Australian Government
Australian Transport Safety Bureau

ATSB Annual Report

2013–14

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Contact us

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Communication Manager
Australian Transport Safety Bureau
PO Box 967
Civic Square ACT 2608
Email: atsbinfo@atsb.gov.au

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Australian Government

Australian Transport Safety Bureau

ATSB Annual Report

2013–14

Australian Government
Australian Transport Safety Bureau

Chief Commissioner

Contact: Julian Walsh

7 October 2014

The Hon. Warren Truss MP
Deputy Prime Minister and
Minister for Infrastructure and Regional Development
Parliament House
CANBERRA ACT 2600

Dear Deputy Prime Minister

We are pleased to present the Annual Report of the Australian Transport Safety Bureau (ATSB), reporting on the ATSB's operations for the year ended 30 June 2014.

This Annual Report has been prepared in accordance with section 63A of the *Transport Safety Investigation Act 2003* (TSI Act). Subsection 63A (1) of that Act requires that we give this report to you.

In addition to fulfilling the requirements of section 63A of the TSI Act, the report is consistent with the normal provisions for Annual Reports specified under the *Requirements for Annual Reports for Departments, Executive Agencies and FMA Act Bodies* issued on 29 May 2014 and summarises the ATSB's performance for the year. Accordingly, we recommend that you make the report available to Parliament as required by the guidelines.

The report includes the ATSB's financial statements as required by section 49 of the *Financial Management and Accountability Act 1997* and an audit report on those statements in accordance with section 57 of the same act.

The Chief Commissioner also certifies under Guideline 5.8 of the *Commonwealth Fraud Control Guidelines*, that he is satisfied that the ATSB has prepared fraud risk assessments and fraud control plans, and has in place appropriate fraud prevention, detection, investigation, reporting and data collection procedures and processes that meet the specific needs of the ATSB and comply with the guidelines.

Yours sincerely

Martin Dolan
Chief Commissioner/CEO

Noel Hart
Commissioner

Carolyn Walsh
Commissioner

62 Northbourne Ave
Canberra ACT 2601
Australia

PO Box 967
Civic Square
ACT 2608 Australia

Tel 02 6274 6144
Web www.atsb.gov.au
Twitter @ATSBinfo

ABN 65 061 156 887

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Introduction

The Australian Transport Safety Bureau (ATSB) 2013–14 Annual Report outlines performance against the outcome and program structure in the 2013–14 Infrastructure and Transport Portfolio Budget Statements.

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Information about this report

Information about this report is available from:

The Annual Report Coordinator
Telephone: 1800 020 616
Fax: 02 6247 3117
Email: atsbinfo@atsb.gov.au

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Other sources of information

Annual reports are available in printed form from more than 40 libraries around Australia under the Australian Government library deposit and free issue scheme. A list of these participating libraries can be found at http://www.finance.gov.au/librarydeposit/

This report is also available from our website at www.atsb.gov.au

Before making decisions on the basis of information contained in this report, you are advised to contact the ATSB. This report was up to date at the time of publication but details change over time due to legislative, policy and other developments.


ATSB
ATSB

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Chief Commissioner's review 2013–14

2013–14 was the ATSB's fifth year in its current form as a fully independent agency within the Infrastructure and Regional Development portfolio. I am honoured that the Deputy Prime Minister has appointed me to continue as Chief Commissioner for the next two years, which I take as a strong vote of confidence in the organisation and the work we do.

We have had another productive year in terms of our investigation outputs; at the same time, we have faced a number of serious challenges, in terms of both the complexity of the accidents and incidents we have had to deal with, and of the availability of resources.

By March of this year, planning our program for the next four years was showing that we would not be able to sustain the current level of staffing into future years. We took the difficult decision to reduce our complement of staff by twelve per cent. As a result, we have had to combine some of our functions, such as research and notifications, and our capacity is less than before in all teams including investigation, technical analysis and research and publication.

The decision to reduce our staff numbers was particularly difficult as it was made in the knowledge that there is no contingent workforce of highly skilled transport safety investigators available in the marketplace to be deployed at short notice in the event of a new crisis. It was indeed sobering to see more than 200 years of combined corporate and investigation experience leaving the ATSB.

In March, at the same time as we were required to undertake difficult decisions in relation to our staffing and resources, we received the news of the loss of Malaysia Airlines Flight 370 (MH370) and of its possible location in the Southern Indian Ocean, in Australia's Search and Rescue Zone. The ATSB became part of a whole of government response and worked closely with the Joint Agency Coordination Centre that was set up under the leadership of Air Chief Marshal (Retired) Angus Houston. We also worked closely with the Australian Maritime Safety Authority and other government agencies such as the Department of the Prime Minister and Cabinet and the Department of Foreign Affairs and Trade together with our Malaysian counterparts.

Our subsequent involvement in leading the search for the missing Malaysia Airlines Flight 370 has presented us with our greatest challenge yet. This is the most serious aviation occurrence ever to involve the ATSB and its precursors, and is arguably the most mystifying, expansive and difficult search operation ever undertaken in the history of commercial aircraft. Since then, in July 2014, Malaysia Airlines Flight 17 (MH17) was apparently brought down by a missile over the Ukraine with a significant number of Australian citizens and residents on board. The ATSB deployed two investigators to the Ukraine to work in support of the Dutch Safety Board-led Annex 13 safety investigation into the occurrence. The ATSB will continue to provide support to investigation activities associated with the MH17 tragedy.

While we have been given additional financial resources to undertake the underwater search for MH370, there will continue to be pressure on our resources and challenges in continuing to ensure that we meet our ongoing business as usual functions. Despite these constraints, it is still essential that we continue to develop and maintain the capability we will need to take us into the future.

Sharing our information

I am pleased to be able to report that we have made significant strides in our ability to share information and data with our stakeholders. We continue to develop our website as our main communication outlet, and we have seen a great response to our presentation of material in formats suitable for smartphones and tablets.

This year, we have provided online access to the Australian National Aviation Occurrence Database where, for the first time, members of the public can search for de-identified information on aviation accidents and incidents. The search parameters have been designed to fulfil the most common requests received by the ATSB—including date range, aircraft and operation type, injury level, occurrence category and type, location, and airspace type and class. This information is of particular interest to a wide range of transport industry professionals, journalists and academics, who can now obtain instant results by searching the database for themselves.

We also launched the REPCON web page—a new page featuring de-identified confidential reports on aviation, maritime and rail safety concerns, and their resolution. Our confidential reporting scheme, REPCON, allows people with safety concerns to report them confidentially to the ATSB without fear of being identified. These confidential reports often contain valuable information that can help the industry address unsafe procedures, practices or conditions.

We have also made available, in a dedicated area of the website, details of all safety issues identified in ATSB investigations dating back to July 2010, along with all the associated safety actions taken by the transport industry in response. This comprehensive data source provides details of all Safety Recommendations and Advisory Notices issued to organisations in the course of our investigations. It contains details of their responses, including their proactive actions, and shows the status of every safety issue—that is, whether adequately addressed or still requiring further action.

Aviation

The Aviation Investigation teams completed 44 complex, and 120 short, aviation accident and incident investigations during the past year.

This year brought a number of serious concerns about pilots flying in conditions of poor visibility. In November 2013, we completed the investigation into the loss of the ABC television helicopter 145 km north of Marree, near Lake Eyre, South Australia on 18 August 2011 (AO-2011-102). We found that the pilot became spatially disoriented while flying in dark night conditions.

The Civil Aviation Safety Authority (CASA) has advised of safety actions in progress to clarify the nature of what is meant by the term 'visibility' in dark night conditions, provide enhanced guidance on night Visual Flight Rules (VFR) flight planning, and provide enhanced guidance on other aspects of night VFR operations. The ATSB issued a recommendation to CASA to prioritise its efforts in this area. In addition, CASA advised that it will require that helicopter air transport operations with passengers at night use either a helicopter fitted with an autopilot or a two-pilot crew.

In December 2013, two further reports concerned accidents where poor visibility contributed to loss of control and significant loss of life. These were a Piper PA-28-180 operating under the VFR, which encountered fading light and poor weather conditions 31 km north of Horsham Airport, Victoria on 15 August 2011 (AO-2011-100), and the loss of a de Havilland Dragon operating under the VFR in bad weather, 36 km south-west of Gympie, Queensland on 1 October 2012 (AO-2012-130).

Along with the ABC helicopter accident, these and other recent poor visibility-related accidents have given cause for the Commission to include 'flying with reduced visual cues' in our *SafetyWatch* priorities. *SafetyWatch* is the Commission's means of publicly identifying areas where particular attention should be given to improving levels of transport safety.

A serious incident involving commercial high capacity air transport aircraft occurred on 18 June 2013 at Mildura, Victoria, when two Boeing 737 passenger aircraft bound for Adelaide diverted to Mildura only to find that Mildura was also shrouded in fog. Fortunately, they landed safely, but the incident led us to undertake wide-ranging consultations with aviation industry stakeholders to look into:

- the provision of information to flight crews from air traffic services (ATS)
- ATS policies and procedures affecting the flights
- provision by the operators of information to the respective flight crews
- the basis for the sequencing of the aircraft landings at Mildura
- Bureau of Meteorology services and products as they applied to these flights
- accuracy of aviation meteorological products in Australia.

We expect to complete this investigation early in 2015 and that the lessons learnt will be of broad and deep interest to aviation operators throughout Australia.

Last year's Annual Report expressed concerns with M18 Dromader aircraft operating with take-off weights above 4,200 kg. This year, we responded to the in-flight break-up of an M18A Dromader, which was being used to fight fires near Ulladulla, New South Wales on 24 October 2013 (AO-2013-187). Our interim report identified a safety issue that operators of some Australian M18 Dromaders, particularly those fitted with turbine engines and enlarged hoppers and those operating under Australian supplemental type certificate (STC) SVA521, have probably conducted flights at weights for which airframe life factoring was required but not applied. We issued a Safety Advisory Notice to M18 operators about this safety issue.

Marine

The Marine investigation team completed seven complex investigations and one short investigation during the year. These highlight the specific dangers to crew working in the maritime industry.

An engineer on board the bulk carrier *Nireas* was carrying out the routine task of draining water from the ship's main air receiver, when the air receiver drainage pot observation window exploded. The engineer was fatally injured by flying debris from the observation window. The ATSB found that the shipyard that built the ship had modified the original design of the drainage pot but had not ensured that the design was adequately engineered, tested and approved prior to installation, despite having procedures in place that should have ensured such scrutiny.

We also became concerned about the use and maintenance of ships' pilot ladders. Incidents involving pilot ladders and the lack of understanding of their use and maintenance requirements continue to be reported. A pilot ladder is routinely used to provide a safe means of access to a ship when no other means is available. Using a pilot ladder involves climbing as much as 9 m (limited by international regulation) up or down the side of a ship on a ladder consisting of wooden rungs strung between side ropes.

The reported incidents highlight that personnel transfers by way of pilot ladders are inherently risky operations. In order to minimise the risk to pilots and others, ship operators and pilotage companies need to ensure that clear and standardised procedures and communication protocols, are implemented and followed. Worryingly, both our investigations found that the most recent SOLAS (Safety of Life at Sea) requirements and International Marine Pilots Association (IMPA) guidance were not being referenced in procedures, nor fully understood by the personnel involved in transfers using pilot ladders.

Rail

The Rail Investigation teams completed 16 complex, and three short, investigations and are continuing a further 23 complex investigations.

During the year, we continued to work with the states and territories on the implementation of the Council of Australian Governments (COAG) transport agenda, gradually including the state and territory governments in the National Rail Safety Law. We have particularly valued the positive and effective cooperation the Victorian and New South Wales independent transport safety agencies have offered us in delivering a unified national rail investigation capability.

The delayed and staggered introduction of the Rail National Standard Law has, however, caused some funding shortfalls for the ATSB and contributed to our overall resourcing difficulties. In accordance with the rail Inter-Government Agreement, the ATSB increased its staffing levels to meet the expected ongoing investigation requirements, but this has caused shortfalls in other areas as the expected levels of funding flowing from the states have not eventuated.

We completed our investigation into the collision of passenger train *T842* with a station platform at Cleveland, Queensland on 31 January 2013 (RO-2013-005). We commenced this investigation at the request of the Queensland Government. A Queensland Rail passenger train had failed to stop at the Cleveland station platform and collided with the end-of-line buffer stop, the platform and the station building at a speed of about 31 km/h. There were 19 people on board the train (including the driver and a guard), three people on the platform and five in the station building. A number of people were treated for minor injuries and transported to hospital for further examination.

Our investigation found that local environmental conditions had resulted in the formation of a contaminant substance on the rail running surface. This caused poor adhesion at the contact point between the train's wheels and the rail head. The braking effectiveness of train *T842* was degraded as a result and the train was unable to stop before hitting the end-of-line buffer stop. We made a series of recommendations to help Queensland Rail improve their risk management, emergency management system and incident responses.

We also completed our investigation into the derailment of freight train *7SP3* near Roto, New South Wales on 4 March 2012 after entering floodwaters that had overtopped the track (RO-2012-002). Our investigation found shortfalls in the track manager's systems and operational procedures in dealing with a localised weather event. Unfortunately, the shortfalls identified in this investigation are not new and replicate other similar incidents, most notably, the derailment at Edith River, Northern Territory, reported last year. The ATSB continues to monitor the industry's management of this type of hazard.

We released our report into rail operations on the interstate rail line between Melbourne and Sydney (RI-2011-015) that was commissioned by former Minister, the Hon. Anthony Albanese MP, on 16 August 2011. In 2007, the Australian Rail Track Corporation (ARTC) embarked on a major investment program to upgrade the rail track between Melbourne and Sydney. Since the program began, the condition of the line had been subject to significant adverse comment about its safety, largely in relation to rough ride characteristics and the existence of 'mud-holes'.

The ATSB found that the track structure between Melbourne and Sydney had historically been particularly vulnerable to degradation in vertical alignment, resulting in poor ride quality and mud-holes. Major contributors were the weakness of the track formation and ballast contamination. In some locations, this pre-existing vulnerability was exacerbated by the installation of new concrete sleepers, as well as poor drainage and heavy rainfall during 2010 and 2011.

Safety priorities

The ATSB continued to focus its communication and safety awareness activities on the nine safety priorities we first identified in 2011–12 in an initiative we named *SafetyWatch*. It was particularly pleasing to be able to remove our concern about the need to replace rigid fuel tanks in R44 helicopters with the manufacturer's bladder-type tanks. Following the manufacturer's revised compliance date of 30 April 2013, and CASA action to ensure that all remaining R44 helicopters would receive the required modification, we can be confident that this significant risk as been alleviated.

Following a number of significant accidents and incidents, involving pilots in conditions of poor visibility, we adopted a new safety priority of *Flying with Reduced Visual Cues* for 2013–14 and beyond. Our safety priorities are therefore:

- Flying with reduced visual cues—Under visual flight rules (VFR), it is crucial that pilots have sufficient visual reference to see and avoid obstacles. Visual cues are also required to maintain orientation so that VFR pilots know 'which way is up' and can maintain control of their aircraft. Visual reference can be reduced by cloud, darkness, or atmospheric conditions such as rain, fog, smoke or haze. Two main risks are associated with flying in limited visibility:
  - loss of orientation, leading to loss of control of an aircraft and uncontrolled flight into terrain
  - insufficient visibility to enable a pilot to see and avoid obstacles while remaining under control, known as a controlled flight into terrain.
- General aviation pilots—General aviation (GA) pilots continue to die in accidents that are mostly avoidable. Prominent among these accidents are those that involve low flying, wirestrikes, flying visually into bad weather, mismanagement of partial power loss and poor fuel management.
- Handling approach to land—There are a worrying number of cases where the aircraft's stability on approach is not adequately assessed or uncommon manoeuvres are mishandled during an aircraft's approach to land.
- Data input errors—Human error involving incorrect data entry continues to cause concern. In some cases, aircraft systems and operators' flight management procedures are not catching these errors.
- Safety around non-controlled aerodromes—Non-controlled aerodromes continue to pose a risk to aircraft due to poor communication between pilots, ineffective use of see-and-avoid techniques and failure to follow common traffic advisory frequency (CTAF) and other procedures.
- Under-reporting of occurrences—An ATSB investigation during 2011–12 into under-reporting of wirestrikes revealed approximately 40 per cent under-reporting of such occurrences. While there are a range of factors that could influence under-reporting of this particular occurrence type, it is likely that there is also under-reporting of other occurrences, particularly those associated with GA operations.
- Safe work on rail—The ATSB has investigated several accidents that occurred when maintenance work was being carried out on or near railway tracks. Conducting work on or near a railway track can be dangerous if safe working rules and procedures have not been correctly implemented to protect the worksite.
- Marine work practices—The ATSB has investigated several incidents involving unsafe working practices in the maritime industry. These incidents resulted in serious injury or death following falls from heights, crushing, or proximity to exploding equipment.
- Maritime pilotage—The clear and open exchange of information between the ship's master and crew and the pilot is vital, both before and during the pilotage passage. This helps to ensure that all members of the bridge team have a shared mental model of the pilotage passage and, as a result, a good understanding of how it should proceed.

Outlook for 2014–15

At the conclusion of this year, we had 102 complex investigations under way. We have more than 12 per cent fewer staff and we have been required to task some of our investigation and administration staff to the major and ongoing investigations into the two Malaysia Airlines disasters. For the foreseeable future, we will be able to undertake fewer investigations and we will need to carefully consider and constrain the scope of investigations initiated. Our capacity for industry engagement will be limited and the timeliness of the completion of some of the investigations currently under way will be an ongoing challenge.

Last year, I commented that we continue to remain alert and prepared to handle a major accident in aviation, marine or rail and recognise the exceptional effort that would be required to respond. Who would have thought that the ATSB could be affected by two major losses of commercial airliners within a matter of months? The circumstances of this year have demonstrated, as never before, the need for us to remain prepared, responsive and flexible.

Despite the difficulties of this year, I am enormously proud of the dedication and achievements of our investigators and staff. They have also shown immense commitment and resilience in the face of difficult staffing decisions and have worked constructively with us to find solutions. Once again, I sincerely thank all ATSB staff for their support and hard work.

Martin Dolan
CHIEF COMMISSIONER/CEO

AGENCY OVERVIEW

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Agency overview

The Australian Transport Safety Bureau (ATSB) was established under the *Transport Safety Investigation Act 2003* (TSI Act) as Australia's national transport safety investigation agency. Its primary function is to improve aviation, marine and rail safety. It does this by receiving information about accidents and other safety occurrences, and by investigating selected occurrences in order to identify and communicate factors that affect, or might affect, transport safety.

The ATSB is part of the Infrastructure and Regional Development Portfolio. Within the portfolio are other important transport agencies whose roles are focused on delivering an efficient, sustainable, competitive, safe and secure transport system for all transport users through regulation, financial assistance and safety investigations. These include:

- Department of Infrastructure and Regional Development
- Australian Maritime Safety Authority
- Civil Aviation Safety Authority
- National Transport Commission
- Airservices Australia.

Our role

The ATSB's primary role is to improve aviation, marine and rail safety. Our focus is on improved safety for those who work, or participate, in the various transport industries and for the travelling public. We do this by:

- receiving and assessing reports of transport safety matters, including notifications of safety occurrences and confidential reporting
- independently conducting no-blame investigations of accidents and other safety occurrences
- conducting research into transport statistics and technical issues
- identifying factors that contributed to accidents and other safety occurrences that affect, or have the potential to affect, transport safety
- encouraging safety action in response to safety factors by acknowledging safety action taken by operators, and by issuing safety recommendations and advisory notices
- raising awareness of safety issues by reporting publicly on investigations and conducting educational programs
- assisting Australia to meet its international regulatory and safety obligations, and conducting an active program of regional engagement with other transport safety agencies.

Our objectives

In fulfilling our role of improving transport safety and cooperating with others, the ATSB:

- focuses its resources in the areas that are most likely to result in safety improvements
- harnesses expertise and information necessary to its safety role
- conducts impartial, systemic and timely investigations
- identifies safety issues clearly and objectively without attributing blame or liability
- ensures the significance of safety issues is clearly understood by all concerned
- promotes effective safety action.

Cooperation with the transport industry

The ATSB works cooperatively with the aviation, marine and rail industries, as well as with transport regulators and governments at state, national and international level to improve safety standards for all Australians.

The ATSB relies on its ability to build trust and cooperation with the transport industry, and the community, for its success in improving safety. The TSI Act requires the ATSB to cooperate with government agencies, private organisations and individuals who have transport safety functions and responsibilities, or who may be affected by our transport safety activities. The ATSB also cooperates with equivalent national bodies in other countries, and international organisations with responsibilities for worldwide transport safety standards.

The ATSB actively targets communications to ensure that transport industry stakeholders understand the importance of 'no blame' investigations. In order to cultivate a strong reporting culture within the transport industry, the ATSB promotes an appropriate level of confidentiality and protection for sensitive safety information provided to us in the course of our work.

Notifications and reporting

The TSI Act requires any 'responsible person' who has knowledge of any accident (or any immediately reportable matter) to report it as soon as is reasonably practicable.

While the terms of this requirement may seem broad, the Transport Safety Investigation Regulations 2003 provides a list of persons who, by the nature of their qualifications, experience or professional association with a particular transport vehicle, or number of transport vehicles, would be likely to have knowledge of an immediately or routine, reportable matter for their associated mode of transport. In addition, 'responsible persons' are not required to report a transport safety matter if they believe on reasonable grounds that another responsible person has already reported, or is in the process of reporting, that matter.

There are various bodies to which notifications can be made, but most notifications are required to be made directly to the ATSB—specifically in aviation. The ATSB maintains a 24-hour service to receive these notifications, including a toll-free telephone number and a secure online notification form. Relevant notifications submitted to other agencies are forwarded to the ATSB, where they are recorded and evaluated, in order to decide whether an investigation is to be undertaken.

Every year, the ATSB's Notifications and Confidential Reporting team receives over 15,000 notifications of safety occurrences. These are spread over the three modes of transport. Inevitably, there are duplicate notifications, and many of the notifications submitted concern matters not required to be reported under the TSI Act. Nevertheless, each one is reviewed and recorded.

In 2013–14, the ATSB's Notifications and Confidential Reporting team received 15,902 aviation notifications in the form of telephone calls, emails, facsimiles, postal letters and web notifications. From those, the team identified 8,486 individual accidents, serious incidents and incidents.

While not all reported occurrences are investigated, the details of each occurrence are retained within the ATSB's records database. These records are a valuable resource, providing a detailed portrait of transport safety in Australia. The ATSB, industry and regulators analyse the database to identify trends and patterns. A wide variety of researchers, including scholars and the media, use it to research past events and emerging issues. The searchable public version of the aviation occurrence database is now available on the ATSB website. It contains data from July 2003 onwards.

Aviation

The ATSB investigates accidents, and other occurrences, involving civil aircraft in Australia. The ATSB also analyses data on all notified accidents and incidents. It conducts research into specific matters of concern that emerge from data analysis and specific incidents or matters that may be referred by other organisations. It does so in a manner consistent with the Convention on International Civil Aviation (Chicago Convention 1944) *Aircraft Accident and Incident Investigation* (Annex 13).

The ATSB may also investigate serious accidents or incidents involving Australian-registered aircraft overseas, or assist with overseas investigations involving Australian-registered or foreign aircraft, if an overseas investigating authority seeks assistance and the ATSB has suitable resources available. The ATSB may also have observer status in important overseas investigations. This provides valuable opportunities to learn from overseas organisations and to benchmark our knowledge, and procedures, against our sister organisations.

The ATSB cooperates with organisations such as the Civil Aviation Safety Authority (CASA), Airservices Australia and aircraft manufacturers and operators who are best placed to improve safety.

Marine

The ATSB investigates incidents, and accidents, involving Australian-registered ships anywhere in the world, and foreign ships in Australian waters or en route to Australian ports.

We work cooperatively with international regulatory authorities, Australia's maritime regulator, the Australian Maritime Safety Authority (AMSA), the state and territory maritime regulatory authorities, other transport safety investigatory agencies and ship owners and operators.

We publish a range of marine transport safety reports and safety educational material, which are distributed to the international maritime community, the International Maritime Organization, educational institutions and maritime administrators in Australia and overseas.

Rail

Since the implementation of the national transport reform process in January 2013, the ATSB has had primary responsibility for investigating rail safety occurrences (accidents and incidents) on the Defined Interstate Rail Network, regional rail networks and on metropolitan passenger networks in participating states and territories (New South Wales, Victoria, South Australia, Tasmania and the Northern Territory). Negotiations with Western Australia and Queensland are still proceeding.

The ATSB works cooperatively with organisations such as the Office of the National Rail Safety Regulator (ONRSR), state and territory rail regulators, the Australian Rail Track Corporation (ARTC) and rail operators—all of whom share a responsibility to improve safety. The ATSB also has collaboration agreements with the New South Wales and Victorian state safety investigation organisations.

Technical analysis

The ATSB Technical Analysis team provides the ATSB with the direct, in-house ability to examine, extract and analyse in detail the physical and recorded evidence associated with safety occurrences from all modes of transport. Eleven specialists in forensic engineering, failure analysis, data recovery and systems analysis work with other ATSB investigators and external stakeholders, to provide a detailed insight into the often complex set of factors that underlie many transport safety occurrences. The team maintains a centre of excellence for rail, marine and flight data 'black box' analysis in the South East Asian and Asia-Pacific regions—providing our international neighbours with technical advice, support and assistance in occurrence investigation and capability development.

Short investigations

In addition to its more complex investigations, the ATSB undertakes short, factual, office-based investigations of less complex safety occurrences. Our capacity to undertake a larger volume of these short investigations provides excellent opportunities to deliver safety messages, and for industry participants to learn from the experiences of others. Although many of these investigations examine occurrences that are common, and for which the underlying factors are well known, these investigations enhance the quality and completeness of the occurrence data held by the ATSB. This enhanced occurrence data extends our capacity to identify situations where more detailed investigation may be warranted.

A small team manages and processes these factual investigations and produces short summary reports. The summary reports detail the information gathered from individuals or organisations involved in the occurrence, the circumstances and what safety action may have been taken or identified as a result. The summary reports are released periodically in a bulletin format.

Confidential reporting (REPCON)

The ATSB operates the voluntary and confidential reporting scheme (REPCON) for the aviation, marine and rail industries. Any person within these industries or a member of the travelling public may submit a REPCON report of a reportable safety concern (RSC). The scheme is designed to capture safety concerns, including potentially unsafe practices, procedures, and risk controls within an organisation or affecting part of the industry. The scheme is not about individuals.

Each RSC is de-identified by the ATSB by removing all personal details of the reporter and any individual named in the report. This de-identified text is passed to the reporter who must authorise the content before the REPCON can proceed further. The de-identified text is then forwarded to the relevant organisation that is best placed to address the RSC. The organisation's response will then be forwarded to the regulator for further action as deemed necessary.

The aim of the REPCON scheme is for safety action to be taken to address the RSC. This can include variations to standards, orders, practices, procedures or an education campaign. The ATSB may use the de-identified version of the RSC to issue an information-brief or alert bulletin to whichever person or organisation is best placed to take safety action in response to the safety concern.

The ATSB publishes the outcomes of each REPCON report on its website.

Research investigations and data analysis

The Research Investigations and Data Analysis team researches and analyses the ATSB occurrence databases. In the case of aviation occurrences, the research and analysis provides an opportunity to uncover trends and safety issues across many, rather than individual occurrences.

Across the transport modes, the team produces official Australian statistics (Aviation Occurrence Statistics, Shipping Occurrence Statistics), in-depth analysis of issues, and trend monitoring of all occurrences for the benefit of government and industry. The research team also contributes to the ATSB's occurrence investigations in all three modes.

The ATSB is not currently funded for research in the marine and rail transport modes.

International cooperation

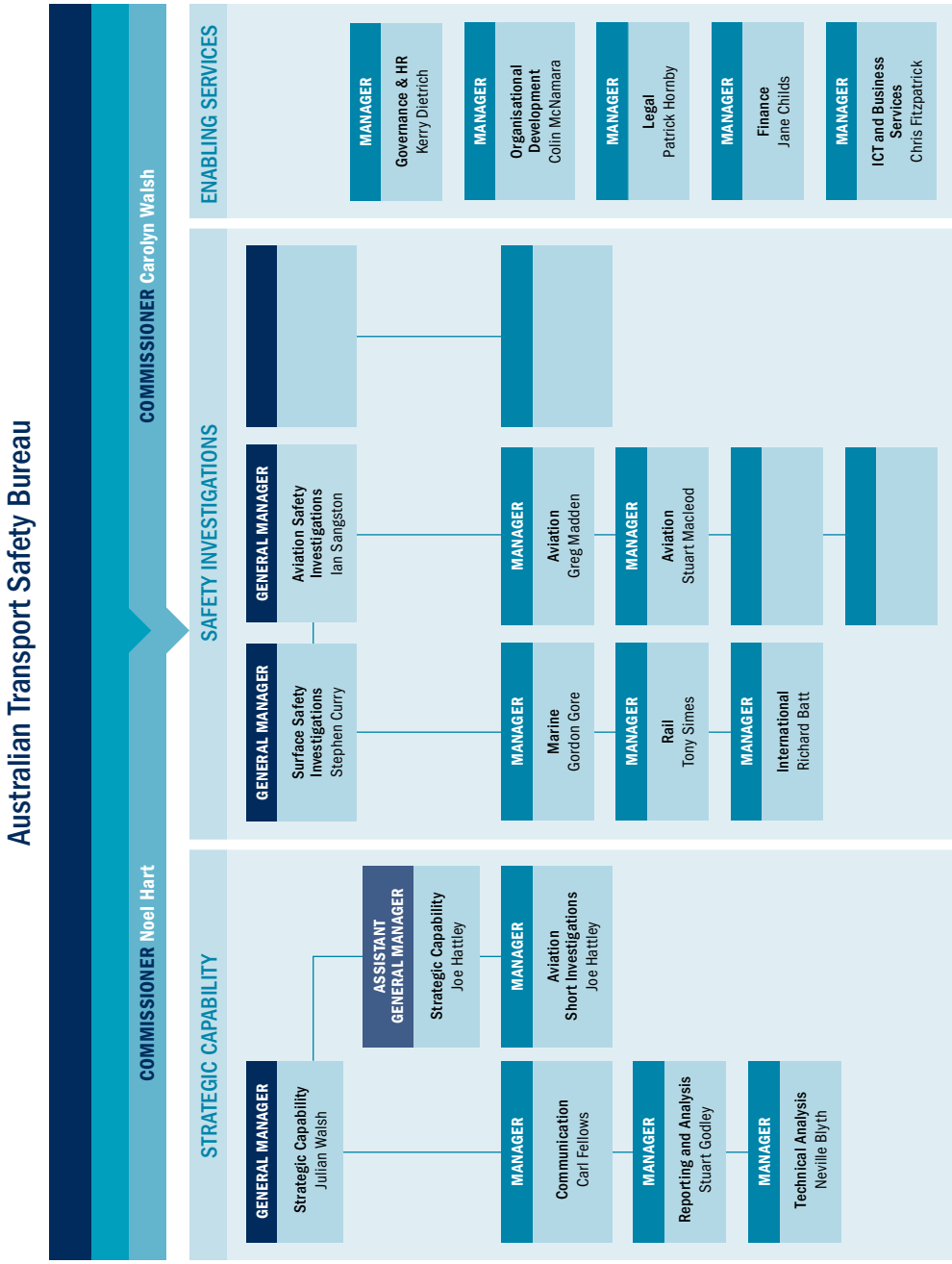
The ATSB is committed to promoting engagement with its international counterpart agencies and with relevant multilateral organisations. It works to assist Australia's regional neighbours through international agreements and participation in intergovernmental programs. It actively supports initiatives to build aviation and maritime safety investigation capability in the Asia-Pacific region.

The philosophy underpinning the ATSB's regional engagement is one of cooperation and mutual respect. The strategic intent is to improve transport safety for the benefit of our regional neighbours and for the Australian travelling public.

The ATSB is actively involved in the work of the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO).

Executive management

Our organisational structure as at 30 June 2014



Executive management

Martin Dolan
CHIEF COMMISSIONER

Martin Dolan has been Chief Commissioner of the ATSB since July 2009. In June 2014, the Deputy Prime Minister, the Hon. Warren Truss MP, extended Chief Commissioner Dolan's appointment for a further two years.

Mr Dolan has worked in the Australian Public Service for over 30 years, acquiring broad expertise in aviation and safety matters, and in carrying out a range of senior executive roles. Mr Dolan has a Bachelor of Arts degree.

Noel Hart
COMMISSIONER

Noel Hart has over 40 years' experience in the shipping, oil and gas industries. His qualifications include a Master Mariner Class One qualification and business administration and MBA certificates.

Mr Hart left his seagoing career to join BP Australia in 1985 and held management positions with BP Shipping in Melbourne, London and Chicago. From 2006 to 2009 he held the position of General Manager of the North West Shelf Shipping Service Company, based in Perth. In this position he was responsible for the safe shipping of liquefied natural gas from north-western Australia to Asian and other global customers.

While based in London, Mr Hart was Chairman of the General Purposes Committee of both the Oil Companies International Marine Forum and the Society of International Gas Tanker and Terminal Operators. He also served as a director of the Middle East Navigational Aids Service and was an alternate director of the Alaskan Tanker Company and the Marine Preservation Society in the USA, and the Marine Oil Spill Response Centre in Australia.

Carolyn Walsh
COMMISSIONER

Carolyn Walsh has 30 years' experience in policy development, regulation and safety management at Commonwealth and state levels. She has 15 years' experience in the transport sector, in policy and regulatory roles. Before becoming a Commissioner of the ATSB, Ms Walsh was the Chief Executive of the NSW Independent Transport Safety and Reliability Regulator.

Ms Walsh is currently Deputy Chair of the National Transport Commission, President of Palliative Care NSW and a member of a number of Audit and Risk Committees for NSW government agencies. These include: the Aboriginal Lands Council (Chair), Mental Health Commission (Chair), Information and Privacy Commission (Chair), Police Integrity Commission (member) and Office of the Director of Public Prosecutions (member).

Ms Walsh has specialist expertise in safety (both transport and occupational health and safety), risk management and the regulatory framework governing transport operations in Australia. She was the Chair of the national steering committee that advised the National Transport Commission on the development of the national Model Bill for Rail Safety.

Ms Walsh has a Bachelor of Economics degree and is a graduate of the Australian Institute of Company Directors Course.

Stephen Curry

ACTING GENERAL MANAGER SURFACE SAFETY INVESTIGATIONS

Stephen Curry has held the position of Acting General Manager Surface Safety Investigations since April 2014. He is responsible for marine and rail safety investigations, the ATSB's work on the reforms to the National Transport Regulatory Framework and the ATSB's international programs.

Mr Curry joined the ATSB in 2005 after a career at sea as a marine engineer with Australian and international shipping companies, including ANL Ltd, the Commonwealth shipping line. Since joining the ATSB he has been responsible for a large number of marine investigations and has provided investigation expertise to the Commonwealth Government enquiry into the Varanus Island gas pipeline explosion, and the Papua New Guinea Commission of enquiry into the sinking of the passenger ferry, *Rabaul Queen*. He has represented the ATSB, and Australia, at numerous international marine meetings and conferences.

Mr Curry holds professional qualifications in marine engineering and transport safety investigation.

Peter Foley

PROGRAM DIRECTOR OPERATIONAL SEARCH FOR MALAYSIA AIRLINES FLIGHT 370 (MH370)

Peter Foley has held the position of Program Director Operational Search for MH370 since May 2014. He is responsible for the ATSB's operational search activities for missing Malaysia Airlines Flight 370.

Mr Foley joined the ATSB in 1999 after a career at sea as a marine engineer with Australian shipping companies, including ANL Ltd, the Commonwealth shipping line. Since joining the ATSB he has held a number of roles, most recently as General Manager Surface Safety Investigation. This role included responsibility for marine and rail safety investigations, the ATSB's work on the reforms to the National Transport Regulatory framework, and the ATSB's international programs. He has been responsible for performing and managing a large number of marine and rail investigations, many of them significant, and has represented the ATSB, and Australia, at many international marine and rail industry meetings and conferences.

Mr Foley holds professional qualifications in marine engineering and transport safety investigation, degrees in marine and mechanical engineering and a Graduate Diploma in Business Management.

Ian Sangston

GENERAL MANAGER, AVIATION SAFETY INVESTIGATION

Ian Sangston, General Manager, Aviation Investigation joined ATSB as a Senior Transport Safety Investigator (STSI) in April 2002 after 23 years' service in the Australian Defence Force. In addition to a number of pilot qualifications, he has an undergraduate degree and two master's degrees in Management Studies and Employment Relations.

Mr Sangston managed a number of high profile and other investigations as an STSI, and completed a Diploma of Transport Safety Investigation in June 2005. He was promoted to Team Leader, Transport Safety Investigation in mid-2006 and assumed responsibility for the Perth Regional Office. As team leader he oversaw more than 80 aviation safety investigations. Mr Sangston was promoted to his present position in August 2009 and has been instrumental in the ATSB's development of a project management approach to investigation management.

Julian Walsh

GENERAL MANAGER, STRATEGIC CAPABILITY

Julian Walsh, General Manager Strategic Capability joined the ATSB as a Senior Transport Safety Investigator (STSI) in September 1998 after nearly 21 years' service as an officer in the Royal Australian Air Force.

In the Air Force, Mr Walsh gained extensive experience as an Air Traffic Controller and an Air Traffic Services Manager. He is a graduate of the Royal Australian Navy Staff College and held a range of command, personnel, project management, training and aviation safety-related positions within the Department of Defence.

Since joining the ATSB, Mr Walsh has been responsible for a number of significant aviation investigations and has overseen a range of functions within the ATSB. He has served as a Team Leader of the Notifications and Technical Analysis Team and as an Aviation Investigation Team Leader. He was Director, Aviation Safety Investigation from March 2006 to June 2009.

Outcome and program structure

PROGRAM 1.1 OBJECTIVE

The ATSB will work actively with the aviation, marine and rail industries, transport regulators and governments at state, national and international level to improve transport safety standards for all Australians, particularly those travelling within Australia and overseas. Investigations and related activities seek to raise awareness of identified safety issues and to encourage stakeholders to implement actions to improve future safety. There are three core functions which arise from the ATSB's functions under the *Transport Safety Investigation Act 2003*:

1 **Independent 'no blame' investigations of transport accidents and other safety occurrences**

Independent investigations that are selective and systemic, and which focus on future safety rather than on blame, increase stakeholder awareness and action on safety issues, and foster industry and public confidence in the transport system.

2 **Safety data recording, analysis and research**

Timely receipt and assessment of transport accident and other safety occurrence notifications allows the ATSB to identify and refer safety issues at the earliest opportunity. The maintenance and analysis of a body of safety information (including transport safety data, and research and investigation reports) enables stakeholders and researchers, to gain a better understanding of safety trends and safety issues.

3 **Fostering safety awareness, knowledge and action**

Awareness and understanding of transport safety issues are increased through a range of activities including consultation, education, and the promulgation of research, investigation findings and recommendations. These contribute to the national and international body of safety knowledge, and foster action for the improvement of safety systems and operations.

How the ATSB reports

Section 63A of the *Transport Safety Investigation Act 2003* (TSI Act) requires that the ATSB must, as soon as practicable after 30 June in each financial year, report to the Minister on the ATSB's activities during the year. This reporting must include:

- prescribed particulars of safety matters (no matters are currently prescribed)
- a description of investigations conducted by the ATSB during the financial year that the Chief Commissioner considers raise significant issues about safety
- financial statements required by section 49 of the *Financial Management and Accountability Act 1997* (FMA Act)
- an audit report on those statements under section 57 of the FMA Act.

In addition, the ATSB observes and complies with the *Requirements for Annual Reports for Departments, Executive Agencies and FMA Act Bodies* published by the Department of the Prime Minister and Cabinet. This report is based on the guidelines for 2013–14 that were issued on 29 May 2014.

The ATSB will report its performance against the program objectives, deliverables and key performance indicators published in the Infrastructure and Transport 2013–14 Portfolio Budget Statements.

WHAT ARE OUR PRIORITIES FOR INVESTIGATION?

The ATSB's highest priority is to investigate accidents and safety occurrences that have the greatest potential to deliver improved transport safety for the travelling public.

The ATSB is not resourced to investigate every single accident or incident that is reported, but allocates priorities within the transport modes to ensure that investigation effort achieves the best outcomes for safety improvement. The ATSB recognises that there is often more to be learned from serious incidents, and patterns of incidents, and places some focus on these investigations as well as on specific accident investigations.

Where the contributing factors and safety issues for common occurrences are well known, and there are likely to be few benefits from conducting extensive investigations, the ATSB may conduct limited fact-gathering investigations (Short Investigations).

THREE WAYS TO ACTION

The TSI Act requires specified people and organisations to report to the ATSB on a range of safety occurrences (called 'reportable matters'). Reportable matters are defined in the Transport Safety Investigation Regulations 2003. In principle, the ATSB can investigate any of these reportable matters. In practice, they can be actioned in one of three ways to contribute to the ATSB's functions:

1. A report of an occurrence that suggests that a safety issue may exist will be investigated immediately. Investigations may lead to the identification/confirmation of the safety issue and evaluation of its significance, and set out the case for safety action to be taken in response.
2. A report of an occurrence that may not warrant a full investigation may warrant additional fact gathering for future safety analysis, to identify safety issues or trends.
3. Basic details of an occurrence, based primarily on the details provided in the initial occurrence notification, can be recorded in the ATSB's occurrence database to be used in future safety analysis to identify safety issues or trends.

Note: In the third approach, the occurrence is not investigated immediately, but may be the subject of a future safety issue or research investigation.

AVIATION BROAD HIERARCHY

The ATSB allocates its investigative resources in line with the following broad hierarchy of operation types:

1. passenger transport—large aircraft
2. passenger transport—small aircraft
   - regular public transport and charter on small aircraft
   - humanitarian aerial work (for example, Royal Flying Doctor Service, search and rescue flights)
3. commercial (that is, fare-paying) recreation (for example, joy flights)
4. aerial work with participating passengers (for example, news reporters, geological surveys)
5. flying training
6. other aerial work
   - non-passenger carrying work (for example, agriculture, cargo)
   - private transport or personal business
7. high risk personal recreation/sports aviation/experimental aircraft operations.

On 20 March 2013, the Commissioners decided that, in future, the ATSB will investigate all fatal accidents involving VH-registered powered aircraft.

MARINE BROAD HIERARCHY

The ATSB allocates its investigative resources in line with the following broad hierarchy of marine operation types:

1. passenger operations
2. freight and other commercial operations
3. non-commercial operations.

