



## Tingoora Fixed Wireless – Q&A

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### What is the proposal at Tingoora?

- NBN Co proposes to erect a new 40m monopole on the rural property at 39 Swartzs Rd, Tingoora.
- The proposed facility is designed to provide a direct Fixed Wireless (FW) broadband service to the rural community of Tingoora and rural surrounds. More than 200 properties in Tingoora will be directly serviced by this proposed facility.
- The proposed facility is also designed to act as a vital transmission link supporting fixed wireless services at Wondai and Memerambi - transmitting their data back to Murgon. In total the facility enables almost 900 properties across the three communities to connect to the NBN.
- The fixed wireless facilities at Memerambi and Wondai were approved by South Burnett Regional Council in 2013 and 2014 respectively.

### Why has NBN Co walked away from the original DA for Tingoora?

- In 2013, NBN Co also obtained development consent to construct a facility to service Tingoora within a large parcel of land owned at the time by Tasmanian Plantation Pty Ltd. NBN Co was forced to walk away from this DA after the company went into receivership. NBN Co negotiated at length with the receivers to maintain a lease within this property, but were unsuccessful.

### How does NBN Co select sites for fixed wireless facilities?

- NBN Co endeavours to strike a balance between providing valuable services and minimising any visual impact on the community and local environment. Fixed Wireless base stations need to be located in or near the area for which they are designed to provide coverage, and while all radio antennas need to be elevated above their surrounding to provide reliable, unbroken communications, we propose and design our facilities to be the minimum height necessary to provide good service to the local community.
- We also seek to maximise the distance of our proposed facility from the nearest adjoining landowners, so as to reduce any visual intrusion, and we take advantage of any screening that can be provided by mature vegetation.
- Any facility located at Tingoora must be sufficiently elevated to provide service to the premises located across the undulating terrain of the township. There is a 30m drop in elevation from the hill at the end of Meeks St to the juncture of the Bunya Hwy and Main St. Providing service over this hill and down to the lower elevations is a key impediment to design and location for a fixed wireless service at Tingoora.
- It must also be elevated sufficiently to make a transmission link back to Murgon – in a location where it can avoid or clear the much more mountainous terrain in the State Forest located between Wondai and Murgon. The Tingoora facility must achieve direct line of site to the facility at Murgon to connect Tingoora, Wondai and Memerambi to the broader NBN Network. This is a key technical constraint when considered potential locations.

### What alternative sites has NBN Co considered?

- Since lodging the original DA in 2013, NBN Co has considered a total of 14 locations to provide a fixed wireless service to Tingoora, including the original DA, the current proposal, and 12 other alternative locations either identified by NBN Co for investigation or suggested by the community.
- The 12 alternative locations are listed below with a brief explanation of NBN Co's assessment of their feasibility against planning, property and technical considerations.



