NSW GOVERNMENT | Telco Authority

Public safety radio coverage in privately owned buildings and public spaces

Guidance for building owners on ensuring coverage

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1. Introduction

Public spaces and buildings across New South Wales vary greatly in terms of size, layout and use. In all cases, when people congregate in these locales there will be a need for public safety agencies – the Police, Fire and Ambulance to attend in order to deal with incidents including fire, theft and injuries to the public.

When attending, public safety officers must be able to use their radios on site for their own safety as well as for the safety of members of the public.

This Guidance Paper provides advice for building owners on the options for ensuring public safety agency radio coverage in and around their premises and how those sites with inadequate radio coverage can take steps to address it. It also outlines the assistance available from the Telco Authority to facilitate coverage.

2. The use of radio by public safety and essential and community services officers

The work of public safety, essential and community services officers can sometimes be dangerous and high risk. It is essential for the safety of individual officers that they remain in constant contact with each other and supervisors during an incident. Without this support and the ability to co-ordinate, their own lives and the lives of members of the public may be put at risk.

While it is easy to recognise some types of incidents that public safety officers will respond to (such as fire fighters to a fire or toxic spill), others are not so readily identified. Some examples of incidents where a public safety officer might need to attend a privately owned building or public space include:

- Responding for fire alarms/fires and smoke inundation.
- Staff or visitor injury or illness
- Civil disorder
- Theft
- Bomb scare
- Building collapse and rescue operations
- Community events
- Essential services failure (e.g. electricity, gas, water)

3. Benefits of public safety radio coverage in privately owned public spaces

The provision of public safety radio coverage in public buildings does have an up-front cost impact on developers and owners. This, however, must be balanced against the long-term benefits to the building

owners and the community more generally. Due consideration must also be given to the work health and safety obligations of building owners.

A significant tangible benefit for building owners in relation to radio coverage relates to insurance costs. Extensive radio coverage in a building assists fire fighters when responding to a fire, hazmat event or medical emergency within, helping to reduce property damage and risk to life. Likewise, the ability of Police to operate throughout an entire shopping centre can assist in reducing crime, vandalism and anti-social behaviour. Savings then flow through in terms of insurance costs, re-construction and repair costs and security and administrative costs.

It has been estimated that property loss from fire alone in Australia was approx. $937 million in 2010, and loss of business was approx. $58 million. Clearly, the impact, particularly from fire in public buildings and spaces demonstrates the need to ensure a quick and effective response in order to minimise impact and losses. Reliable and robust public safety radio services are integral to that response. Indeed, research has shown that a satisfactory investment in preparation for a fire has a significant effect on the net losses from a fire.

Another, less obvious example of the benefits of improving radio coverage, particularly in shopping centres and other places young people congregate relates to measures to reduce truancy. For safety reasons, Truancy Officers use the Government Radio Network when investigating instances of truancy.

Truancy, and other anti-social behaviour issues, can greatly impact owners of shopping centres who have to deal with associated property damage and the loss of centre traffic where other shoppers are deterred.

The ability of Truancy Officers and Police to safely attend these sites and remain in constant radio contact can only assist in finding solutions to a problem faced by owners of buildings accessed by members of the public.

4. Work health and safety obligations of building owners

The *Work Health and Safety Act 2011* obliges the owners of workplaces to ensure that the workplace is safe and without risk to health and safety.

The safety of members of the public, staff, tenant employees and essential service personnel who attend an organisation's premises are at risk while adequate radio coverage is not available.

There is also a role for the owners of places of mass gathering under counter-terrorism and other public safety policies to plan and prepare for emergencies and other incidents. The provision of adequate radio coverage at a site is fundamental for ensuring that essential services providers are able to offer a high level of support and assistance during an incident.

