2024 Regional Telecommunications Review

Murrindindi Shire Council Submission

July 2024

Murrindindi Shire Council

Summary

We need to build ‘layers or resilience’ so that when communication services fail, we have fall back plans at the community and agency level.

A priority for government and telecommunications service owners and operators needs to be the hardening up of existing telecommunications infrastructure at risk of failure in natural disasters.

There are further opportunities for telecommunication service providers to partner with local agencies and communities in pre deployed generator programs, and to provide satellite communications infrastructure at critical care facilities and council Emergency Relief Centres.

The strength in our local communities need to be harnessed with funded programs to enhance communications resilience and genuine cooperative planning between communities, councils and emergency agencies.

Our current telecommunications infrastructure is inconsistent in quality and coverage.

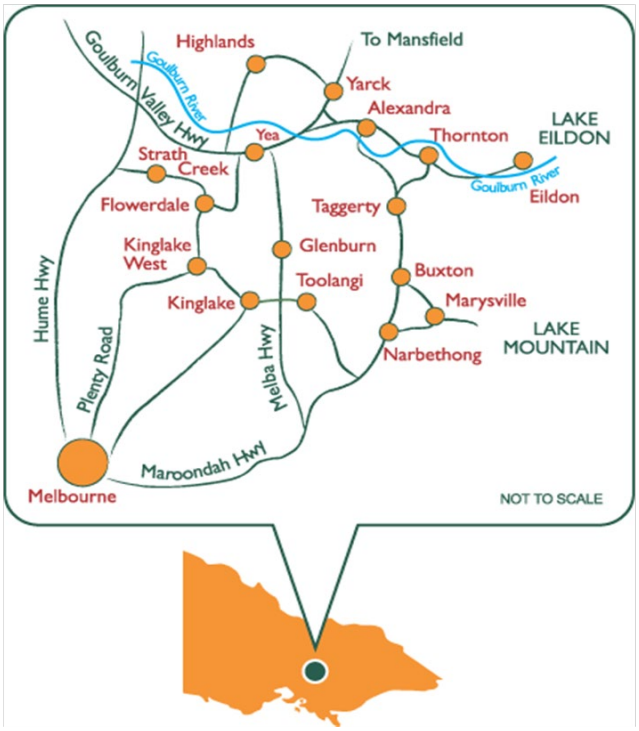
There are still mobile blackspots across Murrindindi Shire creating disadvantages for our community, our local economy and our visitors.

Further investment and program extensions are required to ensure all identified blackspots are rectified prior to the end of any current funding program.

Our growth opportunities are constrained by the quality of our digital connectivity.

Increased funding from the Australian Government is required to support the Regional Tech Hub to reach regional communities, understand service needs and support regional economic development.

1. Background



Murrindindi Shire is situated northeast of Melbourne, with a total population of just under 16,000 and covering an area of 3,879 square kilometres, encompassing the rural townships of Alexandra, Eildon, Kinglake, Marysville and Yea, as well as many smaller communities.

The large geographic area and relatively small population equates to an average of 0.25 person for every square kilometre: a considerable difference from the regional Victoria average of 7.4 per square km, or the state average of 30 per square km.

This very low population density and potential for isolation is the critical factor that makes telecommunications resilience of primary importance to our communities.

Over 1.2 million tourists visit the shire each year. These tourists typically have a lack of local knowledge about the risks in the area they are visiting, or any local emergency management planning arrangements. They are less emergency-ready than our residents and almost entirely reliant on mobile phone telecommunications in an emergency. When mobile telecommunications go down, this cohort are extremely vulnerable and place added strain on our community-based communication capabilities, council and emergency management agencies.

Most of the Shire's private land is classified as agricultural, with agriculture, construction, manufacturing and tourism being our key industries. These industries remain competitive through good access to telecommunications infrastructure to improve efficiency on the land, when this access fails to meet the requirements, our local economy also suffers.