RAIL BROAD HIERARCHY

The ATSB allocates its investigative resources in line with the following broad hierarchy of rail operation types:

1. mainline operations that impact on passenger service
2. freight and other commercial operations
3. non-commercial operations.

LEVEL OF RESPONSE

The level of investigative response is determined by resource availability and factors such as those detailed below. These factors (expressed in no particular order) may vary in the degree to which they influence the ATSB's decision to investigate, and the response. Factors include:

- the anticipated safety value of an investigation, including the likelihood of furthering the understanding of the scope and impact of any safety system failures
- the likelihood of safety action arising from the investigation, particularly of national or global significance
- the existence and extent of fatalities/serious injuries and/or structural damage to transport vehicles or other infrastructure
- the obligations or recommendations under international conventions or codes
- the nature and extent of public interest—in particular the potential impact on public confidence in the safety of the transport system
- the existence of supporting evidence, or requirements, to conduct a special investigation based on trends
- the the relevance to an identified and targeted safety program
- the extent of resources available, and projected to be available, in the event of conflicting priorities
- the risks associated with not investigating —including consideration of whether, in the absence of an ATSB investigation, a credible safety investigation by another party is likely
- the timeliness of notification
- the training benefit for ATSB investigators.

The objective of the classification process is to identify quickly, allocate resources for, and manage appropriately, those occurrences that:

- require detailed investigation
- need to be recorded by the ATSB for future research and statistical analysis
- need to be passed to other agencies for further action
- do not contribute to transport safety.

THE INVESTIGATION LEVELS

The ATSB's response to reported safety matters is classified by the level of resources and/or the complexity and time they require.

The following safety investigation levels are used by the ATSB:

Major Investigation

Investigations that are likely to involve, at times, significant ATSB and external resources for up to 24 months, and are likely to require additional one-off government funding.

Level 1

Investigations that are likely to involve a large number of ATSB resources and possible external resources, and are of a scale and complexity that usually require up to 18 months to complete.

Level 2

Investigations involving an in-the-field activity, several ATSB and possibly external resources, and that are of a scale and complexity that usually require up to 12 months to complete.

Level 3

Less complex investigations that require no more than nine months to complete (they may at times be a 'desktop' exercise requiring no in-the-field activity) and involve only one or two ATSB staff.

Level 4

Investigations that are less complex and require no more than five months to complete (in some cases, after initial in-the-field or other investigation activity, the investigation level may be changed or the investigation discontinued if it is determined that there is no safety value to be gained from continuing the investigation). They generally involve only one or two ATSB staff.

Level 5

- Short investigations are limited-scope factual information only investigations that result in a short summary report of one to two pages. These are generally completed within two months and are usually published in a monthly bulletin. They require only one ATSB staff member.
- For the purpose of reporting against the 2013–14 Portfolio Budget Statements performance measures, the ATSB defines its Level 5 investigations as 'less complex'.

REPORT ON PERFORMANCE

3

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Report on performance

This section provides a review of performance in relation to the ATSB deliverables, and key performance indicators, as set out in the 2013–14 Portfolio Budget Statements, and the agency's effectiveness in achieving planned outcomes.

In March 2014, the ATSB became involved in the international search for Malaysia Airlines Flight 370 and in April 2014 was tasked to lead the search. Funding was provided in the 2014–15 Budget and a new key performance indicator was added for Program 1.1, which will be fully reported in 2014–15. Funding was also provided for the remainder of 2013–14. This report includes comments on the ATSB's performance in the search from March to the end of 2013–14.

Key results

Table 1 summarises the ATSB's performance against the key performance indicators set out for Program 1.1 in 2013–14.

TABLE 1: PERFORMANCE AGAINST KEY PERFORMANCE INDICATORS

KEY PERFORMANCE INDICATOR	TARGET	RESULT
Safety action is taken by stakeholders to address identified safety issues.	Critical safety issues 100% Significant safety issues 70%	No critical safety issues were identified in 2013–14 74% (35 of 47)[1]
Stakeholder awareness of safety issues is raised as a result of investigation, research and analysis findings and through safety education activities (as measured through a biennial survey scored on a 7-point rating scale).	5 or higher	Next survey due 2014–15.
Investigation reports are published in a timely manner.	More complex investigations published within 12 months. Short investigations published within 2 months.	33 of 67 (49%) more complex investigations and 69 of 124 (56%) short investigations completed within the timeliness target.
We will assess, classify and publish summaries of accident and incident occurrences that we receive.	Details of occurrences being investigated are published within 1 working day. Summaries of other occurrences are published within 5 working days of receipt.	77% (164 of 214) of occurrences being investigated published on the ATSB website within 1 working day. 5% of occurrences published on the ATSB website within 5 working days (Median 24 days).

1 At the time of writing, the ATSB was still waiting for the completion of safety actions to address seven significant risk safety issues.

KEY PERFORMANCE INDICATOR	TARGET	RESULT
We will assess confidential reports for clarity, completeness and significance for transport safety and, where appropriate, advise any responsible party in a position to take safety action in response to the safety concern.	A de-identified summary of the confidential report will be provided to any relevant third party within 5 working days.	53% (21 of 40 REPCONs)[2] of summaries provided to relevant third parties within 5 working days. Responsible party advised in 100% of the cases (39 of 39 REPCONs)[3].
We will complete and publish safety investigations.	More complex investigations: up to 80 per annum (p.a.) Short investigations: up to 120 p.a.	67 complex investigations completed and published. 124 short investigations completed and published.
We will complete and publish research and analysis reports based on safety priorities and trends.	Up to 14 reports published as part of an annual research program. Reports on aviation safety trends provided to the Minister and safety agencies quarterly.	Seven research reports published. Three aviation trend monitoring reports completed.
We will ensure we are prepared for a major accident by reviewing and testing our major accident response and management capabilities.	Participating in one major exercise per annum.	The ATSB is an accredited representative to the Malaysian Government's investigation into the loss of Malaysia Airlines Flight 370 and is leading the search for that aircraft. In addition, investigators were sent to observe the investigation of major accidents in the US (collision with terrain at San Francisco Airport on 6 July 2013 involving an Asiana Boeing 777) and in Canada (the major rail accident involving a freight train at Lac-Megantic, Quebec, Canada on 7 July 2013).
We will assist regional transport safety through participation in the Indonesia Transport Safety Assistance Package (ITSAP), and cooperation with Papua New Guinea consistent with the *Memorandum of Understanding on Cooperation in the Transport Sector* (MOU).	Delivery of approved programs within Program funding allocation.	Successful completion of ITSAP and PNG transport MOU projects.

2 Excludes REPCONs that were withdrawn.

3 Excludes REPCONs that were resolved with the regulator needing to be contacted.

KEY PERFORMANCE INDICATOR	TARGET	RESULT
We will publish and deliver an annual program of safety communication and awareness.	Implementation of published program.	Program published and implemented.
We will lead the sub-surface search for Malaysia Airlines Flight 370 over an area of up to 60,000 square kilometres.[4]	Successful completion of the search of the 60,000 square kilometre area, confirming either the location of the flight and cockpit voice recorders (black boxes) and wreckage, or that they are not in the search area.	To be reported in 2014–15.

The following pages provide more detailed reports of performance in the major objectives set out in the Portfolio Budget Statements and our financial performance.

4 Indicator applicable from March 2014.

1 Independent 'no-blame' investigations of transport accidents and other safety occurrences

Performance

This section describes the ATSB's performance against the deliverables set out for Program 1.1 in 2013–14, as published on page 133 of the Portfolio Budget Statements, which relate to the ATSB's role as the independent 'no blame' investigator.

Deliverables

- We will assess, classify and publish summaries of accident and incident occurrences that we receive.
- We will assess confidential reports for clarity, completeness and significance for transport safety and, where appropriate, advise any responsible party in a position to take safety action in response to the safety concern.
- We will complete and publish safety investigations.
- We will ensure that we are prepared for a major accident by reviewing and testing our major accident response and management capabilities.
- We will lead the sub-surface search for Malaysia Airlines Flight 370 over an area of up to 60,000 square kilometres.

Aviation investigations

In 2013–14, the ATSB initiated 55 complex safety investigations from 15,902 accident and incident notifications received (of these notifications, 8,486 were classified as aviation occurrences). Of those, four investigations were downgraded and continued as Short Investigations.

Forty-four complex investigations were completed during the period (comprised of 32 occurrence investigations and 12 external investigations). Twenty of the 44 investigations were completed within 12 months.

At 30 June 2014, there were 74 ongoing complex aviation investigations.

Marine investigations

In 2013–14, the ATSB initiated eight complex marine transport safety investigations from a total of 152 accident and incident occurrences. Seven complex investigations were completed in this time period (all seven were occurrence investigations), four of which were completed within 12 months.

At 30 June 2014, the Marine Investigation team was continuing to investigate five marine occurrences.

Rail investigations

In 2013–14, the ATSB initiated 17 complex rail safety investigations.

The ATSB completed 16 complex rail investigations in 2013–14. Nine of the 16 investigations were completed within 12 months.

As of 30 June 2014, the ATSB was continuing to investigate 23 complex rail safety occurrences.

Short investigations

In 2013–14, the ATSB initiated 149 short investigations, 143 in aviation, two in marine, and four in rail.

During the financial year, 120 aviation short occurrence investigations were completed (69 within two months), three rail short occurrence investigations were completed and one marine.

Reporting

The ATSB's target for assessing, classifying and publishing summaries of accident and incident occurrences is one day for occurrences being investigated, and five days for summaries of other incidents to be published.

For 214 occurrences investigated, 164 (77 per cent) were processed and a summary was placed on the ATSB website within one working day of the start of the investigation.

In the 2013–14 year, only about five per cent of aviation occurrence notifications were being processed ready for publication within five working days. The median time was 24 working days. This was a result of a reduction in staffing levels within the Notifications team.

Confidential reporting

In 2013–14 the ATSB Confidential Reporting Scheme (REPCON) received 104 notifications (of which, 60 were classified as REPCONs), 85 concerning aviation (43 REPCONS), 15 concerning rail (14 REPCONS), and four concerning marine (three REPCONs).

The following are some examples of safety concerns that were raised, and the safety action taken after reporting safety concerns through REPCON:

Aviation:

- The reporter expressed a safety concern about the procedure used by Airservices Australia (Airservices) to alert flight crews to Hazard Alerts, which are released after a flight has departed. As a result of this report, Airservices published a National Information Circular to all controllers, reminding them of their obligations in the provision of flight information service (FIS) to pilots, including the provision of Hazard alerts.

- The reporter expressed a safety concern that the new KEVIE 1A standard arrival route (STAR) procedure for arrivals into Brisbane will force aircraft to 'dive and drive' to make the height requirement, with typical rates of descent for turbine aircraft being around 2,000 ft/min. This potentially leaves aircraft with approximately one minute to the ground should they descend below the assigned altitude. The reporter was also concerned that the turbulence produced by the mountains at these low levels could potentially result in injuries or damage to aircraft. As a result of this report, the reporter's concern was discussed at the post implementation review (PIR) of recent changes to Brisbane Basin airspace. The PIR confirmed that the KEVIE 1A STAR procedure was designed in accordance with the required terrain and obstacle clearance standards. In addition, Airservices clarified with industry that the level restrictions in the procedure were primarily for separation assurance and segregation of aircraft considerations. Operators who have flown the STAR stated the fly-ability issues were due to the non-profile descent pushing aircraft low in a more turbulence affected airspace. Agreement was reached to manage the situation tactically via pilot and air traffic control techniques and procedures.

Marine:

- The reporter expressed a safety concern about the design of the instruments used to control the ship's direction and speed. As a result of this report, the Australian Maritime Safety Authority (AMSA) advised that they would correspond with the vessel's Flag State Administration to outline the particular concerns raised, and the possible areas of statutory non-compliance. AMSA will examine other issues as part of a Port State Control inspection when the vessel is available for inspection in an Australian port.

Rail:

- The reporter expressed a safety concern about the maintenance and repair being conducted, on safety critical components of the operator's locomotives by unqualified contractors. As a result of this report, the Office of the National Rail Safety Regulator (ONRSR) raised four non-conformances with the operator, all of which related to the issue of 'rail safety worker competence'. The maintenance contractor undertook to analyse its current maintenance tasks against the original equipment manufacturer's maintenance tasks and, using this information, establish a training needs analysis. This will be used to confirm the current competence of the maintenance staff, and to identify any possible areas for improvement.
- The reporter expressed a safety concern about the safety of road/rail workers working in an electrified environment, with no isolation of the power. As a result of this report, the regulator found that the operator had issued electrical permits in advance by email and before the overhead lines were de-energised. It was also established that electrical permits were issued without a suitably qualified person first undertaking a check of the work site and plant equipment to be used, which is in contravention of the authorised safety instructions. The operator has taken proactive action and issued an instruction for its road/rail workers to adhere to the access request timeframe; to only allow electrical permits to be issued in person on site; and to only issue electrical permits that are personally authorised by a senior manager with an electrical engineering background.

Technical analysis

The ATSB's Technical Analysis Team undertook a diverse range of investigation and technical support tasks across all transport modes during the year. The following specialist investigations provide examples of the year's activity:

AO-2011-115 Flight control system event involving Cessna 210N, VH-JHF—this investigation was commenced following reports of aircraft controllability problems, stemming from a structural failure within the aircraft's horizontal stabiliser. The investigation revealed that some class-B aircraft registration holders were misinterpreting regulatory requirements around the adoption of ageing aircraft inspections. Safety action by the Civil Aviation Safety Authority (CASA) included the publication of targeted airworthiness bulletins, and a series of discussion papers examining options for the reform of maintenance-related regulations.

AO-2011-135 Embrittled nut and related failures, Robinson R22 Beta helicopter VH-JNP—the focus of this investigation was the in-service failure of small, high-strength nuts fitted to the helicopter. The nut failures had the potential to result in loss of control or power. The investigation identified the embrittlement-failure of multiple nuts within the main rotor drive system. These failures stemmed from improper nut manufacturing procedures. This significant, fleet-wide airworthiness issue led to numerous corrective actions by the nut manufacturer, together with the publication of a CASA airworthiness bulletin to bring attention to the issue.

External Agency Assistance—throughout the year, the Technical Analysis team undertook a significant number of focused investigations into various technical failures, or performed data recovery exercises, in support of investigations by other domestic or regional international agencies. Domestically, agencies assisted included Recreational Aviation Australia, the Australian Sports Rotorcraft Association, CASA and the New South Wales Office of Transport Safety Investigation and Police Service. Internationally, assistance was provided to the Ministry of Transport Malaysia, the Myanmar Accident/Incident Investigation Bureau, the National Transportation Safety Committee of Indonesia, the Transport Accident Investigation Commission of New Zealand, and the Accident Investigation Commission of Papua New Guinea.

The ATSB Technical Analysis unit continued its program of equipment review and made several strategic capital acquisitions during the year. These were targeted at maintaining and enhancing our capability, reducing maintenance liabilities and improving reliability/availability standards. A key replacement was the engineering laboratory's metallurgical microscope. A modern unit capable of advanced image acquisition and processing replaced an over 20-year old instrument. In a similar vein, materiallographic specimen-mounting equipment was renewed, deferring significant maintenance costs into the future.

Technology continues to advance in respect of aircraft flight recording systems. With the introduction of several new aircraft types into Australian revenue service, the ATSB has invested in new suites of equipment necessary to download the new-generations of flight data recorders that are being fitted to these aircraft. Maintaining support for the direct, and immediate download, and recovery of data from the range of recorder types fitted to Australian aircraft, rail vehicles and internationally-operating ships underpins the ATSB's preparation for, and readiness to respond to, the demands of a major incident or accident.

Preparedness for a major accident

The ATSB continues to prepare for a major accident. During the financial year the ATSB reviewed the Major Investigation Response Policy and Procedures and provided draft documents to managers for comments.

In March 2014, the ATSB appointed an Accredited Representative and several technical advisors (ATSB investigators) to the Malaysian investigation into the loss of Malaysia Airlines Flight 370. This experience provided ATSB investigators with an opportunity to participate in a major international investigation at the highest level. This included participation in investigation team activities, as well as involvement in underwater search activities. Three ATSB investigators were deployed aboard the Australian Defence Vessel *Ocean Shield* while conducting Towed Pinger Locator and Autonomous Underwater Vehicle operations.

The ATSB also took the opportunity to send investigators to observe the investigation of major accidents in the US (collision with terrain at San Francisco Airport on 6 July 2013 involving an Asiana Boeing 777) and in Canada (the major rail accident involving a freight train at Lac-Megantic, Quebec, Canada on 7 July 2013).

Implementing the ATSB's expanded role in rail

Since the ATSB became Australia's national safety investigator on 20 January 2013, a number of changes have been introduced to continue the implementation of the COAG transport reform agenda, including:

- The ATSB has partnered with NSW and Victorian investigation agencies to share resources to investigate rail incidents in those states. A collaboration agreement was introduced to formalise the arrangements. Over 25 investigations are either still active or have been completed under this agreement. The agreement has been reviewed regularly and is working well.
- NSW changed to the national regulatory and occurrence reporting system on 20 January 2013 (as did Tasmania, South Australia and the Territories) but Victoria delayed until 19 March 2014, after they had adopted the Rail National Safety Law (RNSL). Western Australia and Queensland are yet to join the system, but the process is underway to allow the changes in those states. Western Australia is progressing to adopt the RNSL, and indications are that they may join the system towards the end of 2014. Queensland is expected to join after that. This will allow the consolidation of all occurrence reporting, and will allow ATSB to work with the new National Rail Safety Regulator (NRSR) in the use of this new source of national safety information.
- ATSB safety investigations are continuing to be initiated in Tasmania and South Australia under agreed charging arrangements. Investigations in both states have been undertaken with these arrangements and have worked well.
- A new voluntary, confidential reporting scheme for safety concerns, beyond those which operators are required to report, has been introduced by ATSB as part of the national system. This Confidential Reporting Scheme (REPCON) also has effect in the aviation and marine modes.
- The delayed and staggered introduction of the RNSL, and hence, the intergovernmental charging agreements with various states, have caused some funding shortfalls for the ATSB. The ATSB increased its staffing levels in accordance with the inter-governmental rail agreement to meet the expected ongoing investigation requirements; however, the implementation delays resulted in a significant funding imbalance—leaving the ATSB short.

The search for Malaysia Airlines Flight 370 (MH370)

On 8 March, 2014, Malaysia Airlines Flight 370 (MH370), a Boeing 777-200ER was travelling on a scheduled international passenger flight from Kuala Lumpur to Beijing, with 239 people on board—comprising 12 Malaysian crew members and 227 passengers. Six of the passengers were Australian citizens.

During a transition of airspace between Malaysia and Vietnam, the aircraft, for unknown reasons, lost contact with Air Traffic Control, and also disappeared from the air traffic control secondary surveillance radar display. A short time earlier, the aircraft had also stopped communicating via its Aircraft Communication and Reporting System (ACARS). It was later determined, through review of primary radar data, that after disappearing from the secondary radar display, the aircraft turned around and flew over the Malaysian Peninsular heading in a north westerly direction through the Malacca Strait. The aircraft was last observed on primary radar above the northern tip of Sumatra. Following this last observation, an international search for the aircraft commenced.

Analysis of radar data, and subsequent satellite communication (SATCOM) system signalling messages, placed the aircraft in the Australian search and rescue zone somewhere along an arc in the southern part of the Indian Ocean. This arc was considered to represent the location where the aircraft's fuel was exhausted and has formed the continued focus of the search efforts.

The Flight Path Reconstruction Group

After MH370 disappeared from primary radar, the only indicators as to the aircraft's route were seven signals, or 'handshakes' plus two unanswered phone calls between a satellite ground station and the aircraft's SATCOM equipment, via a satellite over the Indian Ocean operated by Inmarsat. These signals were satellite communications information not primarily intended for aircraft tracking or navigation purposes. However, it has proved possible to gain some information about the aircraft's position and heading by examining the timing and frequency characteristics of the signals.

A flight path reconstruction group was convened, comprising representatives from the accident investigation agencies: Air Accident Investigation Branch of the United Kingdom (AAIB), Australian Transport Safety Bureau (ATSB), and the National Transportation Safety Board of the United States (NTSB), along with technical advisers including Inmarsat, Thales, Boeing, Malaysia's Department of Civil Aviation, and Australia's Defence Science and Technology Organisation (DSTO).

Working both independently and collaboratively, the group undertook analysis on the satellite communication information. Other information regarding the performance and operation of the aircraft was also taken into consideration in the analysis.

The surface search

A surface search of probable impact areas along the arc, coordinated by the Australian Maritime Safety Authority, was carried out from 18 March to 28 April 2014. This search effort was undertaken by an international fleet of aircraft and ships, with the search areas over this time progressing generally from an initial southwest location along the arc in a north-easterly direction. The locations of the search areas were guided by continuing, and innovative, analysis by a Joint Investigation Team incorporating a satellite communications sub-group, located in Malaysia, of

the flight and satellite-communications data. This information was relayed to a search strategy working group in Canberra comprising of three ATSB investigators, an NTSB investigator and AMSA staff.

Although the process of narrowing down the possibilities would take months, the surface search was driven by the need for urgency—not only the hope of finding survivors or floating wreckage, but the limited life of the batteries powering underwater locator beacons (ULBs) attached to the aircraft's flight recorders. The ULBs had a minimum operating life of 30 days, and it was recognised that, while they might remain detectable for a time after that, they would be increasingly difficult to detect. The surface search effort was based on information that represented the best insight at the time, but that information was, crucially, the result of a process that was in a state of development and refinement.

ATSB representatives were also a part of the on-site search effort, with a team of three investigators spending six weeks aboard the Australian Defence Vessel *Ocean Shield*. *Ocean Shield* was equipped with a towed 'pinger' locator, and was tasked with conducting an acoustic search for any signals from MH370's flight recorder ULBs. The ATSB investigators were present to assist with the identification of any debris, to act as liaison with the search strategy working group and to provide flight recorder retrieval expertise.

No debris associated with MH370 was identified either during the surface search, the acoustic search or from the ocean floor search in the vicinity of some acoustic detections that were thought at the time to have potentially come from the aircraft's flight recorder ULBs. The ocean floor search was completed on 28 May 2014.

The Joint Agency Coordination Centre (JACC)

On 31 March, coordination of the Australian Government's support for the search for MH370 was taken over by the Joint Agency Coordination Centre, (JACC). The JACC is a specifically formed agency, originally based in Perth before moving to Canberra. Representatives of the ATSB worked in JACC's Perth offices and assisted with coordination activities.

Accredited representative

Under Annex 13 to the Convention on International Civil Aviation *Aircraft Accident and Incident Investigation* (Annex 13), Malaysia, as the State of registry, has investigative responsibility for the accident.

In response to a request from the Malaysian Government to the Australian Government for assistance, and in accordance with paragraphs 5.23 and 5.24 of Annex 13, on 3 April 2014, the ATSB appointed an accredited representative to the Malaysian investigation. A number of advisors to the accredited representative (ATSB investigators) were also appointed. The investigators' work is being undertaken as part of an External Investigation under the provisions of the Australian *Transport Safety Investigation Act 2003*.

A total of five ATSB investigators (acting in the role of accredited representative and advisers) have spent time in Malaysia, providing assistance to the Malaysian investigation.

Underwater search

After the end of the initial surface search effort, the flight path reconstruction group continued to analyse both the flight and satellite data. They were able to reach a consensus in identifying an initial priority underwater search area for the next phase of the search. The ATSB published the report, *MH370—Definition of Underwater Search Areas*, describing the methods and means used to identify the high-priority search area. Work continued, with refinements in the analysis of the satellite communications data, with the understanding that the ongoing work could result in changes to the prioritisation and locale of search activity.

The next phase of the search is being coordinated by the ATSB. The Australian Government has provided funding of $60 million, appropriated over two financial years, 2013–14 and 2014–15, to conduct the underwater search and to assist Malaysia in its investigation. The underwater search consists of three elements:

- definition of the 60,000km2 search area from the work undertaken by the Search Strategy Working Group
- a bathymetric survey (survey) to provide a detailed map of the seafloor topography of the defined underwater search area
- a thorough search of the sea floor using sonar equipped deep water vehicles and visual imaging for positive identification of MH370 and mapping the debris field.

Geoscience Australia provided advice to the ATSB on the procurement, technology and planning requirements for the bathymetric survey, and continued to provide expertise and support throughout the survey.

The survey of the defined search area commenced in June 2014 with two vessels—the Chinese PLA-Navy ship *Zhu Kezhen* and the ATSB contracted survey vessel *MV Fugro Equator*. The survey was coordinated by the ATSB with survey data analysed by Geoscience Australia.

In June, the ATSB, through AusTender, issued a request for tender for the underwater search of the sea floor. There were a number of qualifying tenders received by the closing date of 30 June 2014. The tender submissions were comprehensively evaluated for technical merit and value for money, during July and August 2014. The process resulted in a contract being awarded to Fugro Survey Pty Ltd, on 7 August 2014, for the underwater search to commence at the end of September 2014.

The ATSB is coordinating all activities and assets associated with the underwater search, including the Fugro vessels and search vessels proved by the Malaysian Government.

2 Safety data recording, analysis and research

The ATSB is funded to record data and conduct analysis and research into aviation matters. This section describes the ATSB's performance against the deliverable set out in page 135 of the Portfolio Budget Statements.

- We will undertake research and analysis investigations based on safety priorities and trends.

Number of selective research and analysis investigations based on safety priorities and trends

The ATSB completed seven research reports and sent three quarterly trend reports to industry during 2013–14.

In 2013–14, the ATSB continued to analyse occurrence data held in its aviation safety occurrence database as part of Australia's international obligations to determine if preventative safety measures are required.

Loss of separation between aircraft in Australian airspace (AR-2012-034)

This significant ATSB research investigation reviewed loss of separation (LOS) incidents in Australian airspace between January 2008 and June 2012. It found that although there had been an increase in the number of occurrences reported to the ATSB over the two years ending June 2012, there were fewer LOS occurrences during that period than during 2005 to 2008. Traffic levels have generally increased during the same period.

A LOS between aircraft under air traffic control jurisdiction happens on average about once every three days. In almost 90 per cent of LOS occurrences, there was no or minimal risk of aircraft colliding. On average, however, there were six occurrences per year where there was an elevated risk of collision.

The investigation found that military-controlled terminal area airspace in general, and all airspace around Darwin and Williamtown, in particular, had a disproportionate rate of LOS involving civilian aircraft. Most of these were contributed to by air traffic controller actions. This may be a result of the nature of aircraft operations and airspace constraints at some military airports, leading to reduced use and effectiveness of strategic separation defences, thereby placing more responsibility for separating aircraft directly onto the controllers. Furthermore, as military air traffic services (ATS) are not subject to safety oversight by the Civil Aviation Safety Authority (CASA), there is no independent assessment and assurance as to the safety of civilian aircraft operations at military airports.

In civil airspace, LOS occurrences attributable to pilot actions are not monitored as a measure of airspace safety, nor actively investigated for insight into possible improvements to the provision of ATS. As about half of all LOS incidents are a result of pilot actions, not all of the available LOS data is being used to assure the safety of civilian airspace.

As a result of this research investigation, the ATSB issued safety recommendations to the Department of Defence that it review all processes and controls in place for aircraft separation in military-controlled airspace, and to CASA to review whether its current level of involvement with military ATS is sufficient to assure the safety of civil aircraft operations in that airspace. This has led to a joint CASA-Defence safety study of the provision by the military of ATS at RAAF Base Williamtown.

Subsequent to the completion of the Williamtown study (scheduled for late 2014), the ATSB will seek CASA's advice as to whether it considers the current level of oversight by CASA of civilian operations, while under military control, is adequate. A further recommendation was issued to CASA that, in consultation with Airservices Australia and major passenger aircraft operators, action should be taken to ensure the use of all available information to assure the safety of civilian airspace. This included actively gathering/monitoring the contributing factors for LOS incidents attributable to pilot actions, to supplement the current focus on air traffic services-attributable occurrences. This recommendation has been accepted by CASA and closed.

An analysis of fumes and smoke events in Australian aviation (AR-2013-213)

This joint ATSB-CASA research examined the nature and impact of aviation incidents involving fumes and smoke. This report also addresses a 2011 report on Aircraft Air Quality by an Expert Panel commissioned by CASA. The report recommends that that aviation safety agencies work together to provide a comprehensive study of cabin air contamination incidents.

There were over 1,000 fumes/smoke events reported to the ATSB and CASA over the five-year period that was examined as part of this research effort. From a flight safety perspective, most were found to be minor in consequence. There was a single flight crew incapacitation event and a further 11 minor injury events to crew. In the higher risk occurrences, precautionary defences (most commonly diversions) were effective in avoiding an escalation of the event.

The most common source of fumes/smoke was a technical issue with the affected aircraft's systems, primarily relating to failure or malfunction of electrical and auxiliary power unit (APU) systems. Equipment and furnishings also featured highly as a source of fumes and smoke. Within this category, air conditioning and galley equipment were the most common sources. External sources of fumes/smoke and cargo/baggage-related events were relatively rare. The matching of CASA and ATSB data records provided valuable information on the issue of fumes/smoke, which enabled visibility of occurrences from both an engineering and operational perspective.

Avoidable Accidents

The ATSB continued its aviation Avoidable Accidents series with the publication of *Visual flight at night accidents: what you can't see can still hurt you (AR-2012-122)*. These highly regarded booklets use accident case studies to educate pilots about common accidents and how to avoid them. This booklet was issued in response to a continuing trend of fatal accidents, due to flying at night, over the past 20 years. The booklet highlights the extra risks inherent in visual flight at night from reduced visual cues and the increased likelihood of perceptual illusions and consequent risk of spatial disorientation. Advice is included on how these dangers can be managed effectively and on suitable strategies to reduce risk.

Occurrence statistics

Each year, the ATSB produces Australia's official *Aviation occurrence statistics* detailing accidents and incidents across the preceding 10–year period. The 2014 version (published in September 2014) has a greater emphasis on recreational aviation occurrences (AR-2014-084).

In addition, a report on Australian shipping occurrence statistics is produced biennially. The last version of this report was produced in 2013 (MR-2013-002).

3 Fostering safety awareness, knowledge and action

The ATSB is funded for activities relating to its responsibilities for increasing awareness of safety issues and complying with international safety obligations. This section describes the ATSB's performance against the deliverable set out in pages 135–136 of the Portfolio Budget Statements.

- We will publish and deliver an annual program of safety communication and awareness.
- We will assist regional transport safety through participation in the Indonesia Transport Safety Assistance (ITSAP) and cooperation with Papua New Guinea consistent with the *Memorandum of Understanding of Cooperation in the Transport Sector.*

Strategic communication

A major part of our role as Australia's national transport safety investigator is to communicate the safety lessons from our investigation findings, research activity and occurrence reports. This information has valuable safety messages that can help improve transport safety and ultimately save lives.

In 2013–14 we continued to highlight, for the benefit of industry and the travelling public, emerging safety issues and trends using a range of communication channels and activities.

SafetyWatch

In 2013–14, the ATSB updated its *SafetyWatch* initiative. *SafetyWatch* highlights the broad safety concerns identified from our investigations and from the occurrence data reported to us by industry. It was pleasing to be able to remove the concern over the R44 helicopter fuel tanks from the list following industry compliance with the deadline for the replacement of the original rigid tanks with the manufacturer's crash-resistant bladder-type tanks. *Flying with reduced visual cues* has been added as a new safety concern following the release of the Avoidable Accidents booklet *Visual flight at night accidents: what you can't see can still hurt you (AR-2012-122).*

The initiative includes the priority areas where more can be done to improve safety. These include:

- general aviation pilots
- safety around non-controlled aerodromes
- data input errors
- handling approach to land
- flying with reduced visual cues
- safe work on rail
- maritime pilotage
- under-reporting of occurrences
- marine work practices.

Throughout the year, the ATSB undertook a range of communication activities (direct mail, web news items, social media and general media) to raise awareness of these issues within the transport industry. Promoting *SafetyWatch* will continue to be a major priority in 2014–15.

Social media

The ATSB continued to embrace social media as a way to better engage the transport industry, media and the travelling public. The ATSB continues to use Twitter as part of an integrated communications approach. Twitter has proven to be particularly effective when we release reports and investigation updates. Through this social media platform, we can provide a short safety message along with a link to more information on our website.

By the end of June 2014, the ATSB's 'followers' had doubled in the space of the year to around 3,000. These include journalists, members of the public and transport industry specialists.

InFocus

The Chief Commissioner's blogsite, InFocus, continued to be used as an online transport safety forum in 2013–14. Over the year, the Chief Commissioner posted topics on:

- the ATSB's investigation into QF32
- rail safety
- the role of communications in investigations
- night-flight risks
- the search for Malaysia Airlines Flight 370.

Media

The ATSB undertakes responsive and proactive media activity to inform the transport industry and general public of our investigations and activities. During the year, we worked closely with local, national, state and territory media to raise community awareness of transport safety.

In 2013–14, we issued 11 media releases highlighting safety advice and updates from our investigations. The media releases covered a range of safety matters including:

- the Canadian Transport Safety Board's benchmark review into the ATSB's investigation processes and methodologies
- the ATSB's promotion of worker safety during Rail Safety Week
- safety risks surrounding non-controlled aerodromes
- the ATSB's report into aircraft separation risk in Australia
- a night-flight warning to pilots
- the search for Malaysia Airlines Flight 370.

The ATSB also regularly contributed articles to key industry publications including:

- *Flight Safety Australia*
- *Australian Flying*
- *Shipping Australia*
- *RAAA News*
- *Airnews.*

Website

The ATSB website (www.atsb.gov.au) continues to be our principal communication channel. In 2013–14, the ATSB website received 2,470,378 page views. This represents a significant increase of 21 per cent from the previous financial year of 2,032,827 page views.

Mobile friendly

In 2013–14, we revamped the website to make it more 'mobile friendly'. Using responsive web design, the revamped website provides users with much better access to information, particularly from their mobile devices such as smartphones and tablets. Significantly, tablet and mobile phone usage increased by around 95 per cent on the previous year from 47,267 in 2012–13 to 92,408 in 2013–14.

The substantial increase in site visits is partly a result of our continuing emphasis on promoting transport safety, as well as our efforts to revamp the ATSB website. It was also particularly pleasing to be recognised with a 'Highly Commended' in the Institute of Public Administration Australia's Annual Report awards for the online presentation of our Annual Report 2012–13.

Safety issues

We are continually working to improve our website to meet audience needs and to allow for new and emerging technologies. In 2013–14 we increased the site's focus on safety issues and will continue to enhance this feature next year. This will make it easier for users to search for, and find, a transport safety issue and the corresponding proactive safety action, safety advisory notice or safety recommendation.

Online aviation occurrence database

We also launched our online aviation occurrence database. The *ATSB National Aviation Occurrence Database* contains de-identified information on aviation accidents and incidents in a searchable format. The database has been designed to fulfil the most common requests received by the ATSB—this includes date range, aircraft and operation type, injury level, occurrence category and type, location, and airspace type and class, which allows users to search aviation occurrence statistics from the ATSB website.

REPCON

In 2013–14 the ATSB launched the Confidential Reporting (REPCON) web page—a new page on the ATSB website featuring de-identified confidential reports on aviation, maritime and rail safety concerns.

The ATSB's confidential reporting scheme, REPCON allows people with safety concerns to report them confidentially to the ATSB without fear of being identified. These confidential reports often contain valuable information that can help industry address unsafe procedures, practices or conditions. Because many important safety concerns are reported to the ATSB through REPCON, it is vital that all of industry is aware of, and can learn from, the reported concerns. To enhance awareness of these safety concerns and potentially broaden organisations' responses to their identification by the reporter, the ATSB is making this information available through the publication of de-identified confidential reports on its website.

The published information includes details about the reported safety concerns, as well as responses and safety actions taken by relevant organisations or government agencies about the concern.

Industry engagement

In 2013–14, the ATSB delivered key safety messages to industry stakeholders through its targeted and coordinated Industry Engagement Program. The program comprised the industry events in which the ATSB participated, presented at and/or contributed to, amounting to more than 40 major events with stakeholders—within Australia and overseas—from the aviation, maritime and rail industries.

Several of these events included the ATSB's *SafetyWatch* roadshow, where ATSB investigators and specialists presented on the key safety priorities to participants at aero clubs and flight schools.

Regional cooperation

The importance of international cooperation in aviation safety investigation is compellingly demonstrated in the case of missing Malaysia Airlines Flight 370. At the request of the Malaysian Government, Australia is leading the search for MH370.

The ATSB continued an active program of regional engagement with other transport safety agencies, over and above that required by its international obligations. Australia's reputation for high quality and rigorous investigations makes it uniquely placed to assist transport safety in the Asia-Pacific region. In particular, the ATSB has an ongoing involvement in the Australian Government Indonesia Transport Safety Assistance Package (ITSAP) and cooperation with Papua New Guinea (PNG) consistent with the *Memorandum of Understanding on Cooperation in the Transport Sector.*

Many countries do not have a well-developed capability to investigate accidents and serious incidents. In this situation, the ATSB believes that the establishment of a regional accident investigation organisation, or the creation of a regional pool of qualified investigators, may be the best way to establish an effective accident and incident investigation and prevention system. Australia will pursue opportunities in this regard in the Asia-Pacific region, including taking a leading role in the ICAO Asia-Pacific Accident Investigation Group (APAC AIG) and the Marine Accident Investigations Forum in Asia (MAIFA).

Indonesia

The ATSB and the Indonesian National Transportation Safety Committee (NTSC) collaborated on a range of ITSAP activities in 2013–14. The very successful cooperation between the ATSB and NTSC aviation flight recorder laboratories was extended to cover marine data recorders. Activities included a 'train-the-trainer' project to develop a *Fundamentals of Marine Electronic Data (FMED)* course that was successfully delivered to NTSC staff and Indonesian marine industry participants in Jakarta and Surabaya. An NTSC *Aircraft Accident Investigation Fundamentals* (AAIF) course that was previously developed under the ITSAP program, was successfully delivered in Jakarta to NTSC and Indonesian aviation industry participants.

An NTSC trainee aviation safety investigator completed a three-month placement at the ATSB, providing him with a basic awareness of transport safety investigation principles and practices. An NTSC aviation recorder specialist undertook a month long placement at the ATSB for a program of on-the-job training and practical assistance related to recorder work for NTSC aviation investigations.

Papua New Guinea

Under the PNG *Memorandum of Understanding on Cooperation in the Transport Sector*, the ATSB has an ongoing program of cooperation and capability building with the PNG Accident Investigation Commission (AIC). An ATSB Senior Transport Safety Investigator (STSI) is deployed full-time to the AIC in Port Moresby, to assist PNG in developing the capability to meet the international requirements for aviation safety investigation. Ongoing guidance and mentoring of PNG AIC investigators by the ATSB STSI included work in support of the AIC investigation into the crash of an Airlines of PNG Dash-8 aircraft near Madang in October 2011. The AIC report of that investigation was publicly released in June 2014.

Training was provided to AIC investigators and PNG aviation industry participants in ICAO *Aircraft Accident Report Writing* and *On-Site Safety and Blood-Borne Pathogens Awareness.*

Other regional engagement activities

The ATSB continued to make its expertise and resources more widely available in support of regional transport safety. In this respect, representatives from the transport safety investigation agencies of the United Kingdom, New Zealand, Sweden, Finland, China, Korea, and Hong Kong visited the ATSB for discussions related to transport safety. In addition, participants from New Zealand, Singapore, the United Arab Emirates, Taiwan, Korea, Hong Kong, Bangladesh and Cambodia attended ATSB investigator training courses.

FEATURE – A SUCCESSFUL PLACEMENT AT ATSB

Ronald Asmuruf is an officer with the Aviation Sub Committee of the Indonesian National Transportation Safety Committee (NTSC), the counterpart agency to the ATSB. Ronald comes from the Indonesian Province of West Papua.

From April to June 2014, Ronald successfully completed a three-month placement at the ATSB, supported by the Indonesia Transport Safety Assistance Package (ITSAP).

Figure 1: Indonesian National Transport Safety Commission Officer, Ronald Asmuruf

During his placement, Ronald was based in the ATSB Short Investigations section. This exposed him to a range of investigation activities including the decision to investigate, interviewing, obtaining documentation, report writing, and developing safety messages. Ronald also spent time with the ATSB's Technical Analysis and Reporting and Analysis sections, as well as visiting the ATSB's Brisbane Field Office.

During his time at the ATSB, Ronald had significant involvement in a number of investigations, including prime carriage of the investigation into an aircraft landing on a closed runway (AO-2014-069). That investigation report is included in the ATSB Aviation Short Investigations Bulletin Issue 33 (AB-2014-115 of 6 August 2014).

Since returning to the NTSC, Ronald has applied the knowledge and skills he acquired during his time at the ATSB.

Placement at the ATSB provides NTSC staff with the opportunity to develop and assimilate an approach to transport safety investigation that emphasises the importance of systemic and organisational factors. This will likely influence their approach to transport safety throughout their career.

Figure 2: ATSB Aviation Short Investigations Bulletin Issue 33 (AB-2014-115, 6 August 2014)

4 Financial performance

This section should be read in conjunction with the ATSB's audited financial statements for 2013–14 that appear in the Financial Statements section of the Annual Report.

The ATSB operates as a separate FMA Agency, having been established on 1 July 2009. The main assets of the ATSB were transferred from the (then) Department of Infrastructure and Regional Development and include plant and equipment, including specialised laboratory assets and intangible software assets.

During 2013–14 the ATSB received additional appropriation revenue to assist the agency with the implementation of their budget sustainability strategy, and also additional funding in relation to the search for missing Malaysia Airlines Flight MH370.

The Government no longer provides appropriation funding to cover non-cash expenses of depreciation and amortisation to FMA Agencies. In the absence of revenue for depreciation and amortisation, the ATSB and other FMA agencies are more likely to deliver a negative operating result or deficit, and these will accumulate. Offsetting this build-up of retained deficits requires a commitment by the Government to provide annual capital injections to meet new capital requirements.

The ATSB's new capital requirements are detailed in its Departmental Capital Budget published in the 2013–14 Portfolio Budget Statements. Over time, the ATSB's estimated capital injections fall short of the deficits associated with the non-funding of depreciation and amortisation. Without adequate capital injections by Government, this presents a challenge to the ATSB in maintaining its underlying equity and asset capability going forward.

The ATSB recorded a surplus of $5.6 million for 2013–14, compared to a deficit of $1.2 million in 2012–13. Excluding depreciation and amortisation, the ATSB realised an underlying surplus of $7.3 million which compares to a $310,000 surplus in 2012–13. The main factor contributing to the large operating surplus for 2013–14 is the timing difference between additional funding being received in relation to the search for missing Malaysia Airlines Flight MH370 and the related expenditure for the project. The delayed expenditure for this project will occur during 2014–15.

