



**Australian Government**

**Australian Transport Safety Bureau**

**ATSB TRANSPORT SAFETY INVESTIGATION REPORT**

Aviation Safety Issue Investigation – AI-2008-019

Final

**Examination of the feasibility of the establishment  
of a single source or database of known powerlines  
and tall structures**





**Australian Government**  

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There were 52 fatalities throughout Australia as a result of wirestrike accidents in the period 1994 to 2006. During that period, there was an average of just under 11 reported wirestrike accidents each year and the average number of fatalities was four per annum.

Despite the application of risk strategies to mitigate the consequences of a wirestrike, those consequences can often be expected to be catastrophic. In that case, a large investment is made by operators, pilots and other parties involved in low-level operations to minimise the likelihood of a wirestrike. That includes by ensuring awareness of all known low-level hazards, including powerlines and tall structures, before commencing, and during the conduct of low-level operations.

During a series of recent ATSB investigations into fatal and other wirestrike accidents, a number of different sources of information on the location of known powerlines and tall structures was identified. However, despite the apparent utility and safety benefits inherent in the availability to pilots, operators and low-level campaign managers of a single source or database of the location of known powerlines and tall structures, initial discussions with aviation authorities on the potential development of such a resource were non-productive.

However, Australian Transport Safety Bureau (ATSB) investigators commenced initial discussions with Geoscience Australia (GA) and the Energy Networks Association (ENA) to examine the feasibility of the establishment of such a database. Those discussions determined that GA was amenable to working with other relevant agencies in order to promulgate that data for use by pilots and other parties. ENA indicated that the proposal to establish a national database would be considered as part of its 2008 priority issues.

The ATSB will advise of further developments in its discussions with GA and ENA on its website [www.atsb.gov.au](http://www.atsb.gov.au) at 6-monthly intervals.

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# THE AUSTRALIAN TRANSPORT SAFETY BUREAU

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The Australian Transport Safety Bureau (ATSB) is an operationally independent multi-modal bureau within the Australian Government Department of Infrastructure, Transport, Regional Development and Local Government. ATSB investigations are independent of regulatory, operator or other external organisations.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

## **Purpose of safety investigations**

The object of a safety investigation is to enhance safety. To reduce safety-related risk, ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not the object of an investigation to determine blame or liability. However, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

## **Developing safety action**

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to proactively initiate safety action rather than release formal recommendations. However, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation, a recommendation may be issued either during or at the end of an investigation.

The ATSB has decided that when safety recommendations are issued, they will focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on the method of corrective action. As with equivalent overseas organisations, the ATSB has no power to implement its recommendations. It is a matter for the body to which an ATSB recommendation is directed (for example the relevant regulator in consultation with industry) to assess the costs and benefits of any particular means of addressing a safety issue.

**About ATSB investigation reports:** How investigation reports are organised and definitions of terms used in ATSB reports, such as safety factor, contributing safety factor and safety issue, are provided on the ATSB web site [www.atsb.gov.au](http://www.atsb.gov.au).

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# FACTUAL INFORMATION

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## Introduction

The investigation into the circumstances of the fatal wirestrike that occurred 15 km east of Parkes Aerodrome, NSW on 2 February 2006, and involved Bell Helicopter Co 206B (II), registered VH-MFI, was one in a succession of fatal wirestrike accidents that were investigated by the Australian Transport Safety Bureau (ATSB). As part of that investigation, the raw wirestrike accident data for the period 2005 to 2006 inclusive was combined with similar data, and under the same statistical groupings, as was published for the period 1994 to 2004 in ATSB Aviation Research Report B2005/0055 (re-released September 2006).

The combined data showed that there were 52 fatalities throughout Australia as a result of wirestrike accidents in the period 1994 to 2006 and that, during that period, there was an average of just under 11 reported wirestrike accidents each year. The average number of fatalities in those accidents per annum was four.

