



National
Operational
Guidance

Hazard

**Ineffective communications: Below
ground structures**



NFCC
National Fire
Chiefs Council

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Hazard - Ineffective communications: Below ground structures

Hazard Knowledge

Normal fire service radio telecommunications may be rendered ineffective when operating in below ground environments and infrastructure.

Fire and rescue services should take care when accepting the use of the infrastructure's own communication equipment, particularly if this is hardwired telephone communications to a control point. The potential implications, including the loss of communication at a critical time, require careful consideration.

Noise can interfere with communication or emergency signals.

Communications with other agencies

Incidents involving below ground structures can present some significant challenges for communications infrastructure. There are no simple rules that can be applied and the communications problems found in individual locations need to be considered and overcome, This may involve using fire and rescue service and multi-agency methods as well, as the fixed systems supplied in many modern structures.

Communications, both internal and external, have been identified as areas of weakness in post-incident investigations and debriefs.



Control measure - Effective communications: Below ground structures

Control measure knowledge

Incident commanders must establish contingency arrangements for alternative methods of communication in case radio communications are compromised

Communications used by fire and rescue services at an incident will be greatly enhanced by pre-

planning and testing the range and extent of signals, including joint testing with other agencies and infrastructure managers.

Some infrastructures can support communications with fire and rescue service systems. For example, a relatively short tunnel that allows good, uninterrupted radio coverage in all reasonably foreseeable circumstances should not require the additional provision of a fire and rescue service 'leaky feeder' or 'repeaters'.

Incident commanders should carefully consider their methodology for communicating with other responders, including the use of:

- Emergency service radio system, using inter-agency radio channels
- The potential danger of reliance on mobile telephone networks
- Field telephones between emergency service control vehicles
- Runners, if appropriate
- National inter-agency liaison officers (NILOs)
- Communications tactical advisers
- Any mutually agreed method to overcome local communications difficulty
- Multi-agency meetings to confirm the incident situation and inter-service communications structures and limitations

In some circumstances, it may be beneficial for fire and rescue services to enter into local agreements with other responding agencies and organisations that can provide communications support.

Incident commanders should establish resilient telecommunications arrangements and carry out regular testing to confirm that contact has not been lost with crews operating in subsurface environments and infrastructure.

Particularly in older infrastructure, it may be appropriate to mobilise or request an attendance to more than one location. This will assist where:

- There is limited or no smoke ventilation or fire stopping
- There is limited or no effective communication system

The incident commander will need to consider establishing and maintaining:

- Communications with the tunnel operator
- Communications with fire control
- Using UHF radios, assign channels, and agree on call signs
- Communications with other agencies
- Communications within the subsurface environment

Strategic actions

Fire and rescue services should:

- Establish arrangements with other specialist resources who could provide communications for below ground structures
- Ensure that they have resilient telecommunication arrangements for any below ground structures identified as risks within their service area

Tactical actions

Incident commanders should:

- Establish and maintain communications with the responsible person and others involved in the below ground structure incident
- Consider requesting specialist resources to establish communications for below ground structures
- Establish and regularly monitor the effectiveness of communications with personnel operating in below ground structures