Table 2: Summary of financial performance and position

		2013–14 $M	2012–13 $M
Revenue from Government		31.3	21.8
Other revenue		3.3	1.8
Total income		34.6	23.6
Employee expenses		16.9	16.0
Supplier expenses		10.6	7.3
Depreciation and amortisation		1.5	1.5
Total expenses		29.0	24.8
Operating surplus/(deficit)		5.6	(1.2)
Financial assets	A	16.7	8.2
Non-financial assets	B	2.6	3.9
Liabilities	C	5.8	5.8
Net Assets - A + B – C		13.5	6.3


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SIGNIFICANT SAFETY INVESTIGATIONS

4

Significant safety investigations **49**

Aviation investigations 50

Marine investigations 54

Rail investigations 59

Significant safety investigations

This section of the Annual Report fulfils the requirement, contained in section 63A of the TSI Act, that the Commissioner report to the Minister describing investigations conducted during the financial year that the Chief Commissioner considers raises significant issues about safety.

Aviation investigations

Flying with reduced visual cues

Three significant investigations finalised during the year have focused on the particular problems of flying with little or no visibility. Following these investigations, the ATSB has made recommendations to CASA to clarify its guidance on flying at night or in conditions of poor visibility.

VFR flight into dark night involving Aérospatiale, AS355F2 (Twin Squirrel) helicopter, registered VH-NTV, 145 km north of Marree, South Australia on 18 August 2011

On 18 August 2011, an Aérospatiale AS355F2 (Twin Squirrel) helicopter, registered VH-NTV, was being operated under the visual flight rules (VFR) in an area east of Lake Eyre, South Australia. At about 1900 Central Standard Time, the pilot departed an island in the Cooper Creek inlet with two passengers on board for a 30-minute flight to a station for a planned overnight stay. It was after last light and, although there was no low cloud or rain, it was a dark night.

The helicopter levelled at 1,500 ft above mean sea level, and shortly after entered a gentle right turn and then began descending. The turn tightened and the descent rate increased until, 38 seconds after the descent began, the helicopter impacted terrain at high speed with a bank angle of about 90°. The pilot and the two passengers were fatally injured, and the helicopter was destroyed.

The ATSB found that the pilot probably selected an incorrect destination on one, or both, of the helicopter's global positioning system (GPS) units prior to departure. The ATSB concluded that, after initiating the right turn at 1,500 ft, the pilot probably became spatially disoriented. Factors contributing to the disorientation included dark night conditions, high pilot workload associated with establishing the helicopter in cruise flight and probably attempting to correct the fly-to point in a GPS unit, the pilot's limited recent night flying and instrument flying experience, and the helicopter not being equipped with an autopilot.

Although some of the operator's risk controls for the conduct of night VFR were in excess of the regulatory requirements, the operator did not effectively manage the risk associated with operations in dark night conditions. The ATSB also identified safety issues with the existing regulatory requirements in that, flights for some types of operations were permitted under the VFR in dark night conditions that are effectively the same as instrument meteorological conditions, but without the same level of safety assurance that is provided by the requirements for flight under the instrument flight rules (IFR).

The Civil Aviation Safety Authority (CASA) has advised of safety actions in progress to clarify the nature of what is meant by the term 'visibility' in dark night conditions, provide enhanced guidance on night VFR flight planning, and provide enhanced guidance on other aspects of night VFR operations. The ATSB has issued a recommendation to CASA to prioritise its efforts in this area. In addition, CASA advised that it will require that helicopter air transport operations with passengers at night use either a helicopter fitted with an autopilot or a two-pilot crew.

The ATSB advises all operators and pilots considering night flights under the VFR to systematically assess the potential for the flight to encounter dark night conditions by reviewing weather conditions, celestial illumination and available terrain lighting. If there is a likelihood of dark night conditions, the flight should be conducted as an IFR operation, or conducted by a pilot who has an IFR-equivalent level of instrument flying proficiency and in an aircraft that is equipped to a standard similar to that required under the IFR.

VFR flight into dark night conditions and loss of control involving Piper PA-28-180, registered VH-POJ, 31 km north of Horsham Airport, Victoria, 15 August 2011

On 15 August 2011, the pilot of a Piper PA-28-180 Cherokee aircraft, registered VH-POJ, was conducting a private flight transporting two passengers from Essendon to Nhill, Victoria under the visual flight rules (VFR). The flight was arranged by the charity Angel Flight to return the passengers to their home location after medical treatment in Melbourne. Global Positioning System data recovered from the aircraft indicated that when about 52 km from Nhill, the aircraft conducted a series of manoeuvres followed by a descending right turn. The aircraft subsequently impacted the ground at 1820 Eastern Standard Time, fatally injuring the pilot and one of the passengers. The second passenger later died in hospital as a result of complications from injuries sustained in the accident.

The ATSB found that the pilot landed at Bendigo and accessed a weather forecast before continuing towards Nhill. After recommencing the flight, the pilot probably encountered reduced visibility conditions approaching Nhill due to low cloud, rain and diminishing daylight, leading to disorientation, loss of control and impact with terrain. One of the passengers was probably not wearing a seatbelt at the time of the accident.

The ATSB also established that flights are permitted under the visual flight rules at night (night VFR) in conditions where there are no external visual cues for pilots. In addition, pilots conducting such operations are not required to maintain or periodically demonstrate their ability to maintain aircraft control with reference solely to flight instruments.

All operators and pilots considering night VFR flights should assess the likelihood of dark night conditions by reviewing the weather conditions, celestial illumination and available terrain lighting affecting their planned flight. A VFR flight in dark night conditions should only be conducted by a pilot with high instrument flying proficiency as there is a significant risk of losing control if attempting to fly visually in such conditions. Application by pilots of the recommendations in CASA advisory publication CAAP 5.13-2(0) will reduce the risks associated with visual flight at night.

VFR flight into IMC involving de Havilland DH-84 Dragon, registered VH-UXG, 36 km south-west of Gympie, Queensland, 1 October 2012

At about 1107 on 1 October 2012, the pilot-owner of a vintage de Havilland DH-84 Dragon Mk 2, registered VH-UXG, took off on a private flight from Monto to Caboolture, Queensland. On board with the pilot were five passengers, baggage and equipment. The pilot was not qualified and the aircraft not equipped for instrument flight. The weather on the coast, and extending inland, included low clouds and rain.

At 1315, the pilot radioed air traffic control (ATC) and requested navigation assistance, advising that the aircraft was in cloud. Over the next 50 minutes ATC provided assistance to the pilot and a search and rescue (SAR) helicopter was dispatched to the area. From the pilot's radio calls it was apparent that he was unable to navigate clear of the cloud. Radio contact was intermittent and no transmissions from the aircraft were received after 1405. An extensive search was initiated, and the aircraft wreckage was located on 3 October in high terrain. The aircraft was destroyed and there were no survivors.

With no, or limited, visual references available in and near cloud, it would have been very difficult for the pilot to maintain control of the aircraft. After maintaining control in such conditions for about an hour, and being unable to navigate away from the mountain range, the pilot most likely became spatially disoriented and lost control of the aircraft before it impacted the ground.

Due to the limited radio and radar coverage in the area, the ability of ATC and the SAR helicopter to assist was limited. However, the ATSB found that there were areas of potential improvement in the management of in-flight emergencies, and coordination between ATC and SAR aircraft.

Though it remains unclear precisely how the aircraft came to be in instrument conditions, this accident highlights the importance of pre- and in-flight planning and decision-making in limiting exposure to risk. It is important for pilots to incorporate approved weather forecasts, knowledge of the terrain, and diversion options into their flight planning, to plan for contingencies prior to and throughout a flight, and to carry out those plans well before encountering difficulty.

Following these investigations the ATSB has added 'flying with reduced visual cues' to its *SafetyWatch* initiative in order to maintain as strong focus on this important issue.

Other aviation investigations that raised significant issues about safety

Other aviation investigations conducted during the financial year that the Chief Commissioner considers raise significant issues about safety include a weather-related operational event and the in-flight break-up of a PZL Mielec M18A Dromader agricultural aircraft during firebombing. These investigations are discussed in the following sections.

Weather-related operational event involving B737s, registered VH-YIR and VH-VYK, at Mildura Airport, Victoria on 18 June 2013

On the morning of 18 June 2013, a Boeing 737 aircraft, registered VH-YIR and operated by Virgin Australia, was conducting a scheduled passenger service from Brisbane, Queensland to Adelaide, South Australia. On board were six crew members and 85 passengers.

On the same morning, another B737 aircraft, registered VH-VYK and operated by Qantas Airways, was conducting a scheduled passenger service from Sydney, New South Wales, to Adelaide, South Australia. On board were six crew and 146 passengers.

Due to poor weather in Adelaide, both aircraft were forced to divert to an alternate airport (Mildura, Victoria). This airport was also affected by unforecast poor weather (fog) at the time of their arrival. Both aircraft landed safely, but not without difficulty for their crews.

The ATSB commenced an investigation to examine:

- the provision of information to flight crews from air traffic services (ATS)
- ATS policies and procedures affecting the flights
- provision by the operators of information to the respective flight crews
- the basis for the sequencing of the aircraft landings at Mildura
- Bureau of Meteorology meteorological services and products as they applied to these flights
- the accuracy of aviation meteorological products in Australia.

As part of this investigation, the ATSB convened a safety forum on 31 March 2014 involving a number of industry participants. The forum identified several issues, most of which are pertinent to this occurrence, and more widely across the aviation industry. These included:

- differing levels of expectation in relation to the provision of amended meteorological products
- inconsistencies in standard aviation reference documentation in relation to the use of meteorological products
- differing levels of understanding and awareness of the availability of meteorological products, including limitations relating to automated weather broadcast systems
- the effect of international obligations and restrictions on the provision to flight crews of updated weather information
- limitations associated with the staged introduction of new technologies
- the need for a coordinated education program to update and deconstruct many long held beliefs and misconceptions within the aviation industry.

The investigation is continuing, with the majority of the initial evidence collection complete. In addition to its analysis of this initial evidence, the ATSB continues to work with sections of the aviation industry to enhance its understanding of the issues that were identified at the safety forum, and to identify any safety issues.

In addition, as a result of this and other occurrences involving observed but not forecast weather, the ATSB has commenced supporting research investigation AR-2013-200 *Reliability of aviation weather forecasts*. This research investigation will analyse Bureau of Meteorology data across Australian airports, with a focus on those supporting scheduled passenger service operations, and is subject to the availability of long-term data holdings of aviation forecasts and observations.

The research investigation is also continuing, and will:

- examine the accuracy of aviation meteorological products in Australia
- examine the procedures used to provide information to flight crews from air traffic services, and management of changes to those procedures
- examine the provision by the operators of information to the respective flight crews
- examine the relevant recorded data
- review the distribution, dissemination and sharing of operational information to the aviation industry as stipulated by the Civil Aviation Safety Authority, and enacted by Airservices Australia and the Bureau of Meteorology.

In-flight break-up involving PZL Mielec M18A Dromader aircraft, registered VH-TZJ, 37 km west of Ulladulla, New South Wales on 24 October 2013

On 24 October 2013 a PZL-Mielec M18A Dromader aircraft, registered VH-TZJ, was being used for firebombing operations near Ulladulla, New South Wales. While approaching the target point, the left wing separated and the aircraft immediately rolled left and descended, impacting terrain. The aircraft was destroyed by impact forces and the pilot was fatally injured. Preliminary examination indicated that the left outboard wing lower attachment lug had fractured through an area of pre-existing fatigue, cracking in the lug lower ligament.

The ATSB issued an Interim Report in order to highlight a safety issue that had been identified after the release of the Preliminary Report on 2 December 2013. The safety issue identified that operators of some Australian M18 Dromaders, particularly those fitted with turbine engines and enlarged hoppers and those operating under Australian supplemental type certificate SVA521, have probably conducted flights at weights for which airframe life factoring was required but not applied. The report includes a Safety Advisory Notice to M18 operators about this safety issue. The investigation is continuing and is expected to be finalised later in 2014.

The ATSB had previously conducted a safety issue investigation into the operation of the same aircraft at take-off weights above 4,200 kg and reported on its concerns in last year's Annual Report.

Marine investigations

Crew member fatality on board the bulk carrier *Nireas*, at anchor, Gladstone, 20 March 2013 Investigation MO-2013-005

On 20 March 2013, an engineer on board the bulk carrier *Nireas* was carrying out the routine task of draining water from the ship's main air receiver, when the air receiver drainage pot observation window exploded. The engineer was fatally injured by flying debris from the observation window.

Nireas's compressed air system was fitted with a drain line arrangement, in which individual machinery drains were fed into a closed drain line. Each air receiver drain line fed into a separate drainage pot, which then drained into the engine room bilge via a common line. Flow from the drainage pots to the bilge was clear and no valves were fitted in the lines. The main air receiver condensate drainage pots were heavy steel cylinders mounted into the deck, fitted

with a toughened glass observation window clamped to the steel cylinder. This arrangement was a modification, implemented during the building of the ship, at the request of the shipowner's representative.

The ATSB investigation found that the drainage pot observation window glass exploded when it was exposed to the air receiver pressure. This pressure accumulated in the drainage pot because the water being drained restricted the flow into, and through, the pot outlet line.

The investigation also found that the shipyard which built the ship and designed and installed the condensate drain system, considered that the drain system was open to atmosphere. When the design of the drainage pot was modified to create a closed system, the shipyard did not ensure that the design was adequately engineered, tested and approved prior to installation, despite having procedures in place which should have ensured such scrutiny.

During the course of the investigation, it was brought to the ATSB's attention that similar designs of drainage systems had been, and continued to be, fitted in ships by various shipyards around the world.

Following this accident, all similar drainage pot observation window glasses were removed on board *Nireas* and its sister ship. The drainage pots were later modified, under the supervision of Lloyd's Register, to include a partly open steel plate in place of the observation glass.

The ship builder advised the ATSB that it had contacted all owners of ships in which it had fitted this design of drain system. They informed them of the accident and requested that all observation glasses be removed, and for the pots to remain unobstructed.

The Australian Maritime Safety Authority (AMSA) issued Marine Notice 5/2014, to draw industry attention to this accident and requested that appropriate safety action be taken where such systems are encountered on board ships. This Marine Notice is available on the AMSA website: www.amsa.gov.au

The ATSB also issued a safety advisory notice addressed to all classification societies, advising them of the accident, the safety implications of the installation and use of closed condensate drainage/inspection systems, and of the need to draw the attention of the shipping industry to these issues. This accident identified the need to follow a formal process of risk assessment when considering possible equipment modifications. Such a process should ensure that all associated risks are identified, considered and appropriately treated.

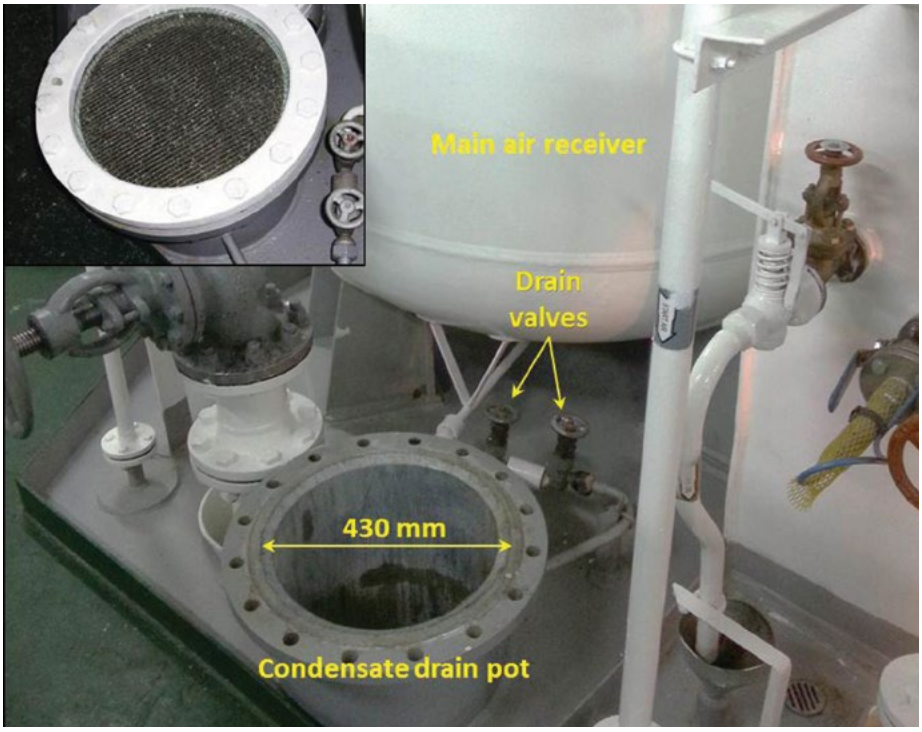

Figure 3: Main air receiver condensate drainage pot arrangement on board *Nireas* with inset showing the observation glass in place

Pilot ladders

This year, the ATSB became concerned about the use and maintenance of ships' pilot ladders. Incidents involving pilot ladders, and poor understanding of their use and maintenance requirements, continue to be reported.

It is a requirement that a safe means of access be provided for persons boarding or disembarking from a ship. A pilot ladder is routinely used to provide this access when no other means is available. The use of a pilot ladder involves climbing as much as 9 m (limited by international regulation) up or down the side of a ship on a ladder consisting of wooden rungs strung between side ropes.

Marine pilots regularly use pilot ladders to board and disembark from ships. Other, less experienced persons such as ship's crew, persons on ship's business and government officers also have requirements to access and depart ships, often via a pilot ladder.

The reported incidents highlight that personnel transfers by way of pilot ladders are inherently risky operations. In order to minimise the risk to pilots and others, ship operators and pilotage companies need to ensure that clear and standardised procedures, and communication protocols, are implemented and followed.

Further, both investigations found that the most recent Safety of Life at Sea (SOLAS) requirements, and International Marine Pilots Association (IMPA) guidance, were not being referenced in procedures or fully understood by the personnel involved in transfers using pilot ladders.

Fatality while boarding the bulk carrier *Atlantic Princess,* at anchor, Whyalla Investigation MO-2013-007

On 3 July 2013, the 289 m, 180 202 deadweight tonnes dry bulk carrier *Atlantic Princess* was at anchor off Whyalla, South Australia, loading iron ore for export. The iron ore was loaded via a transfer barge moored alongside the ship. *Atlantic Princess* was in the process of being sold and representatives of the purchasing company were to board the ship intending to sail with it to its next port as part of the purchase arrangements. No fixed boarding arrangement between the ship and the transfer barge had been arranged, and access was via the ship's pilot ladder.

The master representing the purchasing company was on the pilot ladder, boarding the ship, when he fell about 7 m to the deck of the pilot launch below. He was provided with immediate first aid and transported to the local hospital. However, he died later that day as a result of his injuries.

While *Atlantic Princess*'s pilot ladder had been rigged in accordance with the relevant international requirements, no further risk assessment was carried out for the personnel transfer. No additional or other safety barriers, such as the use of safety line and descent unit for inexperienced users, had been considered or implemented.

The investigation also found that the company's safety management system provided no guidance relating to actions that should be taken when persons less experienced than a pilot were to use a pilot ladder to board or disembark the ship.

Atlantic Princess's managers advised all company masters that helicopters should be used for transfers of persons other than pilots wherever possible. When this is not possible, they are required to use a safety harness while climbing a pilot ladder.

In addition, the pilot launch service has reviewed and updated its procedures to improve launch crew awareness and understanding of pilot ladder rigging arrangements and ladder use. The information provided to the crew and the procedures for assessing persons using pilot ladders have also been updated.

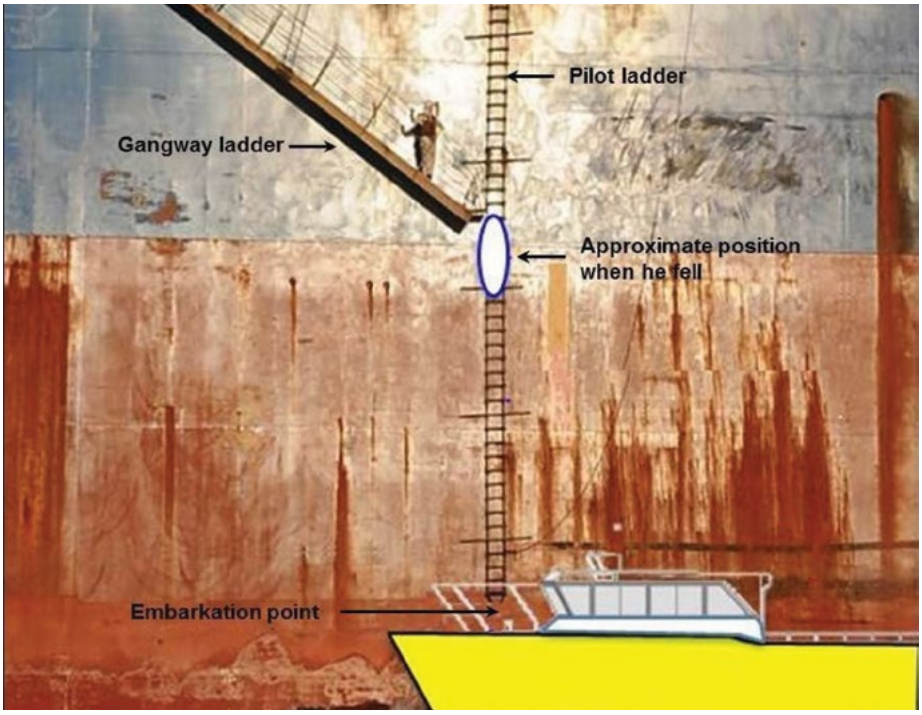

Figure 4: *Atlantic Princess's* combination pilot ladder boarding arrangement

Fall from pilot ladder on the chemical tanker *Golden Concord,* Torres Strait Investigation MO-2013-008

On 4 July 2013, a coastal pilot was disembarking from the 112 m, 8,578 deadweight tonnes chemical tanker *Golden Concord* in the Torres Strait when the pilot ladder manrope he was holding appeared to give way. He was unable to establish a firm grip on the rope, lost his balance and fell to the deck of the pilot launch below. The pilot did not sustain any serious injuries, as his fall was arrested by the deckhand on board the launch.

The investigation found that the supervising officer was not able to focus on checking the arrangements and supervising the transfer as he had no assistance from the crew, and hence, was directly involved in deploying the pilot ladder.

The investigation further found that the on-board pilot transfer procedures did not specify a requirement for additional crew members to assist the supervising officer. There were also no explicit requirements for the pilot ladder and manrope arrangement to be checked by the crew of either the ship or pilot launch prior to personnel climbing on the ladder.

Golden Concord's management company has revised its pilot transfer procedures to ensure all pilot transfers are conducted with a deck party consisting of a supervising officer and at least one deck rating.

In addition, the pilotage company has reviewed and updated its procedures to improve launch crew awareness and understanding of pilot ladder rigging arrangements and ladder use. The information provided to them and the procedures for assessing persons using pilot ladders have also been updated.

Figure 5: *Golden Concord* pilot ladder access from deck

Rail investigations

Collision of passenger train T842 with station platform Cleveland, Qld, 31 January 2013

At about 0940 on 31 January 2013, a Queensland Rail passenger train (*T842*) failed to stop at the Cleveland station platform and collided with the end-of-line buffer stop, the platform and the station building at a speed of about 31 km/h. There were 19 people on board the train (including the driver and a guard); three people were on the platform and five were in the station building. A number of people were treated for minor injuries and transported to hospital for further examination.

At the request of the Queensland Government, the ATSB initiated an investigation into the accident. The ATSB's investigation found that local environmental conditions had resulted in the formation of a contaminant substance on the rail running surface. This caused poor adhesion at the contact point between the train's wheels and the rail head. The braking effectiveness of train *T842* was thus reduced and the train was unable to stop before hitting the end-of-line buffer.

The ATSB concluded that Queensland Rail's risk management processes before the accident had not adequately assessed, recorded, managed and communicated the risks associated with operating trains on their network under low adhesion conditions. In addition, Queensland Rail

had not undertaken exercises to test the preparedness and effectiveness of their emergency management system. Shortfalls were identified in the internal communications within train control and between staff at Cleveland station following the accident, which resulted in incomplete information being provided to key personnel.

In response to the accident, Queensland Rail initiated a risk mitigation strategy, including the formation of a *Wheel Rail Interface Working Group* that identified wheel/rail interface risks—particularly for Queensland Rail's fleet of IMU160/SMU260 class trains being operated under certain conditions. Queensland Rail also implemented a series of risk controls including identifying localised low-adhesion black spot locations and applying vegetation control measures, treating rail-head contaminants, reviewing and updating driver training with enhanced train handling advice about wheel slide, and the trialling of sanding equipment on IMU160/SMU260 class trains. Queensland Rail have now undertaken emergency exercises to test the effectiveness of their emergency response arrangements and are implementing new communication protocols for emergency incident response.

The ATSB advised that rail operators should recognise that train braking performance may be significantly impaired when local environmental conditions result in contaminated rail running surfaces and reduced wheel/rail adhesion. Rail operators should put appropriate measures in place to assess and mitigate the risk to the safe operation of trains under these conditions.

Derailment of freight train *7SP3* near Roto NSW on 4 March 2012

On the morning of 4 March 2012, freight train *7SP3* operated by Pacific National derailed after entering floodwaters that had overtopped the track near Roto in New South Wales. The flooding had caused scouring of the track formation, which compromised its capacity to support the train. While the lead locomotive remained on the track, the trailing locomotive derailed and uncoupled. The crew were shaken, but physically unhurt. None of the trailing wagons derailed although a number sustained damage. The flooding and subsequent derailment of the second locomotive of train *7SP3* damaged approximately 130 m of track.

The ATSB determined that runoff from the heavy rain that had fallen in the catchment area adjacent to Roto the morning of 4 March 2012 caused a flash flood event. The volume of floodwater exceeded the capacity of a drainage culvert, which resulted in water overtopping the track formation with ballast and sub-grade scouring on either side of the culvert. The magnitude of the scouring meant that the track could not support the weight of train *7SP3* as it passed over the affected areas. The resulting deformation in the alignment of the track initiated the derailment.

The ATSB also found that the track manager's systems and operational procedures provided limited information and guidance to assist the network control staff in identifying and assessing the potential threat to the safety of rail traffic resulting from the significant localised weather event. The track manager advised that they were trialling the use of flood sensors at high-risk locations and had engaged the services of a third party to provide early warning information on potential high-risk weather events.

The ATSB advised that it is essential that rail transport operators have robust systems in place to monitor and mitigate the risks to infrastructure from significant weather events, to ensure that the safety of rail operations is not compromised.

Investigation of rail operations on the interstate rail line between Melbourne and Sydney

In 2007, the Australian Rail Track Corporation (ARTC) embarked on a major investment program to upgrade the rail track between Melbourne and Sydney. Since the program began, the condition of the line had been subject to significant adverse comment about its safety, largely in relation to rough ride characteristics and the existence of 'mud-holes'. On 16 August 2011, the Hon. Anthony Albanese MP, Minister for Infrastructure and Transport, requested that the ATSB undertake an investigation to examine the safety of rail operations on the Melbourne to Sydney line.

The ATSB found that the track structure between Melbourne and Sydney had historically been particularly vulnerable to degradation in vertical alignment, resulting in poor ride quality and the development of mud-holes. Major contributors were the weakness of the track formation and ballast contamination. In some locations, this pre-existing vulnerability was exacerbated by the installation of new concrete sleepers, as well as poor drainage and heavy rainfall during 2010 and 2011.

The ARTC believed that long-term benefits were only possible if the track was completely re-sleepered. The side insertion method of re-sleepering was used, and existing ballast was reused as much as possible. Safety improvements focused predominantly on controlling track gauge through the installation of concrete sleepers, while financial and operational considerations focused on minimising disruption to rail services and maximising track coverage (sleeper replacement) within financial constraints. The ATSB found it was unlikely that an alternative method of re-sleepering would have prevented deterioration in track condition or the development of mud-holes, unless ballast, drainage and formation issues were also addressed.

The upgrade program proceeded; however, the ARTC's quality assurance process during the project planning phase did not adequately consider foreseeable risks in relation to the track structure's pre-existing vulnerabilities. Similarly, the ARTC was aware that the existing ballast and track drainage were in poor condition, but appeared not to have adequately considered the potential for higher than normal rainfall following a protracted period of drought. The ARTC believed the drainage problems could be addressed as part of ongoing maintenance programs, but acknowledged that the rate of track deterioration (including the development of mud-holes) was faster than expected. The ARTC subsequently updated their process to include a stronger focus on quality assurance and recording of quality control data.

The track deterioration following the re-sleepering works required both short-term management and the development of a longer-term major rectification program to maintain the operational effectiveness of the track.

For the short-term remediation, works included an increased inspection and maintenance frequency, especially during periods of wet weather. Where rail geometry defects were identified, the safety of train operations were maintained, largely through the application of speed restrictions. Together with increased maintenance activities, the speed restrictions resulted in extended train running times along the corridor. While the ARTC had increased the inspection regime to mitigate the safety risk, the ATSB noted that a well performing system is likely to be inherently safer since it would place fewer burdens on the defect identification process.

Longer-term strategies included a combination of undercutting and sledding to address ballast problems (fouling and depth) and track works targeting the correction of general drainage problems. While the treatments were likely to correct most ballast and drainage issues, they were unlikely to correct the more deep-seated formation problems. The ATSB noted it was possible that water would continue to weaken the structure in some locations, with a corresponding requirement for an increased regime of track maintenance.

Since the safety of the Melbourne to Sydney line remained dependent on the application of temporary speed restrictions, the ATSB examined the adequacy of the associated processes for doing so. From that work, the ATSB identified a number of opportunities where operational safety could be improved. The ARTC advised of their proposed actions in response and the ATSB was satisfied that those actions addressed the identified issues.

Safe-working incidents

During the investigation, the ATSB also examined a number of reported safe-working incidents that occurred at various times between 2009 and 2012 and found that, in general, the safe-working rules and procedures were adequate as long as they were complied with. However, some incidents highlighted that protection methods for work on track were susceptible to human error, either through mistake or violation. The ARTC, in consultation with rail safety regulators, implemented changes to their systems for safely managing work on track and to help protect against human error.

During the course of the investigation, rail operators also raised a number of concerns related to elements of the signalling system, train parting incidents and quality assurance of track-related work. For signalling, the ATSB found that the principles applied to signalling design and the process for assessing signal sighting issues were consistent with recognised acceptable practice. For train partings, the ATSB found that track condition was a factor but not always the sole issue. Where deficiencies were identified, the ARTC issued additional instructions aimed at ensuring the safety of rail operations.

Taken as a whole, the ATSB was satisfied that the necessary steps had been taken to address any issues that might otherwise compromise the safety of rail operations on the Melbourne–Sydney line. However, the actions taken to ensure safe operations came at the expense of operational efficiencies through increased train running times.

FORMAL SAFETY ISSUES AND ADVICE

5

Formal safety issues and advice **53**

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Formal safety issues and advice

This section reports on the formal safety issues and advices issued by the ATSB in 2013–14, and their status.

ATSB investigations primarily improve transport safety by identifying and addressing safety issues. Safety issues are events or conditions that increase safety risk and:

- can reasonably be regarded as having the potential to adversely affect the safety of future operations, and
- are characteristics of an organisation or a system, rather than of a specific individual, or operational environment at a specific point in time.

Safety issues will usually refer to an organisation's risk controls or a variety of internal and external organisational influences that impact on the effectiveness of its risk controls. They are factors for which an organisation has some level of control and responsibility and, if not addressed, will increase the risk of future accidents.

The ATSB prefers to encourage stakeholders to take proactive action to address the safety issues identified in its reports. Nevertheless, the ATSB may use its powers under the TSI Act to make a formal safety recommendation, either during, or at the end of an investigation, depending on the level of risk associated with a safety issue and the extent of corrective action already taken.

When safety recommendations are issued, they clearly describe the safety issue of concern but they do not provide instructions or opinions on a preferred corrective action. Like equivalent overseas organisations, the ATSB has no power to enforce the implementation of its recommendations. It is a matter for the agency to which an ATSB recommendation is directed, to assess the costs and benefits of any means of addressing a safety issue, and act appropriately.

When the ATSB issues a Safety Recommendation to a person, organisation or agency, they must provide a written response within 90 days. That response must indicate whether they accept the recommendation, any reasons for not accepting part or all of the recommendation, and details of any proposed safety action to give effect to the recommendation.

The ATSB can also issue a Safety Advisory Notice (SAN) suggesting that an organisation or an industry sector consider a safety issue and take action where it believes it appropriate. There is no requirement for a formal response to a Safety Advisory Notice.

Safety issues are broadly classified in terms of their level of risk as follows:

- **Critical safety issue**—associated with an intolerable level of risk and generally leading to the immediate issue of a safety recommendation, unless corrective safety action has already been taken.
- **Significant safety issue**—associated with a risk level regarded as acceptable, only if it is kept as low as reasonably practicable. The ATSB will issue a safety recommendation, or a safety advisory notice, if it assesses that further safety action may be practicable.
- **Minor safety issue**—associated with a more broadly acceptable level of risk, although the ATSB will issue a safety recommendation or safety advisory notice to the appropriate agency when proactive safety action is not forthcoming.[5]

All ATSB safety issues and associated safety actions, along with the most recent status, have been posted on the ATSB website for all investigation reports released since July 2010.

Safety issues identified through ATSB investigations

All safety issues are risk assessed by the ATSB. In the 2013–14 year, the ATSB identified the following safety issues.

Table 3: Number of safety issues identified in 2013–14

SAFETY ISSUE RISK	AVIATION	MARINE	RAIL	TOTAL
Critical	None	None	None	**0**
Significant	25	14	8	**47**
Minor	14	7	35	**56**
Total	**39**	**21**	**43**	**103**

Safety action is sought to address safety issues when proactive safety action is not forthcoming. Once safety action has been undertaken, the ATSB conducts another risk assessment of the safety issue. When the post-action risk assessment results in either an acceptable level of risk, or a risk as low as reasonably practicable, the safety issue status is categorised as 'Adequately addressed'.

In respect of stakeholder safety action to address identified safety issues, the Portfolio Budget Statement (PBS) specifies two of the ATSB's key performance indicators (KPIs) as follows:

- safety action is taken by stakeholders to address 100 per cent of critical safety issues identified
- safety action is taken by stakeholders to address 70 per cent of significant safety issues identified.

5 Systemic safety factors with a risk that is so low that the ATSB does not expect any safety action to reduce the risk further are not labelled as safety issues.

KPI status of critical safety issues identified in 2013–14

There were no critical risk safety issues identified as a result of ATSB investigations in 2013–14.

KPI status of significant safety issues identified in 2013–14

The breakdown by transport mode, of significant safety issues identified in 2013–14, is outlined in the following table.

Table 4: Status of significant safety issues identified in 2013–14

STATUS OF SIGNIFICANT SAFETY ISSUES	AVIATION	MARINE	RAIL	PER CENT
Adequately addressed	16	11	8	74%
Partially addressed	2	2	0	9%
Not addressed	1	0	0	2%
Safety action still pending	6	1	0	15%
Total	**25**	**14**	**8**	**100%**

Seventy-four per cent of significant risk safety issues were adequately addressed, with a further nine per cent partially addressed. At the time of publication, seven safety issues (15 per cent) had not been finalised as the ATSB was awaiting advice of the completion of promised safety action.

Responses to safety issues identified in 2013–14

The tables below document each safety issue identified in 2013–14 and its current status assigned by the ATSB, along with the justification for that status.

Table 5: Reponses to safety issues identified in 2013–14 – Aviation

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
AO-2011-076 Descent below the minimum permitted altitude involving Airbus A320, registered VH-VNC, 15 km south-south-east of Avalon Airport, Victoria on 30 June 2011		
AO-2011-076-SI-01: The Tiger Airways Australia Pty Ltd documentation and training package, relating to the Avalon airspace structure and night visual approach guidance, contained incorrect material and omissions that increased the risk of confusion and misunderstanding by flight crews.	Adequately addressed	Tiger Airways advised that the relevant document has been removed and training regarding Avalon airspace appropriately modified.
AO-2011-076-SI-02: The Manual of Air Traffic Services (MATS) differed from the Civil Aviation Safety Regulation Part 172 Manual of Standards concerning the requirements for issuing a night visual approach to an instrument flight rules aircraft, increasing the risk of ambiguity in the application of these requirements by controllers.	Adequately addressed	The modifications to MATS made in the March 2013 revision introduced a new clause 2-10-430 that directly addressed this issue.
AO-2011-100 VFR flight into dark night conditions and loss of control involving Piper PA-28-180, registered VH-POJ, 31 km north of Horsham Airport, Victoria on 15 August 2011		
AO-2011-100-SI-01: Flights were permitted under the visual flight rules in dark night conditions that are effectively the same as instrument meteorological conditions, but without the recency requirements to ensure that pilots maintained the ability to control the aircraft solely by reference to flight instruments.	Partially addressed	Civil Aviation Safety Regulation (CASR) part 61 now made and effective 4 December 2013 requiring 24-month flight review of Night Visual Flight Rules (NVFR) rated pilots.
AO-2011-102 VFR flight into dark night conditions involving Aerospatiale AS355F2, registered VH NTV, 145 km north of Marree, South Australia on 18 August 2011		
AO-2011-102-SI-01: Although some of the operator's risk controls for the conduct of night visual flight rules flights were in excess of the regulatory requirements, the operator did not effectively manage the risk associated with operations in dark night conditions.	No longer relevant	The operator has ceased conducting flight operations.

Aviation (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
AO-2011-102-SI-02: Aerial work and private flights were permitted under the visual flight rules in dark night conditions, which are effectively the same as instrument meteorological conditions, but without sufficient requirements for proficiency checks and recent experience to enable flight solely by reference to the flight instruments.	Safety action still pending	
AO-2011-102-SI-03: Helicopter flights were permitted under the visual flight rules in dark night conditions, which are effectively the same as instrument meteorological conditions, but without the same requirements for autopilots and similar systems that are in place for conducting flights under the instrument flight rules.	Adequately addressed	The ATSB is satisfied that the work by CASA to finalise and make CASR part 133.571 will, when implemented, reduce the risk of helicopter operations at night involving commercial passenger transport. In the case of non-passenger-transport operations under the night VFR, the lack of a requirement for an autopilot, or alternately a two-pilot crew, increases the residual risk of aerial work and private flights. This reinforces the importance of ATSB safety recommendation AO-2011-102-SR-59.
AO-2011-110 Loss of control involving Eurocopter AS350BA, registered VH-RDU, at Double Mountain South (HLS), 93 km north of Rockhampton, Queensland on 8 September 2011		
AO-2011-110-SI-01: The pilot was assigned to a task for which he most likely lacked experience on both the helicopter type and the nature of the flying.	Adequately addressed	The ATSB is satisfied that reported application by the operator of the resource sector experiential standards to all tasking other than scenic flights, will, when formalised in the operator's operations manual, adequately address this safety issue and therefore makes no recommendation.
AO-2011-110-SI-02: The minimal clearance from obstructions, unfavourable surface conditions and a lack of appropriate wind indication at the helicopter landing site (HLS) increased the risk associated with operations to the HLS, particularly for a pilot unfamiliar with the site.	Adequately addressed	The ATSB is satisfied that the action by the owner of the Shoalwater Bay training area HLSs adequately addresses this safety issue and therefore makes no recommendation.
AO-2011-115 Flight control system event involving Cessna 210N, registered VH-JHF, 48 km west of Bourke Aerodrome, New South Wales on 12 September 2011		
AO-2011-115-SI-01: The *Civil Aviation Regulations 1988* allow class B aircraft registration holders to maintain their aircraft using the Civil Aviation Safety Authority (CASA) maintenance schedule, in situations where a more appropriate manufacturer's maintenance schedule exists.	Safety action still pending	

Aviation (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
AO-2011-115-SI-02: The *Civil Aviation Regulations 1988* lack clarity regarding the requirement for aircraft manufacturers' supplemental inspections, where available, to be carried out when an aircraft is being maintained in accordance with the CASA maintenance schedule.	Safety action still pending	
AO-2011-126 Collision with Ferris wheel involving Cheetah Sierra 200, registered 24-7634, near Old Bar, New South Wales on 1 October 2011		
AO-2011-126-SI-01: The training provided to the pilot did not afford him the opportunity to develop the competencies required to exercise the privileges of the Recreational Aviation Australia Incorporated private pilot certificate.	Adequately addressed	There have been significant safety actions taken and proposed by Recreational Aviation Australia (RA-Aus) in response to this accident that, in combination, should lead to improvements that adequately address this safety issue.
AO-2011-126-SI-02: The approach to the management of risk at the Old Bar Beach Festival, specifically in relation to aviation activities, was ineffective and resulted in a high level of unmanaged risk that had the potential to impact on the objectives of the festival.	Adequately addressed	The ATSB is satisfied that the action taken by the Old Bar Beach Festival Committee, Old Bar Airstrip Committee and the Greater Taree City Council should lead to improvements that adequately address the safety issue.
AO-2011-126-SI-03: The manufacture of, and the processes used to certify and register the Morgan Aero Works Cheetah Sierra 200 aircraft, resulted in an increased risk to persons entering the recreational aviation community and using the aircraft for flight training, and also to the general public.	Adequately addressed	The ATSB is satisfied that the action taken by RA-Aus in respect of the construction and certification of the aircraft should lead to improvements that adequately address the safety issue.
AO-2011-135 Embrittled nut and related failures involving Robinson R22 Beta helicopter, registered VH-JNP, 22km north of Saxby Downs (ALA), Queensland on 12 October 2011		
AO-2011-135-SI-01: The nut manufacturer's quality control processes failed to prevent the release of a lot, or lots, of MS21042L-4 nuts that remained in a partially-embrittled state after cadmium electroplating.	Adequately addressed	The nut manufacturer's Technical Quality Notice Bulletin demonstrates a level of understanding of the issues that should be sufficient to ensure that the risks of future hydrogen embrittlement of the MS21042L-series nut and related products are minimised. Nevertheless, given the widespread use of this nut type across a variety of aviation and aerospace applications, the ATSB will continue to monitor reported safety occurrences and service difficulty events for any further indication of nut embrittlement issues.