The Shire regularly experiences severe weather events that lead to disastrous impacts on community health and wellbeing, natural environment, local economy and critical communications infrastructure.

Events in the last three years include:

Date	Event	*Council Cost	Impact
June 2021	Storm	$55K	300 properties without power for 2 weeks, loss off telecommunications.
October 2022	Flood	$30M	Major flood event, widespread loss of power and telecommunications, significant impact across the municipality.

October 2023	Flood	$680K	44 properties impacted, widespread cropping and fencing loss
January 2024	Flood	$61K	Impact on properties in Yea, Flowerdale and surrounds
February 2024	Storm	$184K	NBN was washed away. Widespread power loss caused mobile communications outages. Hospitals had no phone or internet communications. EFTPOS failed, limiting sale of essential goods to cash only. ATMs failed, denying access to cash.

*Cost refers to council infrastructure reinstatement and recovery cost activity.

The Council infrastructure recovery costs identified above do not include the property and infrastructure damage, or the agricultural production and livestock losses borne by our community, or the wider local economic impact. Combined, these costs add up to hundreds of millions of dollars in recovery costs borne by the community and all levels of government.

2. Hardening up our primary mobile telecommunication infrastructure.

One consistent impact in emergency events in Murrindindi Shire is the failure of critical telecommunications which impedes our community's ability to access the information they need to make good emergency decisions; it prevents emergency help- seeking through 000 calls; and it slows emergency responses. The consequence of telecommunications outages are increased community vulnerability, slower emergency responses, increased damage, heightened trauma and mental health impacts and prolonged relief and recovery period. Murrindindi Shire Council contains a network of telecommunications equipment, including critical nodes for the transmission of radio and the provision of telephone services. Typically, these locations are isolated and can take some time to reach for servicing on a 'normal' day, let alone when access is restricted by flood, fire or storm.

Accordingly, the first focus of resilience planning must be mobile phone towers. All towers need battery back-up sufficient to meet local risk assessments factoring in service criticality and ease of access in an emergency.

In a sparsely populated area like Murrindindi Shire with large tourist populations and a high natural disaster risk profile, a minimum of 24 hours of phone tower battery backup is required. This provides sufficient time for risks to be communicated and residents and tourists to implement (or make) emergency plans.

If local communities are going to prepare for emergencies, knowing what to expect to fail and by when, is valuable information. Information on mobile phone tower sites 'run time' on batteries will inform community and assist planning with local emergency service providers.

Critical phone towers need further firming with in-situ or locally deployable generators which can be operated by trained locals. Murrindindi Shire Council recognises that many telecommunications sites contain high risk equipment that must be securely managed to protect unauthorised people from injury to themselves or from damaging equipment.

However, external generator connections can be installed that reduce these risks and remove the need to enter tower facilities. We also know that we have highly skilled locals that could be trained to safely connect generators, speeding up response times and dramatically reducing the cost burden on telecommunication suppliers.

One example of a commitment to network resilience and reliability is the Telstra Automatic Transfer Unit program[1], which allows the pre deployment of generators at sites in anticipation of outages. 250 Telstra network sites nationally will receive Automatic Transfer Units (ATUs) by the end of 2024. These units allow local authorities to connect portable generators to exchanges and mobile base stations during power outages, ensuring faster network restoration. This service can be provided through agreements with local agencies or community groups trained and equipped with generators to attend sites if required.

Murrindindi Shire Council is ready and willing to partner with any telecommunications service provider that can train up and equip local agencies or community groups with generators to be pre deployed at key telecommunications sites.

