Australian Government
Australian Transport Safety Bureau

Annual Report 2017–18

Australia's national transport safety investigator

AVIATION | MARINE | RAIL

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Australian Government
Australian Transport Safety Bureau

Chief Commissioner

2 October 2018

The Hon Michael McCormack MP
Minister for Infrastructure, Transport and Regional Development
Parliament House
CANBERRA ACT 2600

Dear Minister

I am pleased to present the Annual Report of the Australian Transport Safety Bureau (ATSB), reporting on our operations for the year ended 30 June 2018.

This annual report has been prepared in accordance with the requirements for non-corporate Commonwealth entities under section 46 of the ***Public Governance, Performance and Accountability Act 2013*** (PGPA Act) and summarises the ATSB's performance for the year.

The report includes the ATSB's financial statements as required by section 42 of the PGPA Act and an audit report on those statements in accordance with section 43 of the same Act.

In addition to fulfilling the requirements of the PGPA Act, the report satisfies section 63A of the ***Transport Safety Investigation Act 2003***.

I also certify that I am satisfied that the ATSB has prepared risk assessment 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 Commonwealth Fraud Control Framework.

Yours sincerely

Greg Hood
Chief Commissioner/Chief Executive Officer

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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.

SECTION 1

Chief Commissioner's review 2017–18

1

CHIEF COMMISSIONER'S REVIEW 2017–18

In my second year as Chief Commissioner, the team and I have continued to position the ATSB as a multi-modal, teams-based, world-class transport safety investigation agency. At the start of 2017–18, the Australian Government allocated the ATSB additional funding to address the resourcing challenges encountered in previous years. We have used this funding to put the ATSB on a path of transformation.

We recruited 17 new investigators who are already making an active contribution to transport safety. We are investing significantly in the development of our investigators to position them to be able to disseminate safety findings to industry and the public as quickly as possible. As a team, we have also prioritised the completion of a number of complex investigations, delivering safety outcomes while also freeing up key resources for new investigation priorities. The investment made over the last year will see continued improvement towards the ATSB being able to meet its deliverable targets.

Over the year, we were pleased to bring on board Executive Director Transport Safety, Nat Nagy. Mr Nagy, along with myself and Chief Operating Officer Colin McNamara, constitute the ATSB's Executive. The Executive are working well with the ATSB's Commission to build the ATSB up as a world-class investigator for the future. We are fortunate to have the Minister for Infrastructure and Transport reappoint Commissioners Carolyn Walsh, Noel Hart and Chris Manning. The expertise provided by these Commissioners across the aviation, rail and marine transport modes is essential for ensuring we are meeting the interests of our stakeholders with our investigations.

Multi-disciplinary workforce

The ATSB's greatest resource continues to be its people. We are creating an environment where our employees are empowered. With the multi-disciplinary teams-based approach to our work implemented in 2017–18, we have removed the structural barriers between investigators, researchers and data analysts. The majority of our people are multi-skilling across all these disciplines.

We also have investigators with a background in one particular mode stretching themselves to become involved in investigations from other modes. We are bringing to bear our collective core investigative skills, shared values, passion and drive to improve transport safety.

Building our networks

In 2017–18, we committed to building our networks to deliver our safety messages further. The ATSB was represented at a large number of industry events during the financial year and a number of presentations were provided to stakeholders from the aviation, rail and maritime industries. In May, I presented at Rotortech 2018 on the Sunshine Coast. This provided a platform to launch 'Don't Push It, Land It'—a new safety initiative for the helicopter industry, in conjunction with the Australian Helicopter Industry Association and the Civil Aviation Safety Authority. We were also represented by our Executive Director Transport Safety at the RISSB Rail Safety Conference in Sydney. This year I had the honour of being asked by the Royal Aeronautical Society to present the Lawrence Hargrave Memorial Lecture in Melbourne.

In May, I attended the International Transportation Safety Association meeting in Baku, Azerbaijan. This provided a valuable opportunity to exchange information and knowledge with my international counterparts. I was also appointed to the Defence Aviation Safety Council.

We have worked to enhance the mediums through which we communicate. To counter misinformation and provide transparency, we have become more proactive in engaging early with media when there is a transport safety occurrence. We have also been making information more accessible through the use of social media and visual mediums, such as infographics and the production of videos.

Our devotion to making sure that key safety messages are heard is essential for influencing industry and the travelling public towards safe outcomes on the back of our investigative work.

Aviation

During the year, we completed 25 complex aviation safety investigations and 34 short investigations.

The ATSB released the findings from its second investigation into the ditching of an Israel Aircraft Industries Westwind aircraft (VH-NGA) off Norfolk Island in 2009 (**AO-2009-072**). The release of this report demonstrates the diligence of the ATSB in ensuring that it drives safety forward. Thirty-six safety factors were included in the report, with the key message for flight crew, operators and regulators being that unforecast weather can occur at any aerodrome. There is a need for robust and conservative in-flight fuel management procedures for passenger-transport flights to remote islands and isolated aerodromes.

Another published report relating to weather was the investigation into a collision with terrain involving an Airbus Helicopters EC 135 T1 (VH-GKK) at Cooranbong, New South Wales in 2015 (**AO-2015-131**). The safety message from this investigation is that avoiding deteriorating weather conditions requires thorough pre-flight planning. Pressing on into instrument meteorological conditions without a current instrument rating carries a significant risk of encountering reduced visual cues leading to disorientation.

Two reports were published covering pilot interaction with automated technology: a collision with terrain involving a Cessna 172 (VH-ZEW) near Millbrook in Victoria in 2015 (**AO-2015-105**) and a near collision involving Beech Aircraft Corp B200 (VH-OWN and VH-LQR) at Mount Hotham in Victoria in 2015 (**AO-2015-108**). Pilots need to have a thorough understanding of all systems on board their aircraft and have the skill to provide redundancy when those systems fail or their performance is reduced.

In addition to completing some significant investigations, a number were also commenced over the year. The collision with water involving a de Havilland Canada DHC-2 Beaver aircraft (VH-NOO) on the Hawkesbury River in New South Wales on New Year's Eve drew substantial media attention (**AO-2017-118**). The ATSB response demonstrated our 'on-call' readiness at all times. The preliminary factual report was released on 31 January 2018.

Rail

The ATSB completed 13 complex rail safety investigations and three short investigations. Included in these releases is the publication *Safe work on track across Australia: Analysis of incident data, 2009–2014* (**RI-2014-011**). The review of data showed that incidents while maintenance work was being carried out were predominately a result of errors during the implementation or dissolution stage of providing track protection. Protections were either removed incorrectly or prematurely, or key communication exchanges failed to establish the location of the worksite with respect to approaching rail traffic. Improving the levels of safe working on track continues to be an ATSB SafetyWatch priority.

The derailment of train 3MP5 at Rawlinna, Western Australia in 2016 (**RO-2016-005**) was significant for demonstrating the risks of approaching safety-critical zones at higher speeds. The publication of a report into a signalling control system irregularity at Ballarat, Victoria in 2016 (**RO-2016-011**) showcased how critical it is for system designers to ensure that the functionality and performance requirements needed to meet all operational scenarios are incorporated within the system. The ATSB found that the train controller had placed a block on the three sets of points, but these 'blocks' were ineffective due to design errors within the train control system.

With Queensland coming on board within the national rail safety system, the ATSB commenced eight investigations into rail occurrences in the state over the 2017–18 year. In recognition of the complementary role the regulator and investigator play in the national rail safety system, the Office of the National Rail Safety Regulator and the ATSB signed a new Memorandum of Understanding (**MOU**) to set out the roles and relationships of the respective organisations. Under the terms of the MOU, in the coming year the ATSB will look forward to receiving a greater range of occurrences information to assist with data analysis and research.

Marine

The ATSB completed four complex marine safety investigations and three short investigations. The published investigations included a loss of propulsion event on the passenger cruise ship *Norwegian Star* in Bass Strait in February 2017 (**MO-2017-003**). This investigation highlighted that the operation of newly designed equipment without redundancy increases operational risks. Equipment manufacturers and ship operators must apply extra diligence when designing, installing and operating modified equipment, especially safety-critical equipment.

The ATSB continues to have collisions between trading ships and small vessels reported. A common contributing factor that was present in the investigation into a collision between the container ship *Glasgow Express* and the fishing vessel *Mako* in Bass Strait, Victoria in 2017 (**MO-2017-007**) is the failure to use all available means to accurately appraise a situation and obviate the risk of collision. The ATSB reinforces the importance of a proper lookout by all available means, including radar, to masters, owners, operators and skippers of all vessels.

With the Australian Maritime Safety Authority (AMSA) taking full responsibility for domestic commercial vessels from 1 July 2018, the ATSB invested in seeking to understand the role it can play in the new national maritime safety system. While there is no agreement for an ATSB-funded role, the ATSB committed to a policy to make itself available for major accidents where resources are made available. The ATSB will continue to work with the appropriate Commonwealth and state agencies to clarify its role.

Malaysia Airlines Flight 370—international contribution

On 3 October 2017, the ATSB published its final report into its work coordinating the search for missing Malaysia Airlines Flight 370 (MH370) (**AE-2015-054**). The search for MH370 has been a complex international program; the largest and most complex search for a missing aircraft in history. The effort of the dedicated ATSB and associated personnel involved in the search is a testament to their ingenuity, adaptability and resilience.

With the finalisation of the ATSB's work, responsibility for MH370 matters was handed over to the Joint Agency Coordination Centre (JACC) in the Department of Infrastructure, Regional Development and Cities.

Outlook

The ATSB will continue to perform its primary function of 'improving transport safety' in an operating environment of continuing growth and change in the aviation, rail and marine transport industries. During the year, I will release a 'Vision 2025' statement for the ATSB. The statement will explain the ATSB's vision to '**drive safety action in a rapidly changing transport environment**'.

Over the next few years, the transport sector is expected to see significant changes in technology, including increased automation (or remotely piloted operation), manufacturing efficiencies and enhanced use of big data to predict future hazards. Workforce challenges are also expected, with shortages of key personnel in some sectors and increased movement of operational staff between employers. From the ATSB's perspective, we also expect to see opportunities to broaden our jurisdiction across transport modes.

The ATSB must be able to maintain its status as a world leader, implementing best practice in transport safety investigation in this changing environment. It is essential that we are positioned to be able to expose the critical safety issues that others cannot and influence the necessary safety action to provide confidence in our transport systems.

The immediate focus in 2018–19 will be to make progress in addressing some of our key performance indicators around the timeliness for completion of reports. I am confident that we can make good progress, particularly following our recent investigator recruitment exercise. The year will be a positive one, with our team committed to making our aviation, rail and marine modes of transport safer.

Greg Hood
Chief Commissioner

SECTION 2
Agency overview

2

AGENCY OVERVIEW

The ATSB is Australia's national transport safety investigation agency. Its primary function is to improve aviation, rail and marine safety. It does this by receiving information about accidents and other safety occurrences, analysing data, and investigating occurrences and safety issues in order to identify and communicate factors that affect, or might affect, transport safety.

The ATSB is part of the Infrastructure, Regional Development and Cities 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, Regional Development and Cities
- Civil Aviation Safety Authority
- Office of the National Rail Safety Regulator
- Australian Maritime Safety Authority
- National Transport Commission
- Airservices Australia.

Purpose

The ATSB is an independent statutory agency of the Australian Government. The ATSB's purpose is to improve the safety of aviation, rail and marine transport through:

- the independent investigation of transport accidents and other safety occurrences
- data recording, analysis and research
- fostering safety awareness, knowledge and action.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* (TSI Act) and, where applicable, relevant international agreements. The TSI Act makes it clear that the ATSB cannot apportion blame, assist in determining liability or, as a general rule, assist in court proceedings. Its sole focus remains the prevention of future accidents and the improvement of safety.

The ATSB maintains a national information dataset of all safetyrelated occurrences in aviation and of all accidents and significant safety occurrences in the rail and marine sectors. The information it holds is essential to its capacity to analyse broad safety trends and inform its investigation and safety education work.

Consistent with the Minister for Infrastructure and Transport's *Statement of Expectations* for the ATSB, primacy is given to investigations, research, data analysis, and communication and education in relation to operations that involve the travelling public. The ATSB participates in overseas investigations involving Australian registered aircraft and ships, and cooperates more broadly with its overseas counterparts.

The ATSB has a specific mandate to report publicly on its analysis and investigations, and to conduct public education programs to improve transport safety.

Our role

Consistent with the Minister's *Statement of Expectations*, the ATSB prioritises its work to deliver safety outcomes for the travelling public, as well as those who work in or participate in the aviation, rail and marine transport industries. We do this by:

- receiving and assessing reports of transport safety matters, including notifications of safety occurrences and confidential reporting
- independently conducting 'noblame' investigations of accidents and other safety occurrences
- conducting research into transport statistics and technical issues
- identifying factors that contribute 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 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 the expertise and information necessary to perform 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, rail and marine industries, as well as with transport regulators and governments at state, national and international levels, 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.

Mandatory occurrence reporting

The TSI Act requires any responsible person who has knowledge of any accident or serious incident (or any immediately reportable matter) to report it as soon as is reasonably practicable. Immediately reportable matters also require a written notification within 72 hours, as do safety incidents (or routine reportable matters).

While the terms of this requirement may seem broad, the Transport Safety Investigation Regulations 2003 provide a list of persons who, by the nature of their qualifications, experience or professional association, would be likely to have knowledge of an immediate or routine reportable matter for their 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.

The ATSB maintains a 24-hour service to receive notifications, including a toll-free telephone number (for immediately reportable matters in all modes). In aviation, a secure online notification form for written notifications is available on the ATSB website. In rail, while immediately notifiable matters require a telephone call to the ATSB, the written notifications are provided to the ATSB via reporting to the Office of the National Rail Safety Regulator. In marine, both immediately reportable and routine reportable matters are reported to the ATSB via the Australian Maritime Safety Authority.

Every year the ATSB's Notifications team receives over 15,000 notifications of safety occurrences. These are spread over aviation, marine and rail. 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 2017–18, the ATSB's Notifications team received 15,766 aviation notifications, 518 rail notifications and 238 marine notifications in the form of telephone calls, emails and website contact. From those, to date, the team has identified 5,673 aviation and 159 marine accidents, serious incidents and incidents for the year. In rail, all 518 notifications were processed.

While not all of the reported occurrences are investigated, the details of each occurrence are retained within the ATSB's occurrence database. These records are a valuable resource, providing a detailed portrait of transport safety in Australia. The ATSB regularly analyses the database to identify emerging trends and issues. The searchable public version of the aviation occurrence database is available on the ATSB website. It contains data from July 2003 onwards. The online database is used by industry, academics, the media and regulators to search and research past events.

Aviation

The ATSB investigates accidents and incidents involving civil aircraft in Australia and Australian-registered aircraft overseas. 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 also assists with the investigations of overseas agencies involving Australian-registered aircraft, and may assist with foreign aircraft if an overseas investigation 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 counterpart organisations.

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. The ATSB cooperates with organisations such as the Civil Aviation Safety Authority, Airservices Australia, the Directorate of Defence Aviation and Air Force Safety, as well as aircraft manufacturers and operators, who are best placed to improve safety. The ATSB also works collaboratively with the Department of Infrastructure, Regional Development and Cities and other safety agencies to assist the Australian Government in implementing transport safety initiatives.

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 investigation agencies and ship owners and operators.

Our marine investigations are conducted in a manner consistent with the International Maritime Organization's Casualty Investigation Code.

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.

From 1 July 2018, AMSA's regulator role extended to include service delivery for all domestic commercial vessels (DCVs). This is part of the national maritime reforms started by the Council of Australian Governments in 2011. The national reforms do not include funding for the ATSB to conduct DCV investigations, so the ATSB's marine jurisdiction continues to be limited to interstate and overseas shipping.

Rail

As of 1 July 2017, the ATSB became the single national rail safety investigator for all states and territories in Australia.

This role includes collecting occurrence information, analysing data, and investigating rail transport safety matters on the metropolitan, regional and freight networks.

The ATSB works cooperatively with organisations such as the Office of the National Rail Safety Regulator 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.

Specialist investigation capabilities

Material failure analysis

The ATSB maintains in-house capabilities for examining any physical evidence relating to transport safety investigations. The engineering specialists comprises experts across multi-disciplinary, engineering fields to conduct forensic analyses of components and structures from aviation, rail and marine occurrences at the ATSB's engineering facility in Canberra. The experts collaborate with other ATSB investigators, external stakeholders and subject matter experts from similar agencies around the world to provide detailed insight into the often complex set of technical factors that contribute to transport safety occurrences.

Data and recorder recovery

The ATSB maintains a centre of excellence for rail, marine and flight data 'black box' data recovery and analysis. Flight data recorders, cockpit voice recorders, quick access recorders, ground proximity warning systems, voyage data loggers and train data loggers can all be downloaded and analysed at the ATSB.

The data from other electronics installed in aircraft, such as GPS, as well mobile phones and digital cameras, can also be recovered using in-house chip recovery expertise.

Human factors

The ATSB also has investigators with specialist expertise in the capabilities and limitations of human performance in relation to design, manufacture, operation, and maintenance of products and systems. Human factors are a core component of every ATSB safety investigation in all modes of transport, examining such elements as decision-making, focus of attention, the role of workload and fatigue management.

Licensed aircraft maintenance engineers

The ATSB employs a number of investigators with a background as licensed aircraft maintenance engineers to undertake technical work necessary for investigations into aviation accidents and incidents. These investigators combine their extensive industry knowledge of the installation, maintenance and repair of aircraft, aircraft systems and structure and surfaces to determine whether any part of the aircraft system contributed to an occurrence.

Other transport specialists

ATSB investigators come from a variety of backgrounds and have a range of specialist skills which are combined to ensure investigations are considered from multiple angles. Besides those mentioned above, specialists on staff at the ATSB include:

- Train drivers
- Train controllers
- Ship captains and officers
- Ship engineers
- Aeronautical, mechanical and civil engineers
- Pilots
- Data scientists
- Air traffic controllers.

Site survey

The strength of the ATSB's investigation analysis, and its findings, rests on the ability to collect as much data as possible about and from an accident. In addition to the expertise of its investigators, the ATSB incorporates technology to collect and use data about accident sites. This technology includes laser mapping and the use of remotely piloted aircraft systems (RPAS).

The ATSB has been using laser site scanning technology for a number of years. Our FARO 3D Focus laser equipment captures an accident site in both detailed distance measurements and high-resolution site images.

In July 2017, the ATSB secured a Remotely Piloted Aircraft Operator's Certificate through the Civil Aviation Safety Authority (CASA), granting ATSB the necessary approvals to gather data and evidence during its on-site investigations using a remotely piloted aircraft up to seven kilograms. CASA granted Transport Safety Investigation Manager Derek Hoffmeister the status of Chief Remote Pilot.

RPAS are becoming an important tool in ATSB investigations, with several ATSB investigators receiving training in the use of the ATSB's DJI Phantom 4 RPAS. Investigators are now able to undertake an initial site survey to check for safety hazards before entering the site. They can also perform site mapping more quickly and with measurements that are more accurate. RPAS can capture comprehensive photos of an entire accident site —imagery that could previously only be obtained with a helicopter—and which can help investigations enormously.

The use of RPAS compared to traditional site survey techniques, equipment and software also presents substantial cost saving and ease-of-use benefits to the ATSB.

Range of products

The ATSB produces a final report for all its investigations. Reports communicate important safety issues, actions and information, and provide transparency into the ATSB investigation process.

The main products produced are occurrence investigations, safety studies and statistical reports. The ATSB also produces an up-to-date online searchable aviation occurrence database and weekly summaries of marine occurrences, as well as publishing confidential reporting concerns and responses via the REPCON system.

Occurrence investigations

These investigations typically examine a single accident or incident in detail. The sequence of events and factual background information are documented, and findings are presented along with a safety analysis to explain those findings. These investigations identify safety issues—ongoing systemic risks to safety—and safety action taken by organisations to address these safety issues. The ATSB may also issue formal safety recommendations.

Safety studies

Safety studies typically investigate multiple occurrences of similar nature. Conducted as an investigation under the TSI Act, they aim to uncover safety issues through the analysis of occurrence and other data.

Statistical and trend publications

The ATSB produces official Australian aviation occurrence statistics each year, and aviation wildlife strike statistics every two years. The ATSB also conducts trend monitoring of all aviation occurrences. The results of which are used to help decide which occurrences the ATSB investigates and which safety studies are conducted, and the results are also shared with other government agencies, as well as industry. Statistical reports are not conducted under the TSI Act.

Occurrence briefs

Introduced in 2018, occurrence briefs are concise reports that detail the facts surrounding a transport safety occurrence, as received in the initial notification and any follow-up enquiries. They provide an opportunity to share safety messages in the absence of an investigation.

Investigation levels

The ATSB's response to reported safety matters is classified by the level of resources and/or time they require, as well as their complexity. The following safety investigation levels were used by the ATSB for occurrence investigations and safety studies in 2017–18. Each level presented below (in order) builds on the previous level.

Short investigations

Short investigations are limited-scope office-based investigations conducted under the TSI Act. Investigation activities generally include sourcing photos and documentation of any transport vehicle damage and/or the accident site, interviews with involved parties, the collection of documents, such as procedures, and internal investigations by manufactures and operators. Occurrences investigated are normally simple and common accidents and incidents. A short summary report of up to eight pages will be produced which includes a description of the sequence of events, limited contextual factual information, a short analysis and findings. Findings include safety factors (events and conditions that increase risk) which are limited to those relating to the occurrence. Any proactive safety actions taken by industry will also be reported. Short investigations usually require only one ATSB staff member.

Defined investigations

Defined investigations may involve in-the-field activity or may be conducted as an office-based investigation. They require numerous ATSB resources and result in an agreed-scope product with a limited set of findings and a defined-size report. Evidence collected for defined investigations can also include recorded information, multiple interviews, analysis of similar occurrences, and a review of procedures and other risk controls related to the occurrence or set of occurrences. Occurrences investigated are generally less complex accidents and incidents. Investigation reports are typically 10 to 20 pages long, with an expanded analysis to support the broader set of findings that may also include safety factors not relating directly to or contributing to the occurrence(s). Defined investigations may also identify safety issues (safety factors with an ongoing risk) relating to ineffective or missing risk controls. Identified safety issues are documented in the investigation report, along with proactive safety action taken by industry and ATSB safety recommendations.

Complex investigations

Complex investigations can involve in-the-field activity, and a range of ATSB and possibly external resources. They are less confined in scope and will involve a significant effort collecting evidence across many areas. The breadth of the investigation will often cover multiple organisations. Occurrences and sets of occurrences investigated normally involve very complex systems and processes. In addition to investigating failed and missing risk controls, complex investigations may also investigate the organisational processes, systems, cultures and other factors that relate to those risk controls, including from the operator, regulator and certifying and standards authorities. Complex investigations result in substantial reports, often with several safety issues identified.

For the purpose of reporting against key deliverables and key performance indicators ‘Defined Investigations’ are counted as Complex Investigations.

Major investigations

Major investigations are reserved for very significant accidents and are likely to involve significant ATSB and external resources and are likely to require additional one-off government funding. They result in a comprehensive report.

Confidential reporting (REPCON)

The ATSB operates the voluntary and confidential reporting scheme (REPCON) for the aviation, rail and marine industries. Any person within these industries, or member of the travelling public, may submit a REPCON report of a reportable safety concern. The scheme is designed to capture safety concerns—including unsafe practices, procedures and risk controls within an organisation, or affecting part of the industry.

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

The aim of the REPCON scheme is to ensure safety action is taken to address the reported safety concerns. This can include variations to standards, orders, practices and procedures, or an education campaign. The ATSB may use the de-identified version of the reported safety concern to issue an information brief, or an alert bulletin, to whichever person or organisation is best placed to take safety action in response to the safety concern. The ATSB publishes the outcome of each REPCON on its website.

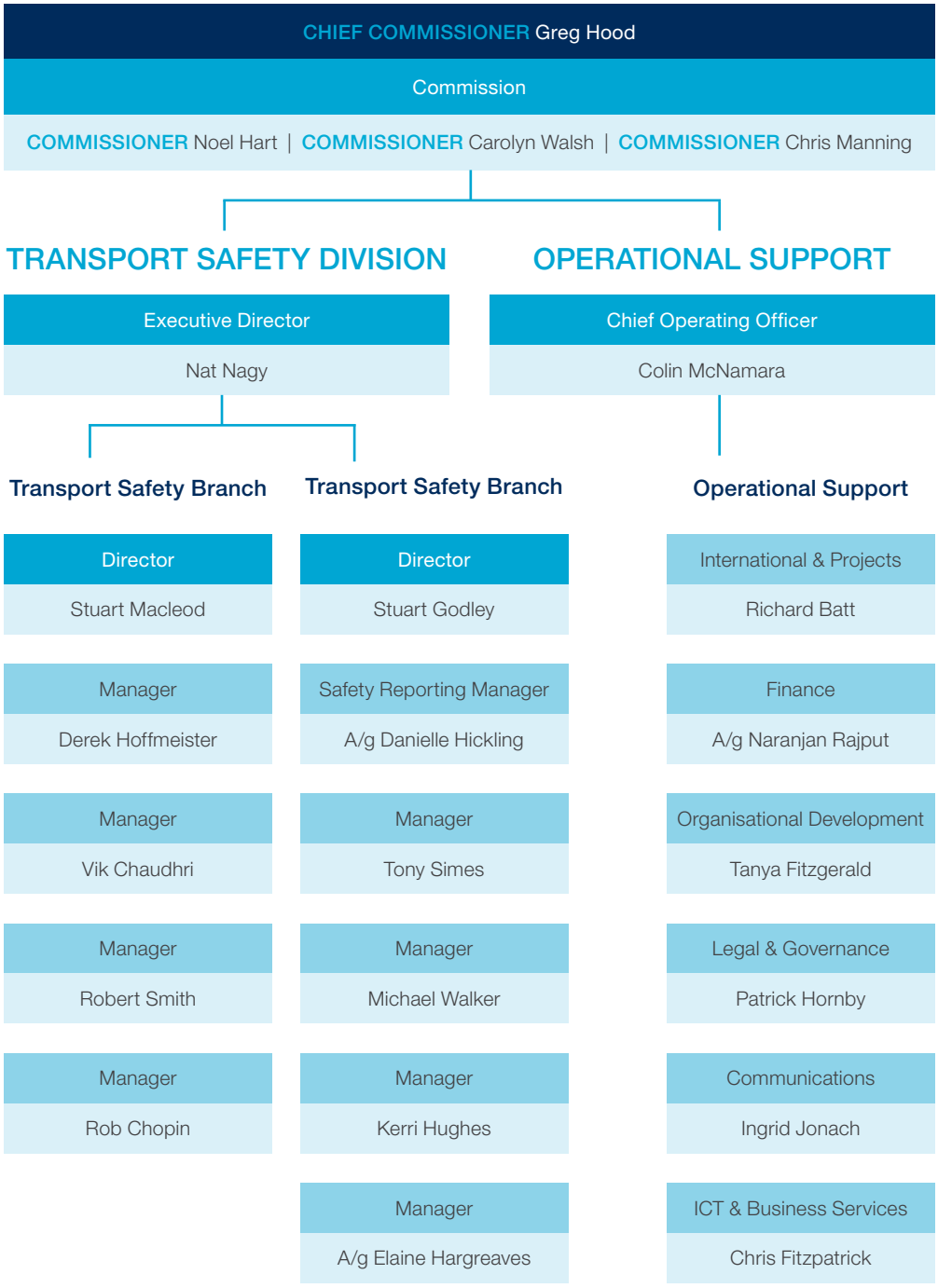
International cooperation

The ATSB is committed to promoting engagement with its international counterpart agencies and 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 marine 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 the Australian travelling public.