ALTERNATIVE CANDIDATE	ASSESSMENT
Lot 4 Swartzs Rd, Lot 4/RP185227	This location requires a 70m+ lattice tower to overcome the extra distance to the township and the shadowing caused by the hill at the end of Meek St, blocking signals to the lower parts of town. This would result in a very significant structure with an imposing visual impact on the entire township.
439 Dowers Rd	This location also requires a 70m+ lattice tower to overcome the extra distance to the township and the shadowing caused by the hill at the end of Meeks St, blocking signals to the lower parts of town. This would result in a very significant structure with an imposing visual impact on the entire township.
Lot 448/FY174 off Dowers Rd	In addition to the location proposed in 2013, NBN Co also considered a second location within the land formerly owned by Tasmanian Plantation Pty Ltd – to the north of the township. This was not pursued, because like the other locations off Dowers Rd, it too would have required a significant lattice tower structure to service Tingooora. NBN Co no longer has access to this property since it went under receivership.
Lot 2/RP841431 off Magnussens Rd	In addition to the location proposed in 2013, NBN Co had also considered a third location within the forestry land under receivership. While no longer accessible to NBN Co, we note that it was not chosen in 2013 because it had the closest proximity to adjoining neighbours of any location – though it offered a very good technical performance.
Lot 39/FY174 Dowers Rd	This location is simply too far away to provide service to Tingooora, and is located behind a very large parcel of mature vegetation, which affects service quality over distance.
224 Tingooora-Chelmsford Rd	This location is simply too far away to provide service to Tingooora, and is located behind a very large parcel of mature vegetation, which affects service quality over distance.
96 Tingooora-Chelmsford Rd	This location is simply too far away to provide service to Tingooora, and is located behind a very large parcel of mature vegetation, which affects service quality over distance.
107 Swartzs Rd	NBN Co did not obtain consent to access this property.
71 Swartzs Rd	NBN Co did not obtain consent to access this property.
15062 Chinchilla-Wondai Rd	This location is a significant distance from the township and NBN Co's engineers advise that even with a large lattice tower, service quality experienced in the town would likely be compromised due to the distance, the lower ground elevation and significant amount of mature vegetation between the town and this location.
Council Arterial Rd Reserve off Bunya Hwy	This location would require a lattice tower to achieve a transmission link to Murgon, NBN Co advises that a large structure such as a lattice tower is considered inconsistent and inappropriate development for land classified arterial road reserve under the <i>Wondai Planning Scheme 2006</i> . For property reasons, this is not considered a feasible site.
State Road Reserve off intersection of Bunya Hwy and Chinchilla-Wondai Rd	Due to the extra distance, heavily vegetated terrain lower ground elevation, a very significant lattice tower would be required in this location. This is considered unfeasible in road reserve corridor adjacent a State road. For property reasons, this is not considered a feasible site.

### What is Fixed Wireless?

- Fixed Wireless is different to current mobile wireless networks, which deliver varying speeds and reception depending on how many people are moving in and out of the area and whether they are using the network for low volume email or high volume downloads and video services.
- NBN's Fixed Wireless network, which uses advanced technology commonly referred to as LTE or 4G, is engineered to deliver services to a fixed number of premises within a coverage area. People's usage of the network will still vary, but the set number of serviced premises in each area means that the bandwidth per household is designed to be more consistent, even in peak times of use.
- The network will use cellular technology to transmit radio signals to and from a small antenna fixed on the outside of a home or business, which is pointed directly towards the fixed wireless facility.





- Fixed wireless technology can offer the community not just fast broadband, but consistently fast broadband, accessible to the whole township. Unlike mobile broadband, the Fixed Wireless network should not suffer from severe fluctuations in service levels, especially in the afternoons and evenings when the community most wants to simultaneously access the internet.
- And unlike ADSL services, where the broadband speed you receive is directly affected by your distance from the telecommunications exchange, the Fixed Wireless facility offers the same wholesale download speed of 25 megabits/second and wholesale upload speed of 5 megabits/second to all subscribers within the coverage area, regardless of distance to the actual facility.
- These broadband speeds are faster than any service currently available in regional Australia. But importantly, the Fixed Wireless facility can offer a consistent service to all subscribers within the coverage area (in this case Tingoorra), regardless of distance to the actual facility.

#### Why are we being offered Fixed Wireless?

- The National Broadband Network (NBN) is an upgrade to Australia's existing telecommunications network. It is designed to provide Australians with access to fast, affordable and reliable internet services, as quickly and cost effectively as possible.
- NBN Co plans to upgrade the current telecommunications network in the most cost-efficient way using best-fit technology and taking into account existing infrastructure. This will vary from place to place and will include technologies such as Fibre to the Node, Fibre to the Premises, Fixed Wireless and satellite.
- The use of fixed wireless and satellite technologies is expected to result in significant improvements compared to services currently available to many Australians living in regional and remote communities. Due to Australia's size and particular geographic challenges and the cost of providing fixed line services to all Australian premises is prohibitive.
- Tingoorra is typical of the areas being serviced by Fixed Wireless, which includes the rural residential outskirts of the larger regional centres, and small rural villages and townships.

