

# Safety Advisory SA05/22

## Bus fire safety and emergency incidents in tunnels

### The incident

The Office of Transport Safety Investigations (OTSI) is investigating a bus fire which occurred in the Lane Cove Tunnel on 14 April 2022. The bus was a Scania K94UB and was fitted with an Engine Bay Fire Suppression System (EBFSS). The EBFSS was installed by the Original Equipment Manufacturer (OEM) when the bus was delivered in 2007. The system provides an audible alarm and illuminates a light on the driver's dashboard if a fire is detected and the system discharged.

While the specific circumstances of this incident and contributing factors are still under investigation, OTSI has confirmed the fire started in the bus engine bay at approximately 2011<sup>1</sup> and continued to burn prior to the bus entering the tunnel at 2012. The driver was unaware of the fire until alerted by a passenger on the bus. The bus came to a stop in the tunnel just before 2014. All passengers evacuated the bus safely and walked within the tunnel to evacuate the area while the driver attempted to extinguish the fire.

The initial evacuation from the bus was completed safely and efficiently but once outside the bus, the passengers were left to manage their own evacuation of the area while remaining clear of smoke and attempting to evade other hazards such as passing motor vehicles. All passengers were picked up by passing vehicles including private cars, an ambulance and another bus.

A total of 78 vehicles (private motor vehicles and passenger buses) passed the burning bus prior to the tunnel being shut down and traffic flow stopped. Some vehicles drove through the activated tunnel deluge zone<sup>2</sup> which further restricted visibility due to deluge water and smoke in the vicinity of the incident.

### Key points for operators

**Bus and tunnel operators** are reminded to assess the risks and controls (as per their Safety Management System) in place for tunnel transit, operations, and emergency evacuation operations for their specific bus fleet, specified passenger transit routes and tunnels being transited.

All **bus and coach operators** should:

- Ensure driver training covers all makes and models of EBFSS fitted across the fleet of buses in operation. Drivers and trainers should be aware of how all safety critical systems alert the driver and what pre-conditions have been met when the system is activated/discharged in an emergency.

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<sup>1</sup> Times shown in 24-hour time as Australian Eastern Standard Time (AEST).

<sup>2</sup> The deluge zone refers to the fixed fire suppression system fitted in the Lane Cove Tunnel.

- Review internal emergency tunnel procedures for any tunnel being transited as part of a passenger service. Different tunnels require different emergency evacuation procedures and have different evacuation routes and methods.
- For buses or coaches that do not have an EBFSS fitted, consider the items above and how they relate to the services provided when operated in tunnels.

Additionally, bus operators and tunnel operators should seek opportunities to engage one another to ensure specific tunnel evacuation and emergency procedures are incorporated into driver training programs. Careful consideration should be given to the factors in *Appendix 1 - Tunnel Fire and Life Safety Systems and Equipment*.

**Transport for NSW (TfNSW) will coordinate with tunnel operators and bus contractors to facilitate the updating of emergency procedures and preparedness arrangements.**

## Safety message

The initial OTSI investigation findings highlight that bus operators and drivers must ensure they understand the evacuation procedures for any tunnel being transited as part of their passenger service as they are likely to be different for each tunnel. While evacuations within tunnels are rare, they present a potentially high consequence risk.

Bus and tunnel operators are encouraged to remain engaged with each other to understand changes in tunnel operations and to conduct appropriate education or training sessions to ensure passenger safety is maintained for the incidents in a tunnel.

For further information contact: [Transport.Safety@otsi.nsw.gov.au](mailto:Transport.Safety@otsi.nsw.gov.au)

## Appendix 1 - Tunnel Fire and Life Safety Systems and Equipment

- Longer tunnels are monitored and controlled 24 hours a day and have several different fire and life safety systems:
  - Closed circuit television (CCTV) and traffic monitoring equipment
  - Electronic signage for traffic control and speed changes
  - Radio re-broadcast system and public address system
  - Emergency cabinets including:
    - emergency telephone to contact the control room
    - fire extinguishers and hoses
  - Ventilation systems
  - Emergency exits or cross-passages
  - Fixed deluge fire suppression systems that can be operated automatically or manually.
- Shorter tunnels may not be continuously monitored and may have less equipment and capability to respond to emergency situations.

### Considerations

- Depending on the location of the incident or fire, it may be safer to drive out of the tunnel before stopping.
- Ventilation within tunnels typically operates in the direction of traffic flow which can carry smoke and other hazardous gases forward of a stopped vehicle.
- The location of emergency exits and/or cross passages can be in either the left-hand or right-hand lane depending on the tunnel and could be difficult to access.
- Cross-passages connect the two tunnels as an escape route but exiting into the other tunnel should only occur once it is safe. Follow the instructions, signage, and announcements of tunnel operators.
- Emergency telephones are located along the length of the tunnel and in emergency breakdown bays. The emergency telephones may be in the left-hand or right-hand lane depending on the tunnel and could be difficult to access.
- The duress and radio communications systems on the bus may not function within tunnels. Use of emergency telephones and mobiles may be required, however, mobiles may not reliably function.
- Drivers must observe and obey signage and instructions broadcast within the tunnel during emergencies. The deluge system may operate and if activated it is not recommended to drive through as visibility is affected and the condition of the road ahead cannot be confirmed.
- The information within the Bus Industry Confederation *Bus Fire Evacuation Protocol Advisory* and accompanying *STA evacuation video* may not be appropriate in all tunnels and suggests emergency exits and cross-passages are on the left-hand side when they could be on either side or in the middle between vehicle directional tunnels.<sup>3</sup>

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<sup>3</sup> Bus Industry Confederation Inc (2019), Bus Fire Evacuation Protocol. Available at <https://movingpeople.com.au/bus-fire-evac/>