5. In-built coverage in buildings

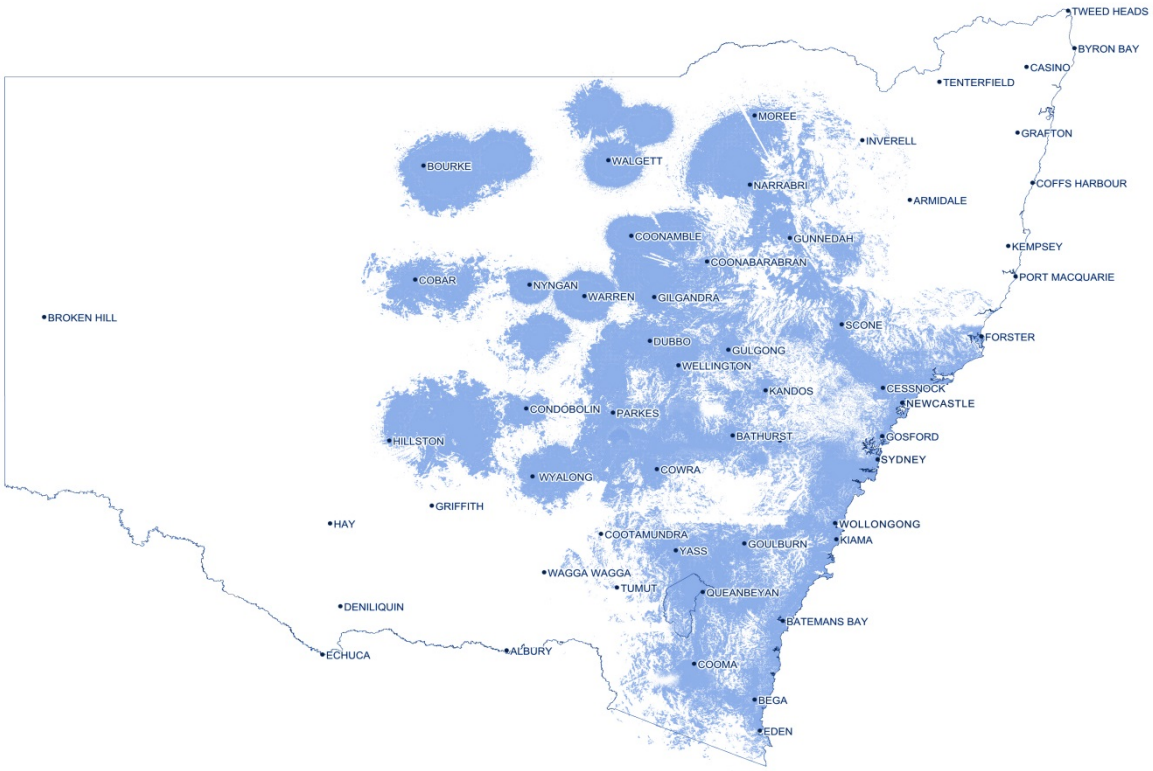
Various buildings where people gather, such as office towers and shopping centres, are constructed using glass, concrete and steel. While the mobile radio signals used by fire fighters, ambulance officers and police are able to penetrate areas of such buildings, areas below ground or encased in thick steel and concrete or treated glass, such as basements, fire control rooms, car parks and enclosed areas deep within a structure are often out of range. In the case of a fire control room, it is essential that fire fighters are able to communicate with each other at all times while responding to an alarm or fighting a fire.

In 2010 an examination of the coverage of the Government Radio Network in privately owned buildings was undertaken. While it was not possible to determine with a high level of accuracy the total number of buildings without coverage, the examination did identify a number of significant buildings within NSW that did not have access to the Network (which is used by emergency services agencies) throughout the premises. These buildings included shopping centres (approx. 1/3 of the top 50 buildings identified as being without coverage at this time), sports complexes, office towers and multi storey high density residential buildings.

6. What is the Government Radio Network?

The Government Radio Network was established in 1993 to provide a common platform for NSW government agencies and authorities who use mobile radio communications. It is one of the largest trunked radio networks in the world, covering approximately 266,000 square kilometres, or about a third of NSW, including the Sydney Basin and adjacent areas, as well as in a number of major road and rail tunnels. It is a digital trunked radio network that has been designed using open-standard P25 technology and provides mission critical grade telecommunication services on one shared radio platform covering approximately 80 per cent of the NSW population.

The Government Radio Network is used by a number of NSW Government agencies, including Fire and Rescue NSW, the Ambulance Service of NSW, NSW State Emergency Service, NSW Rural Fire Service, Juvenile Justice, Corrective Services. It provides a vital communications link between officers in the field, their colleagues and communications centres.