The ATSB is actively involved in the work of the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO) and the Marine Accident Investigators Forum in Asia (MAIFA).

THE ATSB'S ORGANISATIONAL STRUCTURE



The ATSB's organisational structure as at June 2018

COMMISSION AND EXECUTIVE MANAGEMENT TEAM

CHIEF COMMISSIONER AND
CHIEF EXECUTIVE OFFICER

Greg Hood

Greg Hood was appointed to the role of Chief Commissioner and Chief Executive Officer of the ATSB on 1 July 2016.

In his time as Chief Commissioner, Mr Hood has overseen a number of significant transport safety investigations and report releases across the three modes of aviation, rail and marine.

With more than 38 years of experience across a wide range of operational, training and management roles within the Department of Defence and the civil aviation industry, Mr Hood has been wellpositioned to drive an innovation agenda at the ATSB. The ATSB's 'Evolution Program' has already seen enhancements to its worldleading practices, including streamlined operations, a multidisciplinary teams-based approach to transport safety investigations, and the introduction of remotely piloted aircraft to capture evidence following accidents and other safety occurrences.

Immediately prior to his commencement with the ATSB, Mr Hood held the role of Executive General Manager, Air Traffic Control with Airservices Australia.

Mr Hood began his career as an air traffic controller in the Royal Australian Air Force in 1980, serving at locations throughout Australia and in the Middle East. In 1990, he moved to the Civil Aviation Authority, a predecessor to what is now Airservices Australia. Mr Hood worked in many locations across the country and trained new controllers at the University of Tasmania, Launceston.

In 2002, Mr Hood led Airservices Australia's management team in Melbourne and then, in 2005, moved to Canberra to manage the provision of regional air traffic services, including the operation of regional control towers throughout Australia. Mr Hood has also led elements of the implementation of major air traffic management and technology projects, such as The Australian Advanced Air Traffic System (known as TAAATS), the evolution of safety management systems, and the introduction of userpreferred routes and flex tracks.

In 2007, Mr Hood joined the Civil Aviation Safety Authority (CASA), where he held the positions of Group General Manager Personnel, Licensing, Education and Training, then Executive Manager Operations. He returned to Airservices Australia during 2013 to take on the role of General Manager Demand and Capacity Management and was appointed as the Executive General Manager of the Air Traffic Control Group later the same year.

Mr Hood has served on the Business Advisory Council for World Vision, is a Fellow of the Royal Aeronautical Society, a Freeman in the Honourable Company of Air Pilots, a Life Member of the Qantas Founders Museum, and a past President of the Canberra Philharmonic Society. Until his appointment as ATSB's Chief Commissioner, he was also a Board Member of Safeskies Australia and internationally, ViceChair of the steering committee for the Civil Air Navigation Services Organisation's Operations Standing Committee.

He has a passion for the transport industry in general, and transport safety in particular. He is a glider and powered aircraft pilot.

ATSB commissioners with the executive management team

COMMISSIONER

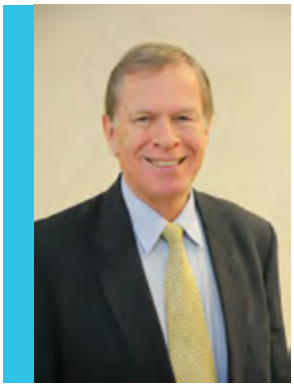
Noel Hart

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 his position he was responsible for the safe shipping of liquefied natural gas from north western Australia to Asia 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 Navigation Aids Service, and was an alternate Director of the Alaska Tanker Company and the Marine Preservation Society in the USA, and the Marine Oil Spill Response Centre in Australia.

He has also been Chairman of Maritime Industry Australia Ltd, Australia's peak maritime association, since 2008.



COMMISSIONER

Chris Manning

Chris Manning has over 40 years' experience in the aviation industry. In the early 1970s he was an air traffic controller. From 1975 until 2008 he was a pilot for Qantas.

Captain Manning flew several Boeing types, gaining a B767 command in 1989. He was a check and training captain throughout the 1990s, and was President of the Australian and International Pilots Association from 1999 until 2002.

From 2003 until his retirement from Qantas in 2008, Captain Manning was Chief Pilot and Group General Manager Flight Operations. He chaired the Australian Aviation Associations Forum from 2008 until 2015. He is a Director of Aerospace Australia Limited (Avalon Airshow), is Chairman of Airport Coordination Australia and is a founding Director of the Australian Aviation Hall of Fame.

COMMISSIONER

Carolyn Walsh

Carolyn Walsh has 35 years' experience in policy development, regulation and safety management at both the Commonwealth and state levels. She has over 15 years' experience in the transport sector, initially as Executive Director of Strategy in the New South Wales Office of the Coordinator General of Rail, and then as Chief Executive of the New South Wales Independent Transport Safety and Reliability Regulator.

In addition to her role as a Commissioner of the ATSB, Ms Walsh is currently Chair of the National Transport Commission. She is also a member of the Audit and Risk Committees for the City of Sydney, New South Wales Law Enforcement Conduct Commission, Western Sydney Local Health District, New South Wales Ministry of Health, New South Wales Public Service Commission and State Transit Authority of New South Wales.

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.

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

EXECUTIVE DIRECTOR TRANSPORT SAFETY

Nat Nagy

Nat Nagy has been involved in the transport industry since 1996 in a diverse range of operational and leadership roles.

He joined the ATSB following a career as a commercial pilot, air traffic controller and, more recently, has held several strategic leadership and transformation roles in Airservices Australia including General Manager Demand and Capacity Management and Manager ATM Service Support. In these roles, he led the workforce in the National Operations Centre, Aeronautical Information Services, Strategic Initiatives Delivery and Flight Procedures Design business areas. Most recently, Mr Nagy has been a Business Change Manager for Airservices Australia's Accelerate Program where he delivered a program of technological, organisational and cultural change.

Mr Nagy now leads the operational division of the ATSB across the Aviation, Rail, and Marine domains and has a core focus on the improvement of transport safety across all industries.

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

Peter Foley

Peter Foley held the position of Program Director Operational Search for MH370 from May 2014 until his retirement from the ATSB in 2018 following the completion of the search.

Mr Foley joined the ATSB in 1999 after a career at sea as a marine engineer with Australian shipping companies, including ANL Ltd.

He has held a number of roles, most recently as General Manager Surface Safety Investigations. This role included responsibility for marine and rail safety investigations, the ATSB's work on 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. He 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.

CHIEF OPERATING OFFICER CORPORATE SERVICES

Colin McNamara

Colin McNamara joined the Australian Public Service in October 2004. Prior to this, he served as a General Service Officer in the Australian Army and was awarded the Australian Active Service Medal in 1999.

Prior to his appointment as the ATSB's Chief Operating Officer, Mr McNamara managed a range of corporate functional areas including Human Resources, Organisational Development, Governance and Major Projects. Through his appointment, Mr McNamara continues to play a critical role in contributing to the strategic direction of the agency, and in achieving relevant objectives of the Australian Government.

Mr McNamara holds a range of professional qualifications in personnel management and is a professional member of the Australian Human Resources Institute.

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 a local, state, national and international level to improve transport safety standards for all Australians, particularly the travelling public. 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* (TSI Act):

1. Independent 'no-blame' investigation 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 is increased through a range of activities, including consultation, education, and the promulgation of research and 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 TSI Act requires that:

The annual report prepared by the Chief Executive Officer and provided to the Minister under section 46 of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) for a period must include the following:

1. prescribed particulars of transport safety matters investigated by the ATSB during the period
2. a description of investigations conducted by the ATSB during the period that the Chief Commissioner considers raise significant issues in transport safety.

The ATSB observes and complies with *Resource Management Guide No 135—Annual report for non-corporate Commonwealth entities* issued by the Department of Finance. This report is based on the guidance for 2017–18 published in May 2018.

This annual report details the ATSB's performance against the program objectives, deliverables and key performance indicators published in the Infrastructure and Regional Development Portfolio Budget Statements 2017–18. The ATSB annual report also includes audited financial statements in accordance with the PGPA Act.

Priorities for investigation

The ATSB focuses on transport safety as the highest priority. It continues to give priority to transport safety investigations that have the potential to deliver the best safety outcomes 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 gives focus to these investigations, as well as specific accident 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 are actioned in one of three ways to contribute to the ATSB's functions:

1. A report of an occurrence that suggests a safety issue may exist will be investigated immediately (occurrence investigation). Investigations may lead to the identification/confirmation of the safety issue and evaluation of its significance. It will then set out the case for safety action to be taken in response.
2. A report of an occurrence that does not warrant full investigation may warrant additional fact gathering for future safety analysis, to identify safety issues or trends (such as inclusion in a safety study).
3. Basic details of an occurrence, based primarily on the details provided in the initial occurrence notification, will be recorded in the ATSB's occurrence database to be used in future safety analysis to identify safety issues and trends (including safety studies), and in aviation, be available in the online searchable occurrence database. These may be published individually as occurrence briefs.

Aviation broad hierarchy

The ATSB allocates its investigation resources consistent with the following broad hierarchy of aviation operation types:

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

The ATSB endeavours to investigate all fatal accidents involving VH-registered powered aircraft subject to the potential transport safety learnings and resource availability.

Marine broad hierarchy

The ATSB allocates its investigative resources consistent 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 consistent with the following hierarchy of rail operation types:

1. mainline operations that impact on passenger services
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 decisions to investigate and respond. 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 and 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 relevance to identified and targeted safety programs
- 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 quickly identify, allocate resources and appropriately manage 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.

SECTION 3
Report on performance

3

REPORT ON PERFORMANCE

This section reviews the ATSB's results against the performance criteria and deliverables set out in the *Portfolio Budget Statements 2017–18* and the *ATSB Corporate Plan 2017–18*. The ATSB's effectiveness in achieving planned outcomes during 2017–18 is also reviewed here.

Annual performance statement

I, as the accountable authority of the Australian Transport Safety Bureau, present the annual performance statement of the Australian Transport Safety Bureau for the year ended 30 June 2018, as required under paragraph 39(1)(a) of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act). In my opinion, this annual performance statement is based on properly maintained records, accurately reflects the performance of the entity, and complies with subsection 39(2) of the PGPA Act.

Greg Hood
Chief Executive Officer

18 September 2018

Table 1: Results against performance criteria

Purpose
As set out in the *Portfolio Budget Statements 2017–18* and the *ATSB Corporate Plan 2017–18*, the ATSB's purpose is to improve the safety of, and public confidence in, aviation, marine and rail transport through: > the independent 'no-blame' investigation of transport accidents and other safety occurrences > safety data recording, analysis and research > fostering safety awareness, knowledge and action.

Performance criterion	Result
Safety actions completed that address 100% of critical safety issues identified by ATSB investigation reports.	There were no critical safety issues identified in 2017–18.
Safety actions completed that address 70% of all other safety issues identified by ATSB investigation reports.	61% of all other safety issues identified by ATSB investigation reports were addressed in 2017–18.
90% of complex investigation reports are published within 12 months.	Not reportable*.
90% of short investigation reports are completed within four months.	41% of short investigation reports were completed within four months during 2017–18.
90% of investigation briefs are completed within one month.	60% of investigation briefs were completed within one month during 2017–18.
An increase from 2016–17 of up to 10% in the overall number of safety issues identified from safety study investigations and complex investigations.	There was a 12% increase in the overall number of safety issues identified from 2016–17.
Up to 15% of occurrence and safety study Investigations to be initiated on the basis of data-driven analysis.	15% of all occurrence and safety study investigations were directly linked to safety watch priorities.
70% of safety action is taken by stakeholders to address valid safety concerns identified by confidential reports.	86% of REPCON reports resulted in safety action by stakeholders.
Through an annual stakeholder survey, 70% of stakeholder respondents recall ATSB products related to the safety watch priorities affecting their industry.	64% of stakeholder respondents recall ATSB products.
An increase of up to 10% in the overall number of ATSB social media followers.	26% increase in social media followers was recorded.
An average of five ATSB safety messages are disseminated by independent media channels each month.	In excess of six ATSB safety messages were disseminated each month.

Analysis of performance

The 2017–18 financial year continued to be a consolidation and rebuilding phase for the ATSB.

Through the increased funding provided through the Federal Budget, the ATSB has secured an additional 17 Transport Safety Investigators and while they will need time to develop and hone their specialist investigator competencies, their presence has generated the much-needed increase in capability to address a significant backlog of operational outputs.

The ATSB has actively worked towards improving its key performance indicators, particularly the timeliness of published reports. At the commencement of this reporting period, the ATSB had 53 investigations that had either exceeded their scheduled time (12 months) and/or their allocated effort (investigation days). The agency determined these investigations were to be prioritised through a dedicated program known as 'Back on Track'. This has been a productive initiative with 37 of these investigations now completed, representing a 70% completion rate.

*This dedicated program has required a diversion of significant resources away from the ATSB's business as usual (BAU) operations and, therefore, the ATSB is unable to report a baseline in terms of the overall percentage of complex investigation reports that have been completed through BAU arrangements. That acknowledged, the breakdown between modes of the percentage complex investigations completed within 12 months is provided in Table 2 on page 37. The ATSB remains confident that when the Back on Track program is completed and these diverted resources return to BAU operations, the agency's capacity and effectiveness to address timeliness measures will increase significantly.

Fortunately, the ATSB's renewed focus on improving transport safety through safety data recording, analysis, research and fostering safety awareness, knowledge and action has delivered positive results. As demonstrated through respective key performance indicators, the ATSB has become more data-driven and is continually increasing its capability to source data nationally on aviation, rail and marine transport safety occurrences and events. In addition, through its targeted communication strategies, the ATSB has demonstrated increased stakeholder engagement and greater dissemination of safety products and messaging.

Performance at a glance

Table 2: Performance at a glance

Deliverable	Year	Number completed[1]	Per cent completed
Complex investigations			**Per cent completed within 12 months**
Aviation	2017–18	23	9%
	2016–17	27	15%
	2015–16	32	3%
Marine	2017–18	4	25%
	2016–17	4	25%
	2015–16	6	0%
Rail	2017–18	13	8%
	2016–17	15	33%
	2015–16	19	58%
Short investigations			**Per cent completed within 4 months**
All modes	2017–18	39	41%
	2016–17	109	88%
	2015–16	90	81%
Occurrence briefs			**Per cent completed within 1 month**
All modes	2017–18	40	60%

1 Includes occurrence, safety issue and research investigations conducted under the TSI Act. The figures do not include assistance to investigations conducted by an external party. Note that previous ATSB annual reports included assistance to investigations conducted by an external party. The figures will, therefore, appear higher in previous annual reports.

Key results

Table 3 summarises the ATSB's performance against key indicators published in the *Portfolio Budget Statements 2017–18*.

Table 3: ATSB performance against key indicators

	Target	Performance	Page
Key performance indicators			
Safety actions completed that address safety issues identified by ATSB investigation reports:			Pages 90–112
> critical safety issues	100%	Nil identified	
> all other safety issues.	70%	61%[2]	
Complex investigation reports are published within 12 months.	90%	NR	Pages 36–37
Short investigation reports are completed within four months.	90%	40%	Pages 36–37
Investigation briefs will be completed within one month.	90%	60%	Pages 36–37
An increase from 2016–17 in the overall number of safety issues identified from safety study investigations and complex investigations.	Up to 10%	Up 12%	Page 48
Occurrence and safety study investigations to be initiated on the basis of data-driven analysis.	Up to 15%	Up 15%	Page 48
Safety action is taken by stakeholders to address valid safety concerns identified in confidential reports.	70% actioned	86% actioned	Pages 44–45
Through an annual stakeholder survey, stakeholder respondents recall ATSB products related to the safety watch priorities affecting their industry.	70%	64%	57–60
An increase in the overall number of ATSB social media followers.	Up to 10%	Up 26%	Pages 57–60
ATSB safety messages disseminated by independent media channels.	5 per month (average)	6 per month (average)	Pages 57–60

2 At the time of publishing, 11 of the 41 safety issues identified were waiting for safety action to be completed, which will increase this percentage when done.

	Target	Performance	Page
Deliverables			
Complete and publish reports.	Up to > 10 safety study investigations; > 50 complex occurrence investigations; > 100 short occurrence investigations; > 50 investigations briefs; and > 5 statistical and trend monitoring publications (including the *Aviation Occurrence Statistics Report*).	 3 37 39 40 1	Pages 42–43
Present reports on safety trends to the Minister and safety entities.	Twice a year.	Aviation safety trends shared with relevant operators	Pages 51–52 and 57
Mature the ATSB's data analysis tools and techniques to enhance the ATSB's proactive capability for determining safety hazards and risks to be used in making assessments about occurrences to investigate and safety study investigations to commence.		Expanded.	Page 43
Expand the ATSB's data warehouse to include national rail data.		Significant expansion work undertaken.	Page 43
Assess, classify and publish summaries of accident and incident occurrences received.	Details of occurrences being investigated are published within one working day. Summaries of aviation occurrences are ready to be published in the public online database within 10 working days of receipt.	60% 28%	Pages 42–43
Assess confidential reports for clarity, completeness and significance for transport safety and, where appropriate, advise within six weeks any responsible party in a position to take action in response to the safety concerns.	A de-identified summary of the confidential report will be provided to any relevant third party within 10 working days.	44%	Pages 44–45

	Target	Performance	Page
	Within six weeks, advise a responsible party in a position to take safety action in response to the safety concern.	79%	Pages 44–45
Ensure preparedness for a major accident by reviewing and testing major accident response and management capabilities through participation in exercises.	One major exercise per annum.	Participation in one major exercise with internal audit and other minor exercises.	Page 46
Assist transport safety in the international region through direct cooperation and the delivery of approved projects and other support activities provided for by program funding agreements, with a publication produced annually addressing the transport safety contribution of these activities.	Delivery of approved projects within program funding allocation.	See detailed report.	Pages 54–56
Provide assistance to investigations overseas in accordance with international arrangements and where resources permit, with a report produced annually addressing the transport safety contribution of this support.		All assistance provided to overseas investigations maintained through an internal Accredited Representative register.	Pages 54–56
The ATSB will proactively influence safety awareness in the aviation, rail and marine industries, and among the travelling public, through communication and education activities.	Hosting a multi-modal safety conference. Establishing safety watch priorities. Increasing the accessibility of investigation report content and safety products through its website, mailing lists, use of social media, industry publications and using mediums such as video content. Pushing media coverage of ATSB investigations and safety awareness activities.	See detailed report.	Pages 57–60

INDEPENDENT 'NO-BLAME' INVESTIGATIONS OF TRANSPORT ACCIDENTS AND OTHER SAFETY OCCURRENCES

This section describes the ATSB's performance against the deliverables relating to the ATSB's role as the independent 'no-blame' transport safety investigator, as published on page 110 of the **Portfolio Budget Statements 2017–18**.

Deliverables

- Complete and publish up to:
  - 10 safety study investigations;
  - 50 complex investigations;
  - 100 short investigations;
  - 50 investigation briefs; and
  - Five statistical and trend monitoring publications (including the *Aviation Occurrence Statistics Report*).
- Assess, classify and publish summaries of accident and incident occurrences received. Details of occurrences being investigated are published within one working day. Summaries of aviation occurrences are ready to be published in the public online database within 10 working days of receipt.
- 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 within six weeks.
- Ensure preparedness for a major accident by reviewing and testing major accident response and management capabilities through participation in one major exercise per annum.
- Provide assistance to investigations overseas in accordance with international arrangements and where resources permit, with a report produced annually addressing the transport safety contribution of this support.

Aviation investigations

In 2017–18, the ATSB initiated 36 complex safety investigations—28 of which were occurrence investigations, two safety issue investigations and six external investigations. In addition, 52 short investigations were initiated (51 occurrence and one external short investigation).

During this reporting period, 25 complex investigations were completed, including 21 occurrence investigations, two external investigations and two safety studies (one research investigation and one safety issue investigation). Of the 21 occurrence investigations and two safety studies, three were completed within 12 months. There were 34 short aviation investigations completed (33 short occurrence investigations and one external investigation).

The two safety studies completed were:

- *Power plant failures in turboprop-powered aircraft 2012 to 2016* (AR-2017-017)
- *Building approval process for structures in the vicinity of Australian airports* (AI-2013-102).

As at 30 June 2018, there were 81 ongoing complex aviation investigations and 34 ongoing short investigations.

Marine investigations

In 2017–18, the ATSB initiated nine complex marine transport safety investigations (eight as occurrence investigations and one as an external investigation). The ATSB also initiated six short marine occurrence investigations.

During this reporting period, four complex occurrence investigations and three short occurrence investigations were completed.

As at 30 June 2018, the ATSB continues to investigate 15 marine occurrences (11 as complex investigations and four as short investigations).

Rail investigations

In 2017–18, the ATSB initiated 14 complex rail occurrence investigations and nine short rail occurrence investigations.

During this reporting period, the ATSB completed 13 complex rail investigations (12 occurrence investigations and one safety issue investigation). Three short rail occurrence investigations were also completed.

As at 30 June 2018, the ATSB continues to investigate 28 rail safety occurrences (20 complex investigations and eight short investigations).

Statistics and Research

There were three research and educational publications completed in 2017–18. These were:

- *The effect of Australian aviation weather forecasts on aircraft operations: Adelaide and Mildura Airports, Australia*
- *A safety analysis of remotely piloted aircraft systems 2012 to 2016: A rapid growth and safety implications for traditional aviation* (second edition)
- *Power plant failures in turboprop-powered aircraft 2012 to 2016.*

Details on the ATSB's research reports are provided on page 48—Safety data recording, analysis and research.

Statistics

There was one statistical report published in 2017–18: *Aviation Occurrence Statistics 2007 to 2016*.

Reporting

The ATSB's target for assessing, classifying and publishing summaries of accident and incident occurrences is:

- one day for occurrences being investigated
- 10 days for summaries of other incidents.

Of 115 occurrences investigated, 69 (60 per cent) were processed with summaries published on the ATSB website within one working day of the start of the investigation.

In 2017–18, 28 per cent of aviation occurrence notifications were processed and ready for publication within 10 working days. The average time for processing was 28 working days.

Data analysis tools and warehouse

The ATSB initiated a data analysis expansion program in 2017-18 by:

- providing training on SQL data extraction to additional investigators
- introducing PowerBI to allow for real-time data visualisation when considering new notifications for investigations.

The ATSB has continued to work with Airservices Australia to secure up to date aviation airport movement data. This project was ongoing at the end of the financial year.

The ATSB has continued to work with the Office of the National Rail Safety Regulator to obtain a copy of the national rail safety data. This was in place at the end of August 2018.

Confidential reporting

In the 2017–18 year, the ATSB's Confidential Reporting Scheme (REPCON) received 162 notifications (of which 64 were classified as REPCONs). Of these 162 notifications, 130 concerned aviation (49 REPCONs), 29 concerned rail (13REPCONs) and three concerned marine (two REPCONs).

Of the 23 REPCON reports completed in 2017–18, 18 (86 per cent) resulted in safety action by stakeholders.

The following summaries provide examples of safety concerns that were raised, along with the safety action taken after the concerns were reported through REPCON.

Aviation

- The reporter expressed a safety concern related to the wear on seatbelts on a foreign operator's Boeing 787 aircraft. As a result of this report, the applicable regulator sent an official letter to the operator and the operator took immediate action by replacing the seatbelts in poor condition.
- The reporter expressed a safety concern related to the number of unknown vehicle identities being generated on the Sydney Tower advanced-surface movement guidance and control system (A-SMGCS). The reporter advised that unknown vehicle identities result in controllers losing situational awareness and being distracted from their primary task of separating aircraft. Airservices Australia provided background on this known issue and why the software for the A-SMGCS at Sydney was not upgraded as it had been at other locations. Airservices Australia also detailed their mitigation strategy to eliminate the issue of duplicate vehicle IDs and resolve the RU multipath interference issue. They also advised that upon successful mitigation of the multipath interference, the necessary software upgrade will be undertaken, aligning with the software version at other A-SMCSG locations, to eliminate the issue and reported concern.
- The reporter expressed a safety concern related to the availability of controlled airspace around Rockhampton and Mackay Airports, particularly the process used to determine when air traffic control services are available, due to an increase in ad hoc changes causing confusion among crews. In response to this report, the Civil Aviation Safety Authority (CASA) advised that a recommendation will be put forward to Airservices

Australia to consider minimising the dissemination of communication and facilities information by NOTAM and that they review and, if necessary, amend the ERSA entries for the air traffic control communications facilities at Rockhampton and Mackay to reduce any potential for confusion that may arise from conflicting information.