Aviation (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
AO-2011-135-SI-02: At the time of the occurrence, there was limited advisory material available to owners, operators and maintenance personnel to alert them to the possibility of MS21042L-series nut failure and to assist with appropriately detailed inspections aimed at identifying affected items.	Adequately addressed	Many civil aviation regulatory agencies and original equipment manufacturers have now produced and disseminated advisory material on this issue, providing appropriate background information and guidance on the identification of defective components.
AO-2011-142 Loss of separation involving CASA C212-CC, registered VH-MQD, operating in the Richmond parachuting area and Boeing 737-7BX, registered VH-VBP, near Richmond Aerodrome, New South Wales on 5 November 2011		
AO-2011-142-SI-01: There was no documented procedure for assuring the separation of aircraft departing from Sydney with parachute operations at Richmond, increasing the likelihood that Sydney Terminal Control Unit controllers would have differing expectations as to their control and coordination requirements in respect of these operations.	Safety action still pending	
AO-2011-142-SI-02: Local and National air traffic control procedures did not prescribe the means for controllers to indicate in the air traffic control system that a parachute drop clearance had been issued.	Adequately addressed	The ATSB is satisfied that the action taken by Airservices Australia (Airservices) has adequately addressed the safety issue.
AO-2011-144 Loss of separation involving Boeing 737s, registered VH-VXM and VH-VUV, near Ceduna, South Australia on 8 November 2011		
AO-2011-144-SI-01: The air traffic services provider's processes for monitoring and managing controller workloads did not ensure that newly-endorsed controllers had sufficient skills and techniques to manage the high workload situations to which they were exposed.	Adequately addressed	The ATSB is satisfied that while Airservices disagreed with the identified safety issue, the actions taken by the organisation have satisfactorily addressed it.
AO-2011-144-SI-02: The air traffic services provider's fatigue risk management system (FRMS) did not effectively manage the fatigue risk associated with allocating additional duty periods.	Adequately addressed	The ATSB is satisfied that the safety action advised by Airservices will, when implemented appropriately, reduce the likelihood of controllers being allocated excessive additional duty periods.
AO-2011-144-SI-03: Although the air traffic services provider has been working on the issue for several years, there was still no automated air traffic conflict detection system available for conflictions involving aircraft that were not subject to radar or ADS-B surveillance services.	Adequately addressed	The ATSB is satisfied that this safety action will, when fully implemented, satisfactorily address the safety issue.

Aviation (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
AO-2012-012 Loss of separation between Airbus A320, registered 9V-TAZ, and Airbus A340, registered A6-EHH, near TANEM (IFR reporting point), 907 km north-west of Karratha, Western Australia on 18 January 2012		
AO-2012-012-SI-01: The air traffic services provider's processes for monitoring and managing controller workloads did not ensure that newly-endorsed controllers had sufficient skills and techniques to manage the high workload situations to which they were exposed.	Adequately addressed	Although Airservices disagreed with the identified safety issue, the ATSB is satisfied that the actions taken by Airservices since the incident satisfactorily address the concerns that gave rise to identification of the safety issue.
AO-2012-012-SI-02: The air traffic services provider had limited formal guidance regarding how to determine appropriate consolidation periods for en route controllers on one sector, before they were transitioned to commence training on another sector.	Adequately addressed	The ATSB recognises Airservices' work to address this safety issue and are satisfied that, when in place, the Airservices enhancements to the guidance material for controller training will adequately address the safety issue.
AO-2012-012-SI-03: The air traffic services provider had limited formal guidance to controllers and pilots regarding the conditions in which it was safe and appropriate to use block levels.	Not addressed	The ATSB recognises that Airservices have done work to review this safety issue and to compare their processes with other agencies. The ATSB also notes that no changes have been made to Airservices' existing guidance. Regardless of the number of ATS-attributable occurrences involving the use of block level clearances, the issue of limited formal guidance for pilots and controllers remains. The Manual of Air Traffic Services states that controllers are to cancel block level clearances if other aircraft request a clearance to operate at levels within the block, but it does not define the proximity parameters of the other aircraft. In addition, there are no formal procedures or guidance to state other conditions under which block level clearances should not be provided, such as when experiencing high workloads. There are also no time restrictions specified for the use of block levels.
AO-2012-012-SI-04: Although the air traffic services provider has been working on the issue for several years, there was still no automated air traffic conflict detection system available for conflictions involving aircraft that were not subject to radar or ADS-B surveillance services.	Adequately addressed	The ATSB is satisfied that this safety action will, when fully implemented, satisfactorily address the safety issue.

Aviation (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
AO-2012-047 Losses of separation assurance involving Airbus A330-243, registered PK-GPO, and Airbus A330-341, registered PK-GPA near ATMAP (IFR reporting point), Western Australia on 31 March 2012		
AO-2012-047-SI-01: Airservices Australia's processes for managing a Temporary Restricted Area did not effectively ensure that all aircraft operating in the Temporary Restricted Area were known to air traffic services.	Adequately addressed	The ATSB recognises Airservices' actions to address this safety issue and are satisfied that enhancements to the processes, and risk controls associated with managing a Temporary Restricted Area, will provide better assurance that all aircraft operating in such an area are known to air traffic services.
AO-2012-047-SI-02: Airservices Australia's processes for selecting and preparing personnel for the Contingency Response Manager role did not ensure they could effectively perform that role.	Adequately addressed	The ATSB is satisfied that the safety action satisfactorily addresses the safety issue.
AO-2012-047-SI-03: Airservices Australia's processes for reviewing and testing contingency plans did not effectively ensure that all documented contingency plan details were current, and that its contingency plans could be successfully implemented at short notice.	Adequately addressed	The ATSB recognises Airservices' actions to address this safety issue and is satisfied that the enhancements to the processes for reviewing and testing contingency plans adequately address the safety issue.
AO-2012-047-SI-04: Airservices Australia did not have a defined process for recording the actual hours worked by its Air Traffic Control Line Managers and therefore, could not accurately monitor the potential fatigue of those personnel when they were performing operational roles such as a Shift Manager or Contingency Response Manager.	Adequately addressed	The ATSB is satisfied that the safety action satisfactorily addresses the safety issue. The consideration of Air Traffic Control Line Managers rosters, both strategically and tactically, and the requirement for them to reflect any rosters changes in Quintiq are appropriate.
AO-2012-049 Collision with terrain involving Ayres Corporation S2R-G10 Thrush, registered VH-WDD, 36 km north-west of Moree, New South Wales on 11 April 2012		
AO-2012-049-SI-01: The Ayers Corporation S2R-G10 Thrush aircraft type had a published maximum take-off weight that was not practical for agricultural use, increasing the risk that pilots would operate the aircraft above the published maximum weight and potentially at unsafe weights.	Adequately addressed	The Supplemental Type Certificate (STC) should enable pilots to use a practical and proven weight limit for the S2R-G10 Thrush, and provide any other necessary operational or maintenance restrictions associated with flying at the higher weights.

Aviation (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
AO-2012-103 Descent below segment minimum safe altitudes involving Airbus A320-232, registered VH-VQA, near Queenstown, New Zealand on 16 July 2012		
AO-2012-103-SI-01: The operator's procedures did not require the flight crew to specifically check the active auto-flight mode during descent, and allowed the crew to select the Vertical Intercept Point altitude when cleared for the approach by air traffic control. This combination of procedures provided limited protection against descent through an instrument approach procedure's segment minimum safe altitudes.	Partially addressed	The ATSB is satisfied that the safety action will reduce the risk of the safety issue to some extent.
AO-2012-130 VFR flight into Instrument Meteorological Conditions involving de Havilland DH-84 Dragon, registered VH-UXG, 36 km south-west of Gympie, Queensland on 1 October 2012		
AO-2012-130-SI-01: Though airborne search and rescue services were regularly tasked to provide assistance to aircraft in distress, there was limited specific guidance on the conduct of such assistance.	Adequately addressed	The ATSB is satisfied that that the proposed action will, when completed, adequately address the safety issue.
AO-2012-142 Wirestrike involving Cessna 172, registered VH-TKI, 13 km north-east of Bendigo, Victoria on 29 October 2012		
AO-2012-142-SI-01: The aircraft landing area did not have clearly defined threshold markings, making the mown undershoot area difficult to distinguish from the airstrip.	Adequately addressed	The runway threshold and underrun areas have been marked.
AO-2012-142-SI-02: The power lines were not marked with high visibility devices, nor were they required to be so marked by the relevant Australian Standard. This reduced the likelihood of a pilot detecting the position of the wires.	Adequately addressed	The visibility of the poles has been enhanced and has been favourably reported by visiting pilots.
AO-2012-150 Abnormal engine indications involving Airbus A380, registered A6-EDA, near Richmond Airport, New South Wales on 11 November 2012		
AO-2012-150-SI-01: The design cooling characteristics of the Engine Alliance GP7200 high pressure turbine (HPT) stage-2 nozzle components led to higher than expected metal surface temperatures during operation—rendering the nozzles susceptible to distress, premature degradation and failure.	Adequately addressed	The ATSB is satisfied that the action taken by the Engine Alliance will identify HPT stage-2 nozzle distress before it progresses to a stage that would impact flight operations.

Aviation (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
AO-2012-150-SI-02: The threshold limits for the engine trend monitoring program were not set at a level that provided sufficient opportunity for inspection of the engine, before failure could occur from the effects of HPT stage-2 nozzle degradation.	Adequately addressed	The introduction of the new HPT stage-2 nozzles, and repetitive inspections in place for the new and old nozzle configurations, will reduce the prevalence of HPT stage-2 nozzle distress and will identify nozzle distress before it progresses to a stage that would impact flight. The enhanced trend monitoring system that has been put in place provides additional assurance that an impending nozzle failure is identified in time for preventative maintenance action.
AO-2013-226 In-flight break-up, De Havilland DH 82A, VH-TSG, near South Stradbroke Island, 16 December 2013		
AO-2013-226-SI-01: The two JRA-776-1 fuselage lateral tie rods fitted to de Havilland DH82A Tiger Moth, registered VH-TSG, had significant, pre-existing fatigue cracks in the threaded sections. The parts' service life was significantly less than the published retirement life for DH82A tie rods of 2,000 flight hours or 18 years.	Adequately addressed	On 21 March 2014, after consultation with the Civil Aviation Safety Authority (CASA), the United Kingdom Civil Aviation Authority issued Emergency Airworthiness Directive (AD) number G-2014-0001-E. That AD mandated the removal of all J & R Aerospace manufactured DH82 series Tiger Moth fuselage lateral tie rods from service. This AD automatically had effect for Australian-registered DH82 aircraft.
AR-2012-034 Loss of Separation between aircraft in Australian airspace: 2008 to June 2012		
AR-2012-034-SI-01: There was a disproportionate rate of loss of separation incidents, which leads to a higher risk of collision in military terminal area airspace in general and all airspace around Darwin and Williamtown, in particular. Furthermore, loss of separation incidents in military airspace more commonly involved contributing air traffic controller actions, relative to equivalent civil airspace occurrences.	Safety action still pending	
AR-2012-034-SI-02: Regulatory oversight processes for military air traffic services do not provide independent assessment and assurance as to the safety of civilian aircraft operations.	Safety action still pending	

Aviation (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
AR-2012-034-SI-03: Loss of separation (LOS) incidents attributable to pilot actions in civil airspace are not monitored as a measure of airspace safety, nor actively investigated for insight into possible improvements to air traffic service provision. As about half of all LOS incidents are from pilot actions, not all available information is being fully used to assure the safety of civilian airspace.	Adequately addressed	The Civil Aviation Safety Authority has committed to routinely assessing all loss of separation occurrences relating to regular public transport (RPT) aircraft and will conduct, and record, investigations into the those occurrences that are pilot-attributable.

Table 6: Response to safety issues identified in 2013–14 – Marine

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
MO-2012-005 Independent investigation into the breakdown of the Hong Kong registered bulk carrier ID Integrity in the Coral Sea on 17 May 2012		
MO-2012-005-SI-01: The ship's planned maintenance system did not include all of the main engine manufacturer's maintenance requirements. Furthermore, the maintenance records did not include sufficient detail to confirm that the main engine was maintained in accordance with the manufacturer's requirements.	Adequately addressed	The ATSB is satisfied the changes and improved work practices will sufficiently reduce the likelihood of a similar incident occurring in this company's fleet in the future.
MO-2012-005-SI-02: ClassNK did not have in place a system which ensured that updated service advice from the engine manufacturer was being implemented on board ships with engines that its surveyors were routinely and regularly surveying.	Adequately addressed	The ATSB is satisfied that with improved awareness of the prevailing state of the machinery, the actions being taken by ClassNK will adequately address this issue.
MO-2012-006 Collision between *Furness Melbourne* and *Riga II* on 26 May 2012		
MO-2012-006-SI-01: In the past 25 years the ATSB, and its predecessor, have investigated 39 collisions between trading ships and smaller vessels on the Australian coast. These investigations have all concluded that there was a failure of the watch-keepers on board one, or both, vessels to keep a proper lookout, and that there was an absence of early and appropriate action to avoid the collision.	Adequately addressed	Action taken by this operator and general message to the industry that does not warrant monitoring.

Marine (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
MO-2013-003 Fatality on board the private motor yacht *Calliope* while departing Sydney, 8 February 2013		
MO-2013-003-SI-01: *Calliope*'s safety management system (SMS) did not provide the crew with adequate guidance regarding passage planning, training and familiarisation. Individual crew familiarisation records and risk assessment forms were not retained on board the yacht, and there was no system of auditing or checking to ensure the adequacy of the SMS or the effectiveness of its implementation.	Adequately addressed	The ATSB considers that the actions taken and proposed by Cayman Islands Shipping Registry and *Calliope*'s managers should address this safety issue.
MO-2013-003-SI-02: The Cayman Islands requirements in relation to a yacht's compliance with the Large Commercial Yacht Code, and other relevant legislation, are determined by the yacht's mode of operation. As a result, a commercially operated yacht in excess of 24 m in length must comply with the requirements of the Code, while a similar sized privately operated yacht that poses the same risks to safety of life at sea and the environment does not.	Partially addressed	The ATSB considers that the action taken by the Cayman Islands Shipping Registry partially addresses this safety issue.
MO-2013-003-SI-03: *Calliope* was not required to carry a pilot during Sydney Harbour voyages because the yacht was considered to be a recreational vessel, even though the risks it posed to the port were the same as those posed by similarly sized commercially operated vessels.	Partially addressed	The ATSB considers that the actions initiated by the Sydney harbour master partially addresses this safety issue.
MO-2013-005 Crew member fatality on board the bulk carrier *Nireas* at Gladstone anchorage, Queensland, 20 March 2013.		
MO-2013-005-SI-01: The condensate drainage pots fitted to *Nireas*'s main air receivers were not fit for purpose, as they were not capable of withstanding the internal pressures that were likely to accumulate in service.	Adequately addressed	The actions taken by Laskaridis Shipping and the Jiangsu Jinling Shipyard should adequately address this safety issue with respect to *Nireas* and its sister ships. The actions taken by AMSA and the ATSB safety advisory notice should ensure that the broader shipping industry is aware of this safety issue.
MO-2013-007 Fatality on board the bulk carrier *Atlantic Princess*		
MO-2013-007-SI-01: *Atlantic Princess*'s safety management system procedures provided no guidance relating to actions that should be taken when persons less experienced than a pilot used a pilot ladder to board or disembark the ship.	Adequately addressed	The ATSB considers that the actions taken and proposed by Santoku Senpaku should address this safety issue.

Marine (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
MO-2013-007-SI-02: There were no facilities on board the Floating Offshore Transfer Barge *Spencer Gulf* that could be used to provide a safe means of access for personnel transfers between the barge and the ship. Furthermore, the barge operator's procedures prohibited such personnel transfers.	Safety action still pending	
MO-2013-007-SI-03: Whyalla Launch Services' safety management system did not provide effective guidance in relation to assessing a passengers ability to climb a pilot ladder, or positioning of pilot launches while passengers were climbing and descending ladders. The system also referenced superseded SOLAS regulations and IMO resolutions relating to pilot ladders.	Adequately addressed	The ATSB considers that the actions taken by Whyalla Launch Services should address this safety issue.
MO-2013-007-SI-04: The examples of non-compliance indicate that Whyalla Launch Services' safety management system was not fully, and effectively, implemented on board *Switcher*.	Adequately addressed	The ATSB considers that the actions taken by Whyalla Launch Services should address this safety issue.
MO-2013-008 Fall from the pilot ladder on board the chemical tanker *Golden Concord*		
MO-2013-008-SI-01: The pilotage company's procedures did not explicitly require the pilot to check the pilot ladder and manrope arrangements before disembarking the ship.	Adequately addressed	The ATSB is satisfied that the action taken by Australian Reef Pilots will adequately address this safety issue.
MO-2013-008-SI-02: The pilotage company's procedures for positive communication of readiness between the pilot and the launch crew were adequate. However, it was common for employees to vary these communication protocols, leaving perceptions of readiness open to error and misinterpretation.	Adequately addressed	The ATSB is satisfied that the action taken by Australian Reef Pilots will adequately address this safety issue.
MO-2013-008-SI-03: The ship's pilot transfer procedures did not specify a requirement for additional crew members to assist the supervising officer. As a result, the supervising officer was actively involved in deploying the pilot ladder and could not focus his efforts on properly checking the arrangements and supervising the transfer.	Adequately addressed	The ATSB is satisfied that the action taken by Dorval Ship Management will adequately address this safety issue.
MO-2013-008-SI-04: The pilotage company's procedures did not require pilots to inform launch crews of whether manropes would or would not be deployed in advance of the transfer.	Adequately addressed	The ATSB is satisfied that the action taken by Australian Reef Pilots will adequately address this safety issue.

Marine (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
MO-2013-008-SI-05: The ship's pilot transfer procedures had not been revised to incorporate the most recent SOLAS requirements, that manropes be fixed at the rope end to a ring plate fixed to the deck.	Adequately addressed	The ATSB is satisfied that the action taken by Dorval Ship Management will adequately address this safety issue.
MO-2013-010 Crew member fatality on board the general cargo ship *Toucan Arrow* at Portland, Victoria, 7 October 2013		
MO-2013-010-SI-01: The gantry crane in motion warning light nearest to the assistant electrician's location was not operating and the warning sirens were not audible from his location. As a result, he was not provided with either a visual or audible warning of the crane's movement.	Adequately addressed	The additions to the checklist will highlight the dangers associated with working in the vicinity of the gantry cranes.
MO-2013-010-SI-02: The on-board familiarisation process did not ensure that new crew members were informed of the precautions required when working on deck while the gantry cranes were in operation.	Adequately addressed	Gearbulk has made changes to the induction checklist to address the shortfall in danger awareness. In-house investigation findings have been circulated to the fleet for awareness. Signage has been put at each hatch ladder advising that they are not to be used when the gantry cranes are in operation. Investigation is in progress by the company's electrical superintendent, about other measures to engineer out the possibility of a re-occurrence.
MO-2013-010-SI-03: There was a lack of mapping information available to assist the 'triple zero' operator in providing the emergency responders with directions to a defined location within the port area.	Adequately addressed	The actions taken by the Port of Portland and ESTA, prior to and after the accident, will assist with the directing of all emergency services.
MO-2013-010-SI-04: Ambulance Victoria had not ensured that its officers were familiar with the port area and the protocols for opening the permanently locked port access gates.	Adequately addressed	The actions taken by Ambulance Victoria in re-inducting the staff, and the request for ESTA to notify the port's emergency response controller, should prevent future delays in providing emergency medical aid within the port.
MO-2013-010-SI-05: The Port of Portland emergency procedures manual was not circulated to the ambulance service or the shipping agents operating in the port.	Adequately addressed	All emergency services and shipping agents are now recipients of the emergency response plan.

Table 7: Responses to safety issues identified in 2013–14 – Rail

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
RO-2011-009 Failure of wheel on locomotive *SCT008* near Fisher SA on 28 May 2011		
RO-2011-009-SI-01: The wheel inspection processes prior to the failure of locomotive wheel L4 on *SCT 008* were not effective in detecting surface damage or cracks.	Adequately addressed	SCT has advised the following actions: Increase the level of visual inspections at wheel turning and during scheduled maintenance intervals—principally for evidence of impact damage; perform regular ultrasonic testing—principally for evidence of cracking; where integral ultrasonic testing facilities are not available at wheel machining facilities, testing should start after midlife of the wheel when risk of wheel cracking increases.
RO-2011-009-SI-02: Subsurface cracks appeared to be more common on wheels made with Class BM grade steel while operating under conditions of high speed cyclic loading, such as the SCT class locomotives.	Adequately addressed	SCT has advised the following actions: Update the wheel management policies to require a more regular wheel machining regime across the fleet, in the range 130,000 km–150,000 km, removing 4 mm per turn; for future wheel purchases, particularly for high speed operations specify NUVAN class vanadium modified steel that provides increased fracture toughness.
RO-2012-002 Derailment of train *7SP3* near Roto NSW on 4 March 2012		
RO-2012-002-SI-01: The ARTC systems or operational procedures provided limited additional information, or guidance, to assist the network control staff to identify and assess a potential threat to the serviceability of the infrastructure from significant weather events.	Adequately addressed	The ARTC correspondence, dated 2 October 2013, noted the ATSBs comments and has commenced documenting its processes. The development and implementation of processes should be monitored by the ONRSR as part of auditing cycle in administering the corrective action provisions under the Rail Safety Act.
RO-2012-007 Level crossing collision at Werribee Victoria on 25 May 2012		
RO-2012-007-SI-01: The Market Street pedestrian crossing traffic lights do not effectively coordinate with the level crossing equipment. When these lights are operating, vehicles can be forced to queue through the roundabout and thus block traffic that is attempting to exit the level crossing while a train is approaching.	Adequately addressed	The ATSB is satisfied that the action taken by Wyndham City Council addresses this safety issue.

Rail (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
RO-2012-007-SI-02: The level crossing is longer than necessary. Shortening it would reduce the amount of time that a vehicle spends within the crossing and improve the visual information available to motorists when assessing their ability to clear the crossing.	Adequately addressed	The ATSB is satisfied that the action taken/proposed by Wyndham City Council and Metro Trains Melbourne will address this safety issue.
RO-2012-007-SI-03: Once within the level crossing there are no readily visible cues (like short-range lights) to alert a driver that the level crossing protection system is operating.	Adequately addressed	The ATSB is satisfied that the action taken/proposed by Metro Trains Melbourne will address this safety issue.
RO-2012-007-SI-04: There is no available refuge within the island (northbound right lane traffic) to provide a driver with an opportunity to manoeuvre into a safety zone if needed.	Adequately addressed	The ATSB is satisfied that the action proposed by Wyndham City Council should address this safety issue.
RO-2012-009 Train 2AD1 overran its limit of authority at Tarcoola SA on 21 August 2012		
RO-2012-009-SI-01: The Genesee and Wyoming Australia (GWA) safety management system procedures did not provide supervising and trainee drivers with sufficient guidance or direction as to the extent of their supervisory or permitted driving roles.	Adequately addressed	GWA has proposed new policies/procedures, training and systems to mitigate risk of a similar recurrence.
RO-2013-003 SPAD of train 9837 at Hurlstone Park NSW on 30 January 2013		
RO-2013-003-SI-01: Pacific National's fatigue management system is over-reliant on the use of a bio-mathematical model to predict individual fatigue risk, being based principally on rostered work hours, without due consideration of higher level fatigue risk management strategies.	Adequately addressed	Pacific National has acknowledged that there was a problem with their fatigue management and is taking positive steps to appropriately use bio-mathematical models.
RO-2013-003-SI-02: Pacific National Bulk Rail division did not provide training on fatigue management to the driver.	Adequately addressed	Pacific National has acknowledged that there was a problem with their fatigue training and is taking positive steps to improve this aspect of training.
RO-2013-003-SI-03: Pacific National Bulk Rail does not provide coach/tutor drivers with sufficient training and direction as to the nature of their role.	Adequately addressed	Pacific National has acknowledged that there was a problem with training provided for coach/mentor drivers and has taken first steps to address this issue. The personalised training plans are also a positive step.

Rail (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
RO-2013-003-SI-04: Pacific National's SPAD strategy focuses on individual crew actions and the costs of SPADs, rather than developing integrated error tolerant systems of work with regard for the broader systemic issues known to contribute to SPAD events.	Adequately addressed	Pacific National has acknowledged that this area needs review and is taking positive steps to address the issue.
RO-2013-005 Collision between suburban passenger train and platform at Cleveland, Queensland, 31 January 2013		
RO-2013-005-SI-01: Queensland Rail's risk management procedures did not sufficiently mitigate risk to the safe operation of trains in circumstances when local environmental conditions result in contaminated rail running surfaces and reduced wheel/rail adhesion.	Adequately addressed	The Australian Transport Safety Bureau is satisfied that action taken by Queensland Rail addresses this safety issue.
RO-2013-005-SI-03: Poor wheel/rail adhesion was not recognised as a risk in any of Queensland Rail's risk registers and therefore, this risk to the safety of rail operations was not being actively managed.	Adequately addressed	The Australian Transport Safety Bureau is satisfied that action taken by Queensland Rail addresses this safety issue.
RO-2013-005-SI-04: Despite numerous occurrences of slip-slide events in the years leading up to the accident at Cleveland, Queensland Rail's risk management processes did not precipitate a broad, cross-divisional, consideration of solutions to the issue including an investigation of the factors relating to poor wheel/rail adhesion.	Adequately addressed	Queensland Rail has implemented safety strategies across divisions. Queensland Rail advised that it has implemented a Discipline Head Framework. This Framework makes technical experts accountable for aspects of the Queensland Rail Safety and Environment Management System across nine specific disciplines. As part of implementing the Framework, safety bow ties have been identified and agreed to by all discipline heads. Each discipline head is responsible for identifying discipline specific risks and controls. To ensure a cohesive approach to risk management, risk registers are shared between discipline heads to ensure that no gaps exist in the identification, assessment and control of safety risks. This process ensures that cross-discipline risks are identified, assessed and controlled. The Australian Transport Safety Bureau is satisfied that action taken by Queensland Rail addresses this safety issue.

Rail (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
RO-2013-005-SI-05: Queensland Rail's strategic risk monitoring and analysis processes were ineffective in precipitating appropriate safety action to the findings and recommendations of their investigations into the Beerwah SPADs in 2009—which identified wheel/rail adhesion issues.	Adequately addressed	On 13 March 2014, Queensland Rail advised the ATSB that the Governance Risk & Compliance system will be implemented on or before 30 April 2014 to manage recommendations derived from safety investigations. The Australian Transport Safety Bureau is satisfied that action taken by Queensland Rail addresses this safety issue.
RO-2013-005-SI-06: The mass of the two IMU or SMU class train units travelling on the Cleveland line were commonly heavier than the design specification of the buffer stop at Cleveland station. It is probable that Queensland Rail's risk management systems did not consider this design criterion for these train configurations arriving at Cleveland station.	Adequately addressed	Queensland Rail advised that since the Cleveland collision a friction modified buffer stop system has been implemented, and track speed has been reduced to 15 km/h pending investigations. The Australian Transport Safety Bureau is satisfied that action taken by Queensland Rail addresses this safety issue.
RO-2013-005-SI-07: Queensland Rail's strategic risk monitoring and analysis processes were ineffective in identifying safety issues pertinent to their fleet from rail safety occurrences in other jurisdictions involving poor wheel/rail adhesion.	Adequately addressed	Queensland Rail advised: The Interim Appraisal Report of the Wheel Rail Interface Working Group has identified a range of measures to better identify, and subsequently mitigate, risks associated with specific types of rolling stock within our fleet including learning from other jurisdictions nationally and internationally. Queensland Rail advised that further work in relation to this learning is to be undertaken. The Australian Transport Safety Bureau is satisfied that action being taken by Queensland Rail addresses this safety issue.
RO-2013-005-SI-08: The national rail occurrence standard and guidelines (ON-S1/ OC-G1) do not include significant train wheel slip/slide occurrences as a notification category/type, which has the potential to lead to rail safety regulators being unaware of significant and/or systemic safety issues related to wheel/rail adhesion.	Adequately addressed	The Office of the National Rail Safety Regulator (ONRSR) has committed to revise the Standard ON-S1, but this has not been approved through consensus of all State and Territory jurisdictions. The Australian Transport Safety Bureau is satisfied that action taken by the ONRSR addresses this safety issue.

Rail (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
RO-2013-005-SI-09: The Queensland Rail driver's manual did not explain the effects of low adhesion at the wheel/rail interface, how low adhesion is a precursor to prolonged wheel slide events and why these elements reduce the likelihood of achieving expected braking rates.	Adequately addressed	Under Queensland Rail's Safety and Environment Management System, a standard details the required actions for RTC, network control, network maintenance staff, rolling stock engineers and rail safety management following a wheel slide event. These actions were documented following the release of the ATSB's preliminary report into the Cleveland collision incident and communicated to relevant stakeholders. The procedures have also been incorporated in Queensland Rail's Train Management Manual. The Australian Transport Safety Bureau is satisfied that action being taken by Queensland Rail addresses this safety issue.
RO-2013-005-SI-10: The successful management of an emergency event from a remote location is critically dependent on clear and effective communication protocols. Communications within train control, and between train control and Cleveland station, were not sufficiently coordinated and resulted in misunderstandings at the Cleveland station accident site.	Adequately addressed	The ATSB notes that Queensland Rail continues to develop effective internal communication protocols to prevent misunderstandings between staff during an emergency incident response. The Australian Transport Safety Bureau is satisfied that action taken by Queensland Rail addresses this safety issue.
RO-2013-005-SI-11: Emergency management simulation exercises to test the preparedness of network control staff, train crew, and station customer service staff to respond cooperatively to rail safety emergencies had not been undertaken in accordance with the Queensland Rail Emergency Management Plan.	Adequately addressed	The ATSB is satisfied that the action taken by Queensland Rail addresses this safety issue.
RO-2013-005-SI-12: The Queensland Rail internal emergency debrief following the Cleveland station collision identified issues related to working with external agencies but did not address critical communication shortfalls within train control and between train control and the staff located at the Cleveland station accident site.	Adequately addressed	The ATSB is satisfied that the action taken by Queensland Rail addresses this safety issue.

Rail (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
RO-2013-006 Derailment of train 3MC1 near Locksley, Victoria on 12 February 2013		
RO-2013-006-SI-01: The ARTC had not instigated proactive action to manage the increased risk of a buckling event in accordance with their procedure ETM-06-06 (Managing Track Stability—Concrete Sleepered Track) at section 1.11.5—'Special Locations'.	Adequately addressed	The Australian Rail Track Corporation has advised that: Track maintenance staff has been provided with additional training on the consequences of multiple track disturbances altering the stress free temperature of rail track. The training will provide an enhanced level of compliance with the requirements of procedure ETM-06-06 (Managing Track Stability—Concrete Sleepered Track). Other action taken by the Australian Rail Track Corporation: Following the derailment and subsequent reinstatement of the track, the Australian Rail Track Corporation undertook stress free temperature testing at ten sites near the 'Point of Derailment'. Tests established that the rail stress free temperature is within specified tolerances. The Australian Rail Track Corporation has implemented a ballast remediation program on the Melbourne-Sydney rail corridor. This work will continue as programmed until completed, following which further works will be undertaken at sites having identified formation weakness.
RO-2013-011 Level crossing collision between motor vehicle and freight train at Brown Street, Allansford near Warrnambool, Victoria on 19 March 2013		
RO-2013-011-SI-01: Brown St Level Crossing was identified as having poor sighting by the infrastructure manager V/Line. Calculations carried out to ensure compliance with AS 1742.7 2007 indicates that minimum sighting distances and maximum angles were not met.	Adequately addressed	Brown Street level crossing has been closed until it is equipped with active traffic controls.
RO-2013-011-SI-02: The Stop Ahead sign when approaching the Brown St level crossing from the north was missing.	Adequately addressed	Signage has been reinstalled.
RO-2013-012 Derailment of train 331 near Lowdina, Tasmania on 9 April 2013		
RO-2013-012-SI-01: The twist defect was not detected by TasRail's inspection/monitoring systems, increasing the risk of derailment.	Adequately addressed	The ATSB is satisfied that the action taken by TasRail should address this safety issue.

Rail (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
RO-2013-012-SI-02: TasRail had not instigated proactive action to manage the elevated risks associated with ongoing track stability issues at, or near, the derailment site in accordance with their maintenance procedures.	Adequately addressed	The ATSB is satisfied that the proposed action taken by TasRail should address this safety issue.
RO-2013-012-SI-03: Track inspections were not consistently conducted at intervals in accordance with TasRail's standard.	Adequately addressed	The ATSB is satisfied that the proposed action taken by TasRail should address this safety issue.
RO-2013-013 Signal irregularity at Culcairn, NSW on 7 April 2013		
RO-2013-013-SI-01: There was insufficient verifiable data to clearly determine and substantiate any potential safety issues associated with the signalling system at Culcairn North.	Adequately addressed	The Rail Industry Safety and Standards Board (RISSB) has advised that 'RISSB will encourage its membership and the wider rail industry to adopt the use of independent data validation systems, such as forward facing video on trains, to assist with coming to a better understanding of rail occurrence events, such as signal irregularities. Further, RISSB will actively communicate this intent through its regular Safety Management Group meetings, in conjunction with the ATSB'.
RO-2013-014 Collision between two road-rail vehicles near Rinadeena, Tas on 04 June 2013		
RO-2013-014-SI-01: West Coast Wilderness Railway had not considered all of the risks associated with the operation of road-rail vehicles on the steep railway. As a result, documented operational procedures had not been developed and locations where vehicles could be safely on/off railed had not been defined.	Adequately addressed	The ATSB is satisfied that the actions taken by West Coast Wilderness Railway and the Office of National Rail Safety Regulator address this safety issue.
RO-2013-014-SI-04: The training provided to the West Coast Wilderness Railway road-rail vehicle operators did not identify and incorporate local specific training requirements, such as operating on very steep grades and the use of radios.	Adequately addressed	The ATSB is satisfied that the action taken by West Coast Wilderness Railway, in engaging a registered training organisation (RTO) and developing a training package that recognises specific risks for road-rail vehicles operating on their network, addresses this safety issue.

Rail (continued)

SAFETY ISSUE	STATUS	STATUS JUSTIFICATION
RO-2013-014-SI-05: Rinadeena Station was the only emergency meeting point between Queenstown and Strahan, and the only road access point on the rack between Halls Creek and Dubbil Barril. However, the Rinadeena Station radio was not maintained in a serviceable state at all times.	Adequately addressed	The ATSB is satisfied that the action taken by West Coast Wilderness Railway addresses this safety issue.
RO-2013-014-SI-06: West Coast Wilderness Railway had not developed and implemented a specification for the design, fitment and safety performance of road-rail vehicle rail guidance equipment.	Adequately addressed	The ATSB is satisfied that the action taken by West Coast Wilderness Railway in specifying design, fitment and safety performance of road-rail vehicle rail guidance equipment has addressed this safety issue.
RO-2013-014-SI-07: The West Coast Wilderness Railway did not have a documented process of testing road-rail vehicles.	Adequately addressed	The ATSB is satisfied that the action taken by West Coast Wilderness Railway in having a process to commission and test road-rail vehicle rail guidance equipment has addressed this safety issue.
RO-2013-014-SI-08: The West Coast Wilderness Railway did not have documented radio communication procedures and their staff were not trained in the use of radios. As a result, radio protocols were not formalised and communications were ad hoc and casual in nature.	Adequately addressed	The ATSB is satisfied that the action taken by West Coast Wilderness Railway in the revised training package and the included availability of radios while on and off tracking road-rail vehicles has addressed this safety issue.
RO-2013-023 Level crossing collision between passenger train 7MA8 and a road vehicle, Inverleigh, Victoria, 31 August 2013		
RO-2013-023-SI-01: The boundary fence between the railway maintenance access track and Gallagher Road had been removed. As a result, over time and with regular use, the false perception that the maintenance access track was part of Gallagher Road was created and reinforced.	Adequately addressed	The Australian Rail Track Corporation and the Golden Plains Shire have advised that they will work together to permanently isolate the rail corridor from Gallagher Road.
RO-2013-024 Level crossing collision at Pettavel Road, Mount Moriac, Victoria on 07 September 2013		
RO-2013-024-SI-01: A review of the signage requirements for compliance with Australian Standard AS1742.7-2007, *Manual of uniform traffic control devices, Part 7: Railway crossings* indicated that 'Railway Crossing Ahead' W3-1 sign was located at 97 m from Stop sign. The AS 1742.7-2000 requires the minimum distance to be 180m for a 100km/h road	Adequately addressed	Signage has been relocated as required by the AS 1742.7-2007.

Safety actions

Table 8: Numbers of safety actions released in 2013–14

SAFETY ACTION TYPE	AVIATION	MARINE	RAIL	TOTAL
Associated with significant safety issues				
Proactive safety action	16	17	7	40
Safety Advisory Notice	1	2	0	3
Safety Recommendation	10	3	2	15
Associated with minor safety issues				
Proactive safety action	22	9	23	54
Safety Advisory Notice	0	0	2	2
Safety Recommendation	0	0	8	8
Not associated with a safety issue				
Safety Advisory Notice	1			1
Total	**50**	**31**	**42**	**123**

ATSB recommendations closed in 2013–14

Table 9: ATSB recommendations closed in 2013–14 – Aviation

Investigation	AO-2012-012: Loss of separation between Airbus A320, registered 9V-TAZ, and Airbus A340, registered A6-EHH, near TANEM (IFR reporting point), 907 km north-west of Karratha, Western Australia on 18 January 2012
Safety issue	The air traffic services provider had limited formal guidance regarding how to determine appropriate consolidation periods for en route controllers on one sector, before they were transitioned to commence training on another sector.
Number	AO-2012-012-SR-017
Organisation	Airservices Australia
Recommendation	The ATSB recommends that Airservices Australia takes safety action to address the limited formal guidance regarding how to determine appropriate consolidation periods for en route controllers on one sector, before they were transitioned to commence training on another sector.
Released	18 October 2013
Final action	14 January 2014

Aviation (continued)

Final action	Airservices agrees with the safety issue and has reviewed the existing guidance material for determining appropriate consolidation periods for controllers, before they were transitioned to commence training on another sector. As a result of the review, Airservices has published a template with guidance material to standardise the process for the authorisation to reduce approved training timeframes, including on-the-job training and published consolidation period. The template is included in Attachment 1. In addition, Airservices is developing the guidance material for determining a risk-based assessment of knowledge and skill consolidation. This is to provide a robust, documented determination of controller readiness to progress to further training. This will also include the explicit consultation requirement with the controller themselves and relevant training specialist. The above-mentioned guidance material will be incorporated into the new 'ATS Training Operations Manual' which is planned to be published by the first half of 2014 and will provide the underlying governance, procedures, and processes to assure the delivery of fit-for-purpose, regulatory compliant, safe, and quality training outcomes for ATC Group. Airservices considers that the above actions have addressed the safety issue and ATSB's safety recommendation.
Investigation	AO-2012-012: Loss of separation between Airbus A320, registered 9V-TAZ, and Airbus A340, registered A6-EHH, near TANEM (IFR reporting point), 907 km north-west of Karratha, Western Australia on 18 January 2012
Safety issue	The air traffic services provider had limited formal guidance to controllers and pilots regarding the conditions in which it was safe and appropriate to use block levels.
Number	AO-2012-012-SR-018
Organisation	Airservices Australia
Recommendation	The Australian Transport Safety Bureau recommends that Airservices Australia takes safety action to address the limited formal guidance to controllers and pilots regarding the conditions in which it was safe and appropriate to use block levels.
Released	18 October 2013
Final action	14 January 2014

Aviation (continued)

Final action	Airservices does not agree with the safety issue and the associated ATSB safety recommendation. Airservices has completed an analysis of the use of existing block level clearance and the adequacy of Australian guidance material and procedures in comparison with international practices. In particular, the Australian procedures were benchmarked against those required in the ICAO Doc 4444 and applied by ANSPs [Air Navigation Service Providers] in the USA, UK and Canada. The analysis confirmed that the Australian procedures are common with international practices, and provide adequate instructions and guidance for the application of block levels. In addition, Airservices has also assessed the use of block levels within Australian airspace. The assessment confirmed the following: There is ongoing benefit in the use of block levels to provide operational efficiency to aircraft operators, assist with ATC workload management through reduced communications and coordination requirements, and harmonise the practices of neighbouring ANSPs. There were a very small number of ATS-attributable occurrences (three in the last five years) involving the use of block level clearances. This occurrence does not indicate significant safety risks with the use of block levels, particularly having consideration to approximately 100,000 block level clearances issued in Australia per annum (including 36,000 used above 20,000ft or about 100 per day).
Investigation	AO-2012-047: Losses of separation assurance involving Airbus A330-243, registered PK-GPO, and Airbus A330-341, registered PK-GPA, near ATMAP (IFR reporting point), Western Australia on 31 March 2012
Safety issue	Airservices Australia's processes for managing a Temporary Restricted Area did not effectively ensure that all aircraft operating in the Temporary Restricted Area were known to air traffic services.
Number	AO-2012-047-SR-031
Organisation	Airservices Australia
Recommendation	The ATSB recommends that Airservices Australia take further safety action to address the processes for managing a Temporary Restricted Area, to effectively ensure that all aircraft operating in a Temporary Restricted Area are known to air traffic services.
Released	21 February 2014
Final action	30 May 2014

Aviation (continued)

Final action	The En Route Contingency Plan template has been updated to clarify the accountability for communication with aircraft operators assigned to the Contingency Response Manager CRM (or ORM) [Operations Room Manager]. Airservices continues to participate in ICAO Asia Pacific Regional Contingency Plan Task Force (RACP/TF), to develop formalised agreement with neighbouring ANSPs to follow standardised ICAO template for contingency plans. This will further improve communications and coordination across FIR boundaries in contingency situations, which impact on neighbouring ANSPs. The improved CRM training [see Safety Issue AO-2012-047-SI-02] now covers specific actions regarding the management of aircraft in the TRA [Temporary Restricted Area], or aircraft that could potentially enter the TRA. The training is intended to equip the CRM to effectively undertake actions to determine aircraft in the TRA at time of contingency plan activation, and to determine which aircraft have flight planned to enter the TRA. CRMs are also trained to develop a specific action plan and relaying this plan and required actions to affected surrounding units. An improvement since the occurrence is the change of the physical location of the workstations for Flightwatch International (FWI) officers, from a separate room to being in the same room as the air traffic controllers and/or CRMs during TIBA [Traffic Information Broadcasts by Aircraft] operations. The co-location of FWI officers in the same environment where the Contingency Operation is being managed provides a further level of assurance that all ATS parties will be briefed to the same level of understanding, and closely monitored for compliance.
Investigation	AO-2012-047: Losses of separation assurance involving Airbus A330-243, registered PK-GPO, and Airbus A330-341, registered PK-GPA near ATMAP (IFR reporting point), Western Australia on 31 March 2012
Safety issue	Airservices Australia's processes for reviewing and testing contingency plans did not effectively ensure that all documented contingency plan details were current, and that its contingency plans could be successfully implemented at short notice.
Number	AO-2012-047-SR-030
Organisation	Airservices Australia
Recommendation	The ATSB recommends that Airservices Australia takes safety action to address the processes for reviewing and testing contingency plans, to ensure that they are effective in ensuring that all documented contingency plans are current and can be successfully implemented at short notice.
Released	21 February 2014
Final action	30 May 2014

Aviation (continued)

Final action	The ATS Business Continuity Manager role has been filled within the ATC Group. This role provides technical assistance and coordination across the Group to facilitate the compliance with the process requirements for the review, test and update of ATS contingency plans. The role also provides national-level standardisation and monitoring, to assure that ATS contingency plans are current, fit-for-purpose and can facilitate practical implementation. The contingency plan test/review requirements have been strengthened to require the provision of documented evidence of testing and outcomes of reviews. Three and six monthly reviews are required to be recorded in the Airways Operation Journal, and the annual test and quality review is required to be recorded in a Post Activation Report. In addition, Airservices instructions require that a report on the activation of business continuity and contingency plans, whether for testing or an actual event, must be provided to Operations Support Branch. All annual desktop exercise recommendations, lessons learnt and associated actions must now be tracked in Airservices CIRRIS system. This supports the national assurance that lessons learned and continuous improvement issues previously identified are acted upon in a timely and systematic manner. In addition, an internal review of relevant contingency documentation was undertaken to determine if the likelihood of unknown aircraft in the airspace during the contingency period, or on resumption of services, has been reduced to As Low As Reasonable Practicable (ALARP). This review has identified a number of other process improvements which will be tracked via the CIRRIS system. Furthermore, Airservices continues to participate in ICAO Asia-Pacific Regional Contingency Plan Task Force (RACP/TF) to develop formalised agreement with neighbouring ANSPs to follow standardised ICAO template for contingency plans. This will further improve the communications and coordination across FIR boundaries in contingency situations which impact on neighbouring ANSPs.
Investigation	AR-2012-034: Loss of Separation between aircraft in Australian airspace: 2008 to June 2012
Safety issue	Loss of separation (LOS) incidents attributable to pilot actions in civil airspace are not monitored as a measure of airspace safety, nor actively investigated for insight into possible improvements to air traffic service provision. As about half of all LOS incidents are from pilot actions, not all available information is being fully used to assure the safety of civilian airspace.
Number	AR-2012-034-SR-016
Organisation	Civil Aviation Safety Authority
Recommendation	The ATSB recommends that the Civil Aviation Safety Authority, in consultation with Airservices Australia and major aircraft operators, use all available information to assure the safety of civilian airspace through actively monitoring and investigating loss of separation incidents attributable to pilot actions, in addition to the current focus on air traffic services-attributable occurrences.
Released	18 October 2013
Final action	15 April 2014

Aviation (continued)

Final action	CASA acknowledges (a) that the ATSB has changed the owner of this safety issue from Airservices Australia to CASA, and (b) the revised wording of the safety recommendation. I accept this safety recommendation and CASA will address the issue. CASA currently monitors and reviews safety occurrence data, including reported Loss of Separation (LOS) incidents, to determine whether a potential safety issue exists or there has been a regulatory breach. This process is described in the CASA Surveillance Manual. Occurrences are assessed to determine their criticality, and appropriate follow-up investigative actions are determined with regard to a number of factors. Some information can be, and often is, obtained through consultation with Airservices Australia and from internal investigations conducted by aircraft operators. CASA will assess every reported LOS event involving or related to a Regular Public Transport aircraft. If that assessment indicates the event was caused by pilot error, CASA will conduct further investigations into the event and record the outcomes of that investigation.