There can be little argument that, despite the application of risk strategies such as the wearing of helmets and full-cover clothing, advanced seat belt harnesses, the possible installation in aircraft of wire-strike protections and so on, the consequence of a wirestrike can often be expected to be catastrophic. In that case, a large investment is made by operators, pilots and other parties involved in low-level operations to minimise the likelihood of a wirestrike. That includes by ensuring awareness of all known low-level hazards, including powerlines and tall structures, before commencing, and during the conduct of low-level operations.

## Background

During the series of recent ATSB investigations into fatal and other wirestrike accidents (all available on the ATSB website at [www.atsb.gov.au](http://www.atsb.gov.au)), a number of different sources of information on the location of known powerlines and other low-level hazards was identified.

Investigation BO/200404285 determined that the power supply company involved had digitally-mapped its infrastructure and would, with stipulated provisos, have no in-principle difficulty providing that information for use by pilots. The company cautioned, however, that national security concerns could impact on the availability of that data.

Similarly, investigation BO/200601663, in which the aircraft struck a telecommunication cable support wire during a powerline survey, found that the power supply company had also digitally-mapped its infrastructure and would, given the appropriate legal and other protections, release that data for use by pilots. The telecommunication company indicated that pilots were already able to contact its 'Dial Before You Dig' service in order to obtain the location of its known overhead wires.

The investigation into the wirestrike 15 km east of Parkes, NSW (BO/200600523) identified the requirement for certain tall structures to be reported to the Royal Australian Air Force (RAAF) Aeronautical Information Service (AIS) and, under

certain circumstances, for construction proposals to be reported to the relevant authorities. Finally, in areas remote from aerodromes, all structures or proposed structures that are, or will be greater than 110 m or greater above ground level are, by regulation, required to be reported.

Over time and, in particular, as a consequence of the investigation into the circumstances of the Parkes wirestrike, a number of safety issues with the potential to influence the conduct of future low-level operations were identified. That included that there was no single source or database of information on the location of known powerlines or tall structures available to pilots and other parties involved in low-level operations and campaigns.

The ATSB initiated an investigation based on the trend of accidents and under section 23 (2) of the *Transport Safety Investigation Act 2003* that collision with powerlines and tall structures was something that occurred that affected, is affecting or might affect transport safety.

## **Discussion**

The potential safety benefits of the availability to pilots, operators and low-level campaign managers of a single source or database of the location of known powerlines and tall structures are obvious. However, during the investigation of the Parkes wirestrike and in subsequent discussion with aviation authorities, the indication was that the creation of the proposed single source or database of information was most likely prohibitive in terms of its resource implications and that access to state and territory powerline and other data may prove problematic.

However, the apparent availability of that information as indicated by at least two power supply companies and the telecommunications company was cause for optimism. That and the likely safety benefits of the availability to industry of a single source or database of known powerlines and tall structures precipitated discussions by ATSB investigators with Geoscience Australia (GA) and the Energy Networks Association (ENA) to examine the feasibility of the establishment of such a database.

### **Geoscience Australia**

The initial indications from GA were that it would be happy to combine with a relevant agency that had the capability to 'pull together' all of the digital data provided by power supply companies, etc in order to promulgate that data for use by relevant parties. In addition, it appeared that there might be scope for the data to be made available for public access via the GA website.

### **Energy Networks Association**

The possible involvement of ENA in the development of a national database of information on the location of known powerlines and tall structures has been discussed by the ENA Electricity Technical Regulatory Committee.

ENA has agreed to consider the scope of work involved in the creation of such a national database of powerlines and tall structures, however, has not yet committed



to the project. The proposal to establish a national database will be considered by ENA as part of its 2008 priority issues.

## **Future developments**

The ATSB will advise of any developments in its discussions with GA and ENA on the ATSB website [www.atsb.gov.au](http://www.atsb.gov.au). That advice will be published at 6-monthly intervals.