Murrindindi Shire Council recommends:

- **The installation of battery back up on all mobile phone towers with the length of back-up time dependent on local risk assessments factoring in service criticality and ease of access in an emergency.**
- **Minimum 24-hour mobile phone battery back-up (ideally 72hrs in more isolated locations) in Murrindindi Shire given our natural disaster risk, sparce population and large numbers of tourists.**
- **Firming of all critical mobile phone towers with in-situ or locally deployable generators which can be operated by trained locals.**
- **Public information on the length of battery back-up and any locally deployable generator power for all mobile phone telecommunications towers.**

3. Improving local level telecommunications infrastructure to support communities and agencies during emergencies.

Following the events of the 2019 bushfire season, nbn worked with the Federal Government to enhance telecommunications resiliency as a key component in a wider $37.1m federally funded program to Strengthen Telecommunications Against Natural Disasters (STAND)[2]. A key part of the STAND program is the allocation of $7 million to deliver up to 2,000 nbn satellite services to rural fire service depots and evacuation centres across Australia to provide redundant communications.

[1] Telstra - Bigger Picture - 2023 Sustainability Report
[2] https://www.infrastructure.gov.au/media-communications-arts/phone/provision-satellite-connections-emergency-services-and-evacuation-centres

In 2021 Murrindindi Shire received the installation of Wi-Fi internet access delivered via nbn Skymuster Plus satellite service at seven locations within the municipality that are intended to provide a refuge, safe place, relief and recovery site or evacuation point for communities vulnerable to isolation during a natural disaster.

To build on the STAND program, further work is now required to ensure the seven locations within Murrindindi Shire equipped with Sky Muster can now support that infrastructure with a reliable back-up power supply. Without back-up power, the telecommunications investment in these sites will fall short of meeting community needs and put lives at risk.

Recent experiences of emergencies in Murrindindi Shire have highlighted weaknesses in vital telecommunication infrastructure servicing emergency response agencies.

During the storm event on 12 February 2024, the Department of Energy, Environment and Climate Action (DEECA) Incident Control Centre in Alexandra lost the critical nbn fibre connection to the facility, crippling capacity to coordinate emergency services during the storm. Meanwhile, the State Emergency Service in Alexandra used nbn satellite for Wi-Fi calling and copper land lines still in place in the CFA and SES locations in Alexandra continued to work.

This one recent example clearly demonstrates the high variability in the reliability of communications infrastructure between response agencies who are required to ‘work as one’ during emergencies.

In addition to our emergency response agency communications needs, key sites in Murrindindi Shire that provide 24-hour care for injured, ill or elderly community members also require more resilient communications capacity. Both hospitals in Murrindindi Shire lost all communications, placing people in care at risk.

One hospital resorted to sending a staff member out to drive around town to locate the diesel refuelling truck to attend to the hospital and refuel the generator providing emergency back-up power. It was only through the attention of local SES that these hospitals were loaned satellite telephones to enable communication, without that local intervention, both hospitals would have had no communications for extended periods.

Critical care facilities such as hospitals and aged care require a level of telecommunications resilience equivalent to emergency response agency locations if they are to continue to function during emergencies.

Murrindindi Shire Council recommends:

- **The continuation of the Australian Government's Regional Connectivity Program and Strengthening Telecommunications Against Natural Disasters (STAND) Program.**
- **Grant funding support for rural and remote councils to improve the telecommunication resilience of Emergency Relief Centres with emergency power supplies to support satellite telecommunications infrastructure.**
- **Further support for critical care facilities emergency telecommunications infrastructure to improve the safety of vulnerable people in care.**
- **The development of simple tools to help organisations to assess their level of telecommunication resilience and risks (e.g. volunteer emergency response locations, hospitals, and aged care facilities).**

4. Building the capacity in our communities.

The community didn't know what to do once power and telecommunications went down. We need to encourage people to have a battery powered transistor radio. It might be a good idea to develop a basic information product for communities. (Community member).

We have some experienced community members who can respond to the needs of others with access to information channels.

It is highly likely that lives would have been lost if not for the mutual support during recent floods and storms and the 'out of the box' thinking that enabled a basic level of informal communication to occur.

Following the recent flood and storm events, our community shared their stories.