Marine

No REPCON reports relating to marine operations in 2017–18 were completed by 30 June 2018.

Rail

- The reporter expressed a safety concern related to an operator's roster for drivers, where acceptable FAID system scores do not accurately reflect the fatigue drivers are experiencing. The reporter was concerned that management was only aiming to comply with regulations and not looking at better rostering practices. As a result of this report, the Office of the National Rail Safety Regulator confirms that an educational workshop regarding elements of fatigue management will be undertaken with the operator.
- The reporter expressed a safety concern related to the management of the incremental train control system (ITCS) failure on a specific date. Specifically, the reporter was concerned that trains were initially controlled by handwritten proceed authorities but then the system changed to electronic train orders (ETO) without warning and refresher training on the use of ETOs had not been provided, resulting in a poor understanding of this system by both drivers and train control. The operator advised that refresher information was provided to drivers and train controllers on the operation of the ETO system and that they conducted an engineering root cause analysis to determine ways to prevent an ITCS degradation from occurring again in future. The Office of the National Rail Safety Regulator advised that regulatory activities would be conducted to ensure the maintenance of rail safety worker competence with respect to the use of the ETO system.

Data and recorder recovery

The ATSB's data and recorder recovery staff maintain support and readiness for the recovery and download of recorded data from a variety of damaged and undamaged sources across the aviation, rail and marine transport modes.

Over this reporting period, the ATSB continued to support external agencies by providing assistance to Recreational Aviation Australia and state coroners to recover data from damaged recording devices.

Material failure analysis

The ATSB possesses expertise and specialised facilities to enable the detailed examination of physical evidence, allowing for significant insights into the causes of factors of transport safety occurrences. Over the past 12 months, Transport Safety Investigators with engineering specialist backgrounds have provided technical input and analysis across a variety of investigations. This included wreckage analysis to explain the factors contributing to the collision with terrain involving the B200 King Air at Essendon Airport (**AO-2017-024**), and also examination of cockpit controls and components to determine the state of aircraft operation immediately prior to the collision with terrain involving the Cessna 441 near Renmark Airport (**AO-2017-057**). Both of these reports are due to be released in the 2018-19 financial year.

In addition, the ATSB has provided technical assistance to Recreational Aviation Australia in the examination of aircraft structures and components involved in aviation accidents and occurrences.

Preparedness for a major accident

Maintenance of the ATSB's operational capability and readiness extends directly to the agency's preparedness for undertaking and managing all aspects of a major transport safety investigation. The ATSB actively engages with the transport industry to develop an awareness of the ATSB's role, and to participate in practical exercises involving hypothetical transport accidents—aimed at directly testing the effectiveness and scope of the ATSB's response arrangements.

In December 2018, the ATSB conducted a major accident exercise based on a simulated rail occurrence in regional NSW. The ATSB's Accident Response Centre in Canberra was activated, as was a simulated Forward Command Centre. In addition, the exercise tested the activation of the National Emergency Call Centre Surge Capability to handle the expected volume of calls from next-of-kin, witnesses, media and other sources in the event of a major transport accident.

During 2017–18, the ATSB also commissioned an internal audit of its major accident capability. The audit report offered recommendations for improvement in areas such as business continuity, planning, briefing and stakeholder engagement. The ATSB is actioning the recommendations.

These activities have provided valuable input into the ATSB's continuous and ongoing improvement program for assuring its readiness to mount a timely and effective investigative response to a major transport accident.

Implementing the ATSB's expanded role in rail

In August 2011, the Council of Australian Governments (COAG) signed the *Intergovernmental Agreement on Rail Safety Regulation and Investigation Reform*, with a view to introducing consistent national regulation and investigation capabilities. Those reforms were subsequently agreed across New South Wales, Tasmania, South Australia and the Northern Territory in 2013, Victoria in 2014, and Western Australia in 2015.

In late 2015, the Queensland Government advised of its intention to participate in the national regulatory and investigation reforms. The *Rail Safety National Law (Queensland) Act 2017* covering rail safety regulation was assented to in March 2017. The ATSB began formalised arrangements with Queensland for conducting all rail safety investigations under the *Transport Safety Investigation Act 2003* on 1 July 2017.

Cooperation with the New South Wales Office of Transport Safety Investigations (OTSI) and Victoria's Chief Investigator of Transport Safety (CITS) has been strong and productive. Through an ongoing program of ATSB-provided training and refresher programs, staff from both agencies have developed a strong working knowledge, along with practical application, of the ATSB's policies, procedures and legislation.

The ATSB and Victoria's CITS have advanced the relationship further, with CITS completing a marine investigation, **Loss of propulsion on passenger cruise ship *Norwegian Star*, Bass Strait, near Cape Liptrap, Victoria on 10 February 2017 (MO-2017-003)**, in collaboration with the ATSB under the *Transport Safety Investigation Act 2003*.

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 deliverables set out on page 110 of the **Portfolio Budget Statements 2017–18**.

In 2017–18, the ATSB continued to analyse occurrence data held in its aviation safety occurrence database as part of Australia's international obligation to determine if preventative safety measures are required.

In addition to these deliverables, the ATSB research and analysis staff continued to support active aviation occurrence investigations during 2017–18. Significant data analysis was completed for over 20 aviation occurrence investigations during the financial year. This work helped to determine the investigation scope, inform investigation conclusions and safety issue risk assessments, and document past occurrences of similar incidents.

The ATSB published four research investigation reports during 2017–18.

The effect of Australian aviation weather forecasts on aircraft operations: Adelaide and Mildura Airports, Australia (AR-2013-200)

A number of unforecast weather episodes relating to flights into major Australian airports have led to unforeseen diversions, holding, and in some cases, landing below published safe limits. For example, on 18 June 2013, two flights encountered unforecast weather en route to Adelaide, South Australia, leading to a diversion to Mildura Airport, Victoria. Upon arrival, both encountered weather unsuitable for landing.

Aerodrome weather forecasts allow pilots and operators to develop a contingency plan during flight planning and en route (such as carrying additional fuel for holding or diversion) when there are indications of conditions potentially unsuitable for landing at the intended destination. Weather unsuitable for landing mostly involves thunderstorms, a low cloud base and/or low visibility, and to a lesser extent, strong winds.

This is the first report in a series which covers Australian airports supporting regular passenger transport operations. The results will assist aircraft operators to focus on the highest risk seasons and times of day for weather reliability, facilitating better flight planning and support for pilots. They will also allow for more informed prioritisation of investment decisions about aircraft and aerodrome navigational equipment. This report focuses on Adelaide and Mildura Airports.

The ATSB research investigation report, *The effect of Australian aviation weather forecasts on aircraft operations: Adelaide and Mildura Airports, Australia* (**AR-2013-200**), is available from the ATSB website at **www.atsb.gov.au**

A safety analysis of remotely piloted aircraft systems 2012 to 2016: A rapid growth and safety implications for traditional aviation (AR-2017-016)

Since the publication of the ATSB report *A safety analysis of remotely piloted aircraft systems 2012 to 2016* (AR-2017-016) in March 2017, the ATSB has observed a significant change in the trend of reported occurrences involving remotely piloted aircraft systems (RPAS). Contrary to the previous report, the ATSB's most current forecasts predict the total number of RPAS occurrences reported to the ATSB in 2017 to be comparable to 2016.

Due to this new information and the lack of data present in the public arena, the ATSB opted to publish a new edition of the report detailing its current understanding of the implications to transport safety associated with RPAS activity in Australia. Data presented in this edition is current to the end of June 2017.

The growth in the number of RPAS in Australia is increasing rapidly. This presents an emerging and insufficiently understood transport safety risk.

Through this report the ATSB aims to present data and analysis to further understand the implications for transport safety associated with the continual growth of RPAS activity in Australia.

Although accurate assessments of the number of RPAS in Australia is not possible, using proxy data it is clear that the number of RPAS in Australia is growing rapidly each year. Compared to 2016, there will be a possible doubling in the number of systems in Australia by the end of 2017.

In association with the level of growth, the number of RPASrelated safety occurrences reported to the ATSB increased rapidly during the 2012 to 2016 period. However, the first half of 2017 saw significantly fewer occurrences than predicted, given the previous data. As noted above, current forecasts—incorporating data up to the end of June 2017—predict the number of RPAS occurrences reported to the ATSB in 2017 to be comparable to 2016.

Over half of all occurrences from January 2012 to June 2017 involved near encounters with manned aircraft, and almost threequarters of these occurred between January 2016 and June 2017. Most occurred in capital cities, Sydney in particular, at higher than 1,000 ft above mean sea level (AMSL).

To date, there have been no reported collisions between RPAS and manned aircraft in Australia.

The next most common type of occurrence involved collisions with terrain, almost half of which resulted from a loss of control of the RPAS.

The consequences of collisions between RPAS and manned aircraft are not yet fully understood. Worldwide, there have been five known collisions. Three of these resulted in no damage beyond scratches. However, one collision with a sport bi-plane in the United States in 2010 resulted in a crushed wing. Fortunately, the aircraft landed safely. Less fortunately, a Grob G 109B motor glider had a wing broken by an RPAS collision in 1997 in Germany, resulting in fatal injury to the two people on board.

Due to the rarity of actual collisions, there is limited data from which to draw conclusions regarding the possible outcomes. Laboratory testing and mathematical models produced by various agencies have been used in conjunction with abundant aircraft birdstrike data in an attempt to assess the probable consequences of a collision.

RPAS collisions with high-capacity air transport aircraft can be expected to lead to an engine ingestion in about eight per cent of strikes. The proportion of ingestions expected to cause engine damage and engine shutdown will be higher than for bird ingestion (20 per cent of ingestions).

RPAS have the potential to damage a general aviation aircraft's flight surfaces (wings and tail), which could result in a loss of control. Furthermore, a collision with a general aviation aircraft's windscreen poses a high risk of penetration.

A collision with a helicopter's windscreen poses a similar penetration risk. Any impact on a helicopter's tail rotor could cause catastrophic failure of the rotor.

The operation of remotely piloted aircraft systems is an emerging risk to transport safety that requires close monitoring as the popularity of these aircraft continues to grow rapidly.

The ATSB research investigation report *A safety analysis of remotely piloted aircraft systems 2012 to 2016: A rapid growth and safety implications for traditional aviation* (**AR-2017-016**) is available from the ATSB website at **www.atsb.gov.au**

Aviation occurrence statistics: 2007 to 2016 (AR-2017-104)

Each year, thousands of safety occurrences involving Australian and foreign-registered aircraft are reported to the ATSB by individuals and organisations in Australia's aviation industry and by members of the general public.

This report is part of a series that aims to provide information to the aviation industry, manufacturers and policy makers, as well as to the travelling and general public, about these aviation safety occurrences. In particular, it investigates what can be learned to improve transport safety in the aviation sector.

The study uses information over the 10-year period from 2007 to 2016 to provide an insight into the current and possible future trends in aviation safety, and takes a detailed look at the accidents and incidents in 2016 for each type of aircraft operation.

The majority of air transport operations in Australia each year proceed without incident.

In 2016, nearly 230 aircraft were involved in accidents in Australia, with another 291 aircraft involved in a serious incident (an incident with a high probability of an accident). There were 21 fatalities in the aviation sector in 2016, which was fewer than any previous year recorded by the ATSB. There were no fatalities in either high or low capacity regular public transport (RPT) operations, which has been the case since 1975 and 2010 respectively.

Commercial air transport operations experienced one fatality from 15 accidents; general aviation experienced 10 fatalities from 119 accidents; and recreational aviation had 10 fatalities from 63 accidents.

Collision with terrain was the most common accident or serious incident for general aviation aircraft, recreational aviation and remotely piloted aircraft in 2016. Aircraft control was the most common cause of an accident or serious incident for air transport operators.

Wildlife strikes, including birdstrikes, were again the most common types of incident involving air transport and general aviation operations, with runway events the most common type of incident for recreational aviation.

The accident and fatal accident rates for general and recreational aviation reflect the higherrisk operational activity when compared to air transport operations. They also reflect the significant growth in recreational aviation activity over the last 10 years and this sector's increased reporting culture.

General aviation accounts for onethird of the total hours flown by Australian-registered aircraft and over half of all aircraft movements across Australia.

The total accident rate, per hours flown, indicates general aviation operations are 10 times more likely to have an accident than commercial operations, with recreational aircraft around twice as likely to experience an accident than general aviation.

The fatal accident rate, per hours flown, indicates general aviation operations are around 20 times more likely to experience a fatal accident than commercial air transport, and recreational operations are almost 40 times more likely to experience a fatal accident than air transport.

Recreational gyrocopters experienced the highest fatal accident rate for any aircraft or operation type, whereas recreational balloon operations had the highest total accident rate; almost four times as high as any other aircraft operation type. There were no fatal accidents involving recreational balloons reported during the study period.

Aeroplanes remain the most common aircraft type flown, which is reflected in their accident figures. In 2016, nine of the 15 fatal accidents involved aeroplanes—three helicopters and two powered weight shift aircraft and a paraglider were also involved in fatal accidents.

In 2016, the increased availability and use of remotely piloted aircraft (RPA) saw them surpass helicopters as the second highest aircraft type for reported accidents; however, there were no collisions with other aircraft, fatalities or serious injuries relating to RPA reported to the ATSB that year. While the consequences of an accident involving an RPA have been low to date, their increased use, and possible interactions with traditional aviation, is an emerging trend in transport safety that will continue to be monitored closely by the ATSB.

This report highlights the importance of effective and timely reporting of all aviation safety occurrences, not just for the potential of initiating an investigation, but to allow further study and analysis of aviation transport safety.

While there has been an increase in accident and incident reporting, the limited detail provided for most occurrences, especially by recreational flyers, remains a challenge for both the industry and the ATSB. This report also highlights the need for improvements in the reporting rates for some areas in general aviation.

By comparing accident and occurrence data across aviation operation types, the ATSB is able to develop a complete picture of the aviation industry to identify emerging trends in aviation transport safety, identify further areas for research and recommend pre-emptive safety actions.

Aviation Occurrence Statistics: 2007 to 2016 (**AR-2017-104**) is available on the ATSB website at **www.atsb.gov.au**

Power plant failures in turboprop-powered aircraft 2012 to 2016 (AR-2017-017)

This is the second in a series of research investigations looking at technical failures reported to the ATSB. This report reviews power plant problems affecting turboproppowered aircraft between 2012 and 2016.

By summarising power plant-related occurrences, this report provides an opportunity for operators to compare their own experiences with others flying the same or similar aircraft types, or aircraft using the same engines. By doing so, the ATSB hopes that the wider aviation industry will be able to learn from the experience of others.

A review of power plantrelated occurrences reported to the ATSB showed that there were 417 occurrences involving turboprop-powered aircraft between 2012 and 2016 (83 per year on average). The subset of occurrences involving operators whose flight hours were known consisted of 314 occurrences in the four years between 2012 and 2015 (79 per year on average). With a combined total of just over 1.4 million flight hours for these aircraft in this timeframe, this subset equates to approximately 2.2 occurrences every 10,000 flight hours.

The vast majority of all the 417 occurrences (96%) were classified as 'low-risk rating' occurrences with a low or no accident outcome, however, there were four occurrences classified as 'medium-risk' and three as 'high-risk'. The three occurrences classified as high-risk occurrences all involved engine failures or malfunctions with forced/precautionary landings in singleengine Cessna 208 (Caravan) aircraft. There were no occurrences classified as 'very high-risk'.

The two occurrences in the set that resulted in any injury (both minor) were the result of engine failure or malfunctions and collision with terrain occurrences in aerial agricultural operations. The five occurrences classified as 'accidents' all involved aerial work operations—four in aerial agriculture and one in emergency medical services operations.

One aircraft type was found to have a rate of 13.9 power plant-related occurrences per 10,000 hours flown—more than double the rate of any other aircraft type. However, with only four occurrences between 2012 and 2015, the high rate is due to relatively very low flight hours for this aircraft. All four of these occurrences were classified as incidents (rather than accidents or serious incidents) and classified as low-risk rating occurrences. Additionally, the sole operator of this aircraft type in Australia advised the ATSB that the fleet was retired in 2017 and replaced with a newer turbofan alternative.

Timely and vigilant reporting of all technical problems is encouraged to ensure as much information as possible is collected so as to enable a better understanding of the failures. Of particular importance in technical occurrences are the follow-up reports from engineering inspections provided to the ATSB. These are often the only way that the root cause of the problem can be determined.

Power plant failures in turboprop-powered aircraft 2012 to 2016 (**AR-2017-017**) is available on the ATSB website at **www.atsb.gov.au**

FOSTERING SAFETY AWARENESS, KNOWLEDGE AND ACTION

The ATSB conducts 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 deliverables set out on pages 110 and 111 of the **Portfolio Budget Statements 2017–18**.

Deliverables

- The ATSB will assist transport safety in the international region, through direct cooperation and the delivery of approved projects and other support activities provided for by program funding agreements, with a publication produced annually addressing the transport safety contribution of these activities.
- The ATSB will proactively influence safety awareness in the aviation, rail and marine industries and among the travelling public through communication and education activities including:
  - hosting a multi-modal safety conference
  - establishing safety watch priorities
  - increasing the accessibility of investigation report content and safety products through its website, mailing lists, use of social media, industry publications and use of mediums such as video content
  - pushing media coverage of ATSB investigations and safety awareness activities.

Missing Malaysia Airlines Flight MH370

On 8 March 2014, Malaysia Airlines Flight 370 (MH370), a Boeing 777-200ER registered 9M-MRO, disappeared while travelling on a scheduled international passenger flight from Kuala Lumpur to Beijing. There were 239 people on board—12 Malaysian crew members and 227 passengers. Six of the passengers were Australian citizens.

The search for the missing aircraft commenced on 8 March 2014 and continued for 1,046 days in the southern Indian ocean until 17 January 2017 when it was suspended in accordance with a decision made by a tripartite of governments, being Malaysia, Australia and the People's Republic of China.

On 28 April 2014, the surface search for MH370 coordinated by the Australian Maritime Safety Authority (AMSA) was concluded and the Australian Transport Safety Bureau (ATSB) assumed responsibility for conducting the underwater search for the aircraft. During the underwater search, the 120,000 square kilometre search area was searched to a high degree of confidence, 278,000 square kilometres of seafloor along the 7th arc was mapped, and 432,000 square kilometres of seafloor was mapped during vessel transit between port and the search area.

The ATSB published a final report on the operational search for MH370 in October 2017 (**AE-2014-054**). This details all relevant facets of Australia's involvement in the search for MH370 from 8 March 2014, including the surface search, the initial underwater search for the flight recorder underwater locator beacons and the underwater search. The report captures all the analysis which led to decisions in relation to the search area, the method used for the underwater search and the results of the search. It also discusses the management of the operational search program, including the significant risks associated with conducting the search in a very remote area with often adverse weather conditions in ultra-deep water with challenging seafloor terrain.

Subsequently the company Ocean Infinity conducted a search under a separate arrangement with the Malaysian Government without finding MH370.

From 1 July 2017, the ATSB continued to liaise in a 'business-as-usual' manner with the Malaysian investigation into the disappearance of the aircraft, assessing and responding to any requests for assistance. The Malaysian government released its investigation report into the disappearance on 30 July 2018.

Regional cooperation

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 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. Australia will pursue opportunities to provide support in the Asia–Pacific region, including taking a leading role in the ICAO Asia Pacific Accident Investigation Group (APAC-AIG) and the Marine Accident Investigators Forum in Asia (MAIFA).

Indonesia

The ATSB and the Indonesian National Transportation Safety Committee (NTSC) collaborated on a range of ITSAP activities in 2017–18, including cooperation between the ATSB and NTSC transport recorder laboratories. ITSAP support has enabled the NTSC to develop a high level of capability in the download and analysis of 'black box' flight data recorders (FDRs) and cockpit voice recorders (CVRs).

The ATSB–NTSC–ITSAP program encompassed a range of on-the-job training and professional development activities. These included the delivery of specialised training for NTSC rail investigators and marine investigators, and a 'train-the-trainer' project to develop an NTSC Cognitive Interviewing course. Two NTSC investigators attended the SafeSkies aviation safety conference in Canberra.

Papua New Guinea

Under the Papua New Guinea *Memorandum of Understanding on Cooperation in the Transport Sector*, the ATSB has an ongoing program of cooperation and capability-building with the Papua New Guinea Accident Investigation Commission (AIC). An ATSB Senior Transport Safety Investigator (STSI) was deployed full-time to the AIC in Port Moresby to assist Papua New Guinea in developing the capability to meet the international requirements for aviation safety investigation. A key focus of the ATSB–AIC program was the development of a Papua New Guinea Diploma of Transport Safety Investigation that will form the framework for AIC investigator training.

AIC investigators received training in human factors, and in the use of the European Co-ordination Centre for Accident and Incident Reporting Systems (ECCAIRS) software for the collection and exchange of aviation safety information.

Other regional engagement activities

The ATSB continued to make its expertise and resources widely available in support of regional transport safety. Representatives from Korea, Singapore, New Zealand and the UK visited the ATSB for discussions related to transport safety. In addition, participants from South Africa, Saudi Arabia, Taiwan, Kazakhstan, Singapore, New Zealand, Papua New Guinea and Korea attended ATSB investigator training courses.

Communication and education

As Australia's national transport safety investigator, the ATSB is committed to communicating the safety lessons from its investigation findings, research activity and occurrence reports. This information has valuable safety messages which can help improve transport safety and, ultimately, save lives.

In 2017–18, the ATSB continued to highlight emerging safety issues and trends, using a range of communication channels and activities, for the benefit of industry and the travelling public.

SafetyWatch

In 2017–18, the ATSB continued to promote its SafetyWatch initiative. SafetyWatch highlights the areas of broad safety concern identified from its investigations and the occurrence data reported to the ATSB by industry.

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

- too low on approach
- fatigue
- in-flight decision making
- safe work on track
- data input errors
- non-controlled airspace
- safety risk of RPAS
- marine pilotage.

Throughout the year, the ATSB undertook a range of communication activities (web news items, social media and general media) to raise awareness of these issues within the transport industry.

Social media

During 2017–18, the ATSB made extensive use of its social media platforms to engage with the transport industry, the media and the travelling public.

Since launching the ATSB's Facebook page in July 2015, the ATSB has attracted around **15,000** followers to this platform. In 2017–18 this resulted in almost 89,747 referred visitors to the ATSB website.

The ATSB's Twitter account continues to be an effective channel for releasing reports and investigation updates. Through this social media platform, the ATSB can provide a short safety message along with a link to more information on its website.

By the end of June 2018, the ATSB's Twitter followers had increased to around **7,600** people. These include journalists, members of the public and transport industry specialists.

In 2017–18, the ATSB also increased its engagement with audiences through videos, which were distributed to media, hosted on its website and placed on the ATSB's YouTube channel.

Media

The ATSB undertakes responsive and proactive media activity to inform the transport industry and travelling public of its investigations and activities. During the year, the ATSB worked closely with local, national and international media to raise community awareness of transport safety.

Press conferences were held throughout the year, including for the following accident investigations:

- Collision with terrain involving Cessna 310R, VH-JMW, 40 km SSW of Port Macquarie, New South Wales, on 28 October 2017 (**AO-2017-105**)
- Collision with terrain involving AS350BA Squirrel helicopter, VH-BAA, at Hobart Airport, Tasmania, on 7 November 2017 (**AO-2017-109**)
- Collision with water involving a de Havilland Canada DHC-2 Beaver aircraft, VH-NOO, at Jerusalem Bay, Hawkesbury River, New South Wales on 31 December 2017 (**AO-2017-118**)
- Collision with terrain involving Cessna 172, VH-EWE, near Moorabbin Airport, Victoria, on 8 June 2018 (**AO-2018-048**).

In addition, pre-recorded broadcast grabs were filmed and distributed to media at investigation milestones to assist with accurate reporting and amplifying safety messages.

Website

The ATSB website (**www.atsb.gov.au**) continues to be its principal communication channel. In 2017–18, the ATSB website received **2,582,451** page views. This equated to **512,895** sessions.

The launch of the ATSB Facebook page has been particularly effective in referring users to the ATSB website. In 2017–18, Facebook resulted in close to **89,747** views on the ATSB website. This made Facebook the number one referral site for the third year in a row.

Going digital

The ATSB is continually improving its website to meet audience needs and allow for new and emerging technologies.

In 2017–18, the ATSB continued to release all reports in html format (along with current pdf and rich text formats).

Having content in html format has allowed the ATSB to embed more digital content, such as video, animation and audio. It also forms part of the ATSB's response to the Australian Government's 'digital first' agenda.

In 2017–18, the ATSB also launched a project to refresh the website, which will include enhanced functionality to support digital content.

Online aviation 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 searches for information involving the most common requests received by the ATSB: date range, aircraft and operation type, injury level, occurrence category and type, location, and airspace type and class. Users are able to search aviation occurrence statistics from the ATSB website.

In 2017–18, the National Aviation Occurrence Database had **8,188** page views.

Industry engagement

The ATSB continued its strong record of engagement with industry in 2017–18 through: participation in consultative forums with industry and other safety agencies; representation at conferences and events; bilateral engagement with operators, associations and other stakeholders; and active involvement in safety education forums. The ATSB's participation in a broad range of conferences was the alternative means through which the ATSB achieved its key deliverable of facilitating a multi modal safety conference.

This included participation in the following events:

- Australian Airports Association Emergency Management Forum
- Australia and New Zealand Societies of Air Safety Investigators Conference
- Australian Aviation Psychology Association Symposium
- Australian Women Pilots' Association Annual Conference
- Civil Security Congress and Exposition
- International Transportation Safety Association Meeting (Baku)
- Regional Aviation Association of Australia Convention
- Rail Industry Safety and Standards Board Rail Safety Conference
- Rotortech
- Royal Aeronautical Society's Lawrence Hargrave Memorial Lecture
- Safeskies Australia Conference
- Women in Aviation Career's Day
- Women in Aviation/Aerospace Australia Summit

The ATSB also welcomed a number of visitors to its office in Canberra throughout the year, providing an opportunity for representatives from the aviation, marine and rail sectors to meet key staff and tour the laboratory facilities.

