

## Submission: Mobile Network Hardening Program, Round 2 draft guidelines

### Yarra Ranges Council

May 2023

Contact:	

#### Introduction

Yarra Ranges Council ('Council') is pleased to submit this response to the draft guidelines for Round 2 of the Mobile Network Hardening Program (MNHP). Council recognises that the program provides funding to the telecommunications industry stakeholders to deliver critical resilience upgrades to mobile network infrastructure.

Council welcomes the renewal of the program in this round, and the opportunity to respond to the draft guidelines.

### Yarra Ranges Council: unique assets and risk

The municipality of Yarra Ranges is located on metropolitan Melbourne's eastern fringe and is home to a population of about 160,000. Yarra Ranges covers approximately 2,500 square kilometres and stretches from densely populated outer suburbs to foothills, agricultural valleys and forested areas of the Great Dividing Ranges.

The municipality is a unique mix of urban and regional areas, with around 30% of the population dispersed across non-urban areas that represent 97% of the Yarra Ranges overall landmass.

### **Telecommunications study**

Reliable and resilient connectivity is key to the economic and social strength of Yarra Ranges communities day-to-day, and is a critical factor in our community's capacity to prepare for and respond to natural disasters.

Council and its local communities have identified telecommunications resilience as a key advocacy priority, particularly as the region faces an increasing number of severe weather events including storms, bushfires, floods, landslips, heatwaves and more.

Council commissioned an independent technical study in 2020 and 2021 to assess network coverage and quality across the municipality using methodologies used and trusted by industry.

Council has since worked proactively with State and Commonwealth Governments, as well as industry, to improve mobile and internet connectivity and the resilience of the telecommunications network overall, including its dependency on the energy network.

A summary of the study is provided in Appendix 1. The full report can be accessed on <u>Council's website</u>.

Council leveraged these findings in its submission to the <u>2021 Regional Telecommunications</u>  $\frac{\text{Review}^1}{1}$ .

<sup>&</sup>lt;sup>1</sup> Yarra Ranges Council submission, Regional Telecommunications Review:

https://www.infrastructure.gov.au/sites/default/files/documents/rtr2021-submission-no-622-yarra-rangescouncil-public-sub.pdf

### Dandenong Ranges ineligibility for MNHP

Yarra Ranges Council welcomes the MNHP's focus on areas with high risk of natural disasters. It is logical and necessary that funding to improve system resilience is targeted at areas most at risk of emergency events that may disrupt connectivity.

However, the confinement of eligible locations to areas outside of the 'Major urban' boundary have resulted in the exclusion of the Dandenong Ranges (Appendix 2) – an area within Yarra Ranges that sits on the urban fringe and is rated as one of the most disaster-prone areas in Australia (Appendix 3). The area, known as 'the Hills', is home to approximately 35,000 residents, with around 13,000 dwellings, and is a popular tourism destination for Melbourne's metropolitan population.

As demonstrated in Appendix 1, the Dandenong Ranges has many mobile blackspots and areas with unreliable connectivity, particularly across Mount Dandenong, Kallista, Olinda and Sassafras. This hinders our communities' capacity to prepare for emergency events even when connectivity is functional. It is therefore critical that the existing mobile infrastructure is resilient and can withstand impacts from the frequent weather events that occur through the ranges.

The Dandenong Ranges was severely impacted by the violent storms that swept across Victoria in June 2021<sup>2</sup>.

During and after the storms, 34 communities in Yarra Ranges lost NBN and internet services, with many unable to call 000. More than 3,000 homes were without power and internet for more than a month. The majority of impacted homes were in the Hills.

Despite 12-hour battery back-up on local mobile towers, prolonged power outages throughout the Hills meant mobile connectivity was quickly lost again – in some cases up to 72 hours before the grid could be restored.

The area was extremely isolated by the wreckage of the storm, with many residents unable to leave the Hills while emergency services from other locations were unable to enter or communicate with local CFA brigades.

While the Hills is located within the 'major urban' area, its characteristics – including its complex geography, high disaster risk and vulnerability to isolation in emergencies – aligns more closely with regional townships.

While the Dandenong Ranges has been eligible for Commonwealth Government funding for new and upgraded mobile infrastructure in the past, including through the Mobile Blackspot Program and Peri-Urban Mobile Program (see Appendix 4)3, it is not eligible for critical resilience upgrades through the MNHP.

Broadening the eligibility criteria to include a reasonable area (3-5km) within the 'major urban' boundary would enable peri-urban locations such as the Hills attract the investment required to ensure network resilience and community safety in emergencies.

<sup>&</sup>lt;sup>2</sup> Yarra Ranges Council Municipal Recovery Plan

https://www.yarraranges.vic.gov.au/files/sharedassets/recover/documents/yrc-municipal-recovery-plan-2021-7-12-21.pdf

<sup>&</sup>lt;sup>3</sup> Some key parts of the Hills were excluded from the PUMP program – including parts of Mount Dandenong, Sassafras and Ferny Creek – due to its limited 2km reach inside the major urban boundary.

### Integrating engineered solutions with operational and communitylevel responses

Some excellent research is emerging in Australia and overseas into resilience planning and guidelines for resilience planning. One such example is a recent paper titled "<u>Resilience</u> <u>Framework and Metrics for Energy Master Planning of Communities</u>"<sup>4</sup>, by researchers at the University of Melbourne. In that paper, researchers describe resilience in three broad terms, viz:

- **Engineering Designed Resilience** the ability of a system to be designed in such a way that redundancy enables reliability so that systems can 'self-heal' and restore service without human intervention.
- **Operational Resilience** technological and organisational measures (including decision-making) that can contain or minimise damage in the short-term.
- **Community-Societal Resilience** high quality cooperation, collaboration and partnership between service providers and consumers, i.e., the community, that maintains general community wellbeing despite a disruption.