- We heard how SES stepped in to loan satellite phones to hospitals and then door knocked at risk community with no access to information.
- We heard how the local radio station broadcast to emergency response agencies to monitor UHF radio for emergency calls from the community.
- And we heard how driving around during a storm was the only way to communicate with essential services.

These examples of resourcefulness are commendable, but they place community members and emergency response volunteers at risk. If emergency management is a shared

responsibility with community, governments and agencies need to do more to reduce the risk and provide more reliable telecommunications infrastructure, as well as support communities to plan for emergencies.

The 'LEAPing into Resilience' project is currently taking place in Murrindindi Shire. The project is engaging with five local communities to develop a Local Emergency Action Plan (LEAP). The LEAP project is a collaboration between Council and the various emergency agencies with the community.

The results of community engagement in this program continually identifies loss of communications as a key challenge in local emergencies. While some effort can be made through this program to address the issue at a local level and assist in developing plans, the funding for LEAPing into resilience is time bound and limited in scope, under the current funding model, the program will never have the capacity to meet the needs of all communities in developing local plans.

Given that the limits of telecommunication infrastructure becomes apparent in emergencies, it is imperative that further funding should be made available to council to assist in community planning for emergencies, specifically around developing local level 'Plan B' communication options.

Murrindindi Shire Council recommends:

- **Increased funding in the LEAP program to deliver community resilience building programs that support the development of local emergency communications plans.**

5. Addressing the inconsistencies in the quality of our current mobile telecommunications infrastructure.

There are still mobile blackspots.

While the mobile blackspot program has made some improvements to coverage thanks to the ongoing advocacy work of the Indi Telecommunications Action Group, Murrindindi Shire continues to suffer from mobile blackspots across the area.

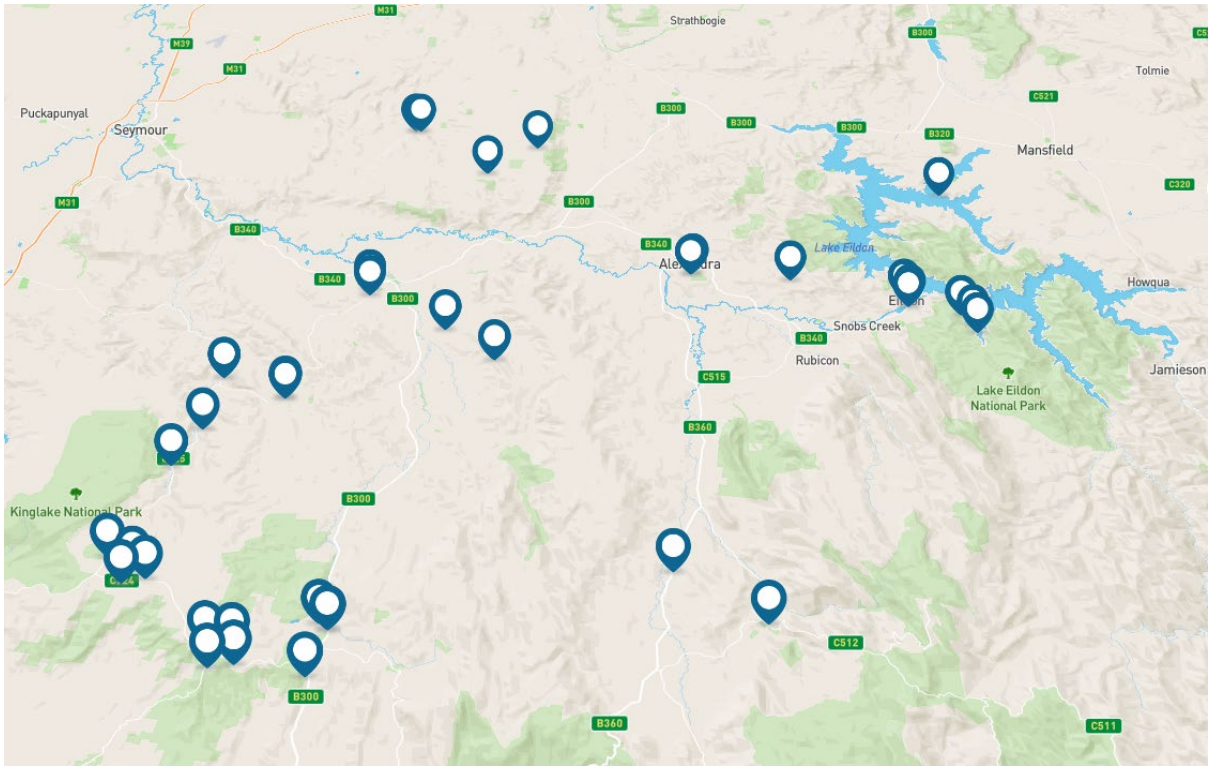
Many of the mobile blackspot areas identified in Murrindindi Shire need to be considered as a high priority for treatment, given the remote location of some communities and the impact of tourism in peak periods.