Stakeholder Survey

Safety education is a critical component of the work of the ATSB, as it fosters safety awareness, knowledge and action. To measure the effectiveness of our engagement and communication with our stakeholders, in June we distributed our 2018 stakeholder survey via our Facebook, LinkedIn and Twitter social media channels. Almost 300 respondents completed the online survey which asked stakeholders 19 questions. The focus of the questions related to their recollection our safety products and issues affecting their industry. The outcomes of this survey will help to guide the ATSB's communications and education activities in transport safety across the rail, marine and aviation modes.

FINANCIAL PERFORMANCE UPDATE

This section should be read in conjunction with the ATSB's audited financial statements for 2017–18 that appear in section 7 of this report.

The ATSB operates as a separate non-corporate Commonwealth entity, 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, specialised laboratory assets and intangible software assets.

During the year, ATSB's operating environment continued to be influenced by the search for the missing Malaysia Airlines Flight 370 (MH-370).

The ATSB recorded a deficit of $0.94 million for 2017–18, compared to a deficit of $6.5 million in 2016–17. Excluding depreciation and amortisation, the ATSB realised an underlying deficit of $0.23 million which compares to a $5.7 million deficit in 2016–17. The operating deficit in 2017–18 is in relation to the finalisation of activities leading towards the completion of the MH-370 search program.

The ATSB's new capital requirements are detailed in its Departmental Capital Budget published in the 2017–18 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 Government no longer provides appropriation funding to cover non-cash expenses of depreciation and amortisation to non-corporate Commonwealth entities. In the absence of revenue for depreciation and amortisation, the ATSB and other non-corporate entities 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.

Table 4: Summary of financial performance and position

		2017–18 $M	2016–17 $M
Revenue from Government		20.4	22.8
Other revenue		4.8	22.5
Total income		25.2	45.3
Employee expenses		15.3	16.5
Supplier expenses		10.1	34.5
Depreciation and amortisation		0.7	0.8
Total expenses		26.1	51.8
Operating surplus/(deficit)		(0.9)	(6.5)
Financial assets	A	22.3	24.8
Non-financial assets	B	2.5	2.0
Liabilities	C	4.9	6.3
Net Assets - A + B – C		19.9	20.5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SECTION 4

Significant safety investigations

4

This section of the Annual Report fulfils section 63A of the *Transport Safety Investigation Act 2003*, which requires the Chief Commissioner to report investigations that were conducted during the financial year and raise significant issues about safety.

AVIATION INVESTIGATIONS

The first of the investigations described below constitutes one of the most detailed reports undertaken by the ATSB; a reopened investigation that acquired a substantial amount of information that was not obtained or available during the original investigation. The other three investigations described below identified issues relating to the use of advanced avionics and autopilot systems, the risk of deteriorating weather and the importance of maintaining pilots' skills without the use of automation.

Fuel planning event, weather-related event and ditching involving Israel Aircraft Industries Westwind 1124A, VHNGA, 6.4 km WSW of Norfolk Island Airport, on 18 November 2009 (AO-2009-072)

On 18 November 2009, an Israel Aircraft Industries Westwind 1124A aircraft, registered VH-NGA and operated by Pel-Air Aviation Pty Limited, was being flown on an air ambulance flight from Apia, Samoa to Norfolk Island, Australia. Two flight crew, a doctor, a flight nurse, a patient and a passenger (the patient's husband) were on board. After the crew were unable to land due to low cloud, they ditched the aircraft 6.4 km west-south-west of the airport. Two of the occupants were seriously injured, and the aircraft cabin rapidly flooded and sank in 48 m of water. All the occupants evacuated from the aircraft and were later rescued by personnel on a search vessel launched from Norfolk Island.

The Australian Transport Safety Bureau (ATSB) conducted a safety investigation, numbered AO-2009-072, into the accident. It released its draft report to directly involved parties in March 2012, and its final report in August 2012.

On 4 December 2014, the ATSB formally reopened investigation AO-2009-072, accepting recommendations to look at broader systemic issues. The reopened investigation obtained a substantial amount of information that was not obtained or available during the original investigation. This included additional information on:

- pre-flight planning and fuel management procedures and practices
- in-flight fuel management and related decision-making procedures and practices
- fatigue management procedures and practices
- flight crew training and checking
- the operator's oversight of its flight operations activities
- provision of weather and other flight information to flight crews
- cabin safety and survival factors
- regulatory oversight of activities such as those listed above.

Figure 1: The tail section of VH-NGA being recovered by Pacific Marine Group for the ATSB.

Source: ATSB

In the reopened investigation, the ATSB found that the flight crew were conducting a long-distance flight to a remote island at night. At the time the flight was planned, the aerodrome forecast for Norfolk Island indicated the weather conditions at the time of arrival would be above the alternate minima.

Contrary to the consistent practice of the operator's Westwind fleet for such flights, the flight departed with full main tanks (or about 7,200 lb of fuel) rather than full main tanks and tip tanks (about 8,700 lb). The reasons why the captain elected to depart without the maximum fuel load on this occasion were not fully determined. However, the ATSB found the captain's pre-flight planning did not include many of the elements needed to reduce the risk of a long-distance flight to a remote island. These included miscalculating the total fuel required for normal operations, not calculating the additional fuel required for aircraft system failures, not obtaining relevant forecasts for upper-level winds, and not obtaining current information about potential alternate aerodromes. Although there was no requirement for the flight to depart with alternate or holding fuel, the fuel on board was insufficient to meet operator and regulatory requirements for the flight to allow for aircraft system failures.

Although the operator's Westwind pilots generally used a conservative approach to fuel planning, the operator's risk controls did not provide assurance there would be sufficient fuel on board flights to remote islands or isolated aerodromes. Limitations included no explicit fuel planning requirements for such flights, no formal training for planning such flights, no formal guidance information about hazards at commonly used aerodromes, no procedure for a captain's calculation of the total fuel required to be checked by another pilot and little, if any, assessment during proficiency checks of a pilot's ability to conduct fuel planning.

There were also limitations with Australian regulatory requirements. Other than requirements for fuel planning of passenger-carrying charter flights to remote islands, there were no explicit fuel planning requirements for other passenger-carrying flights to remote islands, and no explicit requirements for planning flights to isolated aerodromes. In addition, air ambulance flights were classified as 'aerial work' rather than 'charter'. Consequently, they were subject to a lower level of requirements than other passenger-transport operations (including requirements for fuel planning).

During the flight, the weather conditions at Norfolk Island deteriorated below the landing minima. Air traffic services in Nadi and Auckland did not provide the flight crew with all the information that should have been provided. In addition, the flight crew did not request sufficient information prior to passing the point of no return (PNR) and the captain did not use an appropriate method for calculating the PNR. Related to these actions, the operator's risk controls did not provide assurance that its pilots would conduct adequate in-flight fuel management activities during flights to remote islands or isolated aerodromes. The Civil Aviation Safety Authority (CASA) had also published limited guidance material regarding in-flight fuel management.

After the aircraft passed the PNR, there were opportunities to minimise the risk associated with the developing situation. However, the flight crew did not effectively discuss approach options, and they did not effectively review their fuel situation and consider alternate emergency options prior to ditching the aircraft. The flight crew did not refer to the ditching checklist and the final approach was conducted at an airspeed significantly below the reference landing speed (VREF), which increased the descent rate just prior to impact. A range of local conditions influenced the performance of the crew during the latter stages of the flight, including workload, stress, time pressure and dark night conditions.

Figure 2: Forward fuselage resting on the seabed on its left side

Source: Screen capture from Victoria Water remotely operated vehicle

In addition to the rapid flooding of the aircraft cabin, the occupants' evacuation was hampered by there being no formal, specific procedures and limited training regarding how to secure life rafts in an appropriate, readily accessible location prior to a ditching, and no designated storage location for the stretchered patient's life jacket. In very difficult circumstances, the nurse and doctor did an excellent job evacuating the patient, and then assisting the injured first officer and the patient in the water, both of whom did not have life jackets.

Due to the inherent limitations of most emergency locator transmitters (ELTs) for a submerged aircraft, and the limited information provided by the flight crew regarding the location of the ditching, search and rescue personnel initially had no reliable information about where to search for the aircraft. It was fortunate that a firefighter made a chance sighting of the captain's torch, resulting in the search effort being redirected to the appropriate area and the successful rescue of the evacuees.

In addition to issues associated with fuel planning and in-flight fuel management, the ATSB identified safety issues with the operator's risk controls for emergency procedures and training, fatigue management, crew resource management training and flight crew training for newly installed systems on the accident aircraft. The ATSB also identified limitations with the operator's hazard identification processes and the definition of roles and responsibilities of key management personnel, and the processes used by the operator and air ambulance provider for conducting pre-flight risk assessments. Limitations were also identified with the processes used by CASA for planning surveillance, and scoping and conducting audits.

Following the accident, CASA conducted a special audit of the operator, which involved an extensive assessment of the air ambulance operations. The operator voluntarily ceased its Westwind operations and collaborated with CASA during the audit. During this process, the operator reviewed and substantially enhanced its risk controls and management oversight of flight/fuel planning and in-flight fuel management. It also enhanced the risk controls and management oversight of many other areas of its air ambulance operations.

In 2014, CASA modified the requirements for operations to Australian remote islands, so that all passenger-carrying transport flights, including air ambulance flights, were required to depart with alternate fuel. In addition, in 2012, CASA initiated action to change the regulatory classification of air ambulance (or medical transport) flights from 'aerial work' to 'air transport'. However, although CASA released a Notice of Proposed Rule Making about this issue in 2013, no changes had yet occurred at the time of this report's publication. Accordingly, the ATSB issued a safety recommendation to CASA to continue reviewing the requirements for air ambulance operations and address the limitations associated with the current classification of these flights. The ATSB also issued two other recommendations to CASA for it to continue its activities to address the limitations with the requirements and guidance for fuel planning of flights to isolated aerodromes and the requirements and guidance of in-flight fuel planning.

In addition to these actions, since 2009 there have been improvements in a range of other areas. These include improvements to CASA's surveillance processes, weather forecasting processes at Norfolk Island, and the publishing of advisory information about the hazards at remote island aerodromes. On top of this there now exists an enhanced capability for satellites to detect the location of ELT signals from aircraft involved in ditchings and similar impacts where the ELTs are unable to emit signals for extended periods.

The investigation report contains 36 safety factors that provide lessons to flight crews, operators, regulators and/or other organisations. Overall, the most fundamental lesson for all flight crew, operators and regulators is to recognise that unforecast weather can occur at any aerodrome. Consequently, there is a need for robust and conservative fuel planning and in-flight fuel management procedures for passenger-transport flights to remote islands and isolated aerodromes.

Additional safety messages within the investigation report include:

- Flight crew should discuss and consider options to manage threats when there is time available to do so.
- Operators should ensure their flight crew proficiency checks assess the performance of all key tasks required of their flight crew.
- Operators should not rely on informal risk controls for managing the performance of safety-critical tasks, particularly when there is significant turnover of pilots in a fleet.
- Operators of air ambulance flights should ensure medical personnel have clearly defined procedures and appropriate practical training for using the emergency equipment on board to ensure they can effectively assist a patient in the event of an emergency.
- All organisations in safety-critical industries should use proactive and predictive processes to identify hazards in their operations.
- Organisations that use a bio-mathematical model of fatigue as part of their fatigue risk management system should ensure they have a detailed understanding of the assumptions and limitations associated with such models.
- Regulators should develop effective methods for obtaining, storing and integrating information about operators and the nature of their operations so they can develop effective surveillance plans.

The ATSB's investigation report (**AO-2009-072**) is available from the ATSB's website at **www.atsb.gov.au**

Collision with terrain involving Cessna 172, VH-ZEW, near Millbrook, Victoria, on 8 September 2015 (AO-2015-105)

At about 1410 Eastern Standard Time on 8 September 2015, the pilot of a Cessna Aircraft Company 172S, registered VH-ZEW, departed Point Cook Airfield, Victoria, on a solo navigational training flight via waypoints that included Ballarat Airport, Victoria. GPS data showed that the aircraft was on the third leg of the planned journey, cruising at about 3,000 ft above mean sea level when it started to descend rapidly. The aircraft impacted rising terrain at about 2,200 ft and was destroyed. The pilot, who was the sole occupant, was fatally injured.

Figure 3: Accident site and wreckage of Cessna 172S Skyhawk SP, VH-ZEW

Source: ATSB

The site and wreckage inspection identified that the aircraft impacted terrain in a level, slight rightwing low attitude. This indicated that the pilot likely stopped the aircraft's descent and started to initiate a manoeuvre to avoid the terrain. It is likely that the pilot manually manipulated the controls while the autopilot was on and engaged in a vertical mode. As a consequence, the autopilot retrimmed the aircraft against pilot inputs, inducing a nose-down mistrim situation, which led to a rapid descent. The aircraft's low operating height above the ground, due to the extent and base of the cloud, along with rising terrain in front of the aircraft, gave the pilot limited time to diagnose, react and recover before the ground impact.

There was no advice, limitation or warning in the aircraft pilot operating handbook or avionics manual to indicate that if a force is applied to the control column while the autopilot is engaged, the aircraft's autopilot system will trim against the control column force, and possibly lead to a significant out-of-trim situation. Training requirements for autopilot systems was rudimentary at the recreational pilot licence (RPL) level due to stipulated operational limitations for its use. At the time of the accident there was no regulatory requirement for pilots to demonstrate autopilot competency at the RPL level.

Figure 4: Accident site of VH-ZEW, showing the initial impact and wreckage trail

Source: ATSB

The ATSB issued safety recommendations to the aircraft and autopilot manufacturers about the provision of limitations, cautions and warnings for autopilot systems and audible pitch trim movement.

The flight training organisation updated their operations manual, as a result of flight testing they conducted, to include warnings about the operation and function of the autopilot system which was absent in the manufacturer's documentation. The hazard of manual manipulation of the flight controls with the autopilot engaged was also emphasised to students.

Technologically advanced avionics and autopilot systems are now often fitted to general aviation aircraft used for flight training, and private and charter operations. It is essential for all pilots to develop a thorough understanding and operation knowledge of all systems fitted to the aircraft they are flying. It is also important that student pilots consolidate manual flight and navigation skills before using the advanced autoflight modes or extensively using autopilot systems. Avionics and aircraft manufacturers should increase pilot awareness of automated systems by providing written warnings surrounding known issues and including visual and aural alerts in autoflight systems to increase pilot awareness of non-standard inputs. Fundamentally, pilots should be aware that if the automation is not performing as expected, then the safest option under most circumstances is to disengage the system and manually fly the aircraft.

The ATSB's final investigation report (**AO-2015-105**) is available from the ATSB website at **www.atsb.gov.au**

Collision with terrain involving Airbus Helicopters EC135 T1, VH-GKK, 10 km NNW Cooranbong, New South Wales, on 7 November 2015 (AO-2015-131)

At about 1730 Australian Eastern Daylight Time on 7 November 2015, the owner-pilot of an Airbus Helicopters (Eurocopter) EC135 T1, registered VH-GKK, departed Breeza, New South Wales, on a private flight to Terrey Hills, New South Wales. The flight was conducted under the visual flight rules and there were two passengers on board.

About 40 km to the south-west of the Liddell mine, the pilot diverted towards the coast, probably after encountering adverse weather conditions. Witnesses in the Laguna area observed the helicopter overfly the Watagan Creek valley in the direction of higher terrain. The helicopter was then observed to return and land in a cleared area in the valley.

After 40 minutes on the ground, the pilot departed to the east towards rising terrain in marginal weather conditions. About seven minutes later and approximately 9 km east of the interim landing site, the helicopter collided with terrain. A search was initiated about 36 hours later. The helicopter wreckage was found at about 1840 on 9 November 2015. The pilot and two passengers were fatally injured.

The ATSB found that the pilot departed an interim landing site under the visual flight rules in marginal weather conditions. The pilot likely encountered reduced visibility conditions, leading to loss of visual reference, leading to the collision with terrain.

The ATSB also found that the fixed, airframe-mounted emergency locator transmitter had been removed and personal locator beacons (PLBs), which required manual activation, were carried instead. While in this accident it did not affect the outcome for the occupants, the lack of activation, combined with the absence of flight notification information, delayed the search and rescue response.

Weather-related general aviation accidents remain one of the most significant causes of concern in aviation safety and the following safety messages are key:

- Avoiding deteriorating weather or instrument meteorological conditions (IMC)[2] requires thorough pre-flight planning, having alternate plans in case of an unexpected deterioration in the weather, and making timely decisions to turn back or divert.
- Pressing on into IMC conditions without a current instrument rating carries a significant risk of encountering reduced visual cues leading to disorientation. This can easily affect any pilot, no matter what their level of experience. In the event of inadvertent entry into IMC, pilots are encouraged to contact air traffic control for assistance.

> Emergency locator transmitters (ELTs) and Personal Locator Beacons (PLBs) are key safety devices that may become inhibited in a crash. In light of their respective limitations, it is worth considering the use of both.

The ATSB's final investigation report (**AO-2015-131**) is available from the ATSB website at **www.atsb.gov.au**

Near-collision and operational event involving Beech Aircraft Corporation B200, VH-OWN and VH-LQR, Mount Hotham, Victoria on 3 September 2015 (AO-2015-108)

On 3 September 2015, several multi-engine turboprop aircraft converged on the airspace above Mount Hotham Airport, Victoria, as part of a multi-day charter involving several operators. While conducting a number of area navigation (RNAV) Global Navigation Satellite System (GNSS) approaches, the pilot of a participating Beech Aircraft Corporation B200 (King Air) aircraft, registered VHOWN, descended the aircraft below the minimum altitude and exceeded the tracking tolerance of the approach after experiencing GPS/autopilot difficulties. The pilot twice climbed the aircraft without following the prescribed missed approach procedure and manoeuvred in the Mount Hotham area. During this manoeuvring, the aircraft came into close proximity to another King Air, registered VHLQR, which had commenced the same approach. Both aircraft were in instrument meteorological conditions and unable to sight each other. Significant manoeuvring was also observed as VHOWN was on final approach to the Mount Hotham runway. All aircraft landed safely at Mount Hotham without injury to passengers or crew.

Difficulties in operating the GPS/autopilot resulted in the pilot of VHOWN experiencing an unexpected reduction in the level of supporting flight automation, and a significant increase in workload, while attempting to conduct RNAV (GNSS) approaches into Mount Hotham Airport. This increased workload affected both the pilot's ability to follow established tracks, such as the published approach and missed approach, and his ability to communicate his position accurately to other aircraft and the air traffic controller.

Although radar coverage in the area was limited, there were opportunities for the air traffic controller to identify when VHOWN was having tracking difficulties during all three approaches, and when VHOWN tracked towards the expected position of VHLQR. However, this position information was not effectively communicated, resulting in a missed opportunity to prevent a potential controlled flight into terrain and/or collision with VHLQR.

The pilot of VH-OWN underwent flight-testing by both a delegate of the Civil Aviation Safety Authority (CASA), and by a flying operations inspector employed by CASA, who recommended remedial training. Independent of this investigation, in February 2017 it became mandatory for all aircraft operating under instrument flight rules to be fitted with Automatic Dependence Surveillance – Broadcast, further increasing surveillance capability nationally, including in the Mount Hotham area.

Additionally, and independent of this investigation, the Department of Defence's radar system, capable of surveillance in the Mount Hotham area, is scheduled for upgrade in late 2018. The radar system upgrade is likely to enhance the national air traffic system through the increased compatibility between that radar and the Airservices Australia surveillance system.

Maintaining the pilot skill of operating an aircraft without the use of automation is essential in providing redundancy should the available automation be unexpectedly reduced. Additionally, as the responsibility for separation from other airspace users and terrain in Class G airspace lies with aircrew, it is imperative that pilots maintain the skills to navigate accurately, and interpret and utilise traffic information to maintain safe separation. From an air traffic control perspective, the occurrence highlights the safety benefit of communicating any apparent tracking anomalies and/or conflicts to the involved pilots.

The ATSB's final investigation report (**AO-2015-108**) is available from the ATSB website at **www.atsb.gov.au**

Collision with water involving twin-engine EC135 helicopter, VH-ZGA, 35 km NW of Port Hedland, Western Australia, on 14 March 2018 (AO-2018-022)

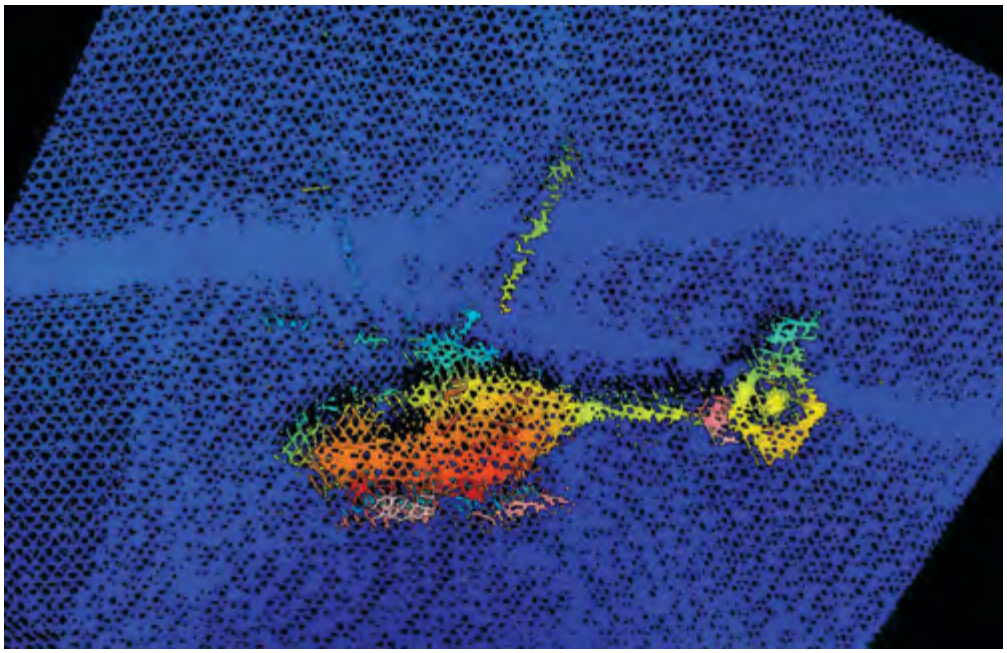
On 14 March 2018, at about 2330 Western Standard Time, an Eurocopter EC135 helicopter, registered VHZGA, departed Port Hedland Heliport, Western Australia, to collect a marine pilot from a departing ship.

The flight was conducted at night under the visual flight rules. A pilot, recently employed by the operator, was flying the helicopter under the supervision of a training and checking pilot.

At about 2348, the helicopter was operating in the vicinity of the ship when it descended and collided with the water. The training and checking pilot escaped from the helicopter and was rescued a short time later. The location of the other pilot was unknown and a search commenced.

On 17 March 2018, the helicopter wreckage was located on the seabed and the missing pilot was found inside.

Figure 5: Sonar image of helicopter resting on the seabed, on its right side



Source: Pilbara Ports Authority and contractors working on their behalf

Figure 6: Helicopter wreckage being lifted onto the dock

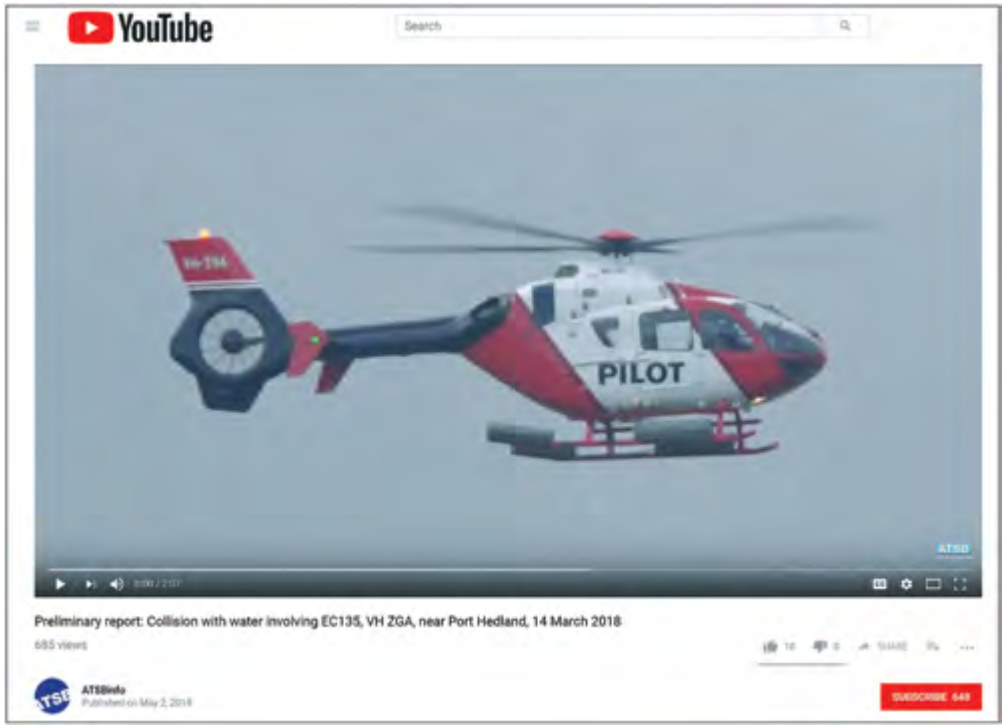
Source: ATSB

In response, the ATSB issued a Safety Advisory Notice, **AO-2018-022-SAN-001**, advising helicopter operators involved in overwater operations of the importance of undertaking regular helicopter underwater escape training (HUET) for all crew and regular passengers to increase their survivability in the event of an in-water accident or ditching. Regular HUET courses can assist occupants following a ditching or water impact. That training enables them to practise the techniques to make an in-water or underwater escape from a cockpit or cabin.