Table 10: ATSB recommendations closed in 2013–14 – Marine

Investigation	MI-2010-011: Independent investigation into Queensland Coastal Pilotage operations
Safety issue	Risk identification and mitigation in coastal pilotage operations is inadequate as a result of the under-reporting of risk events and incidents by pilots. Indicators of the inadequacies in risk management and/or under-reporting amongst the 82 pilots surveyed included: • significant under-reporting where the number of grounding or collision risk events claimed by pilots in 2010 was about 10 times the number included in AMSA and pilotage provider incident records; • pilots citing reasons for under-reporting being: personal disadvantage, lack of corrective action taken, no risk reduction and remuneration risk/ organisational pressure; and • no process to record and analyse informal reports made by pilots to AMSA.
Number	MI-2010-011-SR-052
Organisation	Australian Reef Pilots
Recommendation	The ATSB recommends that Australian Reef Pilots takes further action to facilitate action taken by the Australian Maritime Safety Authority, to address the safety issue.
Released	24 October 2012
Final action	21 August 2013
Final action	We have been working very hard to develop an organisational culture which encourages and rewards risk event reporting. Whilst this has been a challenging process, we are seeing positive results. A recent example was a pilot fall from a pilot ladder. This event was promptly reported and Australian Reef Pilots (ARP) immediately invited ATSB to conduct an investigation. ARP has fully cooperated and awaits the investigation report in anticipation of applying lessons learned to improve our operations.

Marine (continued)

Investigation	MO-2012-001: Independent investigation into the foundering of the Panama registered general cargo ship *Tycoon* at Christmas Island on 8 January 2012
Safety issue	A risk assessment for mooring a ship at the inner moorings had never been undertaken. As a result, the risks associated with leaving a ship at the inner moorings overnight during the swell season were not properly identified, and strategies to minimise those risks were not implemented.
Number	MO-2012-001-SR-011
Organisation	Patrick Ports
Recommendation	The ATSB recognises that the actions taken by Patrick are a step in the process of effectively assessing the risks posed to the port and its operations. However, the ATSB recommends that Patrick takes further action to carry through with its intent to address this safety issue.
Released	23 May 2013
Final action	19 September 2013
Final action	Patrick organised and led a risk assessment workshop, which included various local stakeholders.
Investigation	MO-2012-010: Stevedore fatality on board the general cargo ship *Weaver Arrow* at Newcastle, New South Wales, 23 September 2012.
Safety issue	The stevedoring company had not identified stevedore fatigue as a risk to the company or its operations and, as a result, had not implemented a system to manage fatigue. Consequently, its operations were exposed to a level of fatigue-related risk that had not been assessed and treated.
Number	MO-2012-010-SR-009
Organisation	Newcastle Stevedores
Recommendation	The ATSB recommends that Newcastle Stevedores takes further action to address the issue concerning stevedore fatigue in its operations.
Released	04 June 2013
Final action	30 August 2013
Final action	In response to the ATSB recommendation, Newcastle Stevedores has taken action that should address the safety issue. In summary, the safety actions taken and proposed by the company include developing formal fatigue and working hours policies. The company entered into discussion and consultation with the Maritime Union of Australia (MUA) to address the issue, and has committed to providing training on the subject to its stevedores. Measures to reduce fatigue risk include decreased shift lengths and limited shift extensions. Newcastle Stevedores has increased the frequency of drug and alcohol testing to further reduce risk, and has engaged a consultant to assist with fatigue management. The company's fatigue management policies and procedures are to be formally implemented from 6 September 2013, with stevedore training commencing in October 2013.

Table 11: ATSB recommendations closed in 2013–14 – Rail

Investigation	RO-2012-002: Derailment of train 7SP3 near Roto NSW on 4 March 2012
Safety issue	The Australian Rail Track Corporation (ARTC) systems or operational procedures provided limited additional information or guidance to assist the network control staff to identify and assess a potential threat to the serviceability of the infrastructure from significant weather events.
Number	RO-2012-002-SR-003
Organisation	Australian Rail Track Corporation
Recommendation	The ATSB recommends that Australian Rail Track Corporation Limited undertake further work to address operational procedures/instructions that provide limited additional information or guidance to assist the network control staff to identify and assess a potential threat to the serviceability of the infrastructure from significant weather events.
Released	30 August 2013
Final action	02 October 2013
Final action	The ARTC has noted the safety recommendation and is documenting the processes in Network Control for the interaction between infrastructure maintainers and above rail operators during imminent and actual severe weather events.
Investigation	RO-2012-007: Level crossing collision at Werribee VIC on 25 May 2012
Safety issue	Once within the level crossing there are no readily visible cues (like short range lights) to alert a driver that the level crossing protection system is operating.
Number	RO-2012-007-SR-007
Organisation	Metro trains Melbourne
Recommendation	The ATSB recommends that Metro Trains takes further action in relation to the fitting of short range lights at the Cherry Street level crossing.
Released	18 December 2013
Final action	07 April 2014

Rail (continued)

Final action	A meeting was held on 9th January 2014 between VicTrack, Metro Trains Melbourne, VicRoads and Wyndham City officers to investigate and discuss actions and staging of treatment to enhance the safety of the Cherry Street crossing. From the meeting, the following actions occurred: • VicRoads is to further enhance the coordination of the red meter light at Railway Avenue. • a business case was submitted by VicTrack to Public Transport Victoria for funding to: – further enhance the coordination of the pedestrian crossing light with the level crossing – the installation of two meter red lights on Market Road – the installation of backlight on the existing Flashing Light masts; and > the installation of 'Keep Track Clear' sign > the installation of a refuge area > to reduce the width of the level crossing. VicTrack has confirmed that a funding sum will be provided for these works. The specific details of the scope of works and design are to be prepared between the agencies.
Investigation	RO-2012-007: Level crossing collision at Werribee VIC on 25 May 2012
Safety issue	The level crossing is longer than necessary. Shortening it would reduce the amount of time that a vehicle spends within the crossing, and would also improve the visual information available to motorists when assessing their ability to clear the crossing.
Number	RO-2012-007-SR-005
Organisation	Metro trains Melbourne
Recommendation	The ATSB recommends that Metro Trains takes further action in consultation with Wyndham City Council, in relation to the shortening of the Cherry Street level crossing.
Released	18 December 2013
Final action	07 April 2014

Rail (continued)

Final action	A meeting was held on 9th January 2014 between VicTrack, Metro Trains Melbourne, VicRoads and Wyndham City officers to investigate and discuss actions and staging of treatment to enhance the safety of the Cherry Street crossing. From the meeting, the following actions occurred: • VicRoads is to further enhance the coordination of the red meter light at Railway Avenue • a business case was submitted by VicTrack to Public Transport Victoria for funding to: – further enhance the coordination of the pedestrian crossing light with the level crossing – the installation of two meter red lights on Market Road – the installation of backlight on the existing Flashing Light masts; and • the installation of 'Keep Track Clear' sign. • the installation of a refuge area. • to reduce the width of the level crossing. VicTrack has confirmed that a funding sum will be provided for these works. The specific details of the scope of works and design are to be prepared between the agencies.
Investigation	RO-2012-007: Level crossing collision at Werribee VIC on 25 May 2012
Safety issue	The level crossing is longer than necessary. Shortening it would reduce the amount of time that a vehicle spends within the crossing, and improve the visual information available to motorists when assessing their ability to clear the crossing.
Number	RO-2012-007-SR-006
Organisation	Wyndham City Council
Recommendation	The ATSB recommends that Wyndham City Council takes further action in consultation with Metro Trains in relation to the shortening of the Cherry Street level crossing.
Released	18 December 2013
Final action	07 April 2014

Rail (continued)

Final action	A benefit of the longer distance between the boom barrier and the distance to the rail being 10 metres, is that this area or length could be used as a refuge area if a south bound vehicle is trapped across a track. It is suggested that this benefit has a real and higher value than moving the north bound stop line (and associated boom barrier, etc.) closer to the track. It is not clear that there is a tangible benefit to reduce the distance to the rail. Wyndham City considers that improved coordination and linking of all traffic signals, as well as the installation of additional signals, provide better actions and results than relocating the barrier equipment on the south side of the crossing. Further, Wyndham City officers consider the benefit of a possible refuge area negates the action to reduce the crossing width for north bound vehicles. Signage will need to be created and installed to highlight the refuge aspect in the case of an emergency. This will need to be discussed with the railway agencies. It is believed that while there are some merits to reduce the level crossing width for the Cherry Street crossing—and a business case has been put up to VicTrack to gain funding to reduce the width of the level crossing—this work should be considered to be a lower priority than the works indicated above. A meeting was held on 9th January 2014 between VicTrack, Metro Trains Melbourne, VicRoads and Wyndham City officers to investigate and discuss actions, and staging of treatment, to enhance the safety of the Cherry Street crossing. From the meeting, the following actions occurred: • VicRoads is to further enhance the coordination of the red meter light at Railway Avenue. • a business case was submitted by VicTrack to Public Transport Victoria for funding to: – further enhance the coordination of the pedestrian crossing light with the level crossing – the installation of two meter red lights on Market Road – the installation of backlight on the existing Flashing Light masts; and > the installation of 'Keep Track Clear' sign > the installation of a refuge area > to reduce the width of the level crossing. VicTrack has confirmed that a funding sum will be provided for these works. The specific details of the scope of works and design are to be prepared between the agencies.
Investigation	RO-2012-007: Level crossing collision at Werribee VIC on 25 May 2012
Safety issue	There is no available refuge within the island (northbound right lane traffic) to provide a driver with an opportunity to manoeuvre into a safety zone if needed.
Number	RO-2012-007-SR-008
Organisation	Wyndham City Council
Recommendation	The ATSB recommends that Wyndham City Council takes further action in relation to the provision of refuge/escape areas at the Cherry Street level crossing.
Released	18 December 2013

Rail (continued)

Final action	07 April 2014
Final action	The creation of a refuge area using the island is a difficult project and Wyndham officers consider it has a lower priority than actions associated with the preceding aspects. The following points are noted about this aspect: • A driver cannot physically access a refuge area created on the island if blocked in the right lane on the track by the car in front because the following car is too close. • Creation of a refuge area (open area) on the island will require relocation of the crossing equipment, probably into non-standard locations. This could be contrary to the desires of the ATSB. ATSB and railway agency response to this is sought. • There is a possible 'natural' refuge area on the east side of the central island–the southbound lanes immediately south of the boom barrier. The distance between the boom barrier and the closest rail is 3.5 metres. Relocation of the boom barrier equipment two metres north (and associated line marking/other signage) would provide sufficient space for a vehicle to store. This will require funding from PTV for relocation of the equipment. • If a southbound vehicle is trapped on the tracks, there is a natural refuge area utilising the lane area between the boom barrier and the rail associated with the northbound lanes. The distance between the boom barrier and the rail is 10 metres, which provides an excellent natural refuge area. No changes or works are required to create a refuge in this case. Signage would need to be created and installed to highlight these areas/actions in the case of an emergency. This will need to be discussed with the railway agencies. A meeting was held on 9th January 2014 between VicTrack, Metro Trains Melbourne, VicRoads and Wyndham City officers to investigate and discuss actions and staging of treatment, to enhance the safety of the Cherry Street crossing. From the meeting, the following actions occurred: • VicRoads is to further enhance the coordination of the red meter light at Railway Avenue • a business case was submitted by VicTrack to Public Transport Victoria for funding to: – further enhance the coordination of the pedestrian crossing light with the level crossing – the installation of two meter red lights on Market Road – the installation of backlight on the existing Flashing Light masts; and > the installation of 'Keep Track Clear' sign > the installation of a refuge area > to reduce the width of the level crossing. VicTrack has confirmed that a funding sum will be provided for these works. The specific details of the scope of works and design are to be prepared between the agencies.

Rail (continued)

Investigation	RO-2013-005: Collision between suburban passenger train and platform at Cleveland, QLD, 31 January 2013
Safety issue	Queensland Rail's risk management procedures did not sufficiently mitigate risk to the safe operation of trains, in circumstances when local environmental conditions result in contaminated rail running surfaces and reduced wheel/ rail adhesion.
Number	RO-2013-005-SR-001
Organisation	Queensland Rail
Recommendation	The ATSB recommends that Queensland Rail take action to mitigate risk to the safe operation of their trains, in circumstances when local environmental conditions result in contaminated rail running surfaces and reduced wheel/ rail adhesion.
Released	13 March 2013
Final action	09 April 2014
Final action	On 13 March 2014, Queensland Rail advised the ATSB that: 1. Actions have been undertaken which specifically deal with the safe operation of trains and the mitigation of risk when local environmental conditions result in contaminated rail running surfaces and reduced wheel/ rail adhesion. The General Manager Train Service Delivery (TSD) distributed a 'Critical Safety Alert' to Rail Traffic Crew (11/2013) Project Manager Rolling stock on 5 March 2013 regarding IMU 160 and SMU 260 class rolling stock, together with a 'Notice to Rail Traffic Crew on 19 March 2013, regarding train unit excessive slide events (this was subsequently withdrawn). TSD has facilitated the Service Delivery Conditions of Low Adhesion Course on 19 Apri12013. The GM TSD distributed an 'Important Operational Notice' to Rail Traffic Crew on 1 July 2013 regarding the release of MD-13-476 'Management of Rail Traffic Wheel Slide Events' standard. TSD reviewed MD-11.282 'Train Service Delivery Professional Driving Train Management—Train Units' procedure on 30 October 2013. Version 2.0 includes section 2.10, which deals with stopping the train in conditions of low adhesion. Review of this procedure will be in accordance with Queensland Rail's Safety and Environment Management System (SEMS). 2. Queensland Rail is currently finalising funding on its train sanding system. Funding is expected to be finalised by the end of March 2014. Discussions are being held as to the final design of the sanding system, based on additional data collected from testing on revenue services. Initial planning is underway for sand storage and/or distribution methods. Queensland Rail is also currently collecting pricings for the installation of the sanders from suitable contractors. Installation is scheduled to commence around October 2014. It is anticipated that installation will be complete by the end of July 2015. Queensland Rail continues to undertake adequate actions post-Cleveland incident, to mitigate the risk of reduced wheel/rail adhesion due to environmental conditions.

Rail (continued)

Investigation	RO-2013-005: Collision between suburban passenger train and platform at Cleveland, QLD, 31 January 2013
Safety issue	Poor wheel/rail adhesion was not recognised as a risk in any of Queensland Rail's risk registers, therefore this risk to the safety of rail operations was not being actively managed.
Number	RO-2013-005-SR-014
Organisation	Queensland Rail
Recommendation	The Australian Transport Safety Bureau recommends that Queensland Rail undertake further work to ensure poor wheel/rail adhesion is recognised, assessed and controlled under the new risk management framework.
Released	04 November 2013
Final action	08 April 2014
Final action	Queensland Rail has implemented a new Governance & Risk Compliance System (GRC), which is designed to improve risk management and actions to identify, and monitor, safety issues identified from internal investigations.
Investigation	RO-2013-005: Collision between suburban passenger train and platform at Cleveland, QLD, 31 January 2013
Safety issue	The successful management of an emergency event from a remote location is critically dependent on clear and effective communication protocols. Communications within train control, and between train control and Cleveland station, were not sufficiently coordinated and resulted in misunderstandings at the Cleveland station accident site.
Number	RO-2013-005-SR-021
Organisation	Queensland Rail
Recommendation	The Australian Transport Safety Bureau recommends that Queensland Rail undertake further work to address this safety issue.
Released	04 November 2013
Final action	08 April 2014
Final action	Cross functional training for control centre staff, station staff and other personnel that have emergency management appointments and improved communication protocols internally within control centres as well as between control centre and the incident site, will rest with the appropriate level of management and functional area. Queensland Rail advised the completion date to address this safety issue is 31 May 2014.

Rail (continued)

Investigation	RO-2013-005: Collision between suburban passenger train and platform at Cleveland, QLD, 31 January 2013
Safety issue	Queensland Rail's strategic risk monitoring and analysis processes were ineffective in precipitating appropriate safety action to the findings and recommendations of their investigations into the Beerwah SPADs in 2009, which identified wheel/rail adhesion issues.
Number	RO-2013-005-SR-016
Organisation	Queensland Rail
Recommendation	The Australian Transport Safety Bureau recommends that Queensland Rail undertake further work to address this safety issue.
Released	20 December 2013
Final action	07 April 2014
Final action	Queensland Rail has implemented a new Governance & Risk Compliance System (GRC), which is designed to improve risk management and actions to identify and monitor safety issues identified from internal investigations.
Investigation	RO-2013-005: Collision between suburban passenger train and platform at Cleveland, QLD, 31 January 2013
Safety issue	The Queensland Rail internal emergency debrief following the Cleveland station collision identified issues related to working with external agencies but did not address critical communication shortfalls within train control and between train control and the staff located at the Cleveland station accident site.
Number	RO-2013-005-SR-023
Organisation	Queensland Rail
Recommendation	The Australian Transport Safety Bureau recommends that Queensland Rail undertake further work to address this safety issue.
Released	20 December 2013
Final action	08 April 2014
Final action	A working group has been formed to progress ATSB's recommendation. This working group will discuss what is being undertaken at a local level within the three control centres and stations throughout the Network. Queensland Rail will monitor progress on a regular basis. Recommendations from this working group will be monitored by Queensland Rail during the implementation of systems and processes. The working group have convened and agreed upon developing a debriefing guideline, which would include: • processes for conducting a debrief • alternate methods of conducting a debrief in the event that not all key players are available • the requirement for transparency in the debrief process • severity level triggers of the conduct of a debrief.

Rail (continued)

Investigation	RO-2013-014: Collision between two road-rail vehicles near Rinadeena Tas on 04 June 2013
Safety issue	West Coast Wilderness Railway had not considered all of the risks associated with the operation of road-rail vehicles on the steep railway. As a result, documented operational procedures had not been developed and locations where vehicles could be safely on/off railed had not been defined.
Number	RO-2013-014-SR-010
Organisation	West Coast Wilderness Railway, Tas
Recommendation	The ATSB recommends that West Coast Wildness Railway undertake further work to address the risks associated with railing road-rail vehicles on an incline.
Released	15 August 2013
Final action	23 December 2013
Final action	The West Coast Wilderness Railway reviewed and updated their risk register, included with respect to managing hazards associated with the operation of road-rail vehicles on steep grades. The changes were developed in consultation with the Office of National Rail Safety Regulator.

Safety recommendations released – Aviation

Table 12: Safety recommendations released in 2013–14 – Aviation

Investigation	AO-2011-102 VFR flight into dark night conditions involving Aerospatiale AS355F2, registered VH NTV, 145 km north of Marree, South Australia on 18 August 2011
Safety issue	Aerial work and private flights were permitted under the visual flight rules in dark night conditions, which are effectively the same as instrument meteorological conditions, but without sufficient requirements for proficiency checks and recent experience to enable flight, solely by reference to the flight instruments.
Number	AO-2011-102-SR-059
Organisation	Civil Aviation Safety Authority
Safety Recommendation	The ATSB recommends that the Civil Aviation Safety Authority prioritise its efforts to address the safety risk associated with aerial work and private flights as permitted under the visual flight rules in dark night conditions, which are effectively the same as instrument meteorological conditions, but without sufficient requirements for proficiency checks and recent experience to enable flight solely by reference to the flight instruments.
Released	08 November 2013

Investigation	AO-2011-115 Flight control system event involving Cessna 210N, registered VH-JHF, 48 km west of Bourke Aerodrome, New South Wales on 12 September 2011
Safety issue	The Civil Aviation Regulations 1988 lack clarity regarding the requirement for aircraft manufacturers' supplemental inspections, where available, to be carried out when an aircraft is being maintained in accordance with the CASA maintenance schedule.
Number	AO-2011-115-SR-049
Organisation	Civil Aviation Safety Authority
Safety Recommendation	The ATSB recommends that CASA proceed with its program of regulatory reform to ensure that the provisions of CAR Schedule 5 are clarified in relation to the incorporation of all relevant supplemental inspections specified for the aircraft type.
Released	16 August 2013
Investigation	AO-2011-115 Flight control system event involving Cessna 210N, registered VH-JHF, 48 km west of Bourke Aerodrome, New South Wales on 12 September 2011
Safety issue	The Civil Aviation Regulations 1988 allow class B aircraft registration holders to maintain their aircraft using the CASA maintenance schedule in situations where a more appropriate manufacturer's maintenance schedule exists.
Number	AO-2011-115-SR-050
Organisation	Civil Aviation Safety Authority
Safety Recommendation	The ATSB recommends that CASA proceed with its program of regulatory reform to ensure that all aircraft involved in general aviation operations are maintained using the most appropriate maintenance schedule for the aircraft type.
Released	16 August 2013

Aviation (continued)

Investigation	AO-2012-012 Loss of separation between Airbus A320, registered 9V-TAZ, and Airbus A340, registered A6-EHH, near TANEM (IFR reporting point), 907 km north-west of Karratha, Western Australia on 18 January 2012
Safety issue	The air traffic services provider had limited formal guidance regarding how to determine appropriate consolidation periods for en route controllers on one sector before they were transitioned to commence training on another sector.
Number	AO-2012-012-SR-017
Organisation	Airservices Australia
Safety Recommendation	The ATSB recommends that Airservices Australia takes safety action to address the limited formal guidance regarding how to determine appropriate consolidation periods for en route controllers on one sector before they were transitioned to commence training on another sector.
Released	18 October 2013
Investigation	AO-2012-012 Loss of separation between Airbus A320, registered 9V-TAZ, and Airbus A340, registered A6-EHH, near TANEM (IFR reporting point), 907 km north-west of Karratha, Western Australia on 18 January 2012
Safety issue	The air traffic services provider had limited formal guidance to controllers and pilots regarding the conditions in which it was safe and appropriate to use block levels.
Number	AO-2012-012-SR-018
Organisation	Airservices Australia
Safety Recommendation	The ATSB recommends that Airservices Australia takes safety action to address the limited formal guidance to controllers and pilots regarding the conditions in which it was safe and appropriate to use block levels.
Released	18 October 2013
Investigation	AO-2012-047 Losses of separation assurance involving Airbus A330-243, registered PK-GPO, and Airbus A330-341, registered PK-GPA near ATMAP (IFR reporting point), Western Australia on 31 March 2012
Safety issue	Airservices Australia's processes for managing a Temporary Restricted Area did not effectively ensure that all aircraft operating in the Temporary Restricted Area were known to air traffic services.
Number	AO-2012-047-SR-031
Organisation	Airservices Australia
Safety Recommendation	The ATSB recommends that Airservices Australia take further safety action to address the processes for managing a Temporary Restricted Area, to effectively ensure that all aircraft operating in a Temporary Restricted Area are known to air traffic services.
Released	21 February 2014

Aviation (continued)

Investigation	AO-2012-047 Losses of separation assurance involving Airbus A330-243, registered PK-GPO, and Airbus A330-341, registered PK-GPA near ATMAP (IFR reporting point), Western Australia on 31 March 2012
Safety issue	Airservices Australia's processes for reviewing and testing contingency plans did not effectively ensure that all documented contingency plan details were current and that its contingency plans could be successfully implemented at short notice.
Number	AO-2012-047-SR-030
Organisation	Airservices Australia
Safety Recommendation	The ATSB recommends that Airservices Australia takes safety action to address the processes for reviewing and testing contingency plans to ensure that they are effective in ensuring that all documented contingency plans are current and can be successfully implemented at short notice.
Released	21 February 2014
Investigation	AR-2012-034 Loss of Separation between aircraft in Australian airspace: 2008 to June 2012
Safety issue	Loss of separation (LOS) incidents attributable to pilot actions in civil airspace are not monitored as a measure of airspace safety nor actively investigated for insight into possible improvements to air traffic service provision. As about half of all LOS incidents are from pilot actions, not all available information is being fully used to assure the safety of civilian airspace.
Number	AR-2012-034-SR-016
Organisation	Civil Aviation Safety Authority
Safety Recommendation	The ATSB recommends that the Civil Aviation Safety Authority, in consultation with Airservices Australia and major aircraft operators, use all available information to assure the safety of civilian airspace through actively monitoring and investigating loss of separation incidents attributable to pilot actions in addition to the current focus on air traffic services-attributable occurrences.
Released	18 October 2013
Investigation	AR-2012-034 Loss of Separation between aircraft in Australian airspace, 2008 to June 2012
Safety issue	There was a disproportionate rate of loss of separation incidents which leads to a higher risk of collision in military terminal area airspace in general, and all airspace around Darwin and Williamtown in particular. Furthermore, loss of separation incidents in military airspace more commonly involved contributing air traffic controller actions relative to equivalent civil airspace occurrences.
Number	AR-2012-034-SR-014
Organisation	Department of Defence

Aviation (continued)

Safety Recommendation	The ATSB recommends that the Department of Defence undertake a review of all processes and risk controls in place to reduce both the disproportionate risk of loss of separation incidents and the elevated risk of collision in military terminal area airspace in general, and all airspace around Darwin and Williamtown in particular, and the relatively more common contributing air traffic controller actions.
Released	18 October 2013
Investigation	AR-2012-034 Loss of Separation between aircraft in Australian airspace, 2008 to June 2012
Safety issue	Regulatory oversight processes for military air traffic services do not provide independent assessment and assurance as to the safety of civilian aircraft operations.
Number	AR-2012-034-SR-015
Organisation	Civil Aviation Safety Authority
Safety Recommendation	The ATSB recommends that the Civil Aviation Safety Authority should review the results of this report and determine whether its current level of involvement with Military air traffic services (ATS) is sufficient to assure itself that the safety of civil aircraft operations while under Military ATS control is adequate.
Released	18 October 2013

Table 13: Safety recommendations released in 2013–14 – Marine

Investigation	MO-2013-003 Fatality on board the private motor yacht *Calliope* while departing Sydney, 8 February 2013
Safety issue	*Calliope* was not required to carry a pilot during Sydney Harbour voyages because the yacht was considered to be a recreational vessel, even though the risks it posed to the port were the same as those posed by similarly sized commercially operated vessels.
Number	MO-2013-003-SR-006
Organisation	Sydney Port Corporation
Safety Recommendation	The ATSB recommends that Sydney Ports Corporation takes safety action to address the pilotage requirements that apply to privately operated yachts like *Calliope*.
Released	12 May 2014
Investigation	MO-2013-003 Fatality on board the private motor yacht *Calliope* while departing Sydney, 8 February 2013
Safety issue	The Cayman Islands requirements in relation to a yacht's compliance with the Large Commercial Yacht Code, and other relevant legislation, are determined by the yacht's mode of operation. As a result, a commercially operated yacht in excess of 24 m in length must comply with the requirements of the Code, while a similar sized privately operated yacht that poses the same risks to safety of life at sea and the environment does not.
Number	MO-2013-003-SR-007
Organisation	Cayman Island Shipping Registry
Safety Recommendation	The ATSB recommends that the Cayman Islands Shipping Registry should take action to address this safety issue. Such action could include raising awareness of this safety issue and the need for regulatory change amongst the members of the International Maritime Organization.
Released	12 May 2014
Investigation	MO-2013-007 Fatality on board the bulk carrier *Atlantic Princess*
Safety issue	There were no facilities on board the Floating Offshore Transfer Barge *Spencer Gulf* that could be used to provide a safe means of access for personnel transfers between the barge and the ship. Furthermore, the barge operator's procedures prohibited such personnel transfers.
Number	MO-2013-007-SR-009
Organisation	CSL Australia

Marine (continued)

Safety Recommendation	The ATSB recommends that CSL Australia should take action to ensure that masters can provide a safe means of access between their ships and the Floating Offshore Transhipment Barge *Spencer Gulf*, in accordance with the requirements of Marine Order 21.
Released	09 May 2014

Table 13: Safety recommendations released in 2013–14 – Rail

Investigation	RO-2012-002 Derailment of train 7SP3 near Roto NSW on 4 March 2012
Safety issue	The ARTC systems or operational procedures provided limited additional information or guidance to assist the network control staff to identify and assess a potential threat to the serviceability of the infrastructure from significant weather events.
Number	RO-2012-002-SR-003
Organisation	ARTC
Safety Recommendation	The ATSB recommends that Australian Rail Track Corporation Limited undertake further work to address operational procedures/instructions that provide limited additional information or guidance to assist the network control staff to identify and assess a potential threat to the serviceability of the infrastructure from significant weather events.
Released	30 August 2013
Investigation	RO-2012-007 Level crossing collision at Werribee VIC on 25 May 2012
Safety issue	There is no available refuge within the island (northbound right lane traffic) to provide a driver with an opportunity to manoeuvre into a safety zone if needed.
Number	RO-2012-007-SR-008
Organisation	Wyndham City Council
Safety Recommendation	The ATSB recommends that Wyndham City Council takes further action in relation to the provision of refuge/escape areas at the Cherry Street level crossing.
Released	18 December 2013

Rail (continued)

Investigation	RO-2012-007 Level crossing collision at Werribee VIC on 25 May 2012
Safety issue	The level crossing is longer than necessary. Shortening it would reduce the amount of time that a vehicle spends within the crossing and improve the visual information available to motorists when assessing their ability to clear the crossing.
Number	RO-2012-007-SR-006
Organisation	Wyndham City Council
Safety Recommendation	The ATSB recommends that Wyndham City Council takes further action in consultation with Metro Trains in relation to the shortening of the Cherry Street level crossing.
Released	18 December 2013
Investigation	RO-2012-007 Level crossing collision at Werribee VIC on 25 May 2012
Safety issue	The level crossing is longer than necessary. Shortening it would reduce the amount of time that a vehicle spends within the crossing and improve the visual information available to motorists when assessing their ability to clear the crossing.
Number	RO-2012-007-SR-005
Organisation	Metro trains Melbourne
Safety Recommendation	The ATSB recommends that Metro Trains takes further action in consultation with Wyndham City Council in relation to the shortening of the Cherry Street level crossing.
Released	18 December 2013
Investigation	RO-2012-007 Level crossing collision at Werribee VIC on 25 May 2012
Safety issue	Once within the level crossing there are no readily visible cues (like short range lights) to alert a driver that the level crossing protection system is operating.
Number	RO-2012-007-SR-007
Organisation	Metro trains Melbourne
Safety Recommendation	The ATSB recommends that Metro Trains takes further action in relation to the fitting of short range lights at the Cherry Street level crossing.
Released	18 December 2013

Rail (continued)

Investigation	RO-2013-005 Collision between suburban passenger train and platform at Cleveland, QLD, 31 January 2013
Safety issue	The successful management of an emergency event from a remote location is critically dependent on clear and effective communication protocols. Communications within train control, and between train control and Cleveland station, were not sufficiently coordinated and resulted in misunderstandings at the Cleveland station accident site.
Number	RO-2013-005-SR-021
Organisation	Queensland Rail
Safety Recommendation	The Australian Transport Safety Bureau recommends that Queensland Rail undertake further work to address this safety issue.
Released	04 November 2013
Investigation	RO-2013-005 Collision between suburban passenger train and platform at Cleveland, QLD, 31 January 2013
Safety issue	Poor wheel/rail adhesion was not recognised as a risk in any of Queensland Rail's risk registers, therefore this risk to the safety of rail operations was not being actively managed.
Number	RO-2013-005-SR-014
Organisation	Queensland Rail
Safety Recommendation	The Australian Transport Safety Bureau recommends that Queensland Rail undertake further work to ensure poor wheel/rail adhesion is recognised, assessed and controlled under the new risk management framework.
Released	04 November 2013
Investigation	RO-2013-005 Collision between suburban passenger train and platform at Cleveland, QLD, 31 January 2013
Safety issue	Queensland Rail's strategic risk monitoring and analysis processes were ineffective in precipitating appropriate safety action to the findings and recommendations of their investigations into the Beerwah SPADs in 2009, which identified wheel/rail adhesion issues.
Risk	Significant
Number	RO-2013-005-SR-016
Organisation	Queensland Rail
Safety Recommendation	The Australian Transport Safety Bureau recommends that Queensland Rail undertake further work to address this safety issue.
Released	20 December 2013

Rail (continued)

Investigation	RO-2013-005 Collision between suburban passenger train and platform at Cleveland, QLD, 31 January 2013
Safety issue	The Queensland Rail internal emergency debrief following the Cleveland station collision identified issues related to working with external agencies, but did not address critical communication shortfalls within train control and between train control and the staff located at the Cleveland station accident site.
Number	RO-2013-005-SR-023
Organisation	Queensland Rail
Safety Recommendation	The Australian Transport Safety Bureau recommends that Queensland Rail undertake further work to address this safety issue.
Released	20 December 2013
Investigation	RO-2013-014 Collision between two road-rail vehicles near Rinadeena Tas on 04 June 2013
Safety issue	West Coast Wilderness Railway had not considered all of the risks associated with the operation of road-rail vehicles on the steep railway. As a result, documented operational procedures had not been developed, and locations where vehicles could be safely on/off railed had not been defined.
Number	RO-2013-014-SR-010
Organisation	West Coast Wilderness Railway, Tas
Safety Recommendation	The ATSB recommends that West Coast Wildness Railway undertake further work to address the risks associated with railing road-rail vehicles on an incline.
Released	15 August 2013

Table 14: Safety advisory notices released – Aviation

Aviation

Investigation	AO-2013-116 Flight preparation event involving Kavanagh Balloons E260, registered VH-FSR, near Alice Springs, Northern Territory on13 July 2013
Number	AO-2013-116-SAN-003
Organisation	Commercial balloon operators
Safety Advisory Notice	The ATSB advises balloon operators to review their risk controls in relation to the safety of cold-air inflation fans, especially in relation to passenger proximity to operating fans, and the security of loose items, such as passenger clothing.
Released	17 July 2013

Aviation (continued)

Investigation	AO-2013-226 In-flight break-up involving de Havilland DH82A Tiger Moth, registered VH-TSG, 300m east of South Stradbroke Island, Queensland on 16 December 2013
Safety issue	The two JRA-776-1 fuselage lateral tie rods fitted to de Havilland DH82A Tiger Moth, registered VH-TSG, had significant, pre-existing fatigue cracks in the threaded sections. The parts' service life was significantly less than the published retirement life for DH82A tie rods of 2,000 flight hours or 18 years).
Number	AO-2013-226-SAN-018
Organisation	Tiger Moth (DH82 and DH82A) owners and operators
Safety Advisory Notice	The Australian Transport Safety Bureau advises all owners and operators of de Havilland DH82 and DH82A (Tiger Moth) aircraft to consider the safety implications of the initial findings of this investigation regarding the fatigue cracking on both lateral tie rods, and to take action where considered appropriate. The safety issue has particular relevance to aircraft fitted with JRA-776-1 tie rods, aircraft that have been used for aerobatics, aircraft that have experienced heavy landings, and/or aircraft with lateral tie rods that have accrued longer periods in service.
Released	24 February 2014

Table 15: Safety advisory notices released – Marine

Investigation	MO-2012-006 295, *Furness Melbourne/Riga II*, Collision
Safety issue	In the past 25 years the ATSB and its predecessor have investigated 39 collisions between trading ships and smaller vessels on the Australian coast. These investigations have all concluded that there was a failure of the watch-keepers on board one or both vessels to keep a proper lookout, and that there was an absence of early and appropriate action to avoid the collision.
Number	MO-2012-006-SAN-015
Organisation	All seafarers
Safety Advisory Notice	The ATSB advises all persons charged with navigating vessels at sea to always maintain a proper lookout so as to identify other vessels early enough to make a full appraisal of the situation and to take appropriate, early and effective action to avoid a collision.
Released	12 December 2013

Marine (continued)

Investigation	MO-2013-005 Crew member fatality on board the bulk carrier *Nireas* at Gladstone anchorage, Queensland, 20 March 2013.
Safety issue	The condensate drainage pots fitted to *Nireas's* main air receivers were not fit for purpose as they were not capable of withstanding the internal pressures that were likely to accumulate in service.
Number	MO-2013-005-SAN-001
Organisation	Classification Societies
Safety Advisory Notice	The ATSB advises that all classification societies should consider the safety implications of the installation and use of closed condensate drainage/ inspection systems, and take action to identify and validate the design of any such systems on board ships.
Released	04 March 2014

Table 16: Safety advisory notices released – Rail

Investigation	RO-2013-013 Signal irregularity at Culcairn, NSW on 7 April 2013
Safety issue	There was insufficient verifiable data to clearly determine and substantiate any potential safety issues associated with the signalling system at Culcairn North.
Number	RO-2013-013-SAN-031
Organisation	Rail Industry Safety and Standards Board
Safety Advisory Notice	The ATSB encourages rail operators to consider the use of independent data validation systems, such as forward facing video on trains, to provide a source of information to assist with coming to an understanding of rail occurrence events, such as signal irregularities.
Released	05 March 2014
Investigation	RO-2013-014 Collision between two road-rail vehicles near Rinadeena, Tas on 04 June 2013
Safety issue	West Coast Wilderness Railway had not considered all of the risks associated with the operation of road-rail vehicles on the steep railway. As a result, documented operational procedures had not been developed and locations where vehicles could be safely on/off railed had not been defined.
Number	RO-2013-014-SAN-011
Organisation	West Coast Wilderness Railway, Tas
Safety Advisory Notice	The ATSB advises that all road rail vehicle operators should consider the risks associated with railing road rail vehicles on an incline and take action where considered appropriate.
Released	15 August 2013


VH-HLL
ATSB

FEATURE—
THE WORK OF OUR INVESTIGATORS

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Keeping safe at aircraft crash sites 121

Feature–the work of our investigators

ATSB transport safety investigators have a wide range of skills and qualifications. Many of our investigators have had careers in the transport or defence industries before joining the ATSB. Amongst their number are pilots, air traffic controllers, psychologists, master mariners, train drivers engineers—from many disciplines including materials, electronics, avionics, rail, marine, aeronautical, and mechanical. In recent years we have also recruited graduates directly from university.

When responding to accidents and serious incidents, investigators are deployed in teams covering the range of expertise needed to carry out the investigation and discover what went wrong. Most investigations (other than short investigations) usually involve an investigation at the site of the occurrence to look at the damaged or destroyed transport vehicle, other physical evidence at the site, and to conduct initial interviews with key personnel. Investigators will deploy to the site as soon as reasonably possible to avoid any potential loss of evidence that can occur over time, and also to enable accidents to be cleared at the earliest opportunity.

Figure 6: An ATSB rail investigator at work

The team will undertake checks of the maintenance of the transport vehicle and conduct interviews with survivors, witnesses, people connected with the transport vehicle such as the operator and maintenance staff, family of the crew and passengers, and others. Material from the site may be brought to the ATSB's technical facilities in Canberra for close study and technical analysis.

In the case of an aircraft accident, if there were 'black box' flight data or cockpit voice recorders, these will be downloaded and analysed using specialist equipment and processes in the ATSB's technical facilities. Often, other electronic evidence is gathered from devices such as electronic chips from aircraft systems and components—these devices can reveal much about the performance of an aircraft and/or its systems in the period leading up to the accident. Investigators will also gather other electronic devices such as GPS units, tablet computers and smart phones found in wreckage, which can provide valuable information such as the route taken and any flight or other plans made by the pilot and crew. Where necessary, investigators will collaborate with academics and overseas peers when additional expertise or advice is required.

In the office, the team will compile their evidence, conduct a thorough analysis and form conclusions about what might have led to the occurrence. A formal report is written and released to the directly involved parties, who are given the chance to comment on the factual accuracy of the report before it is completed. The final report is then approved by the Commission and formally published.

The conduct of a transport safety investigation is a painstaking process that can take up to a year or more, particularly when there is a need to undertake research or seek advice from others.