In high bushfire risk areas communities depend on mobile communications for their safety, and for direction to provide response support in emergencies when required.

I work in the emergency services and be recalled to work at any time but during peak periods the chances of not having signal are very high therefore making it impossible for work to contact me.

An upgrade to the system is desperately needed. (Community member).

'The Loop' survey of Murrindindi Shire community in 2023 asked the community questions around the quality of mobile connectivity and any issues at specific locations and asked community to 'pin' the location of their issue on a map (see below). Issues identified at the locations include a lack of internet, phone and television reception, limited coverage, oversubscribed fixed wireless services and poor internet with increased latency over peak periods.



2023 survey - map showing mobile communications issues by location in Murrindindi Shire.

Locations around Jerusalem Creek Road in Eildon, Whittlesea – Kinglake Road in Kinglake West and communities in Limestone, Dropmore and Caveat continue to suffer from poor quality mobile communications access. The detailed commentary from community in relation to these locations is included as a table in the appendices to this submission.

Consistent highway coverage remains a critical issue, with sections of our main highways failing to provide mobile reception to our road users. One third of respondents to the 2023 Loop survey reported mobile connectivity issues while on the road. Sections of the Melba Highway around Cathkin and Maroondah Highway from Buxton to Acheron have limited or no coverage, placing road users at a disadvantage and in some situations at risk of not receiving emergency support if required.

The Australian Government's Better Connectivity Plan for Regional and Rural Australia has committed $400 million to expand mobile coverage and improve communications resilience,

Given the current rate of works undertaken each year to identify, prioritise and respond to black spots – the program funding will not remedy existing blackspots for many years, including those in Murrindindi Shire.

As a priority, we identify areas such as Jerusalem Creek in Elidon and the Limestone, Caveat, Dropmore areas for urgent blackspot program treatment to ensure more robust mobile communications are in place.

Murrindindi Shire Council recommends:

- **Increased investment and improved program delivery to ensure all blackspots identified are rectified prior to the end of any current funding program.**

6. Our growth opportunities are constrained by the quality of our digital connectivity.

We note that while the risk of telecommunication failure becomes critical and life-threatening during emergency events, the day-to-day quality of telecommunications continues to have a profound impact on our opportunities for growth and development.

As noted previously, Murrindindi Shire attracts 1.2M visitors a year, the majority of those being day trippers for weekend visits or to attend festivals, markets and other events. Peak tourism events can add strain to the existing telecommunications capacity and has in the past had adverse impacts on 'business as usual' functions such as EFTPOS transactions and access to online information.

The influx of weekend tourists impacts service in several towns including Marysville, Devils River, Eildon and Jerusalem Creek (Darlingford Waters Boat Club). Residents or tourists to these areas report that it is very difficult to get phone reception on weekends, suggesting that infrastructure cannot cope with the increased visitation pressures at these times.