Examination of the helicopter operator's records revealed the deceased pilot, who was recently employed by the operator, had not undertaken HUET for nine years. The helicopter operator normally required company pilots to complete a HUET course every three years.

The ATSB's final investigation report (**AO-2018-022**) is available from the ATSB website at **www.atsb.gov.au**

Figure 7: Screen capture of a YouTube video produced to support the Safety Advisory Notice



Source: ***www.youtube.com/ATSBinfo***

RAIL INVESTIGATIONS

The first rail investigation described below concerns an ongoing issue in rail safety: that of safe work on track across Australia. The other two identify safety concerns associated with approaching safety-critical zones at higher speed and the operational scenarios that must be incorporated into train control systems.

Safe work on track across Australia: Analysis of incident data, 2009–2014 (RI-2014-011)

The ATSB has investigated a number of accidents and incidents while maintenance work was being performed on or near railway tracks. The ATSB's SafetyWatch, introduced in 2012 to emphasise broad transport safety concerns in Australia, also highlighted '**safe work on rail**'.

The ATSB continues to receive notifications of safe working incidents involving worksite protection arrangements for work on track. These notifications suggest the existence of broader safety issues associated with work on track that continue to increase risk to worker safety. In 2017, safe work on track continues to be an ATSB SafetyWatch priority.

This safety issue investigation reviews available data from across Australia of incidents and accidents relating to work on track. It is designed to provide industry with insights into the protection arrangements that are failing, and the reasons why, across many occurrences so that safety action can be designed to reduce future safe work on track occurrences.

The ATSB analysis grouped the notifiable occurrence data into eleven categories. The analysis indicated the most common events exposing track workers to highest risk were:

- the incorrect removal of the worksite protection
- the incorrect positioning of the worksite protection
- the type of protection being insufficient or incorrect
- the incorrect identification of the worksite location.

The results of this safety issue investigation were largely reflective of the safety factors identified from previous ATSB occurrence investigations. That is, incidents were predominately a result of errors during the implementation or dissolution stage of providing track protection. Protections were either removed incorrectly or prematurely, or key communication exchanges failed to establish the location of the worksite with respect to approaching rail traffic.

The outcome of this ATSB safety issue investigation suggests that the rail industry should consider the event types identified above in determining areas in which to target effort for maximising the effectiveness of safety arrangements for work on track.

Rail transport operators continue to enhance arrangements within their networks that facilitate safe work on track. Work which shares learnings between operators and delivers better safety outcomes across the industry is also ongoing through industry initiatives such as the National Track Worker Safety Forum.

This forum has identified priority areas and is exploring improvements in worker competencies, technologies for worksite protection systems, compliance with critical communications protocols and addressing interface arrangements where differing rules and procedures exist between adjoining networks—particularly in sidings and yards.

To minimise risk, rail transport operators must ensure systems for safe work on track encourage workers accessing the rail corridor to communicate sufficient information to validate their worksite location, the adequacy of the protections in place, and their positioning in relation to any approaching train movements.

The ATSB's investigation report (**RI-2014-011**) is available from the ATSB website at **www.atsb.gov.au**

Derailment of train 3MP5 at Rawlinna, Western Australia on 21 April 2016 (RO-2016-005)

On 21 April 2016, at about 1115, train 3MP5 (travelling from Melbourne to Perth) derailed while traversing the eastern points at Rawlinna. The points failed to restore to the normal position after the last train departed the loop line, leaving the points in an unsafe open position. The colour light point indicator system worked as designed by displaying a red indication when the points were unable to be detected and locked in a safe position.

There were minor injuries sustained by the crew. About 200 m of track infrastructure was damaged, and the main line between Adelaide and Perth was blocked until 1351 on 25 April 2016.

Figure 8: Derailed locomotives

Source: Driver 3MP5

The ATSB found the driver's expectation that the system was likely set for the main line contributed to train 3MP5 travelling at a speed where it could not be stopped before the open points. Additionally, it was likely a common practice for drivers to approach crossing locations without slowing when authorised for the main line. Compounding this was the points enhancer sighting distance being less than the effective braking distance of trains travelling at line speed, thereby increasing the risk of overrun if not displaying a green aspect.

The ATSB also found that the crew van did not meet the requirements of AS 7522:2012 Railway Rolling Stock—Access and Egress, since the occupant could not access any escape paths without external assistance and additional equipment.

As a result, Pacific National has reviewed operational instructions, audited enhancer sighting distances between Cook and Kalgoorlie, and reviewed emergency egress arrangements. The Office of the National Rail Safety Regulator will look further into the possibility of prescription glasses with progressive lenses altering the perception of signal colours.

The common practice of approaching safety-critical zones at higher speed probably affects multiple operators. The effective sighting distance of safety-critical locations (enhancers, targets, etc.) being less than the effective braking distance of trains represents a physical gap or limitation of the system. This limitation places more reliance on procedures to cover the gap. Although the Australian Rail Track Corporation and Pacific National have procedures in place, not all operators have the same requirements. Other operators may instead rely on one layer of procedural protection provided by the track manager, increasing the likelihood of an occurrence.

The ATSB's investigation report (**R0-2016-005**) is available from the ATSB website at **www.atsb.gov.au**

Signalling control system irregularity, Ballarat, Victoria, on 11 August 2016 (RO-2016-011)

On 11 August 2016, track maintenance was to be undertaken east of Ballarat Railway Station. To protect the work group, three sets of points within the work area were remotely blocked to prevent them being operated from the train control system (TCS). However, the points unexpectedly operated when a route was set by the train controller for a train to travel from Wendouree to Ballarat Station. There were no injuries or equipment damage.

Figure 9: Ballarat Railway Station, Victoria

Source: ATSB

The ATSB found that the train controller had placed a block on the three sets of points, but these 'blocks' were ineffective due to design errors within the TCS. Train control for the location had been moved from Ballarat to the Melbourne control centre about three months earlier and the new configuration lacked full points-blocking functionality.

The ATSB found that the software written to provide the points-blocking functionality within the TCS did not include coding for points that lay outside the selected route but within its overlap. The Wendouree to Ballarat route-setting required three sets of points in the overlap to be in a defined position. The absence of blocking software for the overlap meant that these points were not blocked and were able to be remotely moved when the route request was executed by the TCS. It was also found that neither factory nor site acceptance testing of the new system considered this scenario. As a result, the deficiency was not identified at this early stage.

The system configuration for the relocated train control was uncommon for the Victorian regional network. It placed reliance on the TCS to perform the points-blocking function rather than also providing an additional level of defence to the interlocking.

As a result, V/Line has issued instructions for track workers to isolate points prior to undertaking work on them.

The TCS software designer, UGL Pty Limited, has updated its instructions for software development and testing of unit-lever interlockings to specifically require overlaps to be included in the blocking functionality.

It is critical that system designers ensure that the functionality and performance requirements needed to meet all operational scenarios are incorporated within the design. It is also important that effective check and test processes are developed to fully validate system functionality.

The ATSB's investigation report (**R0-2016-011**) is available from the ATSB website at **www.atsb.gov.au**

MARINE INVESTIGATIONS

Of the two marine safety investigations described below, the first relates to the increased operational risk of operating newly designed equipment without redundancies in place. The other relates to collisions between trading ships and small vessels—a scenario that the ATSB continues to see—and one of the common contributing factors in such occurrences.

Loss of propulsion on passenger cruise ship Norwegian Star, Bass Strait, near Cape Liptrap, Victoria, on 10 February 2017 (329-MO-2017-003)

On 9 February 2017, the passenger cruise ship *Norwegian Star* departed Melbourne, Australia, on a scheduled cruise to Dunedin, New Zealand. There were 2,113 passengers and 1,017 crew on board. On departure, the starboard propulsion unit was operational following its recent repair, and the port propulsion unit was under repair following its failure on 24 January 2017. This meant that the ship was operating only with the starboard propulsor.

At about 0134 on 10 February 2017, *Norwegian Star* was about 22 NM south-west of Cape Liptrap, Victoria, Australia, when the starboard propulsion unit failed. Propulsion could not be restored and tugs were deployed from Melbourne to tow the ship back to Melbourne. The ship arrived back without further incident at about midnight on 11 February 2017.

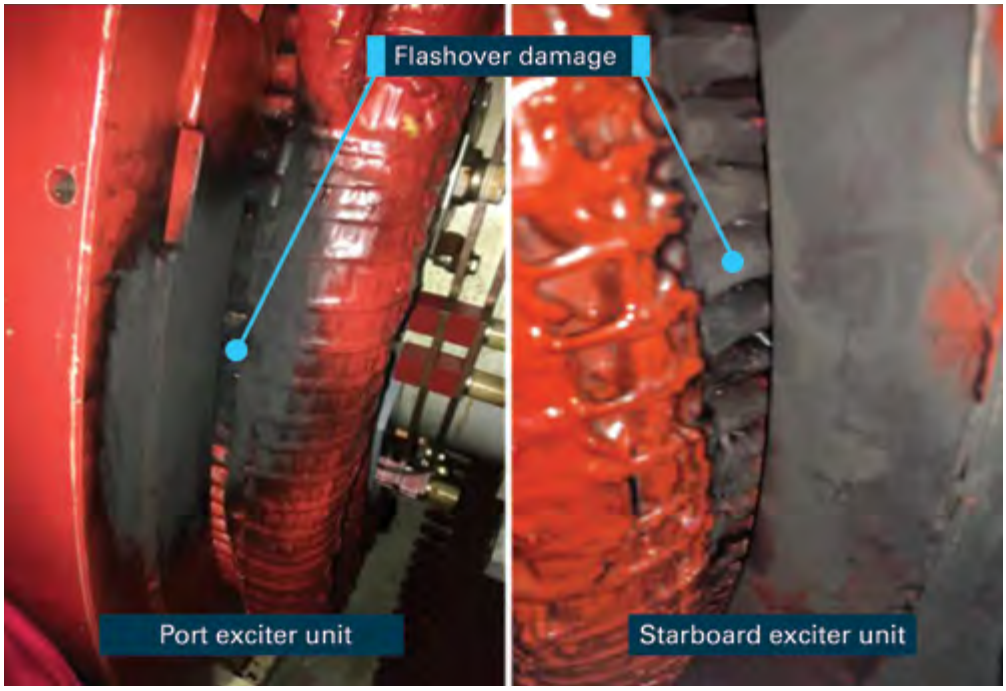
Figure 10: Norwegian Star

Source: Norwegian Cruise Line Holdings

The ATSB found that *Norwegian Star* lost function of its starboard propulsion as a result of the failure of the recently repaired starboard exciter. The configuration of the exciter unit had been modified as part of its repair, and the unit failed as a result of an error in the design of the modification. Insufficient clearance had been provided to allow for movement and thermal expansion of components during the unit's operation. This error was not detected during the design, installation and trialling of the modified exciter unit.

The need for the repair of the starboard exciter unit had followed its failure on 11 December 2016. The failure of the unit in its original (as-built) configuration, and the subsequent failure of the original port exciter unit on 24 January 2017, were both probably due to a breakdown in electrical insulation. Processes for the monitoring of exciter unit condition were ineffective in detecting deterioration prior to unit failure.

Figure 11: Flashover damage from the port and exciter units



Source: Norwegian Cruise Line Holdings with annotations by Chief Investigator, Transport Safety

The ship operator's decision to sail from Melbourne with only the starboard propulsion unit did not breach any regulatory requirement and was based on confidence in the reliability of the repaired starboard unit. While the repaired exciter was of proven design concept, the detailed design specific to this propulsion system application had not previously been used in-service.

The ATSB issued recommendations to the ship operator, Norwegian Cruise Line Holdings, and the equipment manufacturer, ABB Industry Oy, to review the processes for monitoring the condition of brushless exciter units in Azipod installations, considering the mechanism of failure of the port and starboard brushless exciter units on *Norwegian Star*.

Operation of newly designed equipment without redundancy increases operational risks. Equipment manufacturers and ship operators must apply extra diligence when designing, installing and operating modified equipment, especially safety-critical equipment.

The ATSB's investigation report (**329-MO-2017-003**) is available from the ATSB website at **www.atsb.gov.au**

Collision between the container ship Glasgow Express and the fishing vessel Mako, off Cape Woolamai, Bass Strait, Victoria, on 12 August 2017 (324-MO-2017-007)

At 2000 on 12 August 2017, the fishing vessel *Mako* departed San Remo, Victoria, bound for fishing grounds about three hours away. Once clear of Cape Woolamai, *Mako* maintained a steady course (210°) and speed to the south-west. At the same time, the container ship *Glasgow Express* was passing Cape Liptrap heading north-west. The ship was bound for Melbourne, Victoria, and was maintaining a steady course (299°) and speed. From about 2030, the vessels were on a collision course.

No avoiding action was taken by either vessel and, at about 2246, they collided.

Figure 12: Composite representative image showing the scale and approximate point of collision

Source: Hapag-Lloyd; the ATSB

The ATSB found that a proper lookout by 'all available means' was not being maintained on either vessel.

Glasgow Express's bridge team saw and monitored *Mako* visually from about 2200. However, a full appraisal of the situation using other instruments or means available on the bridge (such as radar) was not done. As a consequence, the situation was misinterpreted and the risk of collision was not identified. Therefore, no avoiding action was taken.

Prior to handing over the watch at 2230, *Mako's* watchkeeper identified *Glasgow Express* by radar and visually. However, the information was misinterpreted and it was concluded that the *Glasgow Express* was passing clear, ahead of the fishing boat, and no avoiding action was taken. Then, after taking the watch, *Mako's* second watchkeeper did not see the *Glasgow Express* until moments before the collision.

In addition, *Mako* was under way with all external lights on. This made the vessel more easily seen, but reduced the ability for *Glasgow Express's* bridge team to visually appraise the situation accurately. The bright lights also reduced the *Mako* watchkeeper's night vision and ability to distinguish features beyond the glare of the lights.

The ATSB also noted that *Mako*, similar to other fishing vessels of this design, had a large fishing net winch drum mounted on deck forward of the wheelhouse. This winch drum restricts forward vision and may limit the ability to maintain a proper lookout unless accounted for in on-board procedures and training.

As a result, *Glasgow Express's* operator undertook a fleet-wide information and education program which outlined the incident and emphasised the need to use all available means to maintain safe navigation in accordance with the collision regulations.

The ATSB continues to see collisions between trading ships and small vessels. A common contributing factor has been the failure to use all available means to appraise a situation and the risk of collision accurately.

The ATSB reinforces to masters, owners, operators and skippers of all vessels the importance of a proper lookout by all available means, including radar. Proper use of radar equipment, including long-range scanning and radar plotting, allows for early detection, assessment and warning of vessels posing a risk of collision. This allows the watchkeeper sufficient time to take early and considered action to avoid collision in accordance with the International Regulations for Preventing Collisions at Sea, 1972 (as amended) (COLREGs).

The ATSB's investigation report (**MO-2017-007**) is available from the ATSB website at **www.atsb.gov.au**

SECTION 5

Formal safety issues and actions

5

This section reports on the formal safety issues and actions issued by the ATSB in 2017–18 and their current status.

FORMAL SAFETY ISSUES AND ACTIONS

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 to a variety of internal and external organisational influences that impact 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 safety action to address safety issues identified in its reports. Nevertheless, the ATSB may use its powers under the *Transport Safety Investigation Act 2003* (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 organisation 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 appropriate action. There is no requirement for a formal response to a SAN.

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

- 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
- other safety issue—associated with a risk level regarded as unacceptable unless it is kept as low as reasonably practicable. Where there is a reasonable expectation that safety action could be taken in response to reduce risk, the ATSB will issue a safety recommendation to the appropriate agency when proactive safety action is not forthcoming.

All ATSB safety issues and associated safety actions, along with the most recent status, are published 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 2017–18, the ATSB identified the following number of safety issues.

Table 5: Number of safety issues identified in 2017–18

Safety issue risk	Aviation	Marine	Rail	Total
Critical	0	0	0	0
Other	23	2	16	**41**
Total	**23**	**2**	**16**	**41**

Safety action is sought to address any 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'.

The *Portfolio Budget Statements 2017–18* specify, as two of the ATSB's key performance indicators (KPIs), that:

- 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 all other safety issues identified.

KPI STATUS OF SAFETY ISSUES IDENTIFIED IN 2017–18

There were no critical safety issues identified through ATSB investigations in 2017–18.

The breakdown of other safety issues, by transport mode, is summarised in the following table:

Table 6: Status of other safety issues identified in 2017–18

Status of safety issues	Aviation	Marine	Rail	Per cent
Adequately addressed	14	1	10	61%
Partially addressed	0	0	4	10%
Not addressed	0	0	0	0%
No longer relevant	1	0	0	2%
Safety action still pending	8	1	2	27%
Total	**23**	**2**	**16**	**100%**

RESPONSES TO SAFETY ISSUES IDENTIFIED IN 2017–18

The tables below document each safety issue identified in 2017–18 and its current status assigned by the ATSB, along with the justification for that status.

Table 7: Aviation—Responses to other safety issues identified in 2017–18

Safety issue	Status	Status justification
AE-2014-054: Assistance to Malaysian Ministry of Transport in support of missing Malaysia Airlines flight MH370, 7 March 2014 UTC		
AE-2014-054-SI-01: There is relatively limited public and official information available about the process and outcomes of some searches. It is not an explicit part of the ICAO Annex 13 guidelines for inclusion in an accident investigation report. Similarly there is no Annex 12 requirement to publish or analyse search information. This limits the ability for researchers to determine the factors that help or hinder a search.	Safety action still pending.	
AE-2014-054-SI-02: While there has been significant enhancements in the tracking of commercial aircraft in recent years, there are some limitations to the improvements. The ICAO mandated 15-minute position tracking interval for existing aircraft may not reduce a potential search area enough to ensure that survivors and wreckage are located within a reasonable timeframe.	Safety action still pending.	

Safety issue	Status	Status justification
AO-2014-190: Further investigation of AO-2009-072–IAI Westwind 1124A, VH-NGA, Norfolk Island, 18 November 2009		
AO-2014-190-SI-01: The operator's Westwind pilots generally used a conservative approach to fuel planning, and the operator placed no restrictions on the amount of fuel that pilots uploaded. However, the operator's policies, procedures and guidance did not provide assurance that sufficient fuel would be taken for flights to remote islands or isolated aerodromes. Limitations included: > no explicit fuel planning requirements for remote islands or isolated aerodromes > no formal fuel planning guidance for some relevant situations, such as a loss of pressurisation or flight below reduced vertical separation minimum (RVSM) airspace > no formal training for planning flights to remote islands or for international operations > no guidance information about potential hazards at commonly used aerodromes > no procedure for a captain's calculations of the total fuel required to be checked by another pilot > little, if any, assessment during proficiency checks of a pilot's ability to conduct flight/fuel planning.	Adequately addressed.	The ATSB acknowledges that the operator undertook substantial safety action to address its risk controls regarding fuel planning on its Westwind fleet. Although not every item in the safety issue was specifically addressed, the overall level of action substantially reduced the risk of operations to remote islands and isolated aerodromes.

Safety issue	Status	Status justification
AO-2014-190-SI-02: The operator's risk controls did not provide assurance that the operator's Westwind pilots would conduct adequate in-flight fuel management and related activities during flights to remote islands or isolated aerodromes. Limitations included: > no formal guidance material about how to calculate a point of no return (PNR) for an off-track alternate aerodrome > no formal guidance material regarding what types of weather information to obtain during a flight and when to obtain the information > no procedures for a captain's calculation of the PNR to be checked by another pilot > little, if any, assessment during proficiency checks of a pilot's ability to calculate a PNR and conduct in-flight fuel management on long distance flights > no fitment of a satellite phone in most of the operator's Westwind aircraft.	Adequately addressed.	The ATSB acknowledges that the operator undertook substantial safety action to address its risk controls regarding in-flight fuel management on its Westwind fleet. Although not every item in the safety issue was specifically addressed, the overall level of action substantially reduced the risk of operations to remote islands and isolated aerodromes.
AO-2014-190-SI-03: The operator and air ambulance provider did not have a structured process in place to conduct pre-flight risk assessments for air ambulance tasks, nor was there any regulatory requirement for such a process.	No longer relevant.	The ATSB notes the operator and air ambulance provider both took safety action to reduce the risk of this safety issue, and the operator also undertook broader safety action in relation to hazard identification processes that also potentially reduced the risk associated with this safety issue (see safety issue AO-2014-190-SI-08). The ATSB also notes the operator ceased air ambulance operations with the air ambulance provider in mid-2010.

Safety issue	Status	Status justification
AO-2014-190-SI-04: The operator's risk controls did not provide assurance that the occupants on an air ambulance aircraft would be able to effectively respond in the event of a ditching or similar emergency. Specific examples included: > insufficient information provided during pre-flight demonstrations and the passenger safety brief card to demonstrate how to use a life jacket > limited procedures and guidance regarding the relative roles, responsibilities and required actions of flight crew and medical personnel during emergencies, particularly with regard to the evacuation of a patient > no practical training or demonstrations for medical personnel on how to use the safety equipment on board the aircraft > no designated location for a stretchered patient's life jacket > no formal, specific procedures and limited training on how to secure life rafts in an appropriate, readily accessible location prior to a ditching.	Adequately addressed.	The ATSB notes the safety action undertaken by the operator to improve its emergency procedures following the November 2009 accident reduced the risk of this safety issue. The ATSB also acknowledges that the air ambulance provider also took safety action to reduce the risk of this safety issue.
AO-2014-190-SI-05: Although the operator provided its flight crew with basic awareness training in crew resource management (CRM), it was limited in nature and did not ensure flight crew were provided with sufficient case studies and practical experience in applying relevant CRM techniques.	Adequately addressed.	The ATSB is satisfied that the action undertaken satisfactorily addressed this safety issue.
AO-2014-190-SI-06: The operator's application of its fatigue risk management system overemphasised the importance of scores obtained from a bio-mathematical model of fatigue (BMMF), and it did not have the appropriate expertise to understand the limitations and assumptions associated with the model. Overall, the operator did not have sufficient risk controls in addition to the BMMF to manage the duration and timing of duty, rest and standby periods.	Adequately addressed.	The ATSB notes the operator undertook several actions to address its risk controls regarding fatigue management on its Westwind fleet, and more broadly across its operations. Although not every aspect of the safety issue was specifically addressed, the overall level of action reduced the risk of this safety issue.

Safety issue	Status	Status justification
AO-2014-190-SI-07: Although the operator installed an enhanced ground proximity warning system (EGPWS) and traffic alert and collision avoidance system (TCAS) on VH-NGA in August 2009, it did not provide relevant flight crew with formal training on using these systems, or incorporate relevant changes into the aircraft's emergency procedures checklists.	Adequately addressed.	Given the aircraft was destroyed in the accident, the safety issue risk in relation to VH-NGA was no longer relevant. However, the ATSB is satisfied that the processes introduced by the operator satisfactorily reduced the risk of similar events in the future.
AO-2014-190-SI-08: Although the operator's safety management processes were improving, its processes for identifying hazards extensively relied on hazard and incident reporting, and it did not have adequate proactive and predictive processes in place. In addition, although the operator commenced air ambulance operations in 2002, and the extent of these operations had significantly increased since 2007, the operator had not conducted a formal or structured review of its risk controls for these operations.	Adequately addressed.	The ATSB is satisfied the safety action undertaken by the operator to improve its hazard identification processes following the November 2009 accident reduced the risk of this safety issue.
AO-2014-190-SI-09: The operator had not formally defined the roles and responsibilities of key positions involved in monitoring and managing flight operations, such as the standards manager for each fleet and the General Manager Flying Operations (Medivac and Charter).	Adequately addressed.	The ATSB is satisfied that the action undertaken satisfactorily addressed this safety issue.
AO-2014-190-SI-10: Although passenger-carrying charter flights to Australian remote islands were required to carry alternate fuel, there were no explicit fuel planning requirements for other types of passenger-carrying flights to remote islands. There were also no explicit Australian regulatory requirements for fuel planning of flights to isolated aerodromes. In addition, Australia generally had less conservative requirements than other countries regarding when a flight could be conducted without an alternate aerodrome.	Safety action still pending.	

Safety issue	Status	Status justification
AO-2014-190-SI-11: The available regulatory guidance on in-flight fuel management and on seeking and applying en route weather updates was too general and increased the risk of inconsistent in-flight fuel management and decisions to divert.	Safety action still pending.	
AO-2014-190-SI-12: Although air ambulance flights involved transporting passengers, in Australia they were classified as 'aerial work' rather than 'charter'. Consequently, they were subject to a lower level of regulatory requirements than other passenger-transport operations (including requirements for fuel planning flights to remote islands).	Safety action still pending.	
AO-2014-190-SI-13: Although the Civil Aviation Safety Authority (CASA) collected or had access to many types of information about a charter and/or aerial work operator, the information was not integrated to form a useful operations or safety profile of the operator. In addition, CASA's processes for obtaining information on the nature and extent of an operator's operations were limited and informal. These limitations reduced its ability to effectively prioritise surveillance activities.	Adequately addressed.	The ATSB is satisfied that CASA has undertaken action to address this issue since November 2009.
AO-2014-190-SI-14: The Civil Aviation Safety Authority's (CASA) procedures and guidance for scoping an audit included several important aspects, but it did not formally include the nature of the operator's activities, the inherent threats or hazards associated with those activities, and the risk controls that were important for managing those threats or hazards.	Adequately addressed.	The ATSB is satisfied that CASA has undertaken action to address this issue since November 2009.
AO-2014-190-SI-15: Consistent with widely-agreed safety science principles, the Civil Aviation Safety Authority's (CASA) approach to surveillance of larger charter operators had placed significant emphasis on systems-based audits. However, its implementation of this approach resulted in minimal emphasis on evaluating the actual conduct of line operations (or 'process in practice').	Adequately addressed.	The ATSB is satisfied that CASA has undertaken action to address this issue since November 2009.