While the majority of the ATSB's transport safety investigators are male, having come from traditionally male employment settings, the ATSB also has a small but highly respected number of women in the transport safety investigator ranks. They have a range of skills and specialisations and include aeronautical engineers, licensed aircraft maintenance engineers, pilots, air traffic controllers, and psychologists. The ATSB is fully committed to equal employment opportunity and hopes to be able to employ more women in the future.

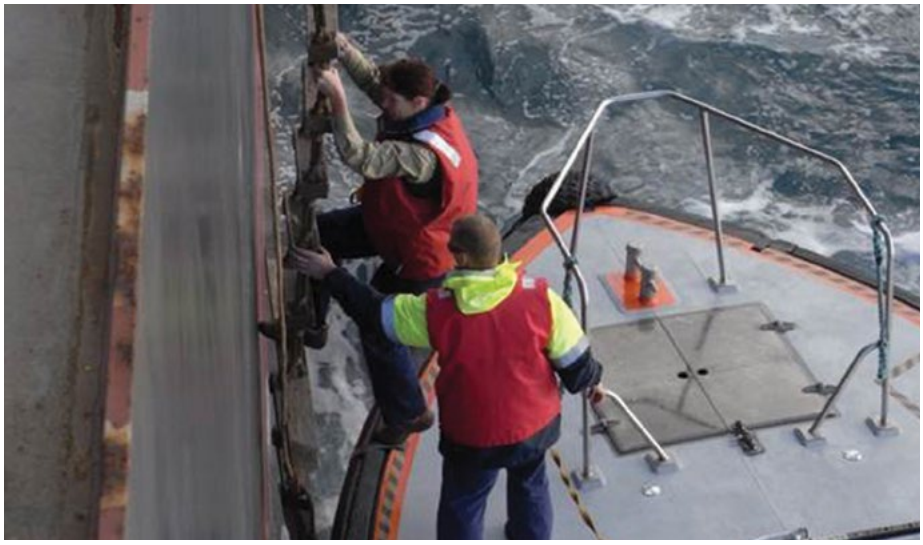

Figure 7: One of our female investigators negotiates a pilot ladder to board a ship

Case study—VFR into dark night involving an Aerospatiale AS355F2 (Twin Squirrel) helicopter, 145 km north of Marree, South Australia on 18 August 2011

On 14 November 2013, the ATSB released its report into the crash of a Twin Squirrel helicopter in which a well-known crew consisting of the pilot and two ABC employees died. This report was one of our most significant for 2013–14. The investigation raised concerns about the safety of flying in dark night conditions—a matter that was taken up with CASA, and has relevance to one of the ATSB Commission's safety priorities in its *SafetyWatch* initiative titled Flying with reduced visibility cues.

In this case study we look at the activities of the transport safety investigators who undertook the investigation to show the wide range of activities that may be involved in a transport safety investigation.

The accident was reported to us shortly after it happened during the evening of 18 August 2011. The duty officer contacted the General Manager, and it was agreed to deploy a team at first light the next morning. The team comprised an Investigator in Charge who had qualifications in helicopter operations and maintenance engineering, a licensed aviation maintenance engineer (LAME), an avionics engineer and an aeronautical engineer. On the morning of 19 August 2011, they flew to Adelaide and then took a charter flight to Marree, the township nearest the accident. From there, they chartered a helicopter to get to the site of the accident.

The area was out of mobile telephone range, meaning that the team was reliant on communication by satellite phone. Due to the remote location of the accident site, a helicopter was on standby in case of an emergency situation. The team based themselves in Marree, and travelled to the site each day by helicopter, with sufficient food, water, shelter and first aid supplies for an extended stay if required.

There were additional special challenges as a result of the need to transport the engines and a number of other items and components from the helicopter away from the site for forensic analysis in the ATSB's Canberra technical facilities and other approved workshops. These had to be relayed by helicopter to a heavy vehicle stationed some distance from the site.

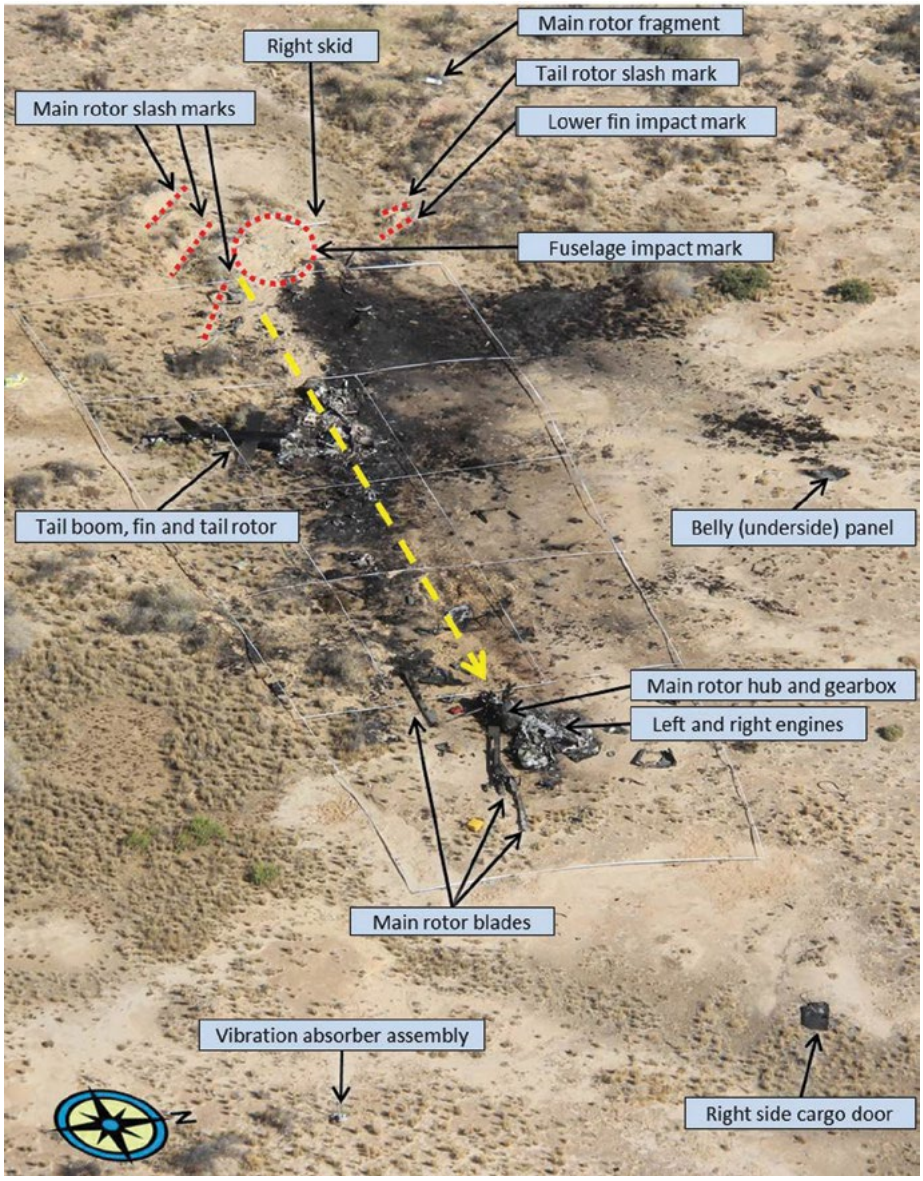

Figure 8: Map showing the accident site and main features

At the site, the team examined and mapped the disposition of the wreckage and associated fire damage, the engines, drive trains and rotor systems, the helicopter's instrumentation and avionics equipment and a number of ground strike marks from the main rotors. A quantity of feathers was located at the accident site and samples were collected for later forensic investigation.

Following the on-site investigation, the team collected further evidence including:

- maintenance records for the helicopter and interviews with the maintenance contractor and engine service provider
- examinations of the engines, flight control components and flight instruments recovered from the accident site
- review of the pilot's logbooks, helicopter flight logs and the trip itinerary
- review of the pilot's medical records and interviews with medical personnel
- interviews with the pilot's next of kin, other pilots who had flown the helicopter recently or conducted similar operations, and other film crew who had flown with the pilot
- analysis of fuel samples taken from the last refuelling location
- interviews with the tour guides and others who had witnessed the helicopter's departure from Cooper Creek Inlet and other witnesses who saw the crew that day
- analysis of data from a damaged GPS unit found at the accident site, and subsequent work to estimate a range of other flight parameters based on the GPS data
- examination by the Smithsonian Institution's Feather Identification Laboratory in the United states of the feather samples that were recovered from the accident site
- review of meteorological and environmental information about the conditions at the time of the accident
- examination and analysis of information on media cards used by the film crew
- aircraft data from the manufacturer of the helicopter
- simulator trials that reconstructed the helicopter's flight path after take-off from Cooper Creek Inlet and replicated the associated control inputs
- academic research into pilot spatial disorientation and flying in dark night conditions
- review of previous occurrences involving a similar flight path and previous accidents that occurred at night.

The team pursued a number of lines of enquiry, eventually ruling out the involvement of a technical failure, pilot incapacitation or birdstrike, weather-related factors or fuel issues. As the investigation progressed, a picture emerged suggesting that the pilot may have experienced spatial disorientation and the team sought additional technical information and modelling work, based on the GPS data, from the US Army Aeromedical Research Laboratory (USAARL).

The investigation was thorough and painstaking, and during its course a further 17 investigators became involved at various times, providing technical assistance on vehicle recordings, helicopter operations, engineering disciplines, materials failure analysis and human factors.

As a result of the investigation, the ATSB identified safety issues in relation to visual flight in dark night conditions. Following a recommendation from the ATSB, CASA took action to address a lack of sufficient requirements for proficiency checks and recent experience involving visual flight by aerial work and private flights in dark night conditions. CASA also took proactive action to address another of the safety issues identified by the investigation relating to the lack of

requirements for autopilots and similar systems on helicopters operating under the visual flight rules in dark night conditions. A number of organisations are now using the report for educational and training purposes.

Keeping safe at aircraft crash sites

The ATSB takes its responsibilities to maintain workplace health and safety very seriously. It ensures that investigators are appropriately trained, as well as provided with necessary protective clothing and equipment to enable them to work without being exposed to harmful materials. This is particularly important when dealing with the dangerous and toxic conditions at the site of an aircraft crash.

An aircraft crash site may be contaminated with many substances such as aircraft fuel, toxic metals, composite materials, toxic gases and chemicals, asbestos, radiation hazards and dangerous cargo.

Modern aircraft are increasingly being built of composite material, particularly carbon fibre. Large passenger airliners such as an Airbus A340, or a Boeing 787, may contain many tons of carbon fibre material. These materials help maximise weight reduction in the aircraft and may last longer, or require less maintenance, than traditional metal components.

When these materials are involved in a fire they may give off toxic fumes, and fibres may be released in the smoke plume. Research has shown that when carbon fibres are shattered in the absence of fire, there is little or no release of respirable fibres; however, when carbon fibre composite material is subjected to high energy impact while simultaneously burning with a high temperature flame in typical air crash conditions, significant quantities of respirable fibres may be released.

These fibres are very small. They are non-toxic but easily penetrate human skin and tissue. They can carry dirt from the site with them and can cause a form of traumatic dermatitis to the skin, and difficulty with breathing. It is believed that breathing such fibres may lead to the development of lung diseases similar to those caused by asbestos. In combination, the use of appropriate protective suits, gloves, footwear and overpressure breathing apparatus can minimise this risk. (Figures 9 and 10)

Composite fibres can be suppressed in the short-term by spraying with firefighting foam, or with a product such as acrylic floor wax or poly-acrylic acid. However, once a suppressant has been applied, it is only useful until the area is disturbed again.

Figure 9: Investigator wearing appropriate protective equipment in response to the carbon fibre risk at the site of a Glassair III aircraft accident near Jandakot, Western Australia, on 9 December 2013

Figure 10: Investigator decontamination before removing and disposing of the protective suit

While investigators and emergency personnel may have protective clothing and breathing apparatus available to them, it is always a concern that members of the public may not be similarly protected. For this reason, it is essential that members of the public comply with directions from police, emergency services personnel or aircraft investigators to remove themselves from the danger areas around the site of an aircraft accident.

In January 2014, the ATSB, together with the Directorate of Defence Aviation and Air Force Safety, issued a revised version of the booklet *Hazards at aircraft accident sites—Guidance for police and emergency personnel*. The booklet provides practical advice to:

- understand and deal with the hazards that may be encountered
- manage and control the accident site and preserve essential evidence
- fulfil the reporting requirements under the TSI Act.

This booklet has been very well received by police and emergency personnel in all states and territories and more than 10,000 copies have been distributed to date. The booklet is also accessible on the ATSB website at www.atsb.gov.au and free printed copies are available on request.

Australian Government

Australian Transport Safety Bureau

2013–14
FINANCIAL STATEMENTS

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Australian National
Audit Office

INDEPENDENT AUDITOR'S REPORT

To the Minister for Infrastructure and Regional Development

I have audited the accompanying financial statements of the Australian Transport Safety Bureau for the year ended 30 June 2014, which comprise: a Statement by the Chief Executive Officer and Chief Financial Officer; the Statement of Comprehensive Income; Statement of Financial Position; Statement of Changes in Equity; Cash Flow Statement; Schedule of Commitments; and Notes comprising a Summary of Significant Accounting Policies and other explanatory information.

Chief Executive's Responsibility for the Financial Statements

The Chief Executive of the Australian Transport Safety Bureau is responsible for the preparation of financial statements that give a true and fair view in accordance with the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997*, including the Australian Accounting Standards, and for such internal control as is necessary to enable the preparation of financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My responsibility is to express an opinion on the financial statements based on my audit. I have conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. These auditing standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Australian Transport Safety Bureau's preparation of the financial statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Australian Transport Safety Bureau's internal control. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made by the Chief Executive of the Australian Transport Safety Bureau, as well as evaluating the overall presentation of the financial statements.

GPO Box 707 CANBERRA ACT 2601
19 National Circuit BARTON ACT 2600
Phone (02) 6203 7300 Fax (02) 6203 7777

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Independence

In conducting my audit, I have followed the independence requirements of the Australian National Audit Office, which incorporate the requirements of the Australian accounting profession.

Opinion

In my opinion, the financial statements of the Australian Transport Safety Bureau:

(a) have been prepared in accordance with the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997,* including the Australian Accounting Standards; and

(b) give a true and fair view of the matters required by the Finance Minister's Orders, including the Australian Transport Safety Bureau's financial position as at 30 June 2014 and its financial performance and cash flows for the year then ended.

Australian National Audit Office

Peter Kerr

Executive Director

Delegate of the Auditor-General

Canberra

26 September 2014

Australian Government

Australian Transport Safety Bureau

STATEMENT BY THE CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2014 are based on properly maintained financial records and give a true and fair view of the matters required by the Finance Minister's Orders made under the Financial Management and Accountability Act 1997, as amended.

Martin Dolan
Chief Executive Officer

26 September 2014

Jane Childs
Chief Financial Officer

26 September 2014

Australian Transport Safety Bureau
Statement of Comprehensive Income
for the period ended 30 June 2014

	Notes	2014 $'000	2013 $'000
NET COST OF SERVICES			
Expenses			
Employee benefits	3A	**(16,925)**	(16,010)
Supplier	3B	**(10,583)**	(7,254)
Depreciation and amortisation	3C	**(1,529)**	(1,502)
Finance costs	3D	**(9)**	(10)
Write-down and impairment of assets	3E	**-**	(7)
Losses from asset sales	3F	**(15)**	(4)
Total expenses		**(29,061)**	(24,787)
Own-Source Income			
Own-source revenue			
Sale of goods and rendering of services	4A	**1,375**	1,235
Other revenue	1.24 & 4B	**1,982**	559
Total own-source revenue		**3,357**	1,794
Gains			
Other gains	1.24 & 4C	**1**	2
Total gains		**1**	2
Total own-source income		**3,358**	1,796
Net cost of services		**(25,703)**	(22,991)
Revenue from Government	4D	**31,292**	21,799
Surplus/(Deficit) attributable to the Australian Government		**5,589**	(1,192)
OTHER COMPREHENSIVE INCOME			
Changes in asset revaluation surplus		**193**	-
Total other comprehensive income		**193**	-
Total comprehensive income/(loss)		**5,782**	(1,192)
Total comprehensive income/(loss) attributable to the Australian Government		**5,782**	(1,192)

The above statement should be read in conjunction with the accompanying notes.

Australian Transport Safety Bureau
Statement of Financial Position
as at 30 June 2014

	Notes	2014 $'000	2013 $'000
ASSETS			
Financial Assets			
Cash and cash equivalents	6A	**562**	887
Trade and other receivables	6B	**16,147**	7,320
Other financial assets	6C	**3**	21
Total financial assets		**16,712**	8,228
Non-financial Assets			
Property, plant and equipment	7A,B	**1,597**	1,795
Intangibles	7C,D	**859**	1,915
Other non-financial assets	7E	**152**	167
Total non-financial assets		**2,608**	3,877
Total assets		**19,320**	12,105
LIABILITIES			
Payables			
Suppliers	8A	**(984)**	(390)
Other payables	8B	**(564)**	(536)
Total payables		**(1,548)**	(926)
Interest Bearing Liabilities			
Leases	9A	**(119)**	(169)
Total interest bearing liabilities		**(119)**	(169)
Provisions			
Employee provisions	10A	**(4,082)**	(4,621)
Other provisions	10B	**(70)**	(68)
Total provisions		**(4,152)**	(4,689)
Total liabilities		**(5,819)**	(5,784)
Net assets		**13,501**	6,321
EQUITY			
Contributed equity		**11,282**	9,884
Reserves		**278**	85
Retained Surplus/(Accumulated deficit)		**1,941**	(3,648)
Total equity		**13,501**	6,321

The above statement should be read in conjunction with the accompanying notes.

Australian Transport Safety Bureau
Statement of Changes in Equity
for the period ended 30 June 2014

	Retained earnings		Asset revaluation surplus		Contributed equity/capital		Total equity	
	2014	2013	**2014**	2013	**2014**	2013	**2014**	2013
	$'000	$'000	**$'000**	$'000	**$'000**	$'000	**$'000**	$'000
Opening balance								
Balance carried forward from previous period	**(3,648)**	(2,456)	**85**	85	**9,884**	8,084	**6,321**	5,713
Adjusted opening balance	**(3,648)**	(2,456)	**85**	85	**9,884**	8,084	**6,321**	5,713
Comprehensive income								
Revaluation for the period	**-**	-	**193**	-	-	-	**193**	-
Surplus/(Deficit) for the period	**5,589**	(1,192)	**-**	-	-	-	**5,589**	(1,192)
Total comprehensive income/(loss)	**5,589**	(1,192)	**193**	-	-	-	**5,782**	(1,192)
Transactions with owners								
Contributions by owners								
Equity injection - Appropriations	**-**	-	**-**	-	**973**	1,181	**973**	1,181
Departmental capital budget	**-**	-	**-**	-	**425**	619	**425**	619
Total transactions with owners	**-**	-	**-**	-	**1,398**	1,800	**1,398**	1,800
Closing balance as at 30 June	**1,941**	(3,648)	**278**	85	**11,282**	9,884	**13,501**	6,321
Closing balance attributable to the Australian Government	**1,941**	(3,648)	**278**	85	**11,282**	9,884	**13,501**	6,321

The above statement should be read in conjunction with the accompanying notes.

Australian Transport Safety Bureau
Cash Flow Statement
for the period ended 30 June 2014

	Notes	2014 $'000	2013 $'000
OPERATING ACTIVITIES			
Cash received			
Appropriations		**23,758**	21,591
Sales of goods and rendering of services		**1,377**	1,259
Net GST received		**317**	809
Other		**235**	255
Total cash received		**25,687**	23,914
Cash used			
Employees		**(17,428)**	(16,149)
Suppliers		**(8,307)**	(7,784)
Borrowing costs		**(7)**	(9)
Other		**(245)**	(250)
Total cash used		**(25,987)**	(24,192)
Net cash used by operating activities	11	**(300)**	(278)
INVESTING ACTIVITIES			
Cash received			
Proceeds from sales of property, plant and equipment		**1**	12
Total cash received		**1**	12
Cash used			
Purchase of property, plant and equipment		**(109)**	(1,010)
Purchase of software		**(7)**	(891)
Total cash used		**(116)**	(1,901)
Net cash used by investing activities		**(115)**	(1,889)
FINANCING ACTIVITIES			
Cash received			
Contributed equity		**122**	1,800
Total cash received		**122**	1,800
Cash used			
Repayment of finance leases		**(32)**	(38)
Total cash used		**(32)**	(38)
Net cash from financing activities		**90**	1,762
Net decrease in cash held		**(325)**	(405)
Cash and cash equivalents at the beginning of the reporting period		**887**	1,292
Cash and cash equivalents at the end of the reporting period	6A	**562**	887

The above statement should be read in conjunction with the accompanying notes.

Australian Transport Safety Bureau
Schedule of Commitments

as at 30 June 2014

	2014	2013
BY TYPE	**$'000**	$'000
Commitments receivable		
Net GST recoverable on commitments	**(593)**	(71)
Total commitments receivable	**(593)**	(71)
Commitments payable		
Capital commitments		
Property, plant and equipment[1]	**-**	50
Total capital commitments	**-**	50
Other commitments		
Other[2]	**6,829**	736
Total other commitments	**6,829**	736
Total commitments payable	**6,829**	786
Net commitments by type	**6,236**	715
BY MATURITY		
Commitments receivable		
Other commitments receivable		
Within 1 year	**(562)**	(26)
Between 1 to 5 years	**(31)**	(45)
Total other commitments receivable	**(593)**	(71)
Total commitments receivable	**(593)**	(71)
Commitments payable		
Capital commitments		
Within 1 year	**-**	50
Total capital commitments	**-**	50
Other Commitments		
Within 1 year	**6,485**	241
Between 1 to 5 years	**344**	495
Total other commitments	**6,829**	736
Total commitments payable	**6,829**	786
Net commitments by maturity	**6,236**	715

The above schedule should be read in conjuction with the accompanying notes.

Note: Commitments are GST inclusive where relevant.

1. Property, plant and equipment commitments relate to contracts for specialised investigation equipment in 2013.

2. Other commitments mainly relate to contracts for the provision of payroll services, mobile phone carriage services, bathymetric survey services and internal audit services.

Note 1: Summary of Significant Accounting Policies

1.1 Objectives of the Australian Transport Safety Bureau

The Australian Transport Safety Bureau (ATSB) is an Australian Government controlled entity established by the *Transport Safety Investigation Act 2003 (TSI Act)*, as the national transport safety investigation agency. It is a not-for-profit entity. The ATSB's primary function is to improve aviation, marine and rail safety.

The ATSB is structured to meet the following outcome:

Outcome 1: Improved transport safety in Australia including through: independent, 'no blame' investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.

The continued existence of the ATSB in its present form and with its present programs is dependent on Government policy and on continued funding by the Parliament for the ATSB's administration and programs.

The ATSB has no Administered activities.

1.2 Basis of Preparation of the Financial Statements

The financial statements are general purpose financial statements and are required by section 49 of the *Financial Management and Accountability Act 1997*.

The financial statements have been prepared in accordance with:

a) Finance Minister's Orders (FMOs) for reporting periods ending on or after 1 July 2011; and
b) Australian Accounting Standards and Interpretations issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The financial statements have been prepared on an accrual basis and in accordance with the historical cost convention, except for certain assets and liabilities at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

The financial statements are presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

Unless an alternative treatment is specifically required by an accounting standard or the FMOs, assets and liabilities are recognised in the statement of financial position when and only when it is probable that future economic benefits will flow to the entity or a future sacrifice of economic benefits will be required and the amounts of the assets or liabilities can be reliably measured. However, assets and liabilities arising under executor contracts are not recognised unless required by an accounting standard. Liabilities and assets that are unrecognised are reported in the schedule of commitments or the schedule of contingencies.

Unless alternative treatment is specifically required by an accounting standard, income and expenses are recognised in the Statement of Comprehensive Income when, and only when, the flow, consumption or loss of economic benefits has occurred and can be reliably measured.

1.3 Significant Accounting Judgements and Estimates

In the process of applying the accounting policies listed in this note, the ATSB has made the following judgements that have the most significant impact on the amounts recorded in the financial statements:

a) The fair value of the ATSB's property, plant and equipment was determined using depreciated replacement cost as determined by an independent valuer for the period ended 30 June 2014, included in note 7A.; and

b) The estimate of the ATSB's long service leave liabilities as at 30 June 2014 were determined using the short hand method set out in the FMO's and discounted to present value using Commonwealth Government bond rates.

No accounting assumptions and estimates have been identified that have a significant risk of causing a material adjustment to carrying amounts of assets and liabilities within the next reporting period.

1.4 New Australian Accounting Standards

Adoption of New Australian Accounting Standard Requirements

No accounting standard has been adopted earlier than the application date as stated in the standard.

The following new or revised standards were issued prior to the signing of the Statement by the Chief Executive Officer and Chief Finance Officer, were applicable to the current reporting period and had a material financial impact on the financial statements:

- *AASB 13 Fair Value Measurement* – a significant increase to the level of disclosures for items carried at fair value (including requirement to designate items as level 1, 2 or 3).
- *AASB 119 Employee benefits* – all government departments will be required to recognise actuarial gains and losses for defined benefit plans on the same basis. Additional disclosures will be required for defined benefit plans, and annual leave will be disclosed as a long-term benefit. Revisions to termination benefits may result in changed timing for recognition of termination expenses.
- All other new / revised / amending standards and/or interpretations that were issued prior to the sign-off date and are applicable to the current reporting period did not have a material effect, and are not expected to have a future material effect, on the department's financial statements.

Future Australian Accounting Standard Requirements

The following new or revised standard and interpretation that was issued by the Australian Accounting Standards Board prior to the signing of the Statement by the Chief Executive Officer and Chief Finance Officer is expected to have a financial impact on the ATSB for future reporting periods:

- *AASB1055 Budgetary Reporting (effective date 1 July 2014)* – new requirement to report budgetary information and explain significant variances between budget and actual at the individual entity level.

1.5 Revenue

Revenue from the sale of goods is recognised when:

a) the risks and rewards of ownership have been transferred to the buyer;
b) the entity retains no managerial involvement or effective control over the goods;
c) the revenue and transaction costs incurred can be reliably measured; and
d) it is probable that the economic benefits associated with the transaction will flow to the ATSB.

Revenue from rendering of services is recognised by reference to the stage of completion of contracts at the reporting date. The revenue is recognised when:

a) the amount of revenue, stage of completion and transaction costs incurred can be reliably measured; and
b) the probable economic benefits associated with the transaction will flow to the ATSB.

The stage of completion of contracts at the reporting date is determined by reference to the proportion that costs incurred to date bear to the estimated total costs of the transaction.

Receivables for goods and services, which have 30 day terms, are recognised at the nominal amounts due less any impairment allowance account. Collectability of debts is reviewed at the end of the reporting period. Allowances are made when collectability of the debt is no longer probable.

Interest revenue is recognised using the effective interest method as set out in AASB 139 *Financial Instruments: Recognition and Measurement.*

Resources Received Free of Charge
Resources received free of charge are recognised as revenue when, and only when, a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources is recognised as an expense. Resources received free of charge are recorded as either revenue or gains depending on their nature.

Contributions of assets at no cost of acquisition or for nominal consideration are recognised as gains at their fair value when the asset qualifies for recognition, unless received from another Government agency or authority as a consequence of a restructuring of administrative arrangements (refer to Note 1.7).

Revenue from Government

Amounts appropriated for departmental appropriations for the year (adjusted for any formal additions and reductions) are recognised as Revenue from Government when the ATSB gains control of the appropriation, except for certain amounts that relate to activities that are reciprocal in nature, in which case revenue is recognised only when it has been earned. Appropriations receivable are recognised at their nominal amounts.

1.6 Gains

Sale of Assets

Gains from disposal of assets are recognised when control of the asset has passed to the buyer.

1.7 Transactions with the Australian Government as Owner

Equity Injections

Amounts appropriated which are designated as 'equity injections' for a year (less any formal reductions) and Departmental Capital Budgets (DCBs) are recognised directly in contributed equity in that year.

1.8 Employee Benefits

Liabilities for 'short-term employee benefits' (as defined in AASB 119 *Employee Benefits*) and termination benefits due within twelve months of the end of reporting period are measured at their nominal amounts.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability.

Other long-term employee benefits are measured as a net total of the present value of the defined benefit obligation at the end of the reporting period minus the fair value at the end of the reporting period of plan assets (if any) out of which the obligations are to be settled directly.

Leave

The liability for employee benefits includes provision for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees of the ATSB is estimated to be less than the annual entitlement for sick leave.

The leave liabilities are calculated on the basis of employees' remuneration at the estimated salary rates that will be applied at the time the leave is taken, including the ATSB's employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination.

The liability for long service leave has been determined by reference to the Australian Government Shorthand Method outlined in the FMO's for reporting periods ending on or after 1 July 2011. The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

Separation and Redundancy

Provision is made for separation and redundancy benefit payments when the ATSB has developed a detailed formal plan for the terminations and has informed those employees affected that it will carry out the terminations.

Superannuation

The ATSB's staff are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS) or the PSS accumulation plan (PSSap).

The CSS and PSS are defined benefit schemes for the Australian Government. The PSSap is a defined contribution scheme.

The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course. This liability is reported in the Department of Finance and Deregulation's administered schedules and notes.

The ATSB makes employer contributions to the employees' superannuation scheme at rates determined by an actuary to be sufficient to meet the current cost to the Government. The ATSB accounts for the contributions as if they were contributions to defined contribution plans.

The liability for superannuation recognised as at 30 June 2014 represents outstanding contributions for the final fortnight of the year.

1.9 Leases

A distinction is made between finance leases and operating leases. Finance leases effectively transfer from the lessor to the lessee substantially all the risks and rewards incidental to ownership of leased assets. An operating lease is a lease that is not a finance lease. In operating leases, the lessor effectively retains substantially all such risks and benefits.

Where an asset is acquired by means of a finance lease, the asset is capitalised at either the fair value of the lease property or, if lower, the present value of minimum lease payments at the inception of the contract and a liability is recognised at the same time and for the same amount.

The discount rate used is the interest rate implicit in the lease. Leased assets are amortised over the period of the lease. Lease payments are allocated between the principal component and the interest expense.

Operating lease payments are expensed on a straight-line basis which is representative of the pattern of benefits derived from the leased assets.

1.10 Borrowing Costs

All borrowing costs are expensed as incurred.

1.11 Fair Value Measurement

The ATSB deems transfers between levels of the fair value hierarchy to have occurred at the date of the event or change in circumstances that caused the transfer.

1.12 Cash and Cash Equivalents

Cash is recognised at its nominal amount. Cash and cash equivalents includes:

a) cash on hand; and
b) demand deposits in bank accounts with an original maturity of 3 months or less that are readily convertible to known amounts of cash and subject to insignificant risk of changes in value.

1.13 Financial Assets

The ATSB classifies its financial assets in the following categories:

a) cash and cash equivalents; and
b) loans and receivables.

The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition. Financial assets are recognised and derecognised upon 'trade date'.

Effective Interest Method

The effective interest method is a method of calculating the amortised cost of a financial asset and of allocating interest income over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset, or, where appropriate, a shorter period.

Income is recognised on an effective interest rate basis except for financial assets that are recognised at fair value through profit or loss.

Loans and Receivables

Trade receivables, loans and other receivables that have fixed or determinable payments that are not quoted in an active market are classified as 'loans and receivables'. Loans and receivables are measured at amortised cost using the effective interest method less impairment. Interest is recognised by applying the effective interest rate.

Impairment of Financial Assets

Financial assets are assessed for impairment at the end of each reporting period.

Financial assets held at amortised cost - if there is objective evidence that an impairment loss has been incurred for loans and receivables or held to maturity investments held at amortised cost, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate. The carrying amount is reduced by way of an allowance account. The loss is recognised in the Statement of Comprehensive Income.

Financial assets held at cost - if there is objective evidence that an impairment loss has been incurred, the amount of the impairment loss is the difference between the carrying amount of the asset and the present value of the estimated future cash flows discounted at the current market rate for similar assets.

1.14 Investments in Associates

The ATSB has no investment in associates.

1.15 Jointly Controlled Entities

The ATSB has no interest in jointly controlled entities.

1.16 Financial Liabilities

Financial liabilities are classified as either financial liabilities 'at fair value through profit or loss' or other financial liabilities. Financial liabilities are recognised and derecognised upon 'trade date'.

Financial Liabilities at Fair Value Through Profit or Loss

Financial liabilities at fair value through profit or loss are initially measured at fair value. Subsequent fair value adjustments are recognised in profit or loss. The net gain or loss recognised in profit or loss incorporates any interest paid on the financial liability.

Other Financial Liabilities

Other financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs. These liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective yield basis.

The effective interest method is a method of calculating the amortised cost of a financial liability and of allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments through the expected life of the financial liability, or, where appropriate, a shorter period.

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

1.17 Contingent Liabilities and Contingent Assets

Contingent liabilities and contingent assets are not recognised in the statement of financial position but are reported in the relevant schedules and notes. They may arise from uncertainty as to the existence of a liability or asset or represent an asset or liability in respect of which the amount cannot be reliably measured. Contingent assets are disclosed when settlement is probable but not virtually certain and contingent liabilities are disclosed when the likelihood settlement is greater than remote.

The ATSB has no quantifiable, unquantifiable or remote contingent assets or liabilities.

1.18 Financial Guarantee Contracts

The ATSB has no financial guarantee contracts.

1.19 Acquisition of Assets

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Financial assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and income at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor agency's accounts immediately prior to the restructuring.

1.20 Property, Plant and Equipment

Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the statement of financial position, except for purchases costing less than $5,000 excluding GST, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

The initial cost of an asset includes an estimate of the cost of dismantling and removing the item and restoring the site on which it is located. This is particularly relevant to 'make good' provisions in property leases taken up by the Department of Infrastructure and Transport for properties occupied by the ATSB where there exists an obligation to restore the property to its original condition. As the property leases are held by the Department of Infrastructure and Transport, these costs are included in the value of the ATSB's Property, Plant and Equipment asset class with a corresponding provision for the 'make good' recognised.

Revaluations

The ATSB only has plant and equipment assets and the fair values for each asset are measured at market selling price, or depreciated replacement cost in isolated instances where no market prices or indicators are available for specialised, diagnostic equipment.

Following initial recognition at cost, property, plant and equipment were carried at fair value. Valuations have been conducted with sufficient frequency to ensure that the carrying amounts of assets did not differ materially from the assets' fair values as at the reporting date. The regularity of independent valuations depended upon the volatility of movements in market values for the relevant assets.

Revaluation adjustments were made on a class basis. Any revaluation increment was credited to equity under the heading of asset revaluation reserve except to the extent that it reversed a previous revaluation decrement of the same asset class that was previously recognised in the surplus/deficit. Revaluation decrements for a class of assets were recognised directly in the surplus/deficit except to the extent that they reversed a previous revaluation increment for that class.

Any accumulated depreciation as at the revaluation date was eliminated against the gross carrying amount of the asset and the asset was restated to the revalued amount.

Depreciation

Depreciable property, plant and equipment assets are written-off to their estimated residual values over their estimated useful lives to the ATSB using, in all cases, the straight-line method of depreciation.

Depreciation rates (useful lives), residual values and methods are reviewed at each reporting date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate.

Depreciation rates applying to each class of depreciable asset are based on the following useful lives:

	2014	2013
Plant and Equipment	10 years	10 years
Computer Equipment	4 years	4 years
Office Equipment	10 years	10 years

Impairment

All assets were assessed for impairment at 30 June 2014. Where indications of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if the ATSB were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

Derecognition

An item of property, plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

1.21 Intangibles

The ATSB's intangibles comprise of internally developed software for internal use and purchased software. These assets are carried at cost less accumulated amortisation and accumulated impairment losses. Intangibles are amortised on a straight line basis over their anticipated useful life and the default useful life is five years.

All intangibles were assessed for indications of impairment as at 30 June 2014.

1.22 Inventories

The ATSB has no inventories.

1.23 Taxation / Competitive Neutrality

The ATSB is exempt from all forms of taxation except Fringe Benefits Tax (FBT) and the Goods and Services Tax (GST).

Revenues, expenses and assets are recognised net of GST except:

a) where the amount of GST incurred is not recoverable from the Australian Taxation Office; and
b) for receivables and payables.

1.24 Reclassification

The following changes in classification have been made to provide more reliable and relevant information about the ATSB's financial performance.

In 2013-14, a change to the classification of the resources received free of charge within gains occurred. The resources received free of charge are better classified as resources received free of charge within revenue. This resulted in a change in comparatives with Other Revenue increasing by $534,470 and Other Gains decreasing by $534,470. As such, there was no effect to the loss attributable to 2012-13.

Note 2: Events After the Reporting Period

There were no events subsequent to 30 June 2014 that had the potential to significantly effect the ongoing structure and financial activities of the ATSB.

Note 3: Expenses

	2014 $'000	2013 $'000
Note 3A: Employee Benefits		
Wages and salaries	**(12,100)**	(12,431)
Superannuation		
Defined contribution plans	**(792)**	(733)
Defined benefit plans	**(1,547)**	(1,534)
Leave and other entitlements	**(1,359)**	(1,236)
Separation and redundancies	**(1,041)**	(7)
Other employee expenses	**(86)**	(69)
Total employee benefits	**(16,925)**	(16,010)
Note 3B: Suppliers		
Goods and services supplied or rendered		
Investigation services[1]	**(3,988)**	(598)
Office rent	**(2,072)**	(2,002)
Travel expenses	**(901)**	(870)
Information technology	**(689)**	(618)
Contracted services	**(552)**	(415)
Services from the Department of Infrastructure and Regional Development	**(538)**	(493)
Communications	**(427)**	(408)
Contract staff	**(290)**	(512)
Training and conferences	**(213)**	(293)
Publications and printing	**(177)**	(197)
Services from consultants	**(96)**	(127)
Legal	**(81)**	(3)
Audit fees	**(48)**	(46)
Other goods and services	**(364)**	(534)
Total goods and services supplied or rendered	**(10,436)**	(7,116)
Goods supplied in connection with		
Related parties	**-**	-
External parties	**(75)**	(139)
Total goods supplied	**(75)**	(139)
Services rendered in connection with		
Related parties	**(3,444)**	(3,546)
External parties	**(6,917)**	(3,431)
Total services rendered	**(10,361)**	(6,977)
Total goods and services supplied or rendered	**(10,436)**	(7,116)

1. Expenses within Investigation services significantly increased during 2013-2014, as a direct result of the ATSB's involvement in the search for missing Malaysia Airlines Flight MH370.

Other suppliers		
Workers compensation expenses	**(147)**	(138)
Total other suppliers	**(147)**	(138)
Total suppliers	**(10,583)**	(7,254)

Note 3: Expenses continued

	2014 $'000	2013 $'000
Note 3C: Depreciation and Amortisation		
Depreciation		
Property, plant and equipment	**(444)**	(553)
Finance leases	**(31)**	(45)
Total depreciation	**(475)**	(598)
Amortisation		
Intangibles	**(1,054)**	(904)
Total amortisation	**(1,054)**	(904)
Total depreciation and amortisation	**(1,529)**	(1,502)
Note 3D: Finance Costs		
Finance leases	**(7)**	(9)
Unwinding of discount	**(2)**	(1)
Total finance costs	**(9)**	(10)
Note 3E: Write-Down and Impairment of Assets		
Impairment of property, plant and equipment	**-**	(7)
Total write-down and impairment of assets	**-**	(7)
Note 3F: Losses from Asset Sales		
Property, plant and equipment		
Proceeds from sale	**1**	12
Carrying value of assets sold	**(16)**	(16)
Total losses from asset sales	**(15)**	(4)

Note 4: Own-Source Income

	2014	2013
Own-Source Revenue	**$'000**	$'000
Note 4A: Sale of Goods and Rendering of Services		
Rendering of services in connection with		
Related parties	**1,101**	876
External parties	**274**	359
Total sale of goods and rendering of services	**1,375**	1,235
Note 4B: Other Revenue		
Resources received free of charge	**1,982**	534
Other	**-**	25
Total other revenue	**1,982**	559
Gains		
Note 4C: Other Gains		
Other	**1**	2
Total other gains	**1**	2
Revenue from Government		
Note 4D: Revenue from Government		
Appropriations		
Departmental appropriations	**31,292**	21,799
Total revenue from Government	**31,292**	21,799

Note 5: Fair Value Measurements

The following tables provide an analysis of assets that are measured at fair value.
The different levels of the fair value hierarchy are defined below.

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at measurement date.
Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.
Level 3: Unobservable inputs for the asset or liability.

Note 5A: Fair Value Measurements

Fair value measurements at the end of the reporting period by hierarchy for assets and liabilities in 2014

		Fair value measurements at the end of the reporting period using		
	Fair value	Level 1 inputs	Level 2 inputs	Level 3 inputs
	$'000	$'000	$'000	$'000
Non-financial assets				
Other property, plant and equipment	1,597		-	1,597
Total non-financial assets	1,597	-	-	1,597
Total fair value measurements of assets in the statement of financial position	1,597	-	-	1,597

The highest and best use of all non-financial assets are the same as their current use.

Note 5B: Valuation Technique and Inputs for Level 2 and Level 3 Fair Value Measurements

Level 2 and 3 fair value measurements - valuation technique and the inputs used for assets and liabilities in 2014

	Category (Level 2 or Level 3)	Fair value	Valuation technique(s)	Inputs used	Range (weighted average)
		$'000			
Non-financial assets					
Other property, plant and equipment	Level 3	1,597	Depreciated replacement cost	Unobservable, not frequently traded in the marketplace. Data provided by valuers.	N/A

Recurring and non-recurring Level 3 fair value measurements - valuation processes
The ATSB procured valuation services and relied on valuation models provided by the valuer. The ATSB currently engages an independent valuer on a 3 yearly basis. The valuer provided written assurance to the ATSB that the model developed is in compliance with AASB 13.

Note 5C: Reconciliation for Recurring Level 3 Fair Value Measurements

Recurring Level 3 fair value measurements - reconciliation for assets

	Non-financial assets	
	Other property, plant and equipment	Total
	2014	2014
	$'000	$'000
Opening balance	1,795	1,795
Purchases	98	98
Revaluations recognised in the revaluation reserve	193	193
Assets held for sale or in a disposal group held for sale	(16)	(16)
Depreciation/amortisation expense	(475)	(475)
Other movements	2	2
Closing balance	1,597	1,597
Changes in unrealised gains/(losses) recognised in net cost of services for assets held at the end of the reporting period	-	-

The entity's policy for determining when transfers between levels are deemed to have occurred can be found in Note 1.