#### Is fixed wireless a radio network?

Yes. All radio communications facilities emit electromagnetic energy (EME) as radio frequency signals or "radio waves" - electromagnetic waves that have the capacity to transmit sound, music, speech, pictures and other data invisibly through the air. People have been living with radio frequency energy in the environment for generations, literally since the invention of "the wireless" in the 1880s.

Today, communities depend on radio communications for many day-to-day communications. Radio communications facilities commonly found in urban areas include television, AM and FM radio broadcast towers, paging network antennas, mobile network facilities, and many 2-way radio systems supporting emergency services, council services, hospitals, roadside assistance, taxi services, etc.

#### Are radio communications facilities regulated to protect public health?

Licensed radio frequency transmitters, including the NBN's fixed wireless communications facilities and commercial radio and TV broadcast towers, are regulated to protect all people in all environments, 24-hours a day.

The national safety regulations operate by placing a limit on the strength of the signal (or radio frequency EME) that our antennas can transmit. They do not impose any general public distance-based restrictions. That is why radio communications facilities are permissible in any environment.





The current standard, recommended by the World Health Organisation (WHO), was introduced to Australia in 2003, and in June 2014, an independent, expert Review Panel reconfirmed the adequacy of the standard following a detailed assessment of recent scientific literature by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), which considered more than 1300 separate pieces of scientific literature as well as the results of 72 major panel reviews published between 2000–2012.

### How do the NBN fixed wireless network facilities measure up against the safety limit?

NBN Co strives to deliver superfast broadband services and keep the community safe at all times. We do this by strictly complying with relevant public health and safety standards established by independent authorities. This includes the national public health and safety standards for radio frequency EME.

Typically NBN fixed wireless communications facilities operate at radio signal strengths that are thousands of times below the safety limit. The NBN's fixed wireless communications facilities contribute very little radio frequency energy to the environment, because the antennas themselves are extremely low powered. To put the signal strength into perspective, the general public exposure to radio signals from our fixed wireless network facilities is less than or equivalent to the exposure people experience in their home from domestic wireless routers. Alternatively, it's about one tenth the power of a taxi's two-way radio.

NBN Co undertakes an environmental compliance report for each proposed radio network facility, as required by the federal regulator, the Australian Communications Media Authority (ACMA). This report demonstrates the maximum signal strength that the facility is capable of transmitting.

The environmental compliance report submitted to Council demonstrates that the maximum radio signal strength at ground level (1.5m), at any distance from the proposed fixed wireless network facility at Tingoorra would be 0.057% of the safety limit for 24-hour general public exposure to radiofrequency signals. In other words, the maximum signal strength at any location would be more than 1,700 times below the safety limit recommended by the World Health Organisation.

NBN Co does not just get its toe over the line when it comes to meeting safety standards, but operates its network safely and responsibly at power levels that are significantly below scientifically mandated safety standards for radiofrequency transmissions.

### Does this impact on my property?

NBN Co highlights that the NBN network facilities do not place any impediments on the development and / or use of your land.

While property value is not town planning consideration for assessment of a development application, we acknowledge that this issue may be of concern to some local residents. Property valuation is an extremely complex issue, with fluctuations in price being subject to a vast number of factors. Many of these are subjective, and may be as diverse as aspect, views, condition of the property, local amenity and access to services, such as high quality broadband communications.

Since the mid 1990s, thousands of telecommunications facilities have been installed throughout Australian metropolitan and regional areas. During this period, property values have continued to increase, showing no clear signs of deterioration as a result of the location of communications facilities. International studies have shown that there is no evidence to show that mobile phone installations have negative impacts on property values.

### Will this cause signal interference with my TV reception?

The NBN fixed wireless network facilities will not cause signal interference with television or radio reception, mobile network services, or with electronics in the home. NBN Co is obliged by the operating conditions of our radio licence not to interfere with other radio communications systems.

Importantly, the radio frequency that our network operates at (2300MHz) is significantly separated on the radio frequency spectrum from television, radio, and mobile communication frequencies, which ensures interference will not occur. Finally, signal interference works both ways, so it is not in our interest to design a radio network that would result in signal interference, as it would compromise our communications too.