Safety issue	Status	Status justification
AO-2014-190-SI-16: Guidance material associated with the FAID bio-mathematical model of fatigue did not provide information about the limitations of the model when applied to roster patterns involving minimal duty time or work in the previous seven days.	Adequately addressed.	The ATSB is satisfied that the safety action will reduce the risk associated with this safety issue.
AO-2016-157: Loss of control and collision with terrain involving Air Tractor Inc. AT-802A, VH-NIA, 33 km W of Narromine, New South Wales, 21 November 2016		
AO-2016-157-SI-01: The operator's documented procedure for company personnel to report accidents and incidents was in itself not sufficient to ensure that occurrences that had affected or had the potential to affect safety, were reported to management. This decreased the opportunity for the operator to identify potential operational risks and take appropriate action to minimise them.	Adequately addressed.	It appears that the operator is implementing structured change to operational processes. These changes are reportedly being embraced by operational personnel and supported by senior management.
AO-2015-066: Descent below minimum descent altitude involving a Boeing 737-300, VH-NLK, Kosrae International Airport, Federated States of Micronesia, 12 June 2015		
AO-2015-066-SI-01: The operator commenced regular public transport operations into Kosrae with the only instrument approach available for use being an offset procedure based on a non-precision navigation aid. The risk associated with this type of approach was amplified due to the need to use a 'dive and drive' style technique instead of a stable approach path, and that it required low-level circling manoeuvring from the instrument approach to align the aircraft with the runway. Furthermore, there was very high terrain in close proximity to the runway and the airport did not have a manned air traffic control tower. For this occurrence, the risk was further elevated as a result of the approach being conducted at night-time in poor weather conditions.	Adequately addressed.	The fitment of GPS navigation equipment and the training of flight crew in its use, as well as obtaining regulatory authorisation for the use of GPS-based instrument approach procedures, has enabled the operator to conduct runway-aligned stabilised approaches into Kosrae.

Safety issue	Status	Status justification
AO-2015-105: Collision with terrain involving Cessna 172, VH-ZEW, near Millbrook, Victoria, 8 September 2015		
AO-2015-105-SI-01: The lack of manufacturer (Cessna Aircraft Company) written advice, limitations, cautions or warnings (written or aural) about autopilot response to manual pilot control inputs meant that pilots may be unaware that their actions can lead to significant out of trim situations and associated aircraft control issues.	Safety action still pending.	
AO-2015-105-SI-02: The lack of manufacturer (Garmin) written advice, limitations, cautions or warnings (written or aural) about autopilot response to manual pilot control inputs meant that pilots may be unaware that their actions can lead to significant out of trim situations and associated aircraft control issues.	Safety action still pending.	
AI-2013-102: Building approval process for structures in the vicinity of Australian airports		
AI-2013-102-SI-01: The Department of Infrastructure, Regional Development and Cities adopted a prescriptive approach to the Hume City Council building application within the obstacle limitation area of Essendon Airport, which was in accordance with the process prescribed under the Airports (Protection of Airspace) Regulations 1996, but did not require the application of risk management principles for the department's consideration.	Safety action still pending.	

Table 8: Marine—Responses to safety issues identified in 2017–18

Safety issue	Status	Status justification
MO-2016-005: Grounding of *Bow Singapore*, Port Phillip Bay, Victoria, 19 August 2016		
MO-2016-005-SI-01: *Bow Singapore*'s planned maintenance system for the steering gear did not include or contain any schedules for detailed inspections or parts replacement.	Adequately addressed.	The action taken by Odfjell Ship Management will significantly reduce the likelihood of an unexpected steering gear component failure.
MO-2017-003: Loss of propulsion of the passenger cruise ship *Norwegian Star*, Bass Strait, 22 NM SW of Cape Liptrap, Victoria, 10 February 2017		
MO-2017-003-SI-01: The processes for monitoring the condition of the brushless exciter units' electrical insulation were ineffective in detecting deterioration prior to unit failure.	Safety action still pending.	

Table 9: Rail—Responses to safety issues identified in 2017–18

Safety issue	Status	Status justification
RO-2014-009: Near hit with detrained passengers on track at Kilbride, New South Wales, 22 May 2014		
RO-2014-009-SI-01: The crew of V938 detrained passengers onto the track near Kilbride without having arranged the required train protection with the Australian Rail Track Corporation (ARTC) Network Controller in accordance with the ARTC Network rules and procedures.	Adequately addressed.	The review of the risk with consideration of the organisation's risk profile is considered positive. The subsequent/additional controls serve to reinforce the requirements of the crew to ensure required train protection is in place.
RO-2014-009-SI-02: Key operational staff in NSW Trains and Sydney Trains continued to operate under RailCorp legacy systems, even though documented transitional arrangements had re-established lines of responsibility and authority.	Adequately addressed.	The review of operational interfaces by NSW Trains is considered appropriate. While the action plan from the review has not been reviewed by the ATSB, there is confidence in the organisation's action management system. The action to brief Sydney Trains' key operational staff in their roles and responsibilities is considered appropriate.
RO-2014-009-SI-03: The purpose of communication between key operational people was not always clearly stated nor understood, leading to misunderstandings between people.	Adequately addressed.	Reinforcing correct and effective communication procedures is an appropriate action.
RO-2014-009-SI-04: Rules and procedures for detrainment do not consider a priority option of moving the train to a station or platform.	Adequately addressed.	Updating flow charts and standard operating instructions to include an instruction to move a train to a platform when detrainment is required addresses this safety issue.

Safety issue	Status	Status justification
RO-2015-029: Derailment of grain train 9156 at Ouyen, Victoria, 29 December 2015		
RO-2015-029-SI-01: Asset management systems that were used to identify problematic levels of rail creep did not evaluate nor assess cumulative creep.	Adequately addressed.	The proactive safety action taken addresses the safety issue.
RO-2015-029-SI-02: Asset management systems used to identify problematic levels of rail creep did not correct for fixed points between creep monuments.	Adequately addressed.	The proactive safety action taken addresses the safety issue.
RO-2015-029-SI-03: There was no supplementary system of inspection that was effective in identifying rail creep in jointed track. The network placed a high reliance on the asset management system to initiate closer inspection of track potentially affected by creep.	Partially addressed.	The proactive safety action should improve the capabilities of maintenance personnel and, therefore, the effectiveness of inspection. However, there has been no significant documented enhancement in the scope of inspections of jointed track.
RO-2015-029-SI-04: There was an identified gap in the knowledge of track maintenance personnel that was probably the result of deficiencies in training and development. In addition, network standards for the assessment of track lateral stability, including creep management, provided limited information and tools for maintenance personnel.	Adequately addressed.	The proactive safety action should address the safety issue.
RO-2016-002: Derailment of MTM train TD1064 near Rushall Station in Fitzroy North, Melbourne, Victoria, 6 February 2016		
RO-2016-002-SI-01: The maintenance of rail lubricators had become less effective in the months leading up to the derailment. This work was being transferred from contractors to internal Metro Trains Melbourne (MTM) staff and the transition was not adequately managed.	Adequately addressed.	The safety action taken by MTM should address the safety issue.
RO-2016-002-SI-02: The network's track geometry standard did not include any specific requirement to limit a localised lateral angular discontinuity in rail line at a mechanical joint.	Partially addressed.	The safety action taken by MTM, in combination with other actions pertaining to track maintenance, should reduce risk associated with the safety issue.
RO-2016-002-SI-03: The positioning of the rail lubricators at this and several other locations on the network was not consistent with Metro Trains Melbourne (MTM) guidelines and probably reduced their effectiveness.	Adequately addressed.	The safety action taken by MTM should address the safety issue.

Safety issue	Status	Status justification
RO-2016-002-SI-04: The network's track geometry standards were probably unsuitable for small-radius Broad-Gauge curves. A combination of track geometry irregularities had increased the probability of flange-climb at several locations on the small-radius Rushall curve.	Safety action still pending.	The safety action taken by MTM in combination with other actions pertaining to track maintenance should reduce risk associated with the safety issue.
RO-2016-002-SI-05: Track geometry through the Rushall curve was not managed in accordance with Metro Trains Melbourne (MTM) network standards. A wide-gauge 'A' fault was not rectified in the field despite being closed-out on the asset management system.	Adequately addressed.	The safety action taken by MTM should address the safety issue.
RO-2016-002-SI-06: There was no network standard that directly dealt with increased derailment risk on small-radius curves.	Partially addressed.	The safety action taken by MTM in combination with other actions pertaining to track maintenance and rail lubrication should reduce flange-climb risk.
RO-2016-002-SI-07: The functionality of the digital train radio system (DTRS) did not allow an emergency call to override an initial lower-priority call.	Safety action still pending.	The safety action taken by MTM should reduce risk associated with the safety issue. Improved DTRS functionality that provides automatic override of a lower-priority call would further reduce risk.
RO-2016-004: Grain train 5422N parting and derailment, Parkville, New South Wales, 6 April 2016		
RO-2016-004-SI-01: The presence of the earlier design of yoke on wagon NGKF35898X was not detected during preventative maintenance activities.	Partially addressed.	The requirement to replace the yoke already existed. This action only reinforces that requirement, however, there is no action for assurance that it is being completed, such as wagon maintainers providing a completed list of wagons that have had their yokes changed.

SAFETY ACTIONS

Table 10: Number of safety actions released in 2017–18

Safety action type	Aviation	Marine	Rail	Total
Proactive safety action[1]	23	1	19	43
Safety advisory notice	1	0	0	1
Safety recommendation	9	2	0	11
Total	**33**	**3**	**19**	**55**

ATSB RECOMMENDATIONS CLOSED IN 2017–18

Aviation—ATSB recommendations closed in 2017–18

There were no aviation safety recommendations closed in 2017–18.

Table 11: Marine—ATSB recommendations closed in 2017–18

Investigation	MO-2016-001: Breakaway of *Spirit of Tasmania II*, Station Pier, Port Melbourne, Victoria, 13 January 2016
Safety issue	While TT-Line Company's standard mooring line pattern for ships at Station Pier had been successfully used for many years, the breakaway indicated the risk could have been further reduced to better prepare for such unusual circumstances.
Number	MO-2016-001-SR-005
Organisation	TT-Line Company
Recommendation	The ATSB recommends that TT-Line Company take necessary action to adequately address the safety issue following the completion of its mooring analysis.
Released	11 May 2017
Final action	21 August 2017

3 Only includes proactive safety action taken by industry linked to an ATSB-identified safety issue.

Final action	Subsequent to issuance of the safety recommendation, TT-Line advised the ATSB that the company had continued to assess and improve weather response actions for its ships berthed at Station Pier. The external consultant's mooring system analysis report had been received, leading to changes in mooring equipment and its usage, alterations to related equipment and machinery operations and settings, and amendments to mooring and weather-related procedures while the ship was moored. These changes will reduce the likelihood of one of the company's ships breaking away from the berth under prevailing and reasonably expected weather conditions. The company reports that records show the updated protocols have been successfully enacted on several recent occasions, including for thunderstorm warnings. TT-Line further advised that the company will continue to monitor and improve the effectiveness of mooring its ships.

Table 12: Rail—ATSB recommendations closed in 2017–18

Investigation	**RO-2015-009: Signals passed at danger by train 1240 at Marshall (Geelong), Victoria, 29 May 2015**
Safety issue	The rule describing the required driver response to a distant signal at caution in a two-position signalling system did not fully reflect the signalling system design principles.
Number	RO-2015-009-SR-029
Organisation	V/Line Regional Network and Access
Recommendation	The ATSB recommends that V/Line amends the rule for the required driver response to a distant signal at caution. The amendment should bring the rule into alignment with the signalling system design principles.
Released	12 December 2016
Final action	20 September 2017
Final action	V/Line has amended Rule 5 Section 2 (Distant Signals)

SAFETY RECOMMENDATIONS RELEASED IN 2017–18

Table 13: Aviation—Safety recommendations released in 2017–18

Investigation	AE-2014-054: Assistance to Malaysian Ministry of Transport in support of missing Malaysia Airlines flight MH370, 7 March 2014 UTC
Safety issue	There is relatively limited public and official information available about the process and outcomes of some searches. It is not an explicit part of the ICAO Annex 13 guidelines for inclusion in an accident investigation report. Similarly, there is no Annex 12 requirement to publish or analyse search information. This limits the ability for researchers to determine the factors that help or hinder a search.
Number	AE-2014-054-SR-046
Organisation	International Civil Aviation Organization (ICAO)
Recommendation	The ATSB recommends that ICAO encourages or mandates the publication of relevant information about search, rescue and recovery operations for the benefit of future research.
Released	3 October 2017

Investigation	AE-2014-054: Assistance to Malaysian Ministry of Transport in support of missing Malaysia Airlines flight MH370, 7 March 2014 UTC
Safety issue	There is relatively limited public and official information available about the process and outcomes of some searches. It is not an explicit part of the ICAO Annex 13 guidelines for inclusion in an accident investigation report. Similarly, there is no Annex 12 requirement to publish or analyse search information. This limits the ability for researchers to determine the factors that help or hinder a search.
Number	AE-2014-054-SR-047
Organisation	ICAO Annex 13 investigation bodies
Recommendation	The ATSB recommends that ICAO Annex 13 investigation bodies should endeavour to publish relevant information about search, rescue and recovery operations for the benefit of future research.
Released	3 October 2017

Investigation	AE-2014-054: Assistance to Malaysian Ministry of Transport in support of missing Malaysia Airlines flight MH370, 7 March 2014 UTC
Safety issue	While there has been significant enhancements in the tracking of commercial aircraft in recent years, there are some limitations to the improvements. The ICAO-mandated 15-minute position tracking interval for existing aircraft may not reduce a potential search area enough to ensure that survivors and wreckage are located within a reasonable timeframe.
Number	AE-2014-054-SR-048
Organisation	State regulators
Recommendation	The ATSB recommends that states confirm sufficient mechanisms are in place to ensure a rapid detection of, and appropriate response to, the loss of aircraft position or contact throughout all areas of operation.
Released	3 October 2017

Investigation	AE-2014-054: Assistance to Malaysian Ministry of Transport in support of missing Malaysia Airlines flight MH370, 7 March 2014 UTC
Safety issue	While there has been significant enhancements in the tracking of commercial aircraft in recent years, there are some limitations to the improvements. The ICAO-mandated 15-minute position tracking interval for existing aircraft may not reduce a potential search area enough to ensure that survivors and wreckage are located within a reasonable timeframe.
Number	AE-2014-054-SR-049
Organisation	Aircraft operators, aircraft manufacturers and aircraft equipment manufacturers.
Recommendation	The ATSB recommends that aircraft operators, aircraft manufacturers and aircraft equipment manufacturers investigate ways to provide high-rate and/or automatically triggered global position tracking in existing and future fleets.
Released	3 October 2017

Investigation	AO-2014-190: Further investigation of AO-2009-072 ditching—IAI Westwind 1124A, VH-NGA, Norfolk Island, 18 November 2009
Safety issue	Although passenger-carrying charter flights to Australian remote islands were required to carry alternate fuel, there were no explicit fuel planning requirements for other types of passenger-carrying flights to remote islands. There were also no explicit Australian regulatory requirements for fuel planning of flights to isolated aerodromes. In addition, Australia generally had less conservative requirements than other countries regarding when a flight could be conducted without an alternate aerodrome.
Number	AO-2014-190-SR-042
Organisation	Civil Aviation Safety Authority (CASA)
Recommendation	The ATSB recommends that CASA continues its work in reviewing fuel planning requirements and guidance, and addresses the limitations associated with requirements and guidance for fuel planning of flights for all types of passenger operations to isolated aerodromes in Australia and internationally.
Released	23 November 2017

Investigation	AO-2014-190: Further investigation of AO-2009-072 ditching—IAI Westwind 1124A, VH-NGA, Norfolk Island, 18 November 2009
Safety issue	The available regulatory guidance on in-flight fuel management and seeking and applying en route weather updates was too general and increased the risk of inconsistent in-flight fuel management and decisions to divert.
Number	AO-2014-190-SR-043
Organisation	Civil Aviation Safety Authority (CASA)
Recommendation	The ATSB recommends that CASA continues its work to address the limitations associated with the requirements and guidance for in-flight fuel management.
Released	23 November 2017

Investigation	AO-2014-190: Further investigation of AO-2009-072 ditching—IAI Westwind 1124A, VH-NGA, Norfolk Island, 18 November 2009
Safety issue	Although air ambulance flights involved transporting passengers, in Australia they were classified as 'aerial work' rather than as 'charter' flights. Consequently, they were subject to a lower level of regulatory requirements than other passenger-transport operations (in terms of requirements for fuel planning of flights to remote islands).
Number	AO-2014-190-SR-044
Organisation	Civil Aviation Safety Authority (CASA)
Recommendation	The ATSB recommends that CASA continue reviewing the requirements for air ambulance/medical transport operations and addresses the limitations associated with the current classification of these flights as 'aerial work' rather than as 'air transport'.
Released	23 November 2017

Investigation	AO-2015-105: Collision with terrain involving Cessna 172, VH-ZEW, near Millbrook, Victoria, 8 September 2015
Safety issue	The lack of manufacturer advice, limitations, cautions or warnings (written or aural) about autopilot response to manual pilot control inputs meant that pilots may have be unaware that their actions could lead to significant out of trim situations and associated aircraft control issues.
Number	AO-2015-105-SR-004
Organisation	Cessna Aircraft Company
Recommendation	The ATSB recommends that the Cessna Aircraft Company, in conjunction with Garmin, implement changes to their operations manuals so that all aircraft types fitted with their autopilots have the limitations, cautions and warnings applied consistently.
Released	15 January 2018

Investigation	AO-2015-105: Collision with terrain involving Cessna 172, VH-ZEW, near Millbrook, Victoria, 8 September 2015
Safety issue	The lack of manufacturer advice, limitations, cautions or warnings (written or aural) about autopilot response to manual pilot control inputs meant that pilots may have be unaware that their actions could lead to significant out of trim situations and associated aircraft control issues.
Number	AO-2015-105-SR-006
Organisation	Garmin
Recommendation	The ATSB recommends that Garmin, in conjunction with aircraft manufacturers, takes action to ensure that all aircraft types fitted with their autopilots have the limitations, cautions and warnings documented in the aircraft's operating manuals. Further, the ATSB recommends that Garmin consider the use of audible warnings to enhance pilots' awareness of mistrim situations brought on by the autopilot system.
Released	17 April 2018

Table 14: Marine—Safety recommendations released in 2017–18

Investigation	MO-2017-003: Loss of propulsion of the passenger cruise ship *Norwegian Star* 10 February 2017
Safety issue	The processes for monitoring the condition of the brushless exciter units' electrical insulation were ineffective in detecting deterioration prior to unit failure.
Number	MO-2017-003-SR-001
Organisation	Norwegian Cruise Line Holdings (NCLH)
Recommendation	The ATSB recommends that NCLH reviews the shipboard processes for monitoring the condition of the brushless exciter units used in Azipod installations. The review should incorporate findings from the examination of the failed equipment following the dry docking of the *Norwegian Star*.
Released	21 May 2018

Investigation	MO-2017-003: Loss of propulsion of the passenger cruise ship *Norwegian Star*, 10 February 2017
Safety issue	The processes for monitoring the condition of the brushless exciter units' electrical insulation were ineffective in detecting deterioration prior to unit failure.
Number	MO-2017-003-SR-002
Organisation	ABB Oy
Recommendation	The ATSB recommends that ABB Oy reviews the manufacturer's instructions for monitoring the condition of the brushless exciter units used in Azipod installations. The review should incorporate findings from the examination of the failed equipment following the dry docking of the *Norwegian Star*.
Released	21 May 2018

Rail—Safety recommendations released in 2017–18

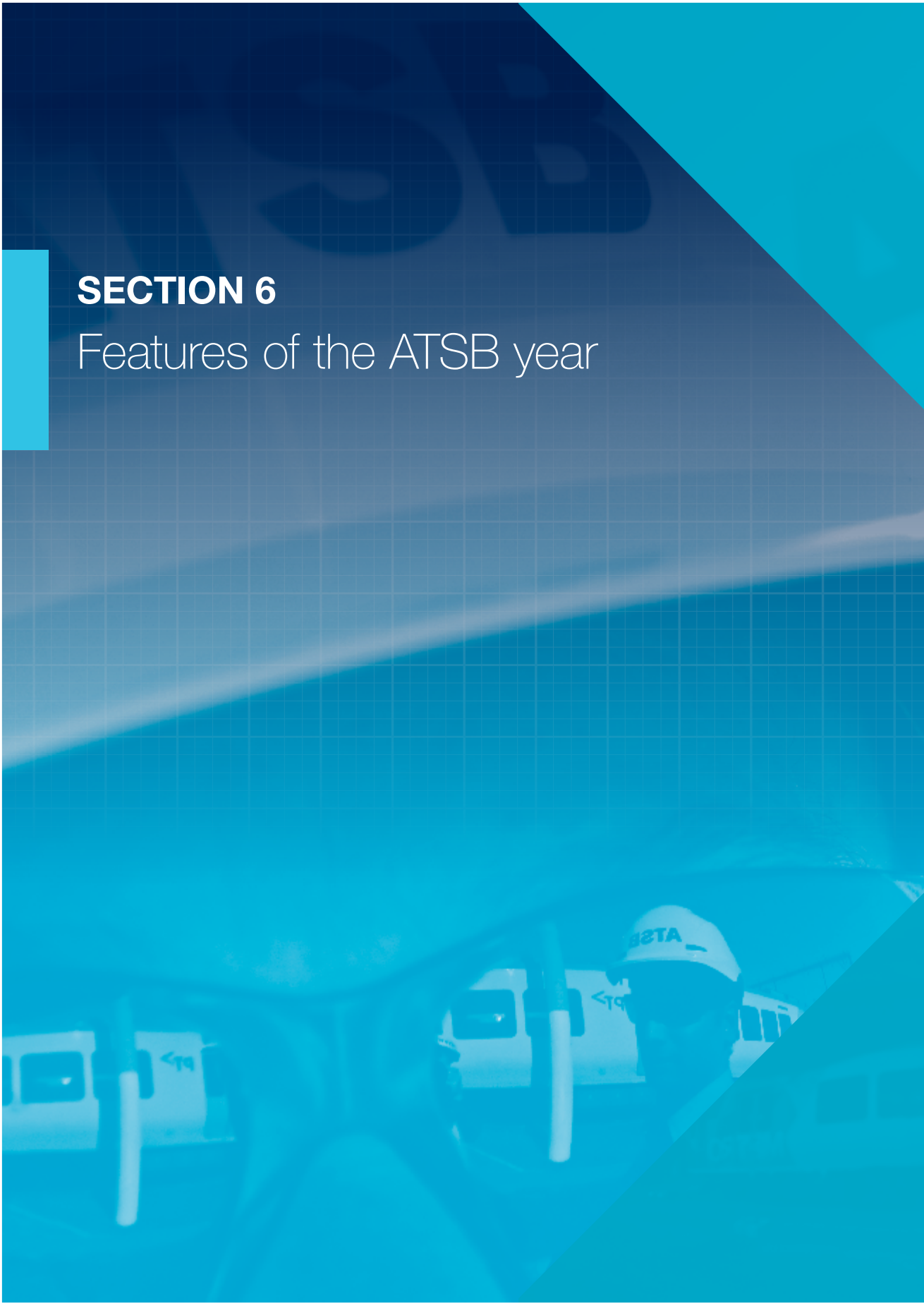
There were no rail safety recommendations released in 2017–18.

Table 15: Safety advisory notices released in 2017–18

Investigation	AO-2018-022: Collision with water involving twin-engine EC135 helicopter, VH-ZGA, 35 km NW of Port Hedland, Western Australia, 14 March 2018
Safety issue	Helicopter underwater escape training
Number	AO-2018-022-SAN-001
Organisations	All overwater helicopter operators
Safety advisory notice	The ATSB advises helicopter operators involved in overwater operations of the importance of undertaking regular helicopter underwater escape training (HUET) for all crew and regular passengers to increase their survivability in the event of an in-water accident or ditching.
Released	3 May 2018


ATSB
ATSB

SECTION 6
Features of the ATSB year



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Over the course of the year, the ATSB undertakes a number of activities that improve our work processes and our workplace culture, and diversify the means by which make our contribution to transport safety. Below are some highlights from the 2017–18 year.

Feature

AVIATION SAFETY VISIONARY DR ROB LEE AO HONOURED

The ATSB paid tribute to aviation safety visionary Dr Rob Lee AO through the dedication of its executive board room last December.

From 1989 until 1999, Dr Lee led the ATSB's predecessor—the Bureau of Air Safety Investigation (BASI)—transforming it from a purely reactive investigative agency to an innovative multi-skilled organisation that concentrated equally on proactive accident prevention and safety enhancement.

Dr Lee's expertise was in high demand across multiple national and international investigations, including into the Gulf Air A320 accident in Bahrain in August 2000, the Singapore Airlines B747 accident in Taipei in October 2000, and the mid-air collision between a B757 and a TU154M over Ueberlingen, Germany, in 2002.

He served as a member of the International Society of Air Safety Investigators (ISASI), the European Association for Aviation Psychology (EAAP), and the Australasian Society of Aerospace Medicine (ASAM). He was also Vice-President of the Australian Aviation Psychology Association (AAvPA).

Dr Lee was recognised with many distinguished honours nationally and internationally during his career. In the 2012 Queen's Birthday Honours, Dr Lee was made an Officer in the General Division of the Order of Australia (AO) for 'distinguished service to the aviation industry, to the development of air safety and accident investigation standards, and to national and international professional associations'.

The naming ceremony for the ATSB's Dr Rob Lee Room was attended by Dr Lee and his family, as well as a number of distinguished guests. Following a long illness, Dr Lee passed away peacefully on Friday morning, 27 April 2018.

ATSB Chief Commissioner Greg Hood said Dr Lee was a visionary who made an enormous contribution to the safety of the aviation industry, both here and overseas: 'He was a pioneer in ensuring that human factors became a key part of international aviation safety investigations. His passing was an enormous loss to the world; however, he leaves an enormous legacy in integrated safety systems and human factors.'