The ironic outcome being that at the very time our tourism economy depends on good quality connectivity it fails due to the increase in tourism.

Along with our growing visitor economy, our Shires economic output is heavily invested in agriculture, including forestry and fishing. Our primary producers have an increasing reliance on telecommunications infrastructure to effectively manage the 'internet of things' now providing critical data on climate, land and livestock conditions that impact operations. Without a robust system in place able to reach remote farming locations, our primary producers cannot maintain their businesses.

The education of our children suffers as households struggle to get internet for school. This became apparent during the COVID pandemic when school closures forced students into an online learning environment, creating divides in education quality dictated by telecommunications service quality.

Future lifestyle considerations for growing families may depend upon the quality of the telecommunications services in a given area for their family's growth, this can be a limiting factor when attracting new community members to our Shire.

Given that these telecommunication access and reliability issues are most commonly faced by regional communities, the opportunity to improve support to regional areas sits with existing services such as the Regional Tech Hub[3]. Current access to Regional Tech Hub services can be limited as it faces challenges in meeting the needs of regional Australia.

Further funding would allow the expansion of this valuable service and enable increases in proactive engagement with regional communities to determine service needs.

Murrindindi Shire Council recommends:

- **Increased funding from the Australian Government, Department of Infrastructure, Transport, Regional Development, Communications and Arts to support the Regional Tech Hub in providing improved services to regional communities.**

In conclusion, the Murrindindi Shire community continue to face telecommunications quality and access issues daily, these issues become critical risks to our communities in emergency events.

Murrindindi Shire Council seeks further support from Government in improving the quality of telecommunications infrastructure and service delivery in our community.

We are willing to work with all agencies, authorities and providers to make this a reality.

[3] Home - Regional Tech Hub

Appendix One – Our communities lived experiences.

This submission has been prepared by Murrindindi Shire Council in partnership with our community. The lived experiences of our community have informed our priorities and guided us in creating a submission that speaks with their voices. Listed below are examples of the stories we heard from our community that have informed this submission.

"We need longer battery back-up for telecom towers. MEMPC has discussed this in the past. We need to increase advocacy pressure around this issue. Murrindindi should have 24-hour back-up given the regions history of emergency incidents". (Community member).

"The SES has Sky Muster and had full internet capability throughout the events. We also have copper phone line which kept running. The SES use a UHF radio channel to communicate with crews. This radio channel could be used by more agencies if they had UHF radio receivers". (Volunteer).

"We noted that many point-of-sale terminals stopped working when power was out. This prevented people from purchasing fuel for generators. Community need to be reminded that cash may be needed in an emergency". (Business owner).

"It's important that these sites have back-up power. They also need satellite internet just in case the NBN goes down. Consider the need for UHF Radio and/or satellite phones as a back-up". (Relief centre staff).

"There are heavy loads on telecommunications when its holiday season, long weekends are times of knowing as a local that the data consumption on the nbn™ broadband access network is increased up to 80% (?) consider easter in Murrindindi or the ute rod and truck show". (Business owner).

"We were broadcasting throughout the event. People relied heavily on this local information source. STAND emergency wi-fi system worked well and was available for community to use. As telecommunication towers run out of power, phones, internet and 000 call capacity also go down. Most telecommunication sites across the state do not have auto generator back-up. They rely on transporting generators to sites as needed with a technician to connect the generator. This model is quickly overwhelmed during wide-spread events, as there are insufficient technicians and generators, and access can be prevented with trees down etc. if sites had permanent generators, we could train local people to start them during an emergency. Agencies should consider satellite internet back-up (Sky Muster or Star Link) as this will keep the internet working event when the NBN is down. The 'guaranteed' NBN service to the DELWP Alexandra Incident Control Centre failed, supposedly due to unreported modifications made by the service provider that impacted the reliability. The hospital also lost phone and internet when the NBN went down". (Radio station operator).

