



Statement of Environmental Effects

Deployment of a Telecommunications Facility at Thredbo Village

Optus Site Reference: S8596 Thredbo CBD
RFNSA Site Number: 2625005

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Prepared by Catalyst O.N.E Pty Ltd on behalf of Optus Mobile Pty Ltd

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1.0 INTRODUCTION and BACKGROUND

1.1 Overview

This Statement of Environmental Effects has been prepared by Catalyst O.N.E Pty Ltd on behalf of Optus Mobile Pty Ltd (Optus) as supporting information to a development application for the installation of a telecommunications facility at the Cat Shed maintenance workshop, Mid Ski Slope, Thredbo NSW 2625.

This report addresses the merits of the development with regard to the following Commonwealth and NSW State legislation and Codes of Practice:

- *Telecommunications Act 1997;*
- *Telecommunications (Low-impact Facilities) Determination 1997;*
- *National Parks and Wildlife Act 1974;*
- *Environment Protection and Biodiversity Conservation Act 1999;*
- *Threatened Species Conservation Act 1995;*
- *Telecommunications Code of Practice 1997;*
- *Industry Code C564:2011 - Mobile Phone Base Station Deployment;*
- *Environmental Planning and Assessment Act 1979;*
- *State Environmental Planning Policy (Infrastructure) 2007; and*
- *State Environment Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007.*

The proposal involves the establishment of a telecommunications facility and is considered to be appropriate for the following reasons:

- The facility will provide the surrounding area with a significantly improved level of essential mobile phone coverage. This is particularly necessary to ensure that mobile communication to emergency services is available at all times;
- The subject site is located adjacent to an existing large maintenance workshop for snow ploughing machinery, where the immediate area can be described as disturbed land. The proposal will not conflict with the existing use of the site or the surrounding area;
- The proposed height, structure, and building footprint allows for other telecommunications carriers to co-locate once the facility is established.
- The facility will have a minimal impact on the natural environment; the proposed trenching (for connection to existing fibre and power) will be limited to disturbed land areas;
- The facility will improve the capacity to adequately service the local area;, particularly for people visiting Thredbo and expecting a similar level of coverage and network performance as they would experience in an urban environment;
- The surrounding area is Thredbo ski resort lease area within Kosciuszko

National Park. The proposal does not conflict with the existing land uses and will improve mobile phone coverage for the National Parks and Wildlife Service (NPWS), emergency services, commercial operators, visitors and locals alike; and

- The siting of the facility adjacent to the Cat Shed maintenance workshop and ski lift structure will minimise any visual impact associated with the facility, particularly when viewed from the surrounding area, including the top of the mountain and the valley floor.

1.2 Mobile Phone Base Stations and How They Work

Mobile telecommunications systems are based on the use of small, low-powered, intelligent two-way radio transmitters (mobile phones or handsets) that are interconnected over radio channels to the telephone network via a series of mobile base stations.

A network of base stations provides coverage across the region. Each base station consists of a series of antennas, an equipment shelter and associated cabling, and is designed to provide network coverage to the area immediately surrounding the base station – up to several kilometres. Depending on coverage requirements and objectives, and the particular characteristics of each site, the shape, number and size of antennas will vary for each location.

Each base station transmits and receives signals to and from mobile devices in the area. As the mobile phone user moves around, their handset will communicate with the nearest set of antennas to them at all times. If the handset cannot pick up a signal, or the nearest base station is congested (already handling the maximum number of phone calls) the user may not be able to place a call, or a call might “drop out”.

The signals transmitted between the base station antennas and mobile phone need to be unimpeded, which means that reliable communication is limited mainly to “line of sight” between the antennas and the handset. Whilst some buildings and foliage can be penetrated, radio signals cannot penetrate more substantial objects, such as hills.

As a general rule, the greater the elevation of a base and the taller a base station structure is, the greater is its range of coverage. If the height is compromised, additional base stations will be required for any given area. The further a base station is located from its optimum position, the greater the compromise in coverage. This may result in coverage gaps and require additional base stations to provide adequate coverage to the region.

Optus is in the process of improving its 3G and 4G networks. The Optus network delivers all existing, essential mobile services (voice calling, SMS) as well as live video calling, video-based content services including news, finance and sports highlights, and high-speed wireless internet services (wireless broadband) – all via the 3G and 4G networks.

Importantly, 3G and 4G transmissions can include large packets of data (video clips for example) and therefore transmissions can be very "capacity hungry". This has the same effect as large downloads on a home computer, which may take a longer time to download. As a consequence of such large data transfers, 3G and 4G networks require more mobile base stations, located closer together, to ensure a high quality signal strength capable of providing a reliable service and delivering the fastest possible data transfer rates.

Optus will always endeavour to co-locate its facilities with existing facilities wherever possible. However, the demands placed on the network, outlined briefly above, requires additional stand-alone facilities to be deployed in areas where existing facilities are not well located, or are insufficient to provide ubiquitous 3G and 4G services.

1.3 Purpose of the Proposal

Demand for data traffic on mobile telecommunication networks has grown significantly over recent years, mostly with the development of handheld devices such as smartphones and tablets. Current trends indicate that global mobile data traffic will increase 18-fold between 2011 and 2016 (Network Strategies Limited 2010).

With the increase in visitors to the Thredbo Village over recent years, Optus customers expect the same level of service as that in an urban environment. The proposed telecommunications facility will provide coverage to residents and visitors to Thredbo Village particularly during the peak ski season.

As demand grows on mobile phone networks, investment is required for additional capacity to meet the demand. In relation to the service provided by the existing Optus facility in the area, many investments have been made to increase the capacity of the facility and the other surrounding facilities in the Thredbo Valley. This includes utilising additional radio channels, sectorisation or cell splitting, and spreading the load over different frequency bands that are available to Optus under its telecommunications Carrier licence. The continued upgrade of the existing Optus facility has reached its capacity with little improvement, and inability to meet the demand for reliable mobile phone coverage at Thredbo, particularly during the peak ski season.

If the proposed telecommunications facility is not deployed and connected into the Optus network two main issues will arise:

- 1) Users will have difficulty connecting to the network or calls may drop out, impacting on business, emergency services, and visitors' experiences of the ski resort; and
- 2) Reduced data speeds will be experienced with longer download times and poor performance, particularly at busy times of the day.

For Thredbo Village, Optus' existing telecommunications service is provided by a permanent facility located at the top of the ski slopes at Thredbo, known as Eagle Nest. The existing Optus facility is unable to provide the capacity required to adequately service Optus customers at Thredbo Village during the peak ski season. The solution to the capacity issue is to install a new, permanent telecommunications facility at the subject site, which will provide services to the Thredbo ski slopes and village.

1.4 What is causing the sites to reach capacity?

Optus' customers' demand for mobile broadband, voice and video services.

Since the introduction of smartphones and tablet devices, together with wireless internet and social networking applications, Optus is experiencing a doubling every year in demand.

Optus' network plan is to address the capacity issue on a national scale where over the last 18 months a joint venture between Optus and Vodafone has seen thousands of telecommunication facilities undergo significant upgrades in city, suburban and regional areas. As part of the solution to the capacity issues, new sites are needed, particularly in regions that were previously less populated, and / or where the need for complete mobile phone coverage was not as essential. This has changed significantly where not only businesses, community and emergency services requiring this high level of coverage, but people visiting regional areas from urban environments expecting the same level of coverage as that in an urban environment.

Therefore new facilities are required to ensure that users of the Optus network, such as in the Thredbo Village, do not experience less than optimal services and can experience a reliable network performance.