Figure 13: Chief Commissioner Greg Hood with Dr Rob Lee AO in the Rob Lee Meeting Room

Source: ATSB

Feature

DON'T PUSH IT, LAND IT—WHEN IT'S NOT RIGHT IN FLIGHT

The ATSB launched safety messaging in May 2018 encouraging helicopter pilots to land as soon as safe if they encounter an abnormal situation while in flight.

Jointly developed and supported by the Civil Aviation Safety Authority (CASA) and the Australian Helicopter Industry Association (AHIA), 'Don't push it, land it' urged all helicopter pilots, no matter their experience or the type of helicopter they fly, to take advantage of their helicopter's unique ability to land almost anywhere if things aren't quite right in flight.

'If you're faced with deteriorating weather or if something just doesn't feel right, don't push it. Make a precautionary landing,' ATSB Chief Commissioner Greg Hood said. 'If you do decide to push on, it could be the beginning of an accident sequence.'

While a helipad or airport may not always be in the immediate vicinity for a pilot to land at, CASA supports and encourages pilots to make a precautionary landing anywhere, when it is safe to do so.

CASA's Director of Aviation Safety, Shane Carmody said 'Don't push it, land it' highlights the need to consider making a precautionary landing as safe and professional airmanship.

'We have seen a number of fatal accidents where, had the pilot decided to land, the accident may not have occurred,' Mr Carmody said. 'CASA will not take any disciplinary action against a pilot if they need to make a precautionary landing, provided it is performed in good faith, as safely as possible, and it did not endanger anyone.'

Echoing the messaging of the 'Land and Live' initiative, developed by the Helicopter Association International (HAI) in 2014 for North America, 'Don't push it, land it' aims to reduce the rate of avoidable helicopter accidents while extending the safety messaging to all fixed-wing pilots at the same time.

President of the AHIA, Peter Crook, said pressures and fear of scrutiny are often the impetus for pilots to 'push on' which can see them, and often their passengers, fly into a situation they are not comfortable with.

'Speak up and make a 'PAN' call to air traffic control,' Mr Crook said. 'Air traffic controllers and other pilots are there to help and can provide you with information to help make informed decisions to land your helicopter.

'And, if you're planning to make a precautionary landing and you have an emergency locator transmitter on board, activate it too. You can always turn it off when you're safely on the ground. All you have to do is give the Australian Maritime Safety Authority a call to let them know that everything is ok. I guarantee it will be the best phone call they'll get all day.'

Figure 14: Don't push it, land it banner

Source: ATSB

Feature

THE ATSB INITIATES A NEW SAFETY PRODUCT

The ATSB launched a new safety product in April 2018 that describes transport safety occurrences with the aim of maximising safety outcomes, even in the absence of an investigation.

Every year, the ATSB receives up to 17,000 notifications of safety incidents and accidents in the aviation, marine and rail sectors. They range in significance, from a major accident with loss of life, to incidents with minimal or no damage.

The vast majority of the reported occurrences do not result in an investigation. Instead, information about the occurrences is retained in the ATSB's databases, which provide a detailed overview of transport safety in Australia that is used for safety data recording, analysis and research.

The ATSB is now using this information to produce **occurrence briefs**—concise reports that detail the facts surrounding an occurrence, as provided in the initial notification and from any follow-up information.

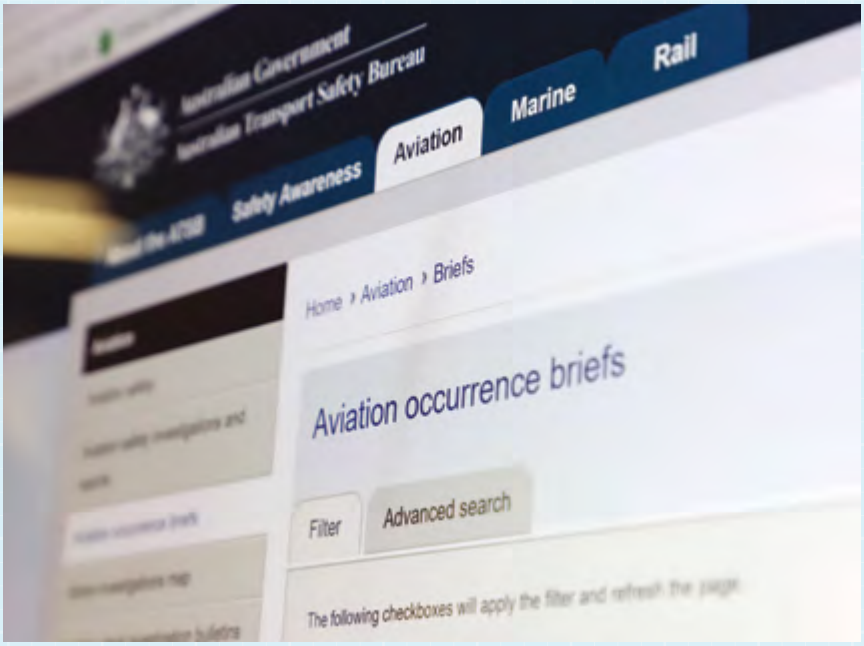
ATSB Chief Commissioner Greg Hood said occurrence briefs provide additional opportunities to learn from the experiences of others.

'The Australian transport industry has a very good reporting culture,' Mr Hood said. 'While the vast majority of the notifications submitted do not warrant a full ATSB investigation, many of them can still yield useful safety messages.

'These new occurrence briefs will allow for greater industry awareness of potential safety issues and possible safety actions.'

Because the briefs are not investigations under the ***Transport Safety Investigation Act 2003***, the information within them is de-identified. The safety messages are drawn from the details provided in the initial notifications.

Figure 15: Aviation occurrence briefs web page



Source: ATSB

Feature

THE ATSB RECOGNISES THE ACHIEVEMENTS OF WOMEN ON INTERNATIONAL WOMEN'S DAY

On 8 March 2018, the ATSB recognised International Women's Day as an opportunity to celebrate the cultural, social, economic and political achievements of women and progress for gender parity.

This is particularly important in the traditionally male sector of science, technology, engineering and maths (STEM), which is the foundation skill set for many ATSB Transport Safety Investigators.

ATSB Transport Safety Investigator Sarah Fien said her experiences working in STEM-related fields has brought her immense satisfaction.

'There are so many professions that require an understanding of STEM. You never know where it is going to take you,' Ms Fien said. 'Developing analytical and enquiring thought processes can be helpful in a wide variety of careers.'

Before starting at the ATSB, Sarah worked in the IT industry as a programmer and project manager, and as a flight instructor and charter pilot, and competed in aircraft aerobatics.

'STEM opens up a world of possibilities. Work that is interesting and challenging can drive a purposeful life,' she said.

Working as a Transport Safety Investigator provides Sarah with an opportunity to use a range of her STEM-related skills.

'An investigation I found personally rewarding was a **runway excursion involving a Cessna 550, VH-FGK, at Lismore Airport, New South Wales, 25 September 2015**. This provided an opportunity for me to apply my maths programming skills and undertake hands-on data analysis,' said Ms Fien. 'It was satisfying to be able to use my skill set to determine that the parking brake had remained engaged for the take-off run, which reduced acceleration and caused a nose-down moment that prevented the aircraft rotating.'

ATSB Chief Commissioner Greg Hood said International Women's Day provided an opportunity to pause and take stock of progress in gender parity.

'The ATSB is proactively working to build its gender balance,' said Mr Hood. 'Close to 40 per cent of our workforce is female and many of our female staff members, including those working in our operational support teams, are part of our leadership team. I am also particularly pleased to have the support of a very experienced female ATSB Commissioner in Carolyn Walsh,' Mr Hood said.

Figure 16: Transport safety investigators examine aircraft instruments

Source: ATSB

Feature

THE ATSB COMMISSIONERS REAPPOINTED

In 2017–18, the ATSB welcomed the reappointment of Commissioners Ms Carolyn Walsh, Mr Chris Manning and Mr Noel Hart.

The ATSB's Chief Commissioner Greg Hood said the reappointments by the portfolio minister were excellent news, both for ATSB and for transport safety in Australia.

'Ms Walsh has over 30 years' experience in policy development, regulation and safety management at both the Commonwealth and state levels,' Mr Hood said. 'She has 15 years' experience in the transport sector, initially as Executive Director of Strategy in the New South Wales Office of the Coordinator General of Rail, as Chief Executive of the New South Wales Independent Transport Safety and Reliability Regulator, and more recently as Chair of the National Transport Commission.'

Ms Walsh has specialist expertise in transport safety, occupational health and safety, risk management and the regulatory framework governing transport operations in Australia.

With over 40 years' experience in the aviation industry, Mr Manning was first appointed as a Commissioner of the ATSB in March 2015. In the early 1970s, Mr Manning was an air traffic controller and then became a pilot for Qantas from 1975 until 2008, where he held the position of Chief Pilot and Group General Manager Flight Operations.

'Mr Manning flew several Boeing types, gaining a B767 command in 1989,' Mr Hood said. 'He was a check and training captain throughout the 1990s and was president of the Australian and International Pilots' Association from 1999 until 2002.'

Commissioner Hart was first appointed to the ATSB in July 2009.

He has over 40 years' experience in the shipping, oil and gas industries. His qualifications include a Master Mariner Class One qualification, and he holds an MBA. He has 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 that position he was responsible for the safe shipping of natural gas from north-western Australia to Asian and other global customers.

He has been Chairman of Maritime Industry Australia Ltd, Australia's peak maritime association, since 2008.

'His maritime knowledge and experience are well established, and his time with the ATSB has not only provided him with important insights into the other modes of transport, but has also enabled him to positively contribute to investigations in the aviation and rail sectors.'

Mr Hood said the work of all three Commissioners was exemplary: 'We're fortunate to have them working with us to make transport in Australia safer.'

More information on the ATSB's Commissioners can be **found here**.

Feature

SAFETY ADVISORY NOTICE ISSUED FOR REGULAR HELICOPTER UNDERWATER ESCAPE TRAINING

The ATSB contacted all helicopter operators conducting overwater operations in May 2018, informing them of a new safety advisory notice (SAN) (**SAN AO-2018-022 SAN-001**).

The SAN advised the importance of frequent helicopter underwater escape training (HUET) for aircrew and regular passengers to increase survivability of an in-water accident or ditching.

The SAN was issued in light of the initial investigation of a fatal collision with water of a twin-engine Eurocopter EC135 helicopter, registered VH-ZGA, north-west of Port Hedland, Western Australia, on 14 March 2018. A preliminary report into the investigation was released today.

Examination of the helicopter operator's records revealed the deceased pilot, who was recently employed by the operator, had not undertaken HUET for nine years. The helicopter operator normally required company pilots to complete a HUET course every three years.

HUET involves a replica of a helicopter cabin and fuselage being lowered into a swimming pool and rolled, inverted, to simulate a crash situation. During the training students practise bracing for impact, identifying primary and secondary exit points, escaping the helicopter and surfacing techniques.

ATSB Executive Director, Transport Safety, Mr Nat Nagy, said that frequent underwater escape training is an important factor in increasing the survivability of an in-water accident.

'The ATSB strongly recommends that aircrew and regular passengers on these sorts of operations receive training in underwater escape to increase survivability in the event of a ditching such as this one,' Mr Nagy said.

Figure 17: Helicopter Underwater Escape Training (HUET) device

Source: Toll Helicopters

Feature

BRINGING EXPERTISE TOGETHER

The biennial Safeskies conference is regarded as one of the pre-eminent events on the Australasian aviation safety calendar. Held in Canberra, it brings together aviation industry leaders and safety professionals from Australia and the Asia–Pacific region for a diverse program aimed at encouraging best practice in aviation safety. Investigators, regulators, civil and military aviation operators, and representatives from governments and academia attend to meet, share ideas and hear from national and international speakers, each of them experts in their respective fields.

In 2017, the ATSB sponsored four regional participants to attend that year's Safeskies conference. Two visitors from the Indonesian National Transportation Safety Committee (NTSC) and two from the Papua New Guinea Accident Investigation Commission (AIC) travelled to Canberra to take part in the conference. The NTSC and the AIC are counterpart agencies to the ATSB, and the organisations have previously collaborated on investigations and shared resources. The support for the visitors' participation in Safeskies was made possible by overseas development aid funding from the Australian Department of Foreign Affairs and Trade.

ATSB Chief Commissioner Greg Hood said that participation in Safeskies 2017 was a valuable opportunity for professional development, not only for the officers from the NTSC and AIC, but for everyone. 'Bringing together investigators from different organisations and countries is an important way of sharing information and experiences. This gathering of colleagues adds to everybody's professional knowledge and understanding, both from the formal proceedings and from the informal meetings with aviation safety experts from around Australia and the region. It gives all the attendees a good appreciation of current transport safety issues and responses.'

'Every participant brings their own unique experiences and perspective to the table,' Mr Hood said. 'By sharing what they've seen and what they've done and what they've thought, everyone comes away from these events better-informed about challenges they may have to face and issues they may have to deal with. Discussions are instigated at Safeskies which can take us to invaluable new insights, with tremendous benefits to transportation safety.'

The ATSB has a well-established history of engagement within the Asia–Pacific region, with specific programs of cooperation with the NTSC and PNG AIC. Investigators from Indonesia have enjoyed placements in the ATSB offices in Canberra, while an ATSB investigator is currently on secondment to Papua New Guinea. ATSB investigators have travelled to Indonesia and Papua New Guinea to contribute to investigations.

'It's this engagement and willingness by all the agencies to share our different experiences and insights that is helping to make transportation in our region safer,' said Mr Hood.

Feature

SUCCESSFUL ATSB RECRUITMENT DRIVE

In 2017–18, the ATSB embarked on its largest recruitment campaign since becoming an independent statutory authority in July 2009.

This process sought to bring more Transport Safety Investigators (TSIs) on board to strengthen the ATSB's capabilities in a range of areas.

Applicants came from a variety of backgrounds, including the aviation, maritime and rail industries, academia, the Defence Force, and government. Applicants brought expertise in a range of fields, including human factors, operations, licensed aircraft mechanical engineering and data science.

The recruitment drive examined suitability across a range of skills in addition to their specialist knowledge.

In the course of their investigation activities, TSIs are required to be ready to deploy at any time of the day or night, 365 days a year, in any weather conditions, to any serious incident or accident across Australia, and sometimes internationally.

TSIs are also expected to contribute to the ATSB's renewed focus on data recording, analysis and research, and take a leading role in raising industry and community safety awareness through a range of education initiatives.

Accordingly, they must be able to demonstrate personnel management and leadership skills, project management, and analytical and written skills, as well an ongoing commitment to self-development and the maintenance of industry awareness.

As a result of the drive, the ATSB gained 13 new TSIs, including four women.

ATSB Chief Commissioner Greg Hood said the agency is proactively working to build its gender balance. 'We currently have 12 established female Transport Safety Investigators and many of our female staff members are part of our leadership team.

'It has been well established that a diverse workplace is critical to the performance of any organisation and achieving gender diversity within a workplace can encourage innovation and, therefore, a more holistic analysis of issues, which in turn leads to improved decision-making,' said Mr Hood.

'All our TSIs are not only extremely capable, but are also committed, professional and dedicated—always seeking ways to improve transport safety. It is truly the most remarkable workforce I have had the privilege of leading.'

Feature

THE ATSB NATIONAL RAIL SAFETY INVESTIGATOR

At midnight on 30 June 2017, the ATSB became the single national rail safety investigator for all states and territories in Australia.

Following this key milestone, the ATSB made a number of advancements in rail investigation, including through the signing of a memorandum of understanding with the national regulator, the Office of the National Rail Safety Regulator (ONRSR), for the sharing of rail safety data.

The ATSB also created service provider agreements with the Queensland, South Australia and Western Australian governments for delivery of rail safety investigations in these states.

In New South Wales and Victoria, the ATSB worked in close collaboration with the two state-based no-blame rail investigation agencies—the New South Wales Office of Transport Safety Investigations (OTSI) and the Victorian Chief Investigator, Transport Safety (CITS). OTSI and CITS have conducted a number of rail investigations the behalf of the ATSB under the *Transport Safety Investigation Act 2003*.

In addition to establishing itself as the national rail safety investigator, the ATSB is an active participant in the rail sector.

In May 2018, ATSB Executive Director, Transport Safety, Mr Nat Nagy, spoke at the Rail Industry Safety and Standards Board (RISSB) Rail Safety Conference in Sydney. The presentation gave attendees background information on the ATSB, insights into how it conducts its investigations and examples of how industry and the ATSB could work together in the future.

ATSB Director, Transport Safety, Stuart Godley and Transport Safety Investigator Scott Younes also attended a rail data workshop in Sydney to discuss future reporting requirements and data needs with industry, ONRSR, RISSB and the Australasian Railway Association.

The workshop looked at issues including what types of occurrences currently need reporting under the existing occurrence categories.

Mr Nagy said proactive engagement with the rail industry was critical to delivering safety outcomes. 'While our investigations are independent, our stakeholder relationships are ultimately what drives safety outcomes, as we all work together towards the common goal of the safest possible transport system.'

This extends to the international transport system as well. As part of the Australian Government's Indonesia Transport Safety Assistance Package (ITSAP), ATSB Manager, International, Dr Richard Batt, along with instructors from RISSB, conducted a rail safety investigation training course in Bandung, Indonesia. The course is part of a program of cooperation and capability building between the ATSB and the National Transportation Safety Committee (NTSC) of Indonesia.

Feature

THE ATSB TEACHES A MARINE SAFETY INVESTIGATION COURSE IN JAKARTA

Two senior ATSB marine investigators travelled to Jakarta in November 2017 to deliver a Marine Safety Investigation Course (MSIC) to their counterparts in Indonesia's National Transportation Safety Committee (NTSC) and to representatives from the Indonesian maritime industry.

ATSB Manager of International, Dr Richard Batt, said the course was an example of the ATSB's close collaboration with its counterpart in Indonesia, a relationship which is of significant benefit to both agencies.

'This is the second MSIC we've provided to our colleagues in Indonesia,' Dr Batt said, 'and, once again, it's received a very positive reception.'

The ATSB investigators, Mike Hooley and Tristan Shandy, presented to 25 attendees. Over the course of three days, they gave instruction on marine safety investigations and the casualty investigation code, including techniques in interviewing and analysis.

The course is part of the ongoing Indonesia Transport Safety Assistance Package (ITSAP). ITSAP was developed between Australia and the Government of Indonesia to address key Indonesian transport safety priorities. The main elements of the ATSB's contribution to the program have been to deliver training and support for investigators from the ATSB's Indonesian counterpart agency, the NTSC.

This has included the ATSB providing staff dedicated to various capability-building projects, funding ATSB training courses in Indonesia and Australia, and opportunities for aviation, marine and rail investigators to work with their ATSB counterparts.

The cooperation between the ATSB and the NTSC is one of the key elements in ensuring lasting transportation safety for the people of Indonesia, and Australian travellers to Indonesia.

'We're working together to build a safer transport sphere throughout the region,' Dr Batt said.

Figure 18: The ATSB delivering a Marine Safety Investigation Course in Indonesia

Source: ATSB

Feature

THE ATSB'S CONTRIBUTION TO CHARITABLE CAUSES

The ATSB continued its tradition of contributing to charitable causes during 2017–18, including through the annual Vinnies CEO Sleepout.

The 2018 Canberra/Goulburn Vinnies CEO Sleepout took place on 21 June at the National Museum in Acton, ACT.

ATSB Chief Commissioner and CEO Greg Hood again slept without shelter on one of the longest nights of the year with more than 140 other leaders in business, community and government to help change the lives of Australians experiencing homelessness. It was also one of the coldest nights, with temperatures dropping to minus 4.7 degrees.

Mr Hood was able to raise $20,264 to be used to help break the devastating cycle of homelessness.

Mr Hood said he was shocked to learn the sobering statistics when he first participated in the event last year.

'Here in the national capital, more than 1,700 people face homelessness each day, including an estimated 289 children,' he said. 'Nationally, the figure is more than 8,000 people on the streets.'

The sleepout is the largest source of funding for the St Vincent De Paul Society's homeless services.

The night is an experiential, no-frills affair. CEOs are given nothing more than a beanie, a sheet of cardboard and a cup of soup, and are responsible for finding a place to bed down for the night. The event is an educational experience that takes the CEOs on a journey and aims to break stereotypes by detailing the different faces of homelessness in Australia.

The money raised has funded new projects and assisted with the provision of existing homeless services, and will allow Vinnies homelessness services to expand their programs to assist people experiencing homelessness through

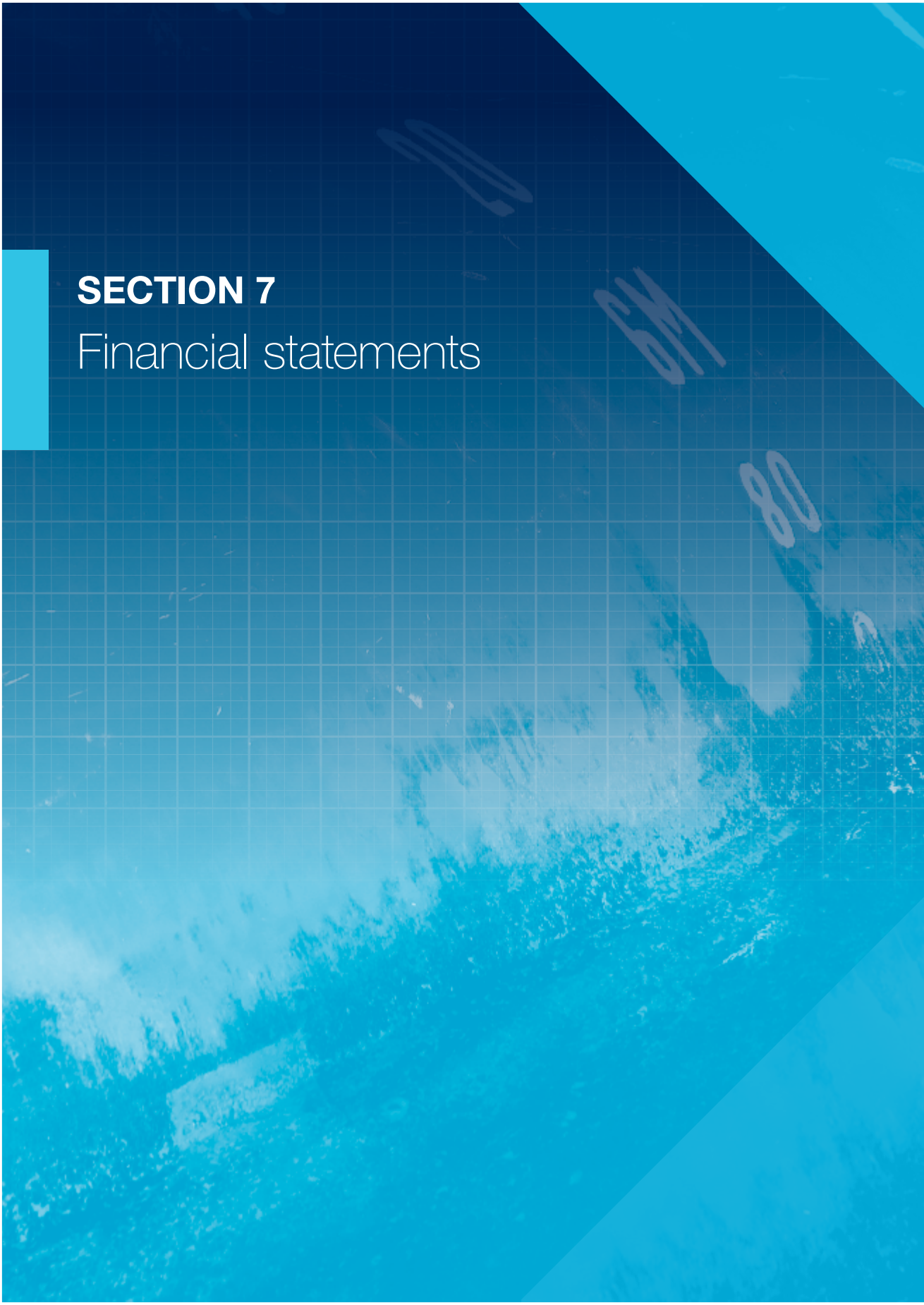
crisis accommodation, helping them to obtain semi-permanent and permanent accommodation, domestic violence support, and access to counselling, life and occupational skills, legal advice and education.

A record $6.8 million was raised nationally this year, surpassing the goal of $6.4 million.

Mr Hood said he was humbled by the donations received, many of which were from ATSB staff. 'I have always said that it is a true testament to the character of the ATSB and its altruism, which is not unexpected for an organisation dedicated to improving the safety of the travelling public.'

Figure 19: Chief Commissioner Greg Hood at the launch of the 2018 Vinnies CEO Sleepout with the CEO of St Vincent de Paul Society Canberra/ Goulburn, Barnie van Wyk

Source: ATSB



SECTION 7
Financial statements

7

Australian Government

Australian Transport Safety Bureau

2017-18
Financial Statements

Australian Transport Safety Bureau

CONTENTS

INDEPENDENT AUDITOR'S REPORT

To the Minister for Infrastructure, Transport and Regional Development

Opinion

In my opinion, the financial statements of the Australian Transport Safety Bureau for the year ended 30 June 2018:

(a) comply with Australian Accounting Standards – Reduced Disclosure Requirements and the *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015*; and

(b) present fairly the financial position of the Australian Transport Safety Bureau as at 30 June 2018 and its financial performance and cash flows for the year then ended.

The financial statements of the Australian Transport Safety Bureau, which I have audited, comprise the following statements as at 30 June 2018 and for the year then ended:

- Statement by the Chief Commissioner and Chief Financial Officer;
- Statement of Comprehensive Income;
- Statement of Financial Position;
- Statement of Changes in Equity;
- Cash Flow Statement; and
- Notes to the financial statements, comprising a summary of significant accounting policies and other explanatory information.