Appendix Two – The Loop Survey 2023.

Community feedback on telecommunication connection quality specific locations

Location	Issue identified
[redacted]	No internet at all available. Phone reception comes and goes. As does TV reception.
	Both residents work in the technology sector in IT management and Knowledge management and require reliable cellular services. Currently benefiting from Star Link Internet which was a significant investment for reliable internet.
	No mobile phone or internet reception. There is a tiny bit of 3G sometimes so if this is switched off there will be nothing.
	We have no mobile reception here, on any carrier.
	We have no mobile connectivity here. Neither Telstra or Optus work.
	Shocking
	No connectivity.
	We rely on 4G for internet access, but it slows down significantly in the afternoons and early evenings when there are a lot of visitors in Marysville
	Vodafone no connection Optus poor or none if peak days.
	No mobile coverage.
	No nbn available and unreliable ADSL. 4G and mobile reception fluctuates with sometimes unusable especially in wet or windy weather.
	Very poor mobile coverage
	Very poor to non-existent signal in peak periods.
	[redacted] stays (4 x BnB farm stay accommodation offerings) all with Wi-Fi and streaming services provided in the tariff. We're also knowledge workers in the technology sector relying on high-speed internet services daily. We need to use multiple service providers and service packages in order to achieve high reliability for both guests and ourselves.
	Zero internet connection at all.
	Internet and 4g it slows right down after 8pm every night can't even open a page! I've been to 3rd world countries with better internet and service
	Over subscription to our closest tower means poor speeds impacting ability to work from home. Regular issues not being able to stream properly.

Location	Issue identified
[redacted]	Poor internet.
	Telstra tower in Castella is oversubscribed (not enough capacity) resulting in terrible data speeds (as bad as
	No NBN ONLY SATELLITE
	Our cellular internet here is good but on busy weekends or warmer months our internet drops to very low speeds. Less than 1gb! So, you can't look at the internet or watch Stan or Netflix.
	Less than 1 bar of 3G reception with no ability to check important warnings or emergency information in a crisis
	I have lost connectivity numerous times and have bad reception.
	Telstra Mobile Broadband, very slow. sometimes when busy speeds less than dial up
	NBN drops out at least 4 times a day
	Mobile coverage 1bar 3G 1bar 4g occasional Need a Repeater aerial installed $2000 Only nbn is satellite Double the cost half the service
	Access not available to NBN, ADSL or Fixed Wireless. Mobile phone reception through Telstra network extremely poor.
	Mobile service is little to none. Poor signal and internet
	Our Mbps download speed is 16.8 and upload is 3.4 Sometimes on a weekend night we are unable to download iView and it drops out completely on foggy and overcast days. Mobile phone reception is patchy outside due to hills around - no coverage at all in some places. Phone calls often drop out during calls when inside.
	Unable to get access to nbn and am stuck with super slow, unreliable and expensive ADSL
	Telstra service is very poor at this location and considering this is also the location of the Neighbourhood Safer Place it is extremely important to have phone service. Unfortunately, in Kinglake West Telstra is not the "network you can rely on, when you need to rely on it". Why can't our communication companies work together to improve the network.
	From Kinglake West to Yea there are 2 spots I get one bar of signal for a short time.
	Telstra Mobile service is very poor to SOS, you need to be outside to get a bar of service. Telstra is aware of this from previous blackspot programs however the new tower that was installed a number of years ago has not changed the service.

Location	Issue identified
[redacted]	Our nbn is only FTTN (Fibre To The Node), so speed is limited by copper wire for the last 10 metres from the curb. All nbn should be FTTP (Fibre To The Premises), at NO additional cost. However, speed is OK. Evening Speed test yields 40Mbps download and 8Mbps upload. Once nbn is upgraded to full fibre, speeds of 1Gbps and higher should be standard.
	Very Poor NBN Fibre to the Node