensland outside of major metropolitan areas. Flagstone will house more than 120,000 residents in the coming years, and Yarrabilba will be home to 50,000 residents. Both PDA's offer affordable housing options away from key city centres.

Given these budgetary constraints, guidelines for funding schemes like the Mobile Blackspot Program should recognise that local governments are limited in what they can finance and should not be called upon to make financial co-contributions to the submissions made by applicants (in this instance Mobile Network Operators or Mobile Network Infrastructure Providers).

Partnering with local government

Although facing considerable financial constraints, local governments can still be leaders in identifying the unique needs of their individual areas. Logan City Council, for example, funded the development of a business case examining connectivity in the Logan local government area. This business case has since been vetted by the Queensland Government, with the state committing $2.5 million towards its rollout. This makes Logan City Council one of the first local governments in Australia to address digital connectivity issues through a State government-endorsed business case.

Developing strategic partnerships with local governments would be a constructive way of working with local government, particularly if the program-based approach previously recommended is adopted. Such an approach could also involve State governments, thereby providing a genuine 'whole-of-government' approach to digital connectivity across Australia.