Current Government Radio Network coverage map

7. What equipment is required and how is it installed?

Each building is different. This means that a unique, specifically-tailored antenna solution for each location may be required. However, as a general rule, the P25 network equipment required in relation to the Government Radio Network will be standard. The way radio signals are distributed throughout the building will vary depending on its size, shape, the materials used in construction and what existing infrastructure is already in place. Methods used to distribute signals throughout a building can include rebroadcast repeaters, distributed antenna system and leaky coaxial cable.

7.1 System types

There are two types of equipment which can provide radio coverage of public safety trunked radio communications within buildings. The first is a *Trunked Radio System* which provides one control channel and a number of working voice and data channels. Generally, Government Radio Network installations have up to five voice and data channels. The second is a *Rebroadcast Repeater* where the Government Radio Network service is provided by rebroadcasting the radio and control channels from a nearby site.

7.2 Trunked Radio System

Trunked network equipment which is to be connected to the Government Radio Network must be compatible with the rest of the network.

As noted above, one control and up to five working trunked radio channels are required, all to be installed in a single rack (an example pictured right). In total, a standard Government Radio Network installation will require two racks of equipment: one for the six radios and controlling equipment as well as linking equipment; and one for the 48 volt power supply system and antenna combining system.

Radio racks can be wall mounted where space is limited and the room configuration allows for it. Power to the racks can be fed to the racks via different ports. Similarly, the transmitter and receiver antenna multi-coupling can be installed as a 'peg rack' off a wall to conserve cabinet space.

7.3 Rebroadcast Repeater

In a standard rebroadcast repeater configuration, the building (remote site) is provided with the Government Radio Network service by rebroadcasting the radio and control channels from a nearby 'donor site'. The advantage to a building owner of using a rebroadcast repeater is that the equipment can be housed on one small rack (or part of an existing rack) and will use less power. However, the system is reliant on a donor site which also has to be operated, maintained and funded. To alleviate some of the expense, a single donor site can host up to four remote sites helping to reduce costs.

8. Installation and operating costs

The Telco Authority can assist building owners by purchasing equipment on their behalf for use in their building using existing Government procurement contracts. Government contracts (particularly Panel Contract ITS 2573 – *Operational Telecommunications Equipment, Infrastructure and Services)* provide a number of warranties and beneficial contract terms that have been developed specifically for this type of equipment. The Telco Authority is able to provide advice on pricing and contractual terms in advance of any purchase in order to give building owners the opportunity to compare with other offers from the market.

9. Ownership and responsibilities

The owners of buildings and spaces frequented by members of the public will need to invest in the capital infrastructure required to provide the supply and installation of the Government Radio Network (and other public safety agency) radio equipment and to provide the ongoing funding to operate and maintain it.

The Telco Authority (and where necessary other agencies) will work with the building owners to provide the technical advice and in consultation with the building owner, approve suitable technical and equipment design and installation. The Telco Authority will also manage those parts of the project which specifically relate to the installation of Government Radio Network equipment and take responsibility for ensuring the equipment is integrated into the Network. After the installation the Telco Authority will also provide, through its Network Manager, 24/7 operational support from a dedicated operations centre and professional maintenance staff for ongoing servicing.

Building owners may wish to consider an option of passing ownership of the equipment to the NSW Government (such as to the Telco Authority). Under these arrangements, the Government will assume responsibility for delivering the service for the monthly fee for a set period of time, generally 5 to 10 years.

This would alleviate the building owner of any ongoing ownership responsibilities, other than the commercially comparable ongoing monthly operations and maintenance fee charged by the NSW Government.

10. Arranging in-built coverage

The Telco Authority, and its Network Manager, has a team of staff involved in facilities management and network services who are able to assist building owners in improving radio coverage within their properties and ensure they are meeting their public safety obligations. The Telco Authority will work with public safety agencies (including emergency services organisations and law enforcement bodies) to ensure co-ordination, with minimal disruption and red-tape.

The process from initial discussions to negotiating and agreeing on key deliverables, through to design and costing and finalising the installation would typically take between 6 and 12 months. Of course, consultation will be carried out with building owners with a view to ensuring that the needs of all parties are satisfactorily met.

11. Contacts

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