Note 6: Financial Assets

	2014 $'000	2013 $'000
Note 6A: Cash and Cash Equivalents		
Cash on hand or on deposit	**562**	887
Total cash and cash equivalents	**562**	887
Note 6B: Trade and Other Receivables		
Goods and services receivables in connection with		
Related parties	**89**	-
External parties	**36**	28
Total receivables for goods and services	**125**	28
Appropriations receivable		
For existing programs	**15,925**	7,115
Total appropriations receivable	**15,925**	7,115
Other receivables		
GST receivable from the Australian Taxation Office	**97**	177
Total other receivables	**97**	177
Total trade and other receivables (gross)	**16,147**	7,320
Total trade and other receivables (net)	**16,147**	7,320
Trade and other receivables (net) expected to be recovered		
No more than 12 months	**16,147**	7,320
More than 12 months	**-**	-
Total trade and other receivables (net)	**16,147**	7,320
Trade and other receivables (gross) aged as follows		
Not overdue	**16,140**	7,320
Overdue by:		
0 to 30 days	**-**	-
31 to 60 days	**-**	-
61 to 90 days	**7**	-
More than 90 days	**-**	-
Total trade and other receivables (gross)	**16,147**	7,320
Note 6C: Other Financial Assets		
Accrued revenue	**3**	21
Total other financial assets	**3**	21
Other financial assets expected to be recovered		
No more than 12 months	**3**	21
More than 12 months	**-**	-
Total other financial assets	**3**	21

Note 7: Non-Financial Assets

	2014 $'000	2013 $'000
Note 7A: Property, Plant and Equipment		
Other property, plant and equipment:		
Fair value	**1,664**	2,758
Accumulated depreciation	**(67)**	(963)
Total other property, plant and equipment	**1,597**	1,795
Total property, plant and equipment	**1,597**	1,795

No indicators of impairment were found for property, plant and equipment.

No property, plant or equipment is expected to be sold or disposed of within the next 12 months.

Revaluations of non-financial assets

All revaluations were conducted in accordance with the revaluation policy stated at Note 1. On 30 June 2014, an independent valuer conducted the revaluations.

A revaluation increment of $193,282 for property, plant and equipment was credited to the asset revaluation reserve and included in the equity section of the statement of financial position; no decrements were recognised in 2014.

Note 7B: Reconciliation of the Opening and Closing Balances of Property, Plant and Equipment

Reconciliation of the opening and closing balances of property, plant and equipment for 2014

	Other property, plant & equipment $'000	Total $'000
As at 1 July 2013		
Gross book value	**2,758**	**2,758**
Accumulated depreciation and impairment	**(963)**	**(963)**
Total as at 1 July 2013	**1,795**	**1,795**
Additions		
Purchase	**98**	**98**
Revaluations recognised in the revaluation reserve	**193**	**193**
Assets held for sale or in a disposal group held for sale	**(16)**	**(16)**
Depreciation/amortisation expense	**(475)**	**(475)**
Other movements	**2**	**2**
Total as at 30 June 2014	**1,597**	**1,597**
Total as at 30 June 2014 represented by		
Gross book value	**1,664**	**1,664**
Accumulated depreciation/amortisation and impairment	**(67)**	**(67)**
Total as at 30 June 2014	**1,597**	**1,597**

Reconciliation of the opening and closing balances of property, plant and equipment for 2013

	Other property, plant & equipment $'000	Total $'000
As at 1 July 2012		
Gross book value	1,768	1,768
Accumulated depreciation and impairment	(630)	(630)
Total as at 1 July 2012	1,138	1,138
Additions		
Purchase	1,076	1,076
Finance lease	202	202
Impairments recognised in net cost of services	(7)	(7)
Assets held for sale or in a disposal group held for sale	(16)	(16)
Depreciation/amortisation expense	(598)	(598)
Total as at 30 June 2013	1,795	1,795
Total as at 30 June 2013 represented by		
Gross book value	2,758	2,758
Accumulated depreciation/amortisation and impairment	(963)	(963)
Total as at 30 June 2013	1,795	1,795

Note 7: Non-Financial Assets continued

	2014 $'000	2013 $'000
Note 7C: Intangibles		
Computer software		
Internally developed – in progress	**11**	104
Internally developed – in use	**4,893**	4,809
Purchased	**725**	718
Accumulated amortisation	**(4,770)**	(3,716)
Total computer software	**859**	1,915
Total intangibles	**859**	1,915

No indicators of impairment were found for intangible assets.

No intangibles are expected to be sold or disposed of within the next 12 months.

Note 7D: Reconciliation of the Opening and Closing Balances of Intangibles

Reconciliation of the opening and closing balances of intangibles for 2014

	Computer software internally developed $'000	Computer software purchased $'000	Total $'000
As at 1 July 2013			
Gross book value	**4,912**	**718**	**5,630**
Accumulated amortisation and impairment	**(3,423)**	**(292)**	**(3,715)**
Total as at 1 July 2013	**1,489**	**426**	**1,915**
Additions			
Purchase or internally developed	**11**	**7**	**18**
Amortisation	**(812)**	**(242)**	**(1,054)**
Other movements	**(20)**	-	**(20)**
Total as at 30 June 2014	**668**	**191**	**859**
Total as at 30 June 2014 represented by			
Gross book value	**4,903**	**725**	**5,628**
Accumulated amortisation and impairment	**(4,235)**	**(534)**	**(4,769)**
Total as at 30 June 2014	**668**	**191**	**859**

Reconciliation of the opening and closing balances of intangibles for 2013

	Computer software internally developed $'000	Computer software purchased $'000	Total $'000
As at 1 July 2012			
Gross book value	4,454	285	4,739
Accumulated amortisation and impairment	(2,726)	(85)	(2,811)
Total as at 1 July 2012	1,728	200	1,928
Additions			
Purchase or internally developed	458	433	891
Amortisation	(697)	(207)	(904)
Total as at 30 June 2013	1,489	426	1,915
Total as at 30 June 2013 represented by			
Gross book value	4,912	718	5,630
Accumulated amortisation and impairment	(3,423)	(292)	(3,715)
Total as at 30 June 2013	1,489	426	1,915

Note 7E: Other Non-Financial Assets		
Prepayments	**152**	167
Total other non-financial assets	**152**	167
Other non-financial assets expected to be recovered		
No more than 12 months	**129**	158
More than 12 months	**23**	9
Total other non-financial assets	**152**	167

No indicators of impairment were found for other non-financial assets.

Note 8: Payables

	2014 $'000	2013 $'000
Note 8A: Suppliers		
Accrued expenses	**(761)**	(208)
Trade creditors	**(223)**	(182)
Total suppliers	**(984)**	(390)
Suppliers expected to be settled		
No more than 12 months	**(984)**	(390)
More than 12 months	**-**	-
Total suppliers	**(984)**	(390)
Suppliers in connection with		
Related parties	**(406)**	(31)
External parties	**(578)**	(359)
Total suppliers	**(984)**	(390)

Settlement was usually made within 30 days.

Note 8B: Other Payables		
Wages and salaries	**(451)**	(468)
Superannuation	**(64)**	(60)
Unearned income	**(49)**	(8)
Total other payables	**(564)**	(536)
Other payables expected to be settled		
No more than 12 months	**(564)**	(536)
More than 12 months	**-**	-
Total other payables	**(564)**	(536)

Note 9: Interest Bearing Liabilities

	2014	2013
	$'000	$'000
Note 9A: Leases		
Finance leases	**(119)**	(169)
Total leases	**(119)**	(169)
Leases expected to be settled		
Within 1 year		
Minimum lease payments	**(33)**	(47)
Future finance charges	**5**	7
Between 1 to 5 years		
Minimum lease payments	**(92)**	(135)
Future finance charges	**1**	6
Total leases	**(119)**	(169)

Finance leases for office pool vehicles commenced during 2012-2013. The leases were non-cancellable and for fixed terms of 3 years. The interest rate implicit in the vehicle leases averaged 4.94%. The lease assets secured the lease liabilities. The ATSB guaranteed the residual values of all assets leased. There were no contingent rentals.

Note 10: Provisions

	2014 $'000	2013 $'000
Note 10A: Employee Provisions		
Leave	**(4,082)**	(4,621)
Total employee provisions	**(4,082)**	(4,621)
Employee provisions expected to be settled		
No more than 12 months	**(1,687)**	(2,109)
More than 12 months	**(2,395)**	(2,512)
Total employee provisions	**(4,082)**	(4,621)
Note 10B: Other Provisions		
Provision for restoration obligations	**(70)**	(68)
Total other provisions	**(70)**	(68)
Other provisions expected to be settled		
No more than 12 months	**-**	-
More than 12 months	**(70)**	(68)
Total other provisions	**(70)**	(68)

	Provision for restoration $'000	Total $'000
As at 1 July 2013	**(68)**	**(68)**
Unwinding of discount or change in discount rate	**(2)**	**(2)**
Total as at 30 June 2014	**(70)**	**(70)**

The Department of Infrastructure and Regional Development (DOIRD) leases all premisies that the ATSB occupies. The ATSB reimburses DOIRD for its portion of lease costs. There is currently 1 agreement (2013: 1 agreement) for the leasing of premises which have provisions requiring the ATSB (through DOIRD) to restore the premises to their original condition at the conclusion of the lease. The ATSB has made a provision to reflect the present value of this obligation.

Note 11: Cash Flow Reconciliation

	2014 $'000	2013 $'000
Reconciliation of cash and cash equivalents as per statement of financial position to cash flow statement		
Cash and cash equivalents as per		
Cash flow statement	**562**	887
Statement of financial position	**562**	887
Discrepancy	**-**	-
Reconciliation of net cost of services to net cash from/(used by) operating activities		
Net cost of services	**(25,703)**	(22,991)
Revenue from Government	**31,292**	21,799
Adjustments for non-cash items		
Depreciation/amortisation	**1,529**	1,502
Net write down of non-financial assets	**-**	7
Loss on sale of assets	**15**	4
Unwinding of discount	**2**	1
Movements in assets and liabilities		
Assets		
Increase in net receivables	**(7,550)**	(124)
Decrease in prepayments	**15**	31
(Increase)/decrease in accrued revenue	**17**	(20)
Liabilities		
Decrease in employee provisions	**(539)**	(231)
Increase/(decrease) in suppliers payables	**594**	(302)
Increase in other payables	**28**	46
Net cash used by operating activities	**(300)**	(278)

Note 12: Senior Executive Remuneration

Note 12A: Senior Executive Remuneration Expenses for the Reporting Period

	2014	2013
	$	$
Short-term employee benefits		
Salary	**(758,905)**	(727,893)
Allowances	**(4,604)**	(4,587)
Total short-term employee benefits	**(763,509)**	(732,480)
Post-employment benefits		
Superannuation	**(127,750)**	(114,934)
Total post-employment benefits	**(127,750)**	(114,934)
Other long-term benefits		
Annual leave accrued	**(58,544)**	(56,165)
Long-service leave	**(18,713)**	(17,948)
Total other long-term benefits	**(77,257)**	(74,113)
Total senior executive remuneration expenses	**(968,516)**	(921,527)

1. Note 12A is prepared on an accrual basis.

2. Note 12A excludes acting arrangements and part-year service where total remuneration expensed for a senior executive was less than $195,000.

Note 12: Senior Executive Remuneration continued

Note 12B: Average Annual Reportable Remuneration Paid to Substantive Senior Executives during the Reporting Period

Average annual reportable remuneration paid to substantive senior executives in 2014

	2014					
Average annual reportable remuneration[1]	**Senior Executives No.**	**Reportable salary[2] $**	**Contributed superannuation[3] $**	**Reportable allowances[4] $**	**Bonus paid[5] $**	**Total $**
Total remuneration (including part-time arrangements):						
less than $195,000	**2**	**54,612**	**9,570**	**-**	**-**	**64,182**
$195,000 to $224,999	-	-	-	-	-	-
$225,000 to $254,999	**2**	**199,735**	**35,960**	**-**	**-**	**235,695**
$255,000 to $284,999	-	-	-	-	-	-
$285,000 to $314,999	-	-	-	-	-	-
$315,000 to $344,999	-	-	-	-	-	-
$345,000 to $374,999	-	-	-	-	-	-
$375,000 to $404,999	-	-	-	-	-	-
$405,000 to $434,999[6]	**1**	**387,375**	**53,380**	**2,644**	**-**	**443,399**
Total	**5**					

Average annual reportable remuneration paid to substantive senior executives in 2013

Average annual reportable remuneration[1]	Senior Executives No.	Reportable salary[2] $	Contributed superannuation[3] $	Reportable allowances[4] $	Bonus paid[5] $	Total $
Total remuneration (including part-time arrangements):						
less than $195,000	2	52,699	9,285	-	-	61,984
$195,000 to $224,999	2	193,530	29,957	-	-	223,487
$225,000 to $254,999	-	-	-	-	-	-
$255,000 to $284,999	-	-	-	-	-	-
$285,000 to $314,999	-	-	-	-	-	-
$315,000 to $344,999	1	279,733	46,193	-	-	325,926
$345,000 to $374,999	-	-	-	-	-	-
$375,000 to $404,999	-	-	-	-	-	-
$405,000 to $434,999[6]	-	-	-	-	-	-
Total	5					

1. This table reports substantive senior executives who received remuneration during the reporting period. Each row is an averaged figure based on headcount for individuals in the band.

2. 'Reportable salary' includes the following:
   a) gross payments (less any bonuses paid, which are separated out and disclosed in the 'bonus paid' column);
   b) reportable fringe benefits (at the net amount prior to 'grossing up' to account for tax benefits);
   c) reportable employer superannuation contributions; and
   d) exempt foreign employment income.

3. The 'contributed superannuation' amount is the average cost to the entity for the provision of superannuation benefits to substantive senior executives in that reportable remuneration band during the reporting period.

4. 'Reportable allowances' are the average actual allowances paid as per the 'total allowances' line on individuals' payment summaries.

5. The ATSB does not pay bonuses to Senior Executives.

6. This note is prepared on a 'cash' basis as required under the Finance Minister's Orders. The variation of salary within this band between 2013-14 and the 2012-13 is due to the timing of the final payment of the respective staff member's Total Remuneration Package.

Note 12: Senior Executive Remuneration continued

Note 12C: Other Highly Paid Staff

Average annual reportable remuneration paid to other highly paid staff in 2014

Average annual reportable remuneration[1]	Staff No.	Reportable salary[2] $	Contributed superannuation[3] $	Reportable allowances[4] $	Bonus paid[5] $	Total $
Total remuneration (including part-time arrangements):						
$195,000 to $224,999	-	-	-	-	-	-
$225,000 to $254,999	**2**	**209,846**	**30,680**	**-**	**-**	**240,526**
$255,000 to $284,999	-	-	-	-	-	-
Total	**2**					

Average annual reportable remuneration paid to other highly paid staff in 2013

Average annual reportable remuneration[1]	Staff No.	Reportable salary[2] $	Contributed superannuation[3] $	Reportable allowances[4] $	Bonus paid[5] $	Total $
Total remuneration (including part-time arrangements):						
$195,000 to $224,999	-	-	-	-	-	-
$225,000 to $254,999	1	193,268	32,432	-	-	225,700
$255,000 to $284,999	-	-	-	-	-	-
Total	1					

1. This table reports staff:
   a) who were employed by the entity during the reporting period;
   b) whose reportable remuneration was $195,000 or more for the financial period; and
   c) were not required to be disclosed in Tables A, B or director disclosures.
Each row is an averaged figure based on headcount for individuals in the band.
2. 'Reportable salary' includes the following:
   a) gross payments (less any bonuses paid, which are separated out and disclosed in the 'bonus paid' column);
   b) reportable fringe benefits (at the net amount prior to 'grossing up' to account for tax benefits);
   c) reportable employer superannuation contributions; and
   d) exempt foreign employment income.
3. The 'contributed superannuation' amount is the average cost to the entity for the provision of superannuation benefits to other highly paid staff in that reportable remuneration band during the reporting period.
4. 'Reportable allowances' are the average actual allowances paid as per the 'total allowances' line on individuals' payment summaries.
5. The ATSB does not pay bonuses to its employees.

Note 13: Remuneration of Auditors

	2014	2013
	$'000	$'000
Financial statement audit services were provided free of charge to the ATSB by the Australian National Audit Office (ANAO).		
Fair value of the services received		
Financial statement audit services	**(48)**	(46)
Total fair value of services received	**(48)**	(46)

No other services were provided by the ANAO.

Note 14: Financial Instruments

	2014 $'000	2013 $'000
Note 14A: Categories of Financial Instruments		
Financial Assets		
Loans and receivables		
Cash and cash equivalents	**562**	887
Trade and other receivables	**125**	28
Total loans and receivables	**687**	915
Total financial assets	**687**	915
Financial Liabilities		
Financial liabilities measured at amortised cost		
Trade creditors	**(223)**	(182)
Finance leases	**(119)**	(169)
Total financial liabilities measured at amortised cost	**(342)**	(351)
Total financial liabilities	**(342)**	(351)
Note 14B: Net Loss on Financial Liabilities		
Financial liabilities measured at amortised cost		
Interest expense	**(7)**	(9)
Net loss on financial liabilities measured at amortised cost	**(7)**	(9)
Net loss on financial liabilities	**(7)**	(9)

Note 14C: Fair Value of Financial Instruments

	Carrying amount 2014 $'000	Fair value 2014 $'000	Carrying amount 2013 $'000	Fair value 2013 $'000
Financial Assets				
Cash and cash equivalents	**562**	**562**	887	887
Trade and other receivables	**125**	**125**	28	28
Total financial assets	**687**	**687**	915	915
Financial Liabilities				
Trade creditors	**(223)**	**(223)**	(182)	(182)
Finance leases	**(119)**	**(119)**	(169)	(169)
Total financial liabilities	**(342)**	**(342)**	(351)	(351)

Note 14D: Credit Risk

The ATSB was exposed to minimal credit risk as loans and receivables were cash and trade receivables. The maximum exposure to credit risk was the risk that arises from potential default of a debtor. This amount was equal to the total amount of trade receivables (2014: $125,000 and 2013: $28,000).

The ATSB had assessed the risk of the default on payment and had allocated Nil in 2014 (2013: Nil) to an impairment allowance account.

The ATSB held no collateral to mitigate against credit risk.

Note 14: Financial Instruments continued

Credit quality of financial assets not past due or individually determined as impaired

	Not past due nor impaired	Not past due nor impaired	**Past due or impaired**	Past due or impaired
	2014	2013	**2014**	2013
	$'000	$'000	**$'000**	$'000
Cash and cash equivalents	**562**	887	**-**	-
Trade receivables	**118**	28	**7**	-
Total	**680**	915	**7**	-

Ageing of financial assets that were past due but not impaired in 2014

	0 to 30 days	**31 to 60 days**	**61 to 90 days**	**90+ days**	**Total**
	$'000	**$'000**	**$'000**	**$'000**	**$'000**
Trade receivables	**-**	**7**	**-**	**-**	**7**
Total	**-**	**7**	**-**	**-**	**7**

Note 14E: Liquidity Risk

The ATSB's financial liabilities are trade payables and finance leases on office pool vehicles. Given the financial position of the ATSB and the source and nature of its future funding from the Government, the risk that the ATSB would be unable to meet its financial obligations to its creditors is significantly low.

Maturities for non-derivative financial liabilities in 2014

	On demand	**within 1 year**	**between 1 to 2 years**	**between 2 to 5 years**	**more than 5 years**	**Total**
	$'000	**$'000**	**$'000**	**$'000**	**$'000**	**$'000**
Trade creditors	**-**	**(223)**	**-**	**-**	**-**	**(223)**
Finance leases	**-**	**(28)**	**(91)**	**-**	**-**	**(119)**
Total	**-**	**(251)**	**(91)**	**-**	**-**	**(342)**

Maturities for non-derivative financial liabilities in 2013

	On demand	within 1 year	between 1 to 2 years	between 2 to 5 years	more than 5 years	Total
	$'000	$'000	$'000	$'000	$'000	$'000
Trade creditors	-	(182)	-	-	-	(182)
Finance leases	-	(40)	(41)	(88)	-	(169)
Total	-	(222)	(41)	(88)	-	(351)

The ATSB had no derivative financial liabilities in 2014 or 2013.

Note 14F: Market Risk

The ATSB holds basic financial instruments which do not expose the Agency to market risks. The ATSB is not exposed to currency or other risks.

The only interest bearing item on the balance sheet is the finance leases on office pool vehicles. The leases were established at a fixed rate of interest and repayments do not fluctuate with movements in market interest rates.

Note 15: Financial Assets Reconciliation

	Notes	2014 $'000	2013 $'000
Total financial assets as per statement of financial position		**16,712**	8,228
Less: Non-financial instrument components			
Appropriations receivable	6B	**15,925**	7,115
GST receivable from the Australian Taxation Office	6B	**97**	177
Other financial assets	6C	**3**	21
Total non-financial instrument components		**16,025**	7,313
Total financial assets as per financial instruments note		**687**	915

Note 16: Appropriations

Note 16A: Annual Appropriations ('Recoverable GST exclusive')

Annual Appropriations for 2014

	Appropriation Act			*FMA Act*					
	Annual Appropriation	**Appropriations reduced[1]**	**AFM**	**Section 30**	**Section 31**	**Section 32**	**Total appropriation**	**Appropriation applied in 2014 (current and prior years)**	**Variance**
	$'000	**$'000**	**$'000**	**$'000**	**$'000**	**$'000**	**$'000**	**$'000**	**$'000**
Departmental									
Ordinary annual services	**31,717**	-	-	-	**1,338**	-	**33,055**	**(25,595)**	**7,460**
Other services									
Equity	**973**	-	-	-		-	**973**	-	**973**
Total departmental	**32,690**	-	-	-	**1,338**	-	**34,028**	**(25,595)**	**8,433**

1. Appropriations reduced under Appropriation Acts (Nos. 1,3&5) 2013-14: sections 10, 11, and 12 and under Appropriation Acts (Nos. 2,4&6) 2013-14: sections 12,13, and 14. Departmental appropriations do not lapse at financial year-end. However, the responsible Minister may decide that part or all of a departmental appropriation is not required and request the Finance Minister to reduce that appropriation. The reduction in the appropriation is effected by the Finance Minister's determination and is disallowable by Parliament.

Annual Appropriations for 2013

	Appropriation Act			*FMA Act*					
	Annual Appropriation	Appropriations reduced[1]	AFM	Section 30	Section 31	Section 32	Total appropriation	Appropriation applied in 2013 (current and prior years)	Variance
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Departmental									
Ordinary annual services	22,495	-	-	-	1,207	-	23,702	(23,893)	(191)
Other services									
Equity	1,181	-	-	-		-	1,181	(1,181)	-
Total departmental	23,676	-	-	-	1,207	-	24,883	(25,074)	(191)

1. Appropriations reduced under Appropriation Acts (Nos. 1 & 3) 2012-13: sections 10, 11, 12 and 15 and under Appropriation Acts (Nos. 2&4) 2012-13: sections 12, 13, 14 and 17. Departmental appropriations do not lapse at financial year-end. However, the responsible Minister may decide that part or all of a departmental appropriation is not required and request the Finance Minister to reduce that appropriation. The reduction in the appropriation is effected by the Finance Minister's determination and is disallowable by Parliament.
2. In 2012-13, there was a $77,000 adjustment that met the recognition criteria of a formal reduction in revenue (in accordance with FMO Div 101) but at law the appropriations had not been amended before the end of the reporting period.

Note 16: Appropriations continued

Note 16B: Departmental and Administered Capital Budgets ('Recoverable GST exclusive')

	2014 Capital Budget Appropriations				Capital Budget Appropriations applied in 2014 (current and prior years)			
	Appropriation Act		*FMA Act*					
	Annual Capital Budget $'000	Appropriations reduced[2] $'000	Section 32 $'000	Total Capital Budget Appropriations $'000	Payments for non-financial assets[3] $'000	Payments for other purposes $'000	Total payments $'000	Variance $'000
Departmental								
Ordinary annual services - Departmental Capital Budget[1]	**425**	**-**	**-**	**425**	**(122)**	**-**	**(122)**	**303**

1. Departmental and Administered Capital Budgets are appropriated through Appropriation Acts (No.1,3,5). They form part of ordinary annual services, and are not separately identified in the Appropriation Acts. For more information on ordinary annual services appropriations, please see Table A: Annual appropriations.
2. Appropriations reduced under Appropriation Acts (No.1,3,5) 2013-14: sections 10, 11, 12 and 15 or via a determination by the Finance Minister.
3. Payments made on non-financial assets include purchases of assets, expenditure on assets which has been capitalised, costs incurred to make good an asset to its original condition, and the capital repayment component of finance leases.

	2013 Capital Budget Appropriations				Capital Budget Appropriations applied in 2013 (current and prior years)			
	Appropriation Act		*FMA Act*					
	Annual Capital Budget $'000	Appropriations reduced[2] $'000	Section 32 $'000	Total Capital Budget Appropriations $'000	Payments for non-financial assets[3] $'000	Payments for other purposes $'000	Total payments $'000	Variance $'000
Departmental								
Ordinary annual services - Departmental Capital Budget[1]	619	-	-	619	(720)	-	(720)	(101)

1. Departmental and Administered Capital Budgets are appropriated through Appropriation Acts (No.1,3,5). They form part of ordinary annual services, and are not separately identified in the Appropriation Acts. For more information on ordinary annual services appropriations, please see Table A: Annual appropriations.
2. Appropriations reduced under Appropriation Acts (No.1,3,5) 2012-13: sections 10, 11, 12 and 15 or via a determination by the Finance Minister.
3. Payments made on non-financial assets include purchases of assets, expenditure on assets which has been capitalised, costs incurred to make good an asset to its original condition, and the capital repayment component of finance leases.

Note 16: Appropriations continued

Note 16C: Unspent Annual Appropriations ('Recoverable GST exclusive')

	2014	2013
	$'000	$'000
Departmental		
Appropriation Act (No. 1) 2011-12	**-**	6,907
Appropriation Act (No. 1) 2012-13	**-**	208
Appropriation Act (No. 1) 2013-14	**5,399**	-
Appropriation Act (No. 2) 2013-14	**973**	-
Appropriation Act (No. 5) 2013-14	**9,553**	-
Cash	**562**	887
Total departmental	**16,487**	8,002

Note 17: Compensation and Debt Relief

	2014 $	2013 $
Compensation and Debt Relief - Departmental		
No 'Act of Grace payments' were expended during the reporting period (2013: no payments).	-	-
No waivers of amounts owing to the Australian Government were made pursuant to subsection 34(1) of the *Financial Management and Accountability Act 1997* (2013: no waivers).	-	-
No payments were provided under the Compensation for Detriment caused by Defective Administration (CDDA) Scheme during the reporting period (2013: no payments).	-	-
No ex-gratia payments were provided for during the reporting period (2013: no payments).	-	-
No payments were provided in special circumstances relating to APS employment pursuant to section 73 of the *Public Service Act 1999* (PS Act) during the reporting period (2013: no payments).	-	-

Note 18: Reporting of Outcomes

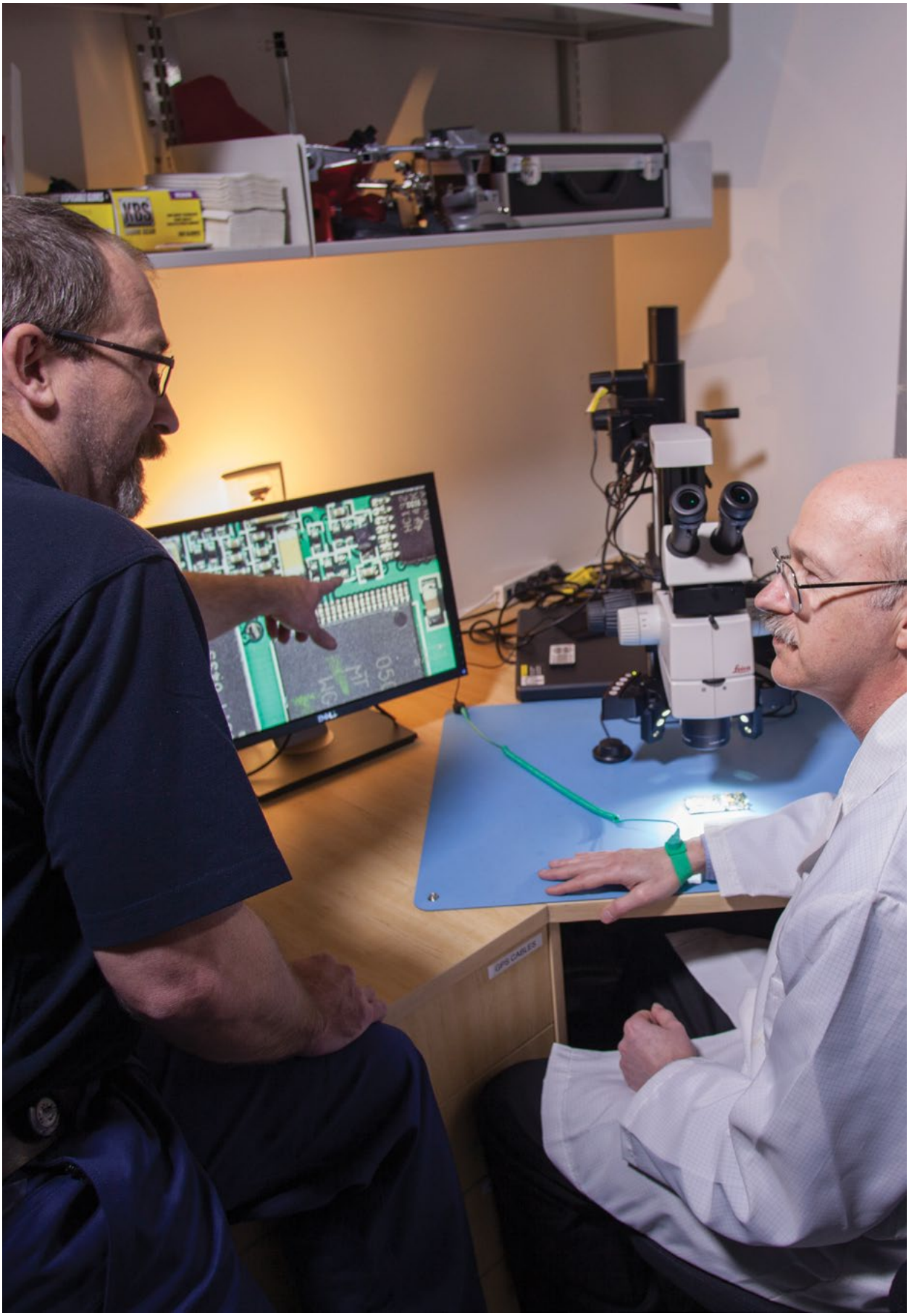
Note 18A: Net Cost of Outcome Delivery

	Outcome 1		Total	
	2014	2013	**2014**	2013
	$'000	$'000	**$'000**	$'000
Departmental				
Expenses	**(29,061)**	(24,787)	**(29,061)**	(24,787)
Own-source income	**3,358**	1,796	**3,358**	1,796
Net cost of outcome delivery	**(25,703)**	(22,991)	**(25,703)**	(22,991)

Note 19: Net Cash Appropriation Arrangements

	2014	2013
	$'000	$'000
Total comprehensive income less depreciation/amortisation expenses previously funded through revenue appropriations[1]	**7,311**	310
Plus: depreciation/amortisation expenses previously funded through revenue appropriation	**(1,529)**	(1,502)
Total comprehensive income/(loss) - as per the Statement of Comprehensive Income	**5,782**	(1,192)

1. From 2010-11, the Government introduced net cash appropriation arrangements, where revenue appropriations for depreciation/amortisation expenses ceased. Entities now receive a separate capital budget provided through equity appropriations. Capital budgets are to be appropriated in the period when cash payment for capital expenditure is required.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MANAGEMENT AND ACCOUNTABILITY

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Management and accountability

The Commission

The ATSB is governed by a Commission, comprising a Chief Commissioner and two part-time Commissioners. The Commission operates within the corporate governance framework of the ATSB Commission Governance Manual. The manual sets out the legislative requirements, parliamentary and ministerial accountability, membership and functions, administrative policies and procedures and reporting obligations for the Commission. The Commission meets at least quarterly and regularly deals with business electronically in accordance with its obligations under the TSI Act, and its agreed policies.

All Commissioners participated in four meetings during 2013–14. The Commissioners also attended an annual planning session with the ATSB's Executive Management Team.

Executive management

Audit Committee

The Audit Committee provides independent assurance and advice to the Chief Commissioner on the ATSB's risk management, internal controls, financial statements and legislative compliance. The Audit Committee is made up of an independent chair, an independent member and an ATSB management nominee. The Committee's quarterly meetings were held in September 2013, December 2013, March 2014 and June 2014.

The core work of the Committee during the year was to oversee and advise on:

- the Annual Internal Audit Program for 2013–14
- ATSB's Risk Management, Fraud Control and Business Continuity Plans
- ATSB's Financial Statement preparations and audit report
- implementation of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) and the associated Rule
- the internal audit governance framework including Audit Committee Charter, Internal Audit Charter and Internal Audit Strategic Plan 2011–14.

The Committee is also taking a key role in advising on the governance and financial management of the search for Malaysia Airlines Flight 370.

The audit program for 2013–14 focused on the assurance and performance of the ATSB's financial management controls, and accident investigation planning and support mechanisms. The program included internal audits of the:

- ATSB's Safety Investigation Risk Management
- management of (then) Department of Infrastructure and Transport support services (now Department of Infrastructure and Regional Development)

- Papua New Guinea Assistance Program through the Memorandum of Understanding in the Transport Sector
- review of the ATSB's Investigator Support Unit
- external review of the ATSB's Internal Audit function
- ATSB's preparedness for PGPA Act implementation.

Professional Committee

The Professional Committee comprises 11 elected staff members, who met on three occasions during 2013–2014. The main areas of focus this year included:

- the implementation of a non-compulsory corporate uniform scheme
- commencing a review of the agency's existing investigation team structure in terms of identifying opportunities for optimisation, improved synergy between teams and enhanced efficiencies
- positioning the agency to consider the benefits associated with engaging targeted university students on short term placements/work experience
- reviewing the usage of our internal Safety Investigation Information Management System
- a late proposal to examine mechanisms and methods for improving the implementation of feedback and lessons learnt following investigators involvement with major type accidents

Business planning and reporting

Each year, the ATSB develops an Annual Plan, consistent with the strategic direction provided by the Minister for Infrastructure and Regional Development's Statement of Expectations and the ATSB's response, which is published in the ATSB Statement of Intent. The Annual Plan incorporates the outcomes, deliverables and key performance indicators for the ATSB set out in the Portfolio Budget Statements.

The ATSB Annual Plan 2013–14 gave priority to:

- building capability and effectiveness, including the timeliness and quality of investigations and reports
- strengthening stakeholder relationships, including with other safety agencies
- commitment to safety research communication and education and promoting attention to risk areas identified through the *SafetyWatch* initiative
- regional and international engagement
- ongoing participation in the transport reform agenda
- sharing safety information
- focused safety research and data analysis
- maintaining preparedness for a major accident.

Performance reporting for the Annual Plan is contained in Section 3 of this Annual Report.

Risk management

Consistent with obligations under the *Financial Management and Accountability Act 1997* and better practice guidance issued by the Australian Public Service Commission (APSC), Comcover and the Australian National Audit Office (ANAO), the ATSB's Risk Management Plan is an integral element of its governance, planning and management framework. Risk assessment and mitigation have been integrated into ATSB business practices, planning and performance reporting at both corporate and business unit levels.

The ATSB is committed to a comprehensive, coordinated and systematic approach to the management of risk—directed towards supporting managers at all levels to anticipate and plan for risk and to respond appropriately. For 2013–14 the ATSB has concentrated its risk focus on the areas of reputation, resourcing and capability.

The ATSB Enterprise Risk Register and Management Plan, and Risk Policy are reviewed regularly by the Commission, the Executive and the Audit Committee. Ongoing review of risk management planning ensures the ATSB is well-placed to achieve the objectives of its risk management policy, and that risk management is consistently practised across the agency.

Business continuity plan

During 2013–14, the ATSB has continued to monitor and review its Business Continuity Plan, which provides a framework to ensure the ATSB is well-placed to manage a business disruption, implement recovery processes and build business resilience.

The ATSB intends to conduct a comprehensive review of its Business Continuity Plan in 2014–15, to effectively maintain and test its operational risk management processes, and responses, which mitigate the impact of non-routine business disruptions.

Fraud control

The ATSB Fraud Control Plan 2012–14 was reviewed, resulting in the development of the Fraud Control Plan 2014–15. The ATSB continues to monitor its fraud risk register to minimise the incidence of fraud through the development, implementation and regular assessment of its fraud prevention, detection, and response strategies.

A further review of the ATSB Fraud Control Plan 2014–15 will be undertaken in early 2014–15, to ensure compliance with the newly developed *Public Governance, Performance and Accountability Act 2013*, and associated Rule and Resource Management Guide.

The introduction of the *Public Interest Disclosure Act 2013* in January 2014, and the development of the ATSB policy and procedure for making a disclosure under the scheme, has complemented the ATSB's fraud management strategies. The ATSB's staff awareness program incorporates activities for existing and new staff. Fraud control is a key topic for the ATSB's induction program.

The Audit Committee receives regular reports on the implementation of fraud risks, controls and treatments. It reviews the Fraud Control Plan to ensure the ATSB has appropriate processes and systems, in place to capture and effectively investigate fraud-related information.

There were no allegations or instances of fraud reported within the ATSB during 2013–14.

Ethical standards

During the reporting period the ATSB continued to demonstrate its commitment to the APS Values, Employment Principles and Code of Conduct by:

- highlighting the APS Values, Employment Principles and Code of Conduct in all selection criteria and recruitment processes, for all ATSB positions
- including briefing information on the APS Values, Employment Principles and Code of Conduct in induction packages and training sessions
- promoting the APS Values, Employment Principles and Code of Conduct through individual performance management plans
- allowing employees to access information on ethical standards via the ATSB's intranet and the APSC's website
- developing a Public Interest Disclosure policy and procedures
- ensuring that the ATSB's fraud control policy, allegations and investigations are dealt with in accordance with the Values and Code of Conduct and ensure procedural fairness and natural justice.

The following census results demonstrate how ATSB staff members continue to express their understanding and commitment to these standards:

- *Do colleagues in your immediate work group act in accordance with the APS Values in their everyday work?*—96 per cent positive
- *Does your supervisor act in accordance with the APS Values in his or her everyday work?* —92 per cent positive
- *I am aware of my agency's policies for managing risk and fraud, or know where to find them*—90 per cent positive
- *My agency actively encourages ethical behaviour by all of its employees*—80 per cent positive.

Management of human resources

Over the past year, the ATSB's Organisational Development team has been particularly focused on a range of workforce planning activities, which are designed to prepare and position the agency to operate within a resource-constrained environment.

These activities included:

- the production of a three year strategic workforce plan, derived from a detailed analysis of our forward year appropriations in accordance with the Portfolio Budget Statements
- managing a 12 per cent reduction in our staffing complement
- organisational restructuring involving the merger of certain business teams and functions
- preparing for the next round of good faith bargaining, with the existing Enterprise Agreement expiring on 30 June 2014.

Based on our detailed planning, it became evident that for the agency to maintain itself on a sustainable financial footing from 2014–15, a significant reduction in our staffing profile was necessary and unavoidable. Accordingly a downsizing program was facilitated over the second half of the financial year, resulting in 11 voluntary and two involuntary redundancies.

In preparing for the next Enterprise Agreement, management representatives have made a concerted effort to try to establish an approved bargaining position within the parameters of the government's bargaining policy. In this regard, management have been unable to successfully establish 'genuine productivity gains' to offset a remuneration increase. This will create a challenging environment in which to progress a new agreement, although management does remain open to proposals from union delegates and staff representatives that may enable such offsets. As we are anticipating a protracted bargaining period, we will continue under the current agreement for the foreseeable future.

Other key activities delivered over this period include:

- consolidation and benchmarking of the staff census results
- greater focus on performance management and succession planning
- establishing a new human capital report template for the quarterly Commission meetings
- preparing for the implementation of the *Public Governance, Performance and Accountability Act 2013*
- implementing continuous improvement measures associated with the existing Work Health and Safety framework
- introduction of several new employment-related procedures
- early intervention and ongoing case management of a number of return to work programs
- establishing a business case in support of an entry level/graduate program
- preparation of the agency's State of the Service return.

Staffing profile

In accordance with our workforce planning projections, the ATSB has reduced its staffing profile from 116 at the start of July 2013, to 104 by the end of June 2014. This reduction has seen the staff turnover rate rise from 13 to 19 per cent. Table 17 displays the ATSB staff numbers, by classification, at 30 June 2014.

Table 17: ATSB staffing profile at 30 June 2014

SUBSTANTIVE CLASSIFICATION	FEMALE (FULL TIME)	FEMALE (PART TIME)	MALE (FULL TIME)	MALE (PART TIME)	NON-ONGOING	TOTAL
Statutory Office Holders		1	1	1		3
Senior Executive Service (SES) Band 1			2			2
EL 2	6	1	45		2	54
EL 1	2		18		1	21
APS 6	6	1	4		2	13
APS 5	7	1	3			11
Total	**21**	**4**	**73**	**1**	**5**	**104**

This total is comprised of the following employment arrangements:

- 99 staff (representing all non-SES employees) covered by the Enterprise Agreement
- two SES employees covered by section 24(1) determinations, established in accordance with the ATSB's SES remuneration policy
- three Statutory Office Holders (representing the Commissioners) determined by the Remuneration Tribunal.

There are no other employment arrangements in place and there is no provision for performance pay.

This total comprises 80 staff based in Canberra, 13 based in Brisbane, six based in Adelaide and five based in Perth.

Salary rates

Table 18 displays the salary rates supporting the above employment arrangements, at 30 June 2014.

Table 18: ATSB salary rates at 30 June 2014

SUBSTANTIVE CLASSIFICATION	LOWER ($)	UPPER ($)
Statutory Office Holders	As determined by the Remuneration Tribunal	
SES1	167,762	199,861
EL 2	111,677	137,257*
EL 1	93,975	108,402*
APS 6	74,753	87,232*
APS 5	66,634	73,028

*Maximums include Transport Safety Investigator and respective supervisor's salaries, representing a $1,606–$9,793 increase on standard APS6–EL2 rates.

Organisational culture

Like many other agencies, we are operating in a pressured environment and therefore are heavily reliant on the discretionary efforts of our high proportion of executive level staff (including the majority of our specialist investigators). Morale, which has traditionally been very high by public sector standards, remains resilient and should enable us to manage the short-to-medium term effects of a reduced workforce, and the uncertainty around future employment conditions and remuneration.