These terms may also be applied to the telecommunications network, particularly in areas where standard engineered solutions fall short of community need – for instance, 12-hour battery back-up in areas vulnerable to prolonged power outages and physical isolation.

As such, Council encourages the Commonwealth Government to ensure that engineered solutions are effectively supported by operational improvements and cooperative and collaborative work with Councils and community groups. This will drive resilience at all levels.

### Recommendations

In relation to the MNHP Round 2 guidelines, Yarra Ranges Council makes the following recommendations:

- That criteria for eligible locations be broadened, to include either:
  - Local Government Authorities on the fringe of the 'major urban' area,
  - peri-urban areas, defined as 4km within the major urban boundary (as shown in Appendix 5), and/or
  - areas outside of the 'major urban' boundary where significant natural disaster risk can be demonstrated.

<sup>&</sup>lt;sup>4</sup> Charani Shandiz S, Foliente G, Rismanchi B, Wachtel A, Jeffers RF. Resilience framework and metrics for energy master planning of communities. Energy. 2020;203:117856.

### ADVOCACY

# Telecommunications

Mobile and internet connectivity in Yarra Ranges



Mobile service and internet connectivity is critical for connecting us to work, education, emergency information, and friends and family.

But we know that telecommunications services simply aren't reliable in many parts of the Yarra Ranges.

This has never been clearer than during the COVID-19 pandemic, and the June 2021 storms when **34 communities lost mobile and internet service for days, unable to contact 000 or family and friends.** Some residents and businesses lost NBN service for more than three months.

To help us advocate for better service, Yarra Ranges Council has completed a study on mobile and broadband connectivity across the region.

Mobile network quality 'drive testing' was undertaken by a technical consultant at 24,493 sites, including key segments of the road network and 655 other points of interest, including:

community fire refuges

Neighbourhood Safer Places (places of last resort)

ESTA emergency markers

Council firefighting water tanks

Schools

community centres

aged care and Senior Citizen Centres

Country Fire Authority Stations

regional and rural bus stops

Drive testing was undertaken using three Samsung A12 handsets (commonly used by members of the public) to capture information about network quality for each of the national carriers: Telstra, Optus and Vodafone. Testing combines three measurements of power and quality – RSRP, RSRQ and SINR – and provides a robust methodology acknowledged and respected by the carriers.



senior citizen centres (excluding urban locations) and CFA stations. network quality

### Sections of road with 'unusable' or 'no coverage' were concentrated around:

### 1. Dandenong Ranges

Depth of coverage is impeded by complex topography, despite carriers' maps indicating adequate coverage. Mobile signals regularly jump between towers. This area is extremely prone to natural disasters, including bushfires and severe storms. Telecommunications network failures caused by mains power outages and insufficient battery backup impeded emergency response efforts following the June 2021 storm events, when emergency services could not communicate with one another and residents had no line out of the impact zone and could not call 000.





### **2. Maroondah Highway** towards Fernshaw and the Black Spur

This is a major tourist route where travellers must have reliable access to mobile signal, particularly in an emergency. A nearby tower has been funded through the Mobile Black Spot Program, however, the mountainous landscape means blackspots remain. Fernshaw is currently not adequately serviced by any carriers.

### Areas along Gembrook-Launching Place Road, toward Beenak and Hoddles Creek

This is a key agriculture area that requires coverage to ensure occupational safety and opportunity for businesses to innovate through smart farming technologies. Beenak and Hoddles Creed are currently not adequately serviced by any carriers.





4. Woods Point Road, from East Warburton north toward Yarra Ranges National Park

This an area facing severe bushfire risk, where telecommunications infrastructure must account for population and tourism growth over the coming years.

### 5. Steels Creek

Currently not adequately serviced by any carriers (no usable cellular service).



### **Telecommunications**





Council has been advocating to the Victorian and Commonwealth Governments for investment in local telecommunications infrastructure.

We've also been engaging with industry stakeholders to share data about local issues and understand what solutions can address the problems we're facing.

### What we're asking for:

- 1. Improve mobile connectivity in 5 key areas with low or no mobile service quality: Dandenong Ranges, Hoddles Creek, East Warburton, Steels Creek, Fernshaw.
- 2. Upgrade NBN broadband services from fixed wireless, satellite and FTTN to FTTP in key areas with slow broadband service.
- **3. Strengthen telecommunications network resilience** during power outages and emergencies e.g. increased battery back-up at mobile towers, generator power for mobile towers and NBN nodes.



Yarra Ranges residents rely on internet for emergency information\*

\*Source: Yarra Ranges telecommunications community survey, 2020

Establish telecommunications as an essential service.
This would enable a faster response when the system fails, ensure accurate reporting of network issues and require the development of contingency plans.
This could prove lifesaving through future disasters.

For more information about Council's telecommunications study and updates on our advocacy, visit: yarraranges.vic.gov.au/telecommunications



Ranges

Council

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#### Appendix 2. Major Urban Boundary (MUB), Yarra Ranges Council

Inset: MUB across the Dandenong Ranges





#### Appendix 4. Peri-Urban Mobile Program boundaries

Parts of the Dandenong Ranges were eligible for the Commonwealth Government's Peri-Urban Mobile Program, which included locations 2km within the 'major urban' boundary (shaded in grey below).

However, some key high-risk areas were excluded by this criteria (circled in red).

Source: National Map



Appendix 5. Proposed boundaries for 'peri-urban' LGAs (4km)