As demonstrated by our organisational wellbeing indicators derived from the 2014 staff census results, we are beginning to observe some telling trends, for example:

- *I am fairly remunerated for the work that I do*—down from 64 to 54 per cent
- *I am satisfied with my non-monetary employment conditions*—down from 81 to 74 per cent
- *I enjoy the work in my current job*—down from 81 to 76 per cent
- *In general, employees in my agency feel they are valued for their contributions*—down from 78 to 63 per cent.

Conversely, it was pleasing to record the following results:

- *I feel prepared for most of the demands in my job*—85 per cent positive
- *Whatever comes my way in my job, I can usually handle it*—88 per cent positive
- *The people in my work group cooperate to get the job done*—83 per cent positive
- *My supervisor treats people with respect*—91 per cent positive
- *I feel a strong personal attachment to my agency*—79 per cent positive
- *I would recommend my agency as a good place to work*—78 per cent positive.

Noting these and other broader indicators, it is essential that we continue to adapt our workforce planning and management strategies to meet the current and future challenges. This will require a sharper focus on succession planning, talent management, managing underperformance and building capability into the future.

Training and development

As a Registered Training Organisation, the ATSB awarded two Transport Safety Investigation Diplomas in 2013–14. At the same time the ATSB has continued to provide training opportunities for a broad range of industry-based personnel, through its highly regarded Human Factors, On-site safety and Aircraft Accident Investigation Fundamentals courses.

In terms of other professional development and industry awareness programs, the ATSB, in accordance with individual staff development plans, facilitated many productive and worthwhile opportunities over this financial year including:

- continued engagement with overseas counterparts and attendance at international investigator and transport safety forums
- familiarisation flights as Approved Technical Observers with Virgin Australia Airlines
- Air Traffic Control familiarisation through Airservices Australia
- Boeing 737-800 glass cockpit familiarisation

- bogus parts familiarisation through the Australian Defence Force
- airworthiness surveillance familiarisation through the Civil Aviation Safety Authority
- various aircraft endorsements and revalidations of marine certificates of competency.

In addition to these technical pursuits, approximately 11 per cent of staff were engaged in a range of tertiary studies, including:

- Certificate IV in Training and Assessment
- Bachelor of Arts (Professional writing and publishing)
- Bachelor of Aviation Management
- Post graduate research studies
- Master of Business Administration
- Master of Investigation Management.

The ATSB has also continued to develop and deliver a range of training to fulfil corporate and public service learning requirements. In readiness for the next financial year, the training team has developed a suite of new courses/modules designed to provide staff with a greater understanding of Bullying and Harassment and the new *Public Governance, Performance and Accountability Act 2013.*

Other key activities commenced this financial year include a benchmarking survey of our training framework, and the development of an internal skills/experience register. The survey has been initiated through the Canadian Transportation Safety Board and, over time, will be progressed through other members of the International Transport Safety Association. Once completed, the internal register should allow the ATSB to develop a Subject Matter Expertise register and identify skill gaps, and also seek out and engage appropriately qualified industry specialists as contract investigators.

Purchasing

ATSB purchases goods and services in accordance with the Commonwealth Procurement Guidelines. These guidelines are applied through the Chief Executive's Instructions (CEIs). The ATSB's procurement policies and processes have been developed to ensure that:

- it undertakes competitive, non-discriminatory procurements
- it uses resources efficiently, effectively, economically and ethically
- it makes all procurement decisions in an accountable and transparent manner.

Consultants

The ATSB engages consultants where it lacks specialist expertise, or when independent research, review or assessment is required. Consultants are typically engaged to:

- investigate or diagnose a defined issue or problem
- carry out defined reviews or evaluations
- provide independent advice, information or creative solutions to assist in the ATSB's decision making.

Before engaging consultants, the ATSB takes into account the skills and resources required for the task, the skills available internally, and the cost-effectiveness of engaging external expertise. The decision to engage a consultant is made in accordance with the FMA Act and related regulations, including the Commonwealth Procurement Guidelines (CPGs) and relevant internal policies.

During 2013–14 seven new consultancy contracts were entered into involving total actual expenditure of $0.95 million. There were no ongoing consultancies contracts carried over from the 2012–13 year.

Annual reports contain information about the actual expenditure on contracts for consultancies. Information on the value of contracts and consultancies is available from the AusTender website. **www.tenders.gov.au**

Exempt contracts

No contracts were exempted from publication on AusTender on public interest grounds during 2013–14.

Legal services and expenditure

Paragraph 11.1(a) of the Legal Services Directions 2005, issued by the Attorney General under the *Judiciary Act 1903*, requires chief executives of departments and agencies to ensure that legal services expenditure is appropriately recorded and monitored. Chief executives must also ensure that their agencies make records of their legal services expenditure for the previous financial year available by 30 October in the following financial year. The following amounts are exclusive of GST.

The expenditure on legal services for 2013–14 was $254,948.47. This comprised:

- $81,220.07 on external legal services
- $173,728.40 on internal legal services.

External scrutiny and participation

Senate Rural and Regional Affairs and Transport References Committee Report into Aviation Accident Investigation

On 20 March 2014 the Australian Government tabled its response to the Senate Rural and Regional Affairs and Transport References Committee report into Aviation Accident Investigations. The Committee's report examined a range of issues in relation to aviation accident investigation and reporting in Australia, as well as the findings of the Australian Transport Safety Bureau report into the Pel-Air accident off Norfolk Island in November 2009. A copy of the Government's response is publicly available. The Government's response noted that the 'Minister and the Parliament will be advised on the ATSB's training strategies and outcomes through the ATSB Annual Report'. That advice can be found in section 8 of this Annual Report.

Independent review of aviation safety regulation in Australia

On 3 June 2014, the Deputy Prime Minister, and Minister for Infrastructure and Regional Development, Warren Truss presented the findings of the Aviation Safety Regulation Review conducted by a panel of independent aviation experts. The Review was commissioned by Minister Truss in November 2013 following a Coalition commitment made during the federal election. The Review Panel presented 37 recommendations in its report, six of which are directly related to the ATSB and its role in aviation safety. The report was open for public comment until 30 June 2014. The Government is considering its response to the report.

Coronial inquests

In 2013–14, six coronial inquests involved matters that related to ATSB investigations. Where the ATSB provided evidence it was given in a manner consistent with the ATSB's independent status and functions to avoid apportioning blame, or providing the means to determine liability.

Roulston and Kean (ATSB Investigation AO-2008-010)

On 5 July 2013 the then Western Australian (WA) State Coroner, Mr Alistair Hope, released the findings of his inquiry into a 13 February 2008 Piper Super Cub mid-air collision with a Robinson R44 helicopter 53 km north-north-west of Gascoyne Junction. Two people on board the Super Cub were fatally injured.

The ATSB released its investigation findings on 26 June 2009. The ATSB's website has been updated to make note of the inquest findings and relevant safety issues at: http://www.atsb.gov.au/publications/investigation_reports/2008/aair/ao-2008-010.aspx

Geldard (ATSB Investigation AO-2007-069)

On 6 February 2014, Coroner Olle of Victoria released the findings of his investigation into a 29 December 2007 accident involving a collision with water of a Robinson R44 Helicopter, at the Pier 35 Helipad on the Yarra River. Two persons were on board the Robinson and one was fatally injured.

The ATSB released its investigation findings on 8 March 2009. The ATSB's website has been updated to make note of the inquest findings and relevant safety issues at: http://www.atsb.gov.au/publications/investigation_reports/2007/aair/ao-2007-069.aspx

Twigg, Twigg and Kernot (ATSB Investigation AO-2011-100)

On 25 June 2014, Coroner Heffey of Victoria handed down the findings of her inquiry into a 15 August 2011 accident involving the loss of control of a Piper PA-28-180, which collided with terrain 31 km north of Horsham Airport. The pilot and one passenger were fatally injured, with the other passenger later dying in hospital of complications from injuries sustained in the accident.

The ATSB released its investigation findings on 3 December 2013. The ATSB's website has been updated to make note of the inquest findings and relevant safety issues at: http://www.atsb.gov.au/publications/investigation_reports/2011/aair/ao-2011-100.aspx

Ananth (ATSB Investigation AO-2008-059)

On 10 April 2014, Judge Ian Gray, State Coroner, Victoria, handed down the findings of his investigation into a 27 August 2008 Cessna A150M midair collision with a Piper Aircraft PA-28-161, 3 km north-west of Moorabbin Airport. The pilot of the Cessna was fatally injured.

The ATSB released its investigation findings on 31 May 2011. The ATSB's website has been updated to make note of the inquest findings and relevant safety issues at: http://www.atsb.gov.au/publications/investigation_reports/2008/aair/ao-2008-059.aspx

Lee, Ray and Ray (ATSB Investigation 200503265)

On 26 June 2014, Coroner Jamieson of Victoria handed down the findings of her inquiry into the 8 July 2005 accident involving a Piper PA31-350 Navajo Chieftain, which impacted terrain at Mount Hotham. All three occupants were fatally injured.

The ATSB released its investigation findings on 24 August 2006. The ATSB's website has been updated to make note of the inquest findings and relevant safety issues at: http://www.atsb.gov.au/publications/investigation_reports/2005/aair/aair200503265.aspx

Coronial Investigation of Twenty-Six Rail Crossing Deaths in Victoria, Australia

On 21 October 2013, Coroner Hendtlass of Victoria handed down the findings of her investigation into twenty-six level crossing deaths in Victoria. Coroner Hendtlass was tasked by the Victorian State Coroner to investigate a cluster of twenty six fatalities arising out of level crossing accidents.

Of the incidents the Coroner investigated, the ATSB had investigated one, an incident that occurred at Benalla on 13 October 2002. Details of that investigation are at: http://www.atsb.gov.au/publications/investigation_reports/2002/rair/rair2002003.aspx

Arising out of her investigation into the twenty-six deaths at level crossings, Coroner Hendtlass made a number of recommendations, one of which was directed to the ATSB.

Details of Coroner Hendtlass' investigation, recommendations to the ATSB and the ATSB's response may be found at: http://www.coronerscourt.vic.gov.au/home/coroners+written+findings/findings+-+0000-00+kerang+level+crossing+incident

Other assistance to Coroners

In 2013–14, consistent with its statutory function of cooperating with the office of the Coroner, the ATSB provided assistance to the following matters:

Beresford

This was a Coronial inquest into a fatal accident involving a gyrocopter. The ATSB had not investigated and was asked by Coroner Lock of Queensland to explain why an ATSB investigation had not been initiated. The ATSB's provided advice as to its policy of not investigating accidents in the sport and recreational aviation sector; and that it generally does not investigate in the absence of a wider safety issue applicable to a large part of the industry. That advice was reflected in the Coroner's findings which may be found at: http://www.courts.qld.gov.au/__data/assets/pdf_file/0004/217795/cif-beresford-sj-20131205.pdf

Robinson (ATSB investigation AE-2013-109)

In July 2013, the ATSB was asked for assistance by Coroner Lock of Queensland, to review the Queensland Police Service (QPS) investigation of the circumstances of the 30 March 2012 accident involving a Europa XS amateur-built aircraft that collided with terrain shortly after take-off from Caboolture Airfield. The pilot of the aircraft was fatally injured.

The ATSB initiated an external investigation to review the QPS investigation. The ATSB review was provided to Coroner Lock on 6 September 2013. A coronial inquest is yet to be held into the circumstances of the accident.

A summary of the ATSB's assistance may be found at:
http://www.atsb.gov.au/publications/investigation_reports/2013/aair/ae-2013-109.aspx

Uscinksi (ATSB investigation AE-2010-098)

The Queensland Coroner has conducted an inquest into the circumstances of an aviation accident that occurred on 22 October 2010, where a replica Supermarine Spitfire MK26 recreational/ light sport aircraft impacted terrain near Gympie. The pilot of the aircraft was fatally injured. The inquest findings are due to be delivered in the latter half of 2014. Those findings will be referred to in the 2014–15 Annual Report.

The QPS, assisted by Recreational Aviation Australia Inc (RA-Aus) investigated the circumstances of the accident. Following a request for technical assistance from RA-Aus, the ATSB initiated an external investigation.

Prior to the inquest, the ATSB provided clarifying information to the Coroner pertaining to the ATSB external investigation.

Details of the ATSB's external investigation may be found at:
http://www.atsb.gov.au/publications/investigation_reports/2010/aair/ae-2010-098.aspx

Civil Proceedings

On 17 March 2014, Justice Peter Lyons of the Supreme Court of Queensland delivered his verdict in the matter of *McDermott and McDermott v Robinson Helicopter Company*. The proceedings arose out of a collision with terrain involving a Robinson R22 helicopter on 30 May 2004. The helicopter had two occupants on board and the pilot suffered fatal injuries.

The ATSB investigated the occurrence and its report, which was released on 24 August 2006, may be found at:
http://www.atsb.gov.au/publications/investigation_reports/2004/aair/aair200401917.aspx

In the course of the civil proceedings the ATSB was asked for assistance with items of evidential material. The ATSB provided a limited series of photographs of a component of the helicopter, in situ in the helicopter wreckage. The photographs were provided as they went to issues of chain of evidence and were otherwise unavailable to the parties to the litigation. The ATSB did not provide any opinion or analysis in relation to the photographs.


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APPENDICES

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Appendix A: Other mandatory information

Work health and safety

The ATSB's Work Health and Safety Committee was established consistent with the obligations under the *Work Health and Safety Act 2011* (WHS Act). The Committee has 12 elected Health and Safety Representatives and met on five occasions during 2013–14. The Committee continues to report to the ATSB Commission and Executive on a quarterly basis.

The main activities undertaken this year by the Work Health and Safety Committee include:

- the development and facilitation of respirator training
- reviewing the Materials Safety Data Sheets for the ATSB's technical facilities
- reviewing the protocols and procedures in respect of composite fibres
- continuous improvement of our Safety Investigation Quality System
- the recertification of several Health and Safety Representatives
- facilitating another health week (incorporating flu shots and general health checks).

ATSB staff members continue to express confidence in the agency's ongoing commitment to provide a safe workplace as demonstrated by the following staff census results:

- *The people in my work group are committed to workplace safety*—95 per cent positive
- *My supervisor is committed to workplace safety*—94 per cent positive
- *My agency genuinely cares about employees being healthy and safe at work* —87 per cent positive
- *My agency supports employees who are injured or become ill due to work* —85 per cent positive.

During 2013–14, one compensation claim was submitted to Comcare, and there were no reportable incidents under the WHS Act.

In terms of other wellbeing indicators, approximately 3.5 per cent of staff accessed the employee assistance program, and the average unscheduled absence rate per-full time employee has risen from 8.4 to 9.9 days per annum.

Freedom of information

The following information explains how to request access to documents held by the ATSB under the *Freedom of Information Act 1982* (FOI Act), what records the ATSB holds and what arrangements the ATSB has in place for outside participation.

Agencies subject to the FOI Act are required to publish information to the public as part of the Information Publication Scheme (IPS). This requirement is in Part II of the FOI Act and has replaced the former requirement to publish a section 8 statement in an annual report. Each agency must display on its website a plan showing what information it publishes in accordance with the IPS requirements.

Detailed information about the FOI Act is available via the Office of the Australian Information Commissioner (OAIC) website at **www.oaic.gov.au** and the ComLaw website at **www.comlaw.gov.au**.

How to lodge a request for information

Information about how to make an application under the FOI Act can be found on the ATSB's website at **www.atsb.gov.au/about_atsb/foi.aspx**.

A request for access to documents made under the FOI Act must:

- be in writing
- state that the request is an application for the purposes of the FOI Act
- provide enough information to enable the document(s) sought to be identified
- give details of how notices under the FOI Act may be sent (for example, by providing an electronic address to which notices may be sent by electronic communication).

Submission of FOI requests, or enquiries about access, should be directed to:

Freedom of Information Coordinator
Australian Transport Safety Bureau
PO Box 967
CIVIC SQUARE ACT 2608

Phone: 02 6274 6488
Fax: 02 6247 3117
Email: **FOI@atsb.gov.au**

Charges

There are no application fees payable to lodge an FOI request. The ATSB may impose a charge for the work involved in providing access to document(s) to a request under the FOI Act. These charges are imposed in accordance with the FOI Act and the Freedom of Information (Charges) Regulations. These charges may relate to the time spent searching for and retrieving relevant document(s), decision-making time, photocopying and other costs. The FOI Act also provides that the first five hours of decision-making time is waived. The applicant will be notified as soon as possible of an estimate of the charges associated with processing of the request. The request will not be processed until the applicant responds to such notification.

In some circumstances, charges associated with the processing of the request may be remitted. Should the applicant wish to seek remission of the charges, the criteria considered by the ATSB include whether:

- the payment of the charges, or part of the charges, would cause financial hardship to the applicant, or a person on whose behalf the application was made
- giving access to document(s) is in the general public interest, or in the interest of a substantial section of the public.

The applicant would need to contact the ATSB in writing, or by email, and explain why he/she meets the criteria or that the overall circumstances justify not paying the charges. Requests for the remission of the charges should be forwarded to the Freedom of Information Coordinator.

It may not be possible to obtain access to all the documents sought in an FOI request. Access is limited by exemptions such as Section 38—secrecy provisions of the FOI Act.

It is important to note that the ATSB is required to perform its functions under section 12AA of the TSI Act. A significant amount of information gathered by the ATSB during the course of its investigations is defined as restricted information under section 3 of the TSI Act, and access to such information is exempt from release under subparagraph 38(1)(b)(i) of the FOI Act.

Freedom of Information activity in 2013–14

The ATSB received 26 new requests for access to documents under the FOI Act in 2013–14.

Table 19 provides details of ATSB Freedom of Information activity for 2013–14.

The ATSB became a separate statutory agency on 1 July 2009.

Table 19: Freedom of Information activity

ACTIVITY IN 2013–2014	NUMBERS
Requests	
On hand at 1 July 2013 (A)	4
New requests received (B)	26
Requests withdrawn (C)	10
Requests transferred in full to another agency (D)	0
Requests on hand at 30 June 2014 (E)	6
Total requests completed at 30 June 2014 (A+B-C-D-E)	14
Action on requests	
Access in full	1
Access in part	8
Access refused	5
Access transferred in full	0
Request withdrawn	10
Response times (excluding withdrawn)	
0–30 days	11
31–60 days	3
61–90 days	0
90+ days	0
Internal review	
Requests received	0
Decision affirmed	0
Decision amended	0
Request withdrawn	0
Review by the Office of the Australian Information Commissioner	
Applications received	0
Administrative Appeal Tribunal (AAT) review of FOI decisions	
Applications received	0

Records the ATSB holds

The ATSB holds records such as:

- human and financial resource management records
- briefing papers and submissions prepared for ministers, parliamentary secretaries, parliamentary committees, the Cabinet and the Executive Council (most of these are classified documents)
- business papers, briefing notes and meeting records for committees, and conferences, which the ATSB services or takes part in
- documents prepared by international agencies
- documents relating to the development of legislation
- internal administration documents
- internal treaties, memoranda of understanding and international conventions
- legal documents—including legislation, contracts, leases and court documents
- maps and other geographical information
- ministerial responses to parliamentary questions, interdepartmental and general correspondence and papers
- policy documents, recommendations and decisions
- registers of documents, agreements and approvals
- statistics and databases
- technical standards, guidelines, specifications, charts, photographs, drawings and manuals
- accident and incident investigation and notification records.

To view a list of manuals and other documents the ATSB uses when making decisions or recommendations that affect the public, visit the ATSB website at www.atsb.gov.au. Under section 8C of the FOI Act, exempt matter is not required to be published. The ATSB reserves the right to delete exempt matter from its information prior to providing access.

For information about the types of personal information the ATSB holds, please refer to the ATSB Privacy Policy at www.atsb.gov.au/utilities/privacy.aspx.

For further information, please contact ATSB enquiries either by telephone on 1800 020 616 or by email to atsbinfo@atsb.gov.au.

Functions and decision-making powers

The ATSB's functions are detailed in section 12AA of the TSI Act and are further described throughout this report.

Certain officers exercise decision-making powers under portfolio legislation and other matters. These responsibilities are set out in the Administrative Arrangements Order (AAO) for the Commonwealth of Australia and relate to transport safety, including investigations.

For a complete and up-to-date copy of the AAO, visit **www.dpmc.gov.au**.

To assist ATSB employees in exercising their powers appropriately, and enable access to their decision-making authorities, the ATSB uses an intranet which allows employees to access delegations online. It also allows employees to check information about the powers and authorities assigned under the legislation set out in the AAO, and by laws such as the *Financial Management and Accountability Act 1997* and the *Public Service Act 1999*. Powers delegated under the TSI Act are recorded on the back of identity cards for all investigators.

Arrangements for outside participation

The ATSB consults widely to gain the views of its stakeholders and clients about future policy directions, and program delivery. This includes consulting with other Australian state and territory government departments and agencies, as appropriate, and with foreign governments, particularly in the context of transport safety investigations. For particular policy issues, the ATSB may also contact a very broad range of stakeholders.

Advertising and market research

The ATSB did not conduct any advertising campaigns during 2013–14 and did not incur any expenses with advertising agencies, market research, polling, direct mail or media advertising agencies.

Ecologically sustainable development and environmental performance reporting

(section 516A of the *Environment Protection and Biodiversity Conservation Act 1999*)

The ATSB is fully committed to the principles of Ecologically Sustainable Development. The nature of its work as Australia's national transport safety investigator with a focus on the investigation of transport accidents, research into transport safety and dissemination of safety information means that the ATSB's commitment is expressed through its day-to-day activities within its offices.

The ATSB operates under the Energy Efficiency in Government Operations (EEGO) policy. It reports annual levels of energy use and emissions to meet the requirements of the policy via the Department of Climate Change and Energy Efficiency's Online System for Comprehensive Activity Reporting.

The ATSB responded to the National Environment Protection Measures (NEMP) reporting questionnaire 2012–13.

The ATSB continues to follow its Data Centre Optimisation Policy Targets (DCOT) plan, adopted in 2012, which aims to drive down the costs of the ATSB's data centre and reduce data centre CO_2 emissions to help the Government meet its efficiency targets.

The ATSB has limited its energy use and associated emissions through various initiatives that focus on improving the energy efficiency of the property portfolio, for example:

- operating a virtualised IT server environment
- ensuring that desktop IT equipment uses energy saving policies such as automatic turn-off for monitors and hard drives after periods of inactivity (30 minutes and three hours respectively)
- setting each printer defaults to (mono) black and double-sided printing
- using photocopy paper containing 60 per cent recycled paper for internal use
- active recycling of paper waste
- promotion of the separation of general waste into recyclable and non-recyclable items before disposal
- promotion of video conferencing as an alternative to travel, where practicable
- use of motion-sensor lighting in offices
- reducing the effect of direct sunlight on air-conditioning systems by installing blinds or tinting where appropriate.

Grant programs

The ATSB did not administer any grant programs in 2013–14.

Changes to disability reporting in annual reports

Since 1994, Commonwealth departments and agencies have reported on their performance as policy adviser, purchaser, employer, regulator and provider under the Commonwealth Disability Strategy. In 2007–08, reporting on the employer role was transferred to the *Australian Public Service Commission's State of the Service Report* and the *APS Statistical Bulletin*. These reports are available at **www.apsc.gov.au**. From 2010–11, departments and agencies have no longer been required to report on these functions.

The Commonwealth Disability Strategy has been overtaken by the National Disability Strategy 2010–2020, which sets out a ten year national policy framework to improve the lives of people with disability, promote participation and create a more inclusive society. A high level two-yearly report will track progress against each of the six outcome areas of the Strategy and present a picture of how people with disability are faring. The first of these reports will be available in late 2014, and can be found at **www.dss.gov.au**.

Appendix B: Agency resource statement 2013–14

		Actual available Appropriation for 2013–14 $'000 (a)	Payments made 2013–14 $'000 (b)	Balance remaining 2013–14 $'000 (a) – (b)
Ordinary Annual Services[1]				
Departmental appropriation[2]		41,565	25,595	15,970
Total		**41,565**	**25,595**	**15,970**
Total ordinary annual services	**A**	**41,565**	**25,595**	
Other services[3]				
Departmental non-operating				
Equity injections		973	-	973
Total				
Total other services	**B**	**973**	-	
Total net resourcing and payments for the Australian Transport Safety Bureau		**42,538**	**25,595**	

1 Appropriation Bill (No.1) 2013–14. This includes Prior Year departmental appropriation and S.31 relevant agency receipts.
2 Includes an amount of $0.425m in 2013–14 for the Departmental Capital Budget. For accounting purposes this amount has been designated as 'contributions by owners'.
3 Appropriation Bill (No.2) 2013–14.

Expenses for Outcome 1

Outcome 1: Improved transport safety in Australia including through: independent 'no blame' investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.	**Budget*** 2013–14 $'000 (a)	**Actual Expenses** 2013–14 $'000 (b)	**Variation** 2013–14 $'000 (a) – (b)
Program 1.1: Australian Transport Safety Bureau			
Departmental expenses			
Departmental appropriation [1]	33,138	25,534	7,604
Expenses not requiring appropriation in the Budget year[2]	4,206	3,527	679
Total for Program 1.1	37,344	29,061	8,283
Total expenses for Outcome 1	37,344	29,061	8,283
	2012–13	2013–14	
Average Staffing Level (number)	118	104	

1 Departmental Appropriation combines "Ordinary annual services (Appropriation Bill No. 1)" and "Revenue from independent sources (s31)".
2 Expenses not requiring appropriation in 2013–14 is made up of depreciation and amortisation expense, the value of services that the ATSB received free of charge from the Victorian Office of the Chief Investigator, the NSW Office of Transport Investigations and the Australian National Audit Office, write-down and impairment of assets and losses from asset sales.

Appendix C: List of requirements

REF5*	PART OF REPORT	DESCRIPTION	REQUIREMENT	PAGE
8(3) & A.4		Letter of transmittal	Mandatory	iii
A.5		Table of contents	Mandatory	iv-v
A.5		Index	Mandatory	202
A.5		Glossary	Mandatory	196
A.5		Contact officer(s)	Mandatory	vii
A.5		Internet home page address and Internet address for report	Mandatory	vii
9	**Review by Secretary**			
9(1)		Review by departmental secretary	Mandatory	2
9(2)		Summary of significant issues and developments	Suggested	3-7
9(2)		Overview of department's performance and financial results	Suggested	46-47
9(2)		Outlook for following year	Suggested	8
9(3)		Significant issues and developments —portfolio	Portfolio departments—suggested	N/A
10	**Departmental Overview**			
10(1)		Role and functions	Mandatory	10
10(1)		Organisational structure	Mandatory	15
10(1)		Outcome and programme structure	Mandatory	19
10(2)		Where outcome and programme structures differ from PB Statements/ PAES or other portfolio statements accompanying any other additional appropriation bills (other portfolio statements), details of variation and reasons for change	Mandatory	20
10(3)		Portfolio structure	Portfolio departments—mandatory	N/A

* The reference is to the location of the item in the requirements, e.g. 'A.4' refers to the fourth item in Attachment A.

REF5*	PART OF REPORT	DESCRIPTION	REQUIREMENT	PAGE
11	**Report on Performance**			
11(1)		Review of performance during the year in relation to programmes and contribution to outcomes	Mandatory	26
11(2)		Actual performance in relation to deliverables and KPIs set out in PB Statements/PAES or other portfolio statements	Mandatory	26-28
11(2)		Where performance targets differ from the PBS/PAES, details of both former and new targets, and reasons for the change	Mandatory	N/A
11(2)		Narrative discussion and analysis of performance	Mandatory	29-46
11(2)		Trend information	Mandatory	N/A
11(3)		Significant changes in nature of principal functions/services	Suggested	26
11(3)		Performance of purchaser/provider arrangements	If applicable, suggested	N/A
11(3)		Factors, events or trends influencing departmental performance	Suggested	2
11(3)		Contribution of risk management in achieving objectives	Suggested	170
11(4)		Performance against service charter customer service standards, complaints data, and the department's response to complaints	If applicable, mandatory	N/A
11(5)		Discussion and analysis of the department's financial performance	Mandatory	46-47
11(6)		Discussion of any significant changes in financial results from the prior year, from budget or anticipated to have a significant impact on future operations.	Mandatory	47
11(7)		Agency resource statement and summary resource tables by outcomes	Mandatory	190
12	**Management and Accountability**			
	Corporate Governance			

REF5*	PART OF REPORT	DESCRIPTION	REQUIREMENT	PAGE
12(1)		Agency heads are required to certify that their agency complies with the 'Commonwealth Fraud Control Guidelines'.	Mandatory	iii, 170
12(2)		Statement of the main corporate governance practices in place	Mandatory	168
12(3)		Names of the senior executive and their responsibilities	Suggested	16-18
12(3)		Senior management committees and their roles	Suggested	168-169
12(3)		Corporate and operational plans and associated performance reporting and review	Suggested	169
12(3)		Internal audit arrangements including approach adopted to identifying areas of significant financial or operational risk and arrangements to manage those risks	Suggested	170
12(3)		Policy and practices on the establishment and maintenance of appropriate ethical standards	Suggested	171
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	External Scrutiny			
12(4)		Significant developments in external scrutiny	Mandatory	176
12(4)		Judicial decisions and decisions of administrative tribunals and by the Australian Information Commissioner	Mandatory	177-179
12(4)		Reports by the Auditor-General, a Parliamentary Committee. the Commonwealth Ombudsman or an agency capability review	Mandatory	176
	Management of Human Resources			
12(5)		Assessment of effectiveness in managing and developing human resources to achieve departmental objectives	Mandatory	171
12(6)		Workforce planning, staff retention and turnover	Suggested	172

REF5*	PART OF REPORT	DESCRIPTION	REQUIREMENT	PAGE
12(6)		Impact and features of enterprise or collective agreements, individual flexibility arrangements (IFAs), determinations, common law contracts and Australian Workplace Agreements (AWAs)	Suggested	N/A
12(6)		Training and development undertaken and its impact	Suggested	174
12(6)		Work health and safety performance	Suggested	182
12(6)		Productivity gains	Suggested	172
12(7)		Statistics on staffing	Mandatory	172-173
12(8)		Enterprise or collective agreements, IFAs, determinations, common law contracts and AWAs	Mandatory	173
12(9) & B		Performance pay	Mandatory	173
12(10)-(11)	Assets management	Assessment of effectiveness of assets management	If applicable, mandatory	NA
12(12)	Purchasing	Assessment of purchasing against core policies and principles	Mandatory	175
12(13)-(22)	Consultants	The annual report must include a summary statement detailing the number of new consultancy services contracts let during the year; the total actual expenditure on all new consultancy contracts let during the year (inclusive of GST); the number of ongoing consultancy contracts that were active in the reporting year; and the total actual expenditure in the reporting year on the ongoing consultancy contracts (inclusive of GST). The annual report must include a statement noting that information on contracts and consultancies is available through the AusTender website.	Mandatory	175
12(23)	Australian National Audit Office Access Clauses	Absence of provisions in contracts allowing access by the Auditor-General	Mandatory	NA
12(24)	Exempt contracts	Contracts exempted from publication in AusTender	Mandatory	176

REF5*	PART OF REPORT	DESCRIPTION	REQUIREMENT	PAGE
13	Financial Statements	Financial Statements	Mandatory	124-65
	Other Mandatory Information			
14(1) & C.1		Work health and safety (Schedule 2, Part 4 of the *Work Health and Safety Act 2011*)	Mandatory	182
14(1) & C.2		Advertising and Market Research (Section 311A of the *Commonwealth Electoral Act 1918*) and statement on advertising campaigns	Mandatory	187
14(1) & C.3		Ecologically sustainable development and environmental performance (Section 516A of the *Environment Protection and Biodiversity Conservation Act 1999*)	Mandatory	188
14(1)		Compliance with the agency's obligations under the *Carer Recognition Act 2010*	If applicable, mandatory	NA
14(2) & D.1		Grant programmes	Mandatory	188
14(3) & D.2		Disability reporting—explicit and transparent reference to agency-level information available through other reporting mechanisms	Mandatory	189
14(4) & D.3		Information Publication Scheme statement	Mandatory	183
14(5)		Correction of material errors in previous annual report	If applicable, mandatory	NA
E		Agency Resource Statements and Resources for Outcomes	Mandatory	190
F		List of Requirements	Mandatory	191

Appendix D: Glossary

ACARS	Air Communication and Reporting System
Accident	An investigable matter involving a transport vehicle where: a. a person dies or suffers serious injury as a result of an occurrence associated with the operation of a vehicle b. the vehicle is destroyed or seriously damaged as a result of an occurrence associated with the operation of the vehicle c. any property is destroyed or seriously damaged as a result of an occurrence associated with the operation of the vehicle.
Accident Investigation Commission (AIC)	The Papua New Guinea Government institution responsible for the investigation of safety deficiencies in aviation transport.
Aerial work	Aircraft operations, including ambulance and emergency medical services, agriculture, mustering, search and rescue, fire control, and survey and photography.
Agricultural operations	Operations involving the carriage and/or spreading of chemicals, seed, fertiliser or other substances for agricultural purposes, including the purposes for pest and disease control.
Airworthiness Directive	A notification to owners and operators of certified aircraft that a known safety deficiency with a particular model of aircraft, engine, avionics or other system exists and must be corrected. If a certified aircraft has outstanding airworthiness directives that have not been complied with, the aircraft is not considered airworthy.
Amateur-built aircraft	Aircraft not built in a factory but for the user's personal use or recreation. May include ultra-light, original design, plans built or kit built or experimental aircraft.
AMSA	Australian Maritime Safety Authority
ATS	Air traffic services
ATSB safety action	Formal activities conducted by the ATSB to initiate safety action by relevant organisations to address a safety issue. Includes safety recommendations and safety advisory notices.
Australian Accredited Representative	An Australian appointed representative appointed in the case of safety occurrences involving Australian registered aircraft outside Australian territory, normally an ATSB investigator.
Blood-borne pathogen	A blood-borne agent causing disease that can be spread by contamination by blood.
BOS	Breakdown of separation (also known as a LOS—loss of separation)
CASA	Civil Aviation Safety Authority
Catastrophic accident	Sudden disastrous investigable matter involving a transport vehicle.
Charter	Operations that involve the carriage of cargo or passengers but do not involve scheduled flights; the lack of scheduled flights and fixed departure and arrival points distinguishes charter operations from RPT operations.

Commercial air transport	Commercial air transport refers to scheduled and non-scheduled commercial operations used for the purposes of transporting passengers and/or cargo for hire or reward; specifically, this includes high capacity regular public transport (RPT), low capacity RPT, and charter operations.
Complex investigations	Investigations rated at level 1, 2, or 3 in accordance with the ATSB's rating system.
Contributing safety factor	A safety factor that, if it had not occurred or existed at the relevant time, then: • the occurrence would probably not have occurred • adverse consequences associated with the occurrence would probably not have occurred or have been as serious • another contributing safety factor would probably not have occurred or existed.
COAG	Council of Australian Governments
CVR	Cockpit Voice Recorder
Defined Interstate Rail network (DIRN)	The DIRN comprises over 10,000 route kilometres of standard gauge interstate track linking the Capital cities of mainland Australia.
Directly Involved Party (DIP)	Those individuals or organisations that were directly involved in a transport safety occurrence, or may have influenced the circumstances that led to an occurrence and/or whose reputations are likely to be affected following the release of the investigation report.
Fatal accident	A transport accident in which at least one fatality results within 30 days of the accident.
Fatality/Fatal injury	Any injury acquired by a person involved in a transport accident and which results in death within 30 days of the accident.
Flight data recorder (black box)	A recorder placed in an aircraft for the purpose of facilitating the investigation of an aircraft accident or incident.
Flying training	Flying under instruction for the issue or renewal of a licence, rating, aircraft type endorsement or any other type of flying aimed at upgrading an individual's flight qualification, including solo navigation exercises conducted as part of a course of applied flying training; check and training operations conducted by RPT operators are also included.
General aviation (GA)	All flying activities outside of scheduled(RPT) and non-scheduled (charter) passenger and freight operations, including aerial work, flying training, private/business operations, and sports aviation; general aviation in this report does not include Australian non-VH registered aircraft.
Hours flown	Calculated from the time that the wheels start, with the intention of flight, to the time the wheels stop after completion of the flight.
Human factors	Human factors is the multi-disciplinary science that applies knowledge about the capabilities and limitations of human performance to all aspects of the design, operation, and maintenance of products and systems. It considers the effects of physical, psychological, and environmental factors on human performance in different task environments, including the role of human operators in complex systems.

ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
Immediately reportable matter	A serious transport safety matters that covers occurrences such as: • accidents involving death • serious injury • destruction or serious damage of vehicles or property • when an accident nearly occurs.
Incident	An occurrence, other than an accident, associated with the operation of a transport vehicle that affects or could affect the safety of operation.
ITSAP	The Australian Government's Indonesian Transport Safety Package
JACC	Joint Agency Coordination Centre
LOSA	Loss of separation assurance
Less complex investigations	Are those rated at level 4 or level 5 under the ATSB's rating scheme.
Minor injury	An injury sustained by a person in an accident that was not a fatal or serious injury and does not require hospitalisation.
Multi-modal	Across the three modes: aviation, marine and rail.
National Transportation Safety Committee (NTSC)	Indonesian Government institution responsible for the investigation of safety deficiencies in aviation, maritime and land transport.
Occurrences – accidents and incidents	Occurrences are reportable matters: either an immediately reportable matter (IRM) or routine reportable matter (RRM). They comprise accidents, serious incidents and incidents.
ONRSR	Office of the National Rail Safety Regulator
Other aerial work	Includes operations conducted for the purposes of aerial work other than 'flying training' and 'agricultural operations'; operations classified as other aerial work include aerial surveying and photography, spotting, aerial stock mustering, search and rescue, ambulance, towing (including glider, target and banner towing), advertising, cloud seeding, firefighting, parachute dropping, and coastal surveillance.
Pilotage	Use of licensed coastal pilots to guide ships through designated areas.
Portfolio Budget Statements (PBS)	These statements explain the provisions of the Appropriation Bills (Budget Bills), that is, where the appropriate funds are going to be spent.
Private/business	Private flying is conducted for recreational or personal transport, while the business category refers only to the use of aircraft as a means of transport to support a business or profession without the aircraft generating revenue directly.

REEFVTS	Great Barrier Reef and Torres Strait Vessel Traffic Service. A coastal Vessel Traffic Service which has been put in place by the Australian and Queensland Governments to improve safety and efficiency of vessel traffic and to protect the environment.
Regular public transport (RPT)	Refers to aircraft that transport passengers and/or cargo according to fixed schedules, and fixed departure and arrival points, in exchange for monetary reward; these services can be further divided into low and high capacity aircraft: • low capacity RPT—An RPT aircraft that provides a maximum of 38 passenger seats, or a maximum payload no greater than 4,200 kg • high capacity RPT—An RPT aircraft that provides more than 38 passenger seats, or a maximum payload greater than 4,200 kg.
Registered Training Organisation (RTO)	An organisation registered, in accordance with the Australian Quality Training Framework Standards for Registered Training Organisations, to provide specific vocational education and training and/or assessment services.
REPCON	Report Confidential—The aviation confidential reporting scheme
REPCON Marine	Report Confidential—The marine confidential reporting scheme
Reportable safety concern (RSC)`	Any matter that endangers or could endanger a transport vehicle.
Safety action	The things that organisations and individuals do in response to the identification of safety issues in order to prevent accidents and incidents. There are two main types: • ATSB safety action • non-ATSB safety action.
Safety advisory notice	Formal advice by the ATSB to an organisation, or relevant parts of the aviation industry, that it should consider the safety issue and take action where it believes it is appropriate; a safety advisory notice is a 'softer' output to a safety recommendation used for less significant safety issues when the available evidence is more limited, or when the target audience is not a specific organisation.
Safety factor	An event or condition that increases safety risk; in other words, something that increases the likelihood of an occurrence, and/or the severity of the adverse consequences associated with an occurrence.
Safety issues	A safety factor that: • can reasonably be regarded as having the potential to adversely affect the safety of future operations • is a characteristic of an organisation or a system, rather than a characteristic of a specific individual, or characteristic of an operational environment at a specific point in time.

Safety recommendation	ATSB safety recommendations are formal recommendations by the ATSB to an organisation for it to address a specific safety issue. They focus on stating the problem (i.e. the description of the safety issue.) They do not identify specific solutions for reducing risk.
SAR	Search and rescue
SATCOM	Satellite communication
Serious incident	An incident involving circumstances indicating that an accident nearly occurred.
Serious Injury	An injury which is sustained by a person in an accident and which: • requires hospitalisation for more than 48 hours, commencing within seven days from the date the injury was received • results in a fracture of any bone (except simple fractures of fingers, toes, or nose) • involved lacerations which cause severe haemorrhage, nerve, muscle or tendon damage • involves injury to any internal organ • involves second or third degree burns, or any burns affecting more than five per cent of the body surface • involves verified exposure to infectious substances or injurious radiation.
Short investigation	Short, factual, office-based investigations or less complex safety occurrences rated at level 5 under the ATSB's rating scheme.
SIIMS	Safety Investigation Information Management System
SOLAS	Safety of Life at Sea
SPAD	Signal passed at danger
Spectral analysis	Detailed analysis of the pilot's radio transmissions and the background engine sounds and warnings.
Sports Aviation	This category includes aircraft excluded from the RPT, GA or military aircraft categories—including ultralights, glider, hang gliders, rotorcraft and balloon aviation. Most, if not all, sport aviation craft are registered with various sporting bodies rather than with the Civil Aviation Safety Authority (CASA), although exceptions to this rule occur. Sports aviation also includes parachute operations and acrobatics. Sports aviation in this report does not include Australian non-VH registered aircraft.
Statutory agency	A body or group of persons declared by an Act to be a Statutory Agency for the purposes of the *Public Service Act 1999*.
Systemic failure	A breakdown in the system as a whole.

Transport safety matter	As defined by *Transport Safety Investigation Act 2003*, these matters consist of occurrences in which: • the transport vehicle is destroyed • the transport vehicle is damaged • the transport vehicle is abandoned, disabled, stranded or missing in operation • a person dies as a result of an occurrence associated with the operation of the transport vehicle • a person is injured or incapacitated as a result of an occurrence associated with the operation of the transport vehicle • any property is damaged as a result of an occurrence associated with the operation of the transport vehicle • the transport vehicle is involved in a near-accident • the transport vehicle is involved in an occurrence that affected, or could have affected, the safety of the operation of the transport vehicle • something that occurred that affected, is affecting, or might affect transport safety.
TSI Act	*Transport Safety Investigation Act 2003*
ULB	Underwater locator beacon

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Australian Government

Australian Transport Safety Bureau

Australian Transport Safety Bureau
PO Box 967, Civic Square ACT 2608
1800 020 616
www.atsb.gov.au