Basis for Opinion

I conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I am independent of the Australian Transport Safety Bureau in accordance with the relevant ethical requirements for financial statement audits conducted by the Auditor-General and his delegates. These include the relevant independence requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants* (the Code) to the extent that they are not in conflict with the *Auditor-General Act 1997*. I have also fulfilled my other responsibilities in accordance with the Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Accountable Authority's Responsibility for the Financial Statements

As the Accountable Authority of the Australian Transport Safety Bureau the Chief Commissioner is responsible under the *Public Governance, Performance and Accountability Act 2013* for the preparation and fair presentation of annual financial statements that comply with Australian Accounting Standards – Reduced Disclosure Requirements and the rules made under that Act. The Chief Commissioner is also responsible for such internal control as the Chief Commissioner determines is necessary to enable the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Chief Commissioner is responsible for assessing the Australian Transport Safety Bureau's ability to continue as a going concern, taking into account whether the entity's operations will cease as a result of an administrative restructure or for any other reason. The Chief Commissioner is also responsible for disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the assessment indicates that it is not appropriate.

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

Auditor's Responsibilities for the Audit of the Financial Statements

My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian National Audit Office Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with the Australian National Audit Office Auditing Standards, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit 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 entity's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Accountable Authority;
- conclude on the appropriateness of the Accountable Authority's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern; and
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Australian National Audit Office

Colin Bienke
Senior Director

Delegate of the Auditor-General

Canberra
13 September 2018

Australian Government
Australian Transport Safety Bureau

STATEMENT BY THE CHIEF COMMISSIONER AND CHIEF FINANCIAL OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2018 comply with subsection 42(2) of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), and are based on properly maintained financial records as per subsection 41(2) of the PGPA Act.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the Australian Transport Safety Bureau will be able to pay its debts as and when they fall due.

Nat Nagy
Chief Commissioner A/g

12 September 2018

Naranjan Rajput
Chief Financial Officer A/g

12 September 2018

Statement of Comprehensive Income
for the period ended 30 June 2018

	Notes	2018 $'000	2017 $'000	Original Budget 2018 $'000
NET COST OF SERVICES				
Expenses				
Employee Benefits	1.1A	**(15,333)**	(16,543)	(16,913)
Suppliers	1.1B	**(10,024)**	(34,507)	(7,208)
Depreciation and Amortisation	2.2A	**(715)**	(773)	(620)
Finance Costs	1.1C	**(7)**	(8)	(2)
Write-Down and Impairment of Assets	1.1D	**(71)**	(59)	-
Total Expenses		**(26,150)**	(51,890)	(24,743)
Own-Source Income				
Own-source Revenue				
Sale of Goods and Rendering of Services	1.2A	**1,759**	20,172	1,595
Other Revenue	1.2B	**3,009**	2,324	2,117
Total Own-source Revenue		**4,768**	22,496	3,712
Gains				
Other Gains	1.2C	**28**	22	-
Total Gains		**28**	22	-
Total Own-source Income		**4,796**	22,518	3,712
Net Cost of Services		**(21,354)**	(29,372)	(21,031)
Revenue from Government	1.2D	**20,411**	22,846	20,411
Deficit Attributable to the Australian Government		**(943)**	(6,526)	(620)
OTHER COMPREHENSIVE INCOME				
Items not subject to subsequent reclassification to net cost of services				
Changes in Asset Revaluation Surplus		**-**	183	-
Total Other Comprehensive Income		**-**	183	-
Total Comprehensive Income		**(943)**	**(6,343)**	-

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

Statement of Financial Position
as at 30 June 2018

	Notes	2018 $'000	2017 $'000	Original Budget 2018 $'000
ASSETS				
Financial Assets				
Cash and Cash Equivalents	2.1A	**90**	368	453
Trade and Other Receivables	2.1B	**22,028**	24,175	6,193
Accrued Revenue		**202**	223	111
Total Financial Assets		**22,320**	24,766	6,757
Non-financial Assets				
Heritage and Cultural	2.2A	**15**	15	-
Plant and Equipment	2.2A	**1,412**	1,268	1,477
Computer Software	2.2A	**772**	671	854
Prepayments		**269**	144	155
Total Non-financial Assets		**2,468**	2,098	2,486
Assets Held for Sale		**48**	-	-
Total Assets		**24,836**	26,864	9,243
LIABILITIES				
Payables				
Suppliers	2.3A	**(422)**	(1,102)	(527)
Other Payables	2.3B	**(419)**	(622)	(484)
Total Payables		**(841)**	(1,724)	(1,011)
Interest Bearing Liabilities				
Leases	2.4A	**(143)**	(222)	(126)
Total Interest Bearing Liabilities		**(143)**	(222)	(126)
Provisions				
Employee Provisions	4.1A	**(3,931)**	(4,297)	(4,191)
Other Provisions	2.5A	**-**	(121)	(78)
Total Provisions		**(3,931)**	(4,418)	(4,269)
Total Liabilities		**(4,915)**	(6,364)	(5,406)
Net Assets		**19,921**	20,500	3,837
EQUITY				
Contributed Equity		**13,478**	13,114	14,507
Reserves		**461**	461	278
Retained Surplus/(Accumulated Deficit)		**5,982**	6,925	(10,948)
Total Equity		**19,921**	20,500	3,837

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

Statement of Changes in Equity
for the period ended 30 June 2018

	Notes	2018 $'000	2017 $'000	Original Budget 2018 $'000
CONTRIBUTED EQUITY				
Opening Balance				
Balance carried forward from previous period		**13,114**	12,758	13,300
Contributions by Owners				
Equity injection - Appropriations[1]		**-**	-	509
Departmental capital budget		**364**	356	702
Other		**-**	-	(4)
Total Transactions with Owners		**364**	356	1,207
Closing Balance as at 30 June		**13,478**	13,114	14,507
RETAINED EARNINGS				
Opening Balance				
Balance carried forward from previous period		**6,925**	13,451	(10,328)
Comprehensive Income				
Deficit for the period		**(943)**	(6,526)	(620)
Total Comprehensive Income		**(943)**	(6,526)	(620)
Closing Balance as at 30 June		**5,982**	6,925	(10,948)
ASSET REVALUATION RESERVE				
Opening Balance				
Balance carried forward from previous period		**461**	278	278
Other Comprehensive Income				
Other comprehensive income		**-**	183	-
Total Other Comprehensive Income		**-**	183	-
Closing Balance as at 30 June		**461**	461	278
Total Equity as at 30 June		**19,921**	20,500	3,837

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

1. During 2016-17, approval was given to re-profile $1.724 million for Departmental Capital Budget (DCB) and equity injections. In 2017-18 it was identified that a $0.200 million component of this amount was recognised twice in 2016-17 resulting in a $0.200 million overstatement of Contributed Equity, Appropriation receivable and Unspent Appropriations in the financial statements for that year. To correct this, the ATSB has made a $0.200 million reduction to the 2016-17 comparatives of Contributed Equity (Statement of Changes in Equity: Equity injection – Appropriations), Appropriation receivable (Note 2.1 B: Trade and Other Receivables) and Unspent Appropriations (Note 3.1B: Unspent Annual Appropriations ('Recoverable GST exclusive') - Appropriation Act (No.1) 2016-17).

Accounting Policy

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.

Cash Flow Statement
for the period ended 30 June 2018

	Notes	2018 $'000	2017 $'000	Original Budget 2018 $'000
OPERATING ACTIVITIES				
Cash received				
Appropriations		**22,370**	44,664	20,311
Sale of goods and rendering of services		**2,107**	19,723	1,595
Net GST received		**362**	773	-
Other		**107**	121	350
Total cash received		**24,946**	65,281	22,256
Cash used				
Employees		**(15,942)**	(16,038)	(16,813)
Suppliers		**(8,329)**	(49,107)	(5,443)
Borrowing costs		**-**	(6)	-
Other		**(108)**	(122)	-
Total cash used		**(24,379)**	(65,273)	(22,256)
Net cash from operating activities		**567**	8	-
INVESTING ACTIVITIES				
Cash received				
Proceeds from sales of property, plant and equipment		**25**	7	-
Total cash received		**25**	7	-
Cash used				
Purchase of property, plant and equipment		**(761)**	(243)	(1,211)
Purchase of software		**(406)**	(215)	-
Total cash used		**(1,167)**	(458)	(1,211)
Net cash used by investing activities		**(1,142)**	(451)	(1,211)
FINANCING ACTIVITIES				
Cash received				
Contributed equity		**297**	403	1,211
Total cash received		**297**	403	1,211
Cash used				
Repayment of finance leases		**-**	(45)	-
Total cash used		**-**	(45)	-
Net cash from financing activities		**297**	358	1,211
Net decrease in cash held		**(278)**	(85)	-
Cash and cash equivalents at the beginning of the reporting period		**368**	453	453
Cash and cash equivalents at the end of the reporting period	2.1A	**90**	368	453

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

Budget Variances Commentary

The explanations provide a comparison of the original budget as presented in the 2017-18 Portfolio Budget Statements (PBS) to the 2017-18 final outcome as presented in accordance with Australian Accounting Standards for the Australian Transport Safety Bureau (ATSB). The Budget is not audited.

Variances are considered to be 'major' based on the following criteria:
- the variance between budget and actual is greater than 10%: and
- the variance between budget and actual is greater than 2% of total expenses or total own source revenues: or
- the variance between budget and actual is below this threshold but is considered important for the reader's understanding or is relevant to an assessment of the discharge of accountability and to an analysis of performance of the agency.

In some instances, a budget has not been provided for in the PBS, for example non-cash items such as asset revaluations and sale of assets adjustments. Unless the variance is considered to be 'major' no explanation has been provided.

Explanations of major variances	Affected line items (and statement)
Search for Missing Malaysia Airlines Flight 370 (MH370) Variances between the budget contained within the PBS and the actual outcome for the 2017-18 financial year are primarily due to decisions in relation to the search for the missing Malaysia Airlines Flight 370 (MH370). The decisions were made by the involved Governments after the PBS was published. Factors primarily contributing to the variances include: 1. Wages and salaries and payment of final monies to employees; 2. Finalisation of payments to a majority of suppliers in relation to the search resulting in a drop in trade and other receivables and suppliers and other payables.	Statement of Comprehensive Income - Employee Benefits - Suppliers - Other Revenue Statement of Financial Position - Trade and Other Receivables - Suppliers - Other Payables - Retained surplus/(Accumulated deficit) Cash Flow Statement - Operating cash received - Sale of goods and rendering of services - Operating cash used - Employees - Operating cash used - Suppliers
Own Source Revenue - Resources received free of charge (RRFOC) The ATSB receives services free of charge from the Chief Investigator, Transport Safety, Victoria and the NSW Office of Transport Safety Investigations. The variance is due to higher than projected investigations services completed during the financial year.	Statement of Comprehensive Income - Other Revenue - Suppliers
Expenses - Employee Benefits The variance is due to delays in the bulk recruitment of Transport Safety Investigators as part of the 2017-18 budget measure.	Statement of Comprehensive Income - Employee Benefits Cashflow Statement - Operating cash used - Employees
Make Good Provision Variance is due to writing off of the make good provision relating to Queensland office accommodation.	Statement of Financial Position - Other Provisions
Cash Received - Contributed Equity Variance is due to movement of capital funds recognised in PBS based on updated capital investment projections.	Cash Flow Statement - Financing Activities - Cash Received

Overview

The Basis of Preparation

The financial statements are general purpose financial statements and are required by section 42 of the Public Governance, Performance and Accountability Act 2013.

The financial statements have been prepared in accordance with:

a) *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015* (FRR); and

b) Australian Accounting Standards and Interpretations – Reduced Disclosure Requirements 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.

New Accounting Standards

No new, revised, amending standards or interpretations that were issued prior to the sign-off date and are applicable to the current reporting period had a material effect on the entity's financial statements.

Taxation

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

Events After the Reporting Period

There were no events subsequent to 30 June 2018 that had the potential to significantly effect the ongoing structure and financial activities of the ATSB.

Prior Year Adjustments

Prior year contributed equity and appropriation receivable balances have been restated to reflect more relevant and reliable information about ATSB's financial position. The change impacts the ATSB's Statement of Financial Position, Statement of Changes in Equity, Financial Assets (Note 2.1) and Appropriations (Note 3.1). Further information in relation to this adjustment is provided in the notes to the Statements of Changes in Equity.

Financial Performance

This section analyses the financial performance of the Australian Transport Safety Bureau for the year ended 30 June 2018.

1.1 Expenses

	2018 $'000	2017 $'000
1.1A: Employee Benefits		
Salaries and wages	**(11,681)**	(12,041)
Superannuation		
Defined contribution plans	**(1,451)**	(1,026)
Defined benefit plans	**(609)**	(1,255)
Leave and other entitlements	**(1,113)**	(1,398)
Separation and redundancies	**(363)**	(701)
Other employee expenses	**(116)**	(122)
Total employee benefits	**(15,333)**	(16,543)

Accounting Policy

Accounting policies for employee related expenses are contained in the People and Relationships section.

1.1B: Suppliers		
Goods and services supplied or rendered		
Investigation services	**(3,502)**	(28,261)
Office rent[1]	**(1,647)**	(1,554)
Information technology	**(1,460)**	(1,381)
Travel	**(741)**	(711)
Contracted Services	**(616)**	(374)
Services from the Department of Infrastructure, Regional Development and Cities (DOIRDC)	**(565)**	(763)
Training and conferences	**(272)**	(173)
Communications	**(244)**	(226)
Publications and printing	**(79)**	(117)
Legal	**(30)**	(16)
Consultants	**(136)**	(284)
Audit fees	**(47)**	(49)
Other	**(411)**	(298)
Total goods and services supplied or rendered	**(9,750)**	(34,207)
Goods supplied	**(217)**	(81)
Services rendered	**(9,533)**	(34,126)
Total goods and services supplied or rendered	**(9,750)**	(34,207)
Other suppliers		
Workers compensation expenses	**(274)**	(300)
Total other suppliers	**(274)**	(300)
Total suppliers	**(10,024)**	(34,507)

1. The DOIRDC leases all premises that the ATSB occupies, therefore the ATSB does not have any lease commitments.

1.1C: Finance Costs		
Finance leases	**(7)**	(6)
Unwinding of discount	**-**	(2)
Total finance costs	**(7)**	(8)

Accounting Policy

All borrowing costs are expensed as incurred.

1.1 Expenses - continued

	2018 $'000	2017 $'000
1.1D: Write-Down and Impairment of Assets		
Impairment of property, plant and equipment	**(71)**	(59)
Total write-down and impairment of assets	**(71)**	(59)

1.2 Own-Source Revenue and Gains

	2018 $'000	2017 $'000
Own-Source Revenue		
1.2A: Sale of Goods and Rendering of Services		
Rendering of services	**1,759**	20,172
Total sale of goods and rendering of services	**1,759**	20,172

Accounting Policy

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.

1.2B: Other Revenue		
Resources received free of charge		
Remuneration of auditors[1]	**47**	49
Other	**2,962**	2,275
Total other revenue	**3,009**	2,324

1. The ANAO does not provide any other services other than audit of Financial Statements.

Gains

1.2C: Other Gains		
Resources received free of charge - Donated Heritage & Cultural Asset	**-**	15
Other	**28**	7
Total other gains	**28**	22

Accounting Policy

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 non-corporate or corporate Commonwealth entity as a consequence of a restructuring of administrative arrangements.

1.2 Own-Source Revenue and Gains - continued

	2018 $'000	2017 $'000
1.2D: Revenue from Government		
Appropriations		
Departmental appropriations	**20,411**	22,846
Total revenue from Government	**20,411**	22,846

Accounting Policy

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. Appropriations receivable are recognised at their nominal amounts.

Financial Position

This section analyses the Australian Transport Safety Bureau's assets used to conduct its operations and the operating liabilities incurred as a result. Employee related information is disclosed in the People and Relationships section.

2.1 Financial Assets

	2018 $'000	2017 $'000
2.1A: Cash and Cash Equivalents		
Cash on hand or on deposit	**90**	368
Total cash and cash equivalents	**90**	368

Accounting Policy

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.

2.1B: Trade and Other Receivables		
Goods and services receivables		
Goods and services	**59**	352
Total goods and services receivables	**59**	352
Appropriations receivables		
Appropriation receivable[1]	**21,890**	23,782
Total appropriations receivables	**21,890**	23,782
Other receivables		
Statutory receivables	**79**	41
Total other receivables	**79**	41
Total trade and other receivables (gross)	**22,028**	24,175
Total trade and other receivables (net)	**22,028**	24,175

Trade and other receivables have been assessed for impairment and none was identified.

1. During 2016-17, approval was given to re-profile $1.724 million for Departmental Capital Budget (DCB) and equity injections. In 2017-18 it was identified that a $0.200 million component of this amount was recognised twice in 2016-17 resulting in a $0.200 million overstatement of Contributed Equity, Appropriation receivable and Unspent Appropriations in the financial statements for that year. To correct this, the ATSB has made a $0.200 million reduction to the 2016-17 comparatives of Contributed Equity (Statement of Changes in Equity: Equity injection – Appropriations), Appropriation receivable (Note 2.1 B: Trade and Other Receivables) and Unspent Appropriations (Note 3.1B: Unspent Annual Appropriations ('Recoverable GST exclusive') - Appropriation Act (No.1) 2016-17).

Accounting Policy

Receivables

Trade receivables 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.

2.2 Non-Financial Assets

2.2A: Reconciliation of the Opening and Closing Balances of Non-Financial Assets

Reconciliation of the opening and closing balances of Non-Financial assets

	Heritage and Cultural $'000	Plant and equipment $'000	Computer Software[1] $'000	Total $'000
As at 1 July 2017				
Gross book value	15	1,357	5,716	7,088
Accumulated depreciation, amortisation and impairment	-	(89)	(5,045)	(5,134)
Total as at 1 July 2017	15	1,268	671	1,954
Additions				
Purchases	-	761	64	825
Internally developed	-	-	343	343
Impairments recognised in net cost of services	-	(29)	-	(29)
Assets held for sale or in a disposal group held for sale		(48)	-	(48)
Depreciation and amortisation	-	(412)	(303)	(715)
Transfer between class of assets	-	2	(2)	-
Disposals				
Other	-	(130)	(1)	(131)
Total as at 30 June 2018	15	1,412	772	2,199
Total as at 30 June 2018 represented by				
Gross book value	15	1,847	6,107	7,969
Accumulated depreciation, amortisation and impairment	-	(435)	(5,335)	(5,770)
Total as at 30 June 2018 represented by	15	1,412	772	2,199

1. The carrying amount of computer software included $160,000 purchased software and $612,000 internally generated software.

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

Revaluations of non-financial assets

All revaluations were conducted in accordance with the revaluation policy stated in the Note 5.3. An independent valuer, Australian Valuation Solution conducted the revaluation on 30 June 2017.

2.2 Non-Financial Assets - continued

Accounting Policy

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.

Donated assets, 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. The ATSB received one donated asset. Please refer to the Heritage and Cultural Assets section in this accounting policy note.

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 relation to property leases taken up by the DOIRDC properties and occupied by the ATSB where an obligation exists to restore the property to its original condition. As the property leases are held by the DOIRDC, 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.

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:

	2018	2017
Plant and Equipment	3 to 10 Years	3 to 10 Years
Computer Equipment	4 Years	4 Years
Office Equipment	3 to 10 Years	3 to 10 Years
Heritage & Cultural	100 Years	100 Years

Impairment

All assets were assessed for impairment as at 30 June 2018. Where indications of impairment exist the assets's recoverable amount is estimated and an impairment adjustment is 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 of disposal and its value in use. Value in use is the present value

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 entity 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.

Heritage and Cultural Assets

During 2016-17 the ATSB received a donation of a Pegasus Mark II Propeller from a Supermarine Walrus plane. The Supermarine Walrus was a British single-engine amphibious biplane reconnaissance aircraft first flown in 1933.

The ATSB has classified this item as heritage and cultural asset as it is primarily used for purpose which relates to its heritage and cultural significance.

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 2018.

Assets held for sale

Assets held for sale include computer and laboratory equipment that are available for sale. The sale is likely to settle within next 12 months.

2.3 Payables

	2018 $'000	2017 $'000
2.3A: Suppliers		
Trade creditors	**(265)**	(263)
Accrued expenses	**(157)**	(839)
Total suppliers	**(422)**	(1,102)
2.3B: Other Payables		
Salaries and wages	**(162)**	(212)
Superannuation	**(17)**	(16)
Separations and redundancies	**(190)**	(384)
Unearned income	**(50)**	(10)
Total other payables	**(419)**	(622)

Accounting Policy

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).

2.4 Interest Bearing Liabilities

	2018 $'000	2017 $'000
2.4A: Leases		
Finance Leases	**(143)**	(222)
Total leases	**(143)**	(222)
Leases expected to be settled		
Within 1 year		
Minimum lease payments	**(29)**	(97)
Future finance charges	**6**	6
Between 1 to 5 years		
Minimum lease payments	**(124)**	(139)
Future finance charges	**4**	8
Total leases	**(143)**	(222)

In 2018, finance leases existed in relation to office pool vehicles. The leases were non-cancellable and for fixed terms averaging 3.67 years, with a maximum of 5 years. The interest rate implicit in the vehicle leases averaged 4.53% (2017: 4.44%). The lease assets secured the lease liabilities. The ATSB guaranteed the residual values of all assets leased. There were no contingent rentals.

Accounting Policy

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.

2.5 Other Provisions

2.5A: Other Provisions

	Provision for restoration $'000	Total $'000
As at 1 July 2017	**(121)**	**(121)**
Amounts reversed	**121**	**121**
Total as at 30 June 2018	**-**	**-**

The DOIRDC leases all premises that the ATSB occupies. The ATSB reimburses DOIRDC for its portion of lease costs. There is currently no agreement (2017: 1 agreement) for the leasing of premises which have provisions requiring the ATSB (through DOIRDC) to restore the premises to their original condition at the conclusion of the lease.

Funding

This section identifies the Australian Transport Safety Bureau's funding structure.

3.1 Appropriations

3.1A: Annual Appropriations ('Recoverable GST exclusive')

Annual Appropriations for 2018

	Annual Appropriation $'000	Adjustments to appropriation $'000	Total appropriation $'000	Appropriation applied in 2018 (current and prior years) $'000	Variance[1] $'000
Departmental					
Ordinary annual services	**20,411**	**2,239**	**22,650**	**(24,379)**	**(1,729)**
Capital Budget[2]	**364**	**-**	**364**	**(1,167)**	**(803)**
Other Services					
Equity Injections	**-**	**-**	**-**	**-**	**-**
Total Departmental	**20,775**	**2,239**	**23,014**	**(25,546)**	**(2,532)**

1. A large portion of the $1.729 million variance is directly related to the search for the MH370 and uncontrollable variables, such as weather. Other expenses in relation to the search for the missing aircraft were delayed and not utilised in prior years.

2. Departmental 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.

Annual Appropriations for 2017

	Annual Appropriation[1] $'000	Adjustments to appropriation $'000	Total appropriation $'000	Appropriation applied in 2017 (current and prior years) $'000	Variance[2] $'000
Departmental					
Ordinary annual services	21,169	19,851	41,020	(65,373)	(24,353)
Capital Budget[3]	356	-	356	(203)	153
Other services					
Equity	200	-	200	(200)	-
Total Departmental	21,725	19,851	41,576	(65,776)	(24,200)

1. Excludes $1.677 million in departmental supplementation appropriations provided to the ATSB during the 2017-18 budget process.

2. A large portion of the $24.353 million variance is directly related to the search for the MH370 and uncontrollable variables, such as weather. Other expenses in relation to the search for the missing aircraft have been slightly delayed, however the funds will be fully utilised in 2017-18.

3. Departmental 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.

3.1 Appropriations - continued

3.1B: Unspent Annual Appropriations ('Recoverable GST exclusive')

	2018 $'000	2017 $'000
Departmental		
Appropriation Act (No. 2) 2013-14	-	459
Appropriation Act (No. 1) 2014-15	-	262
Appropriation Act (No. 2) 2014-15	-	555
Appropriation Act (No. 1) 2015-16	-	356
Appropriation Act (No. 2) 2015-16	-	92
Appropriation Act (No. 1) 2016-17[1]	-	17,381
Appropriation Act (No. 3) 2016-17	-	3,000
Appropriation Act (No. 1) 2017-18	**20,704**	-
Appropriation Act (No. 2) 2017-18	**509**	-
Cash at Bank - 30 June	**90**	368
Total Departmental[2,3]	**21,303**	22,473

1. During 2016-17, approval was given to re-profile $1.724 million for Departmental Capital Budget (DCB) and equity injections. In 2017-18 it was identified that a $0.200 million component of this amount was recognised twice in 2016-17 resulting in a $0.200 million overstatement of Contributed Equity, Appropriation receivable and Unspent Appropriations in the financial statements for that year. To correct this, the ATSB has made a $0.200 million reduction to the 2016-17 comparatives of Contributed Equity (Statement of Changes in Equity: Equity injection – Appropriations), Appropriation receivable (Note 2.1 B: Trade and Other Receivables) and Unspent Appropriations (Note 3.1B: Unspent Annual Appropriations ('Recoverable GST exclusive') - Appropriation Act (No.1) 2016-17).

2. The above unspent appropriations balance for 2016-17 does not include additional funding received under the new budget measure during the 2017-18 budget process as a prior year output. In order to reconcile closing appropriations receivables balance, this amount has been adjusted in the table below.

3. The above unspent appropriations balance for 2017-18 does not include an amount of $0.677 million in capital appropriations. The variance is due to movement of prior year capital funds during 2016-17 additional estimates. As the ATSB retains the control of this amount. these appropriations are recognised as receivables.

Reconciliation to Appropriations Receivables

	2018 $'000	2017 $'000
Total unspent appropriations	**21,303**	22,473
Less Cash at Bank - 30 June	**(90)**	(368)
	21,213	22,105
Adjustments:		
Other Adjustments		
Appropriation Act (No. 1) 2016-17	**-**	1,677
Movement of Funds - Appropriation Act (No.1) - DCB	**280**	-
Movement of Funds - Appropriation Act (No. 2) - Equity Injections	**397**	-
Closing Appropriations Receivable Balance	**21,890**	23,782

3.2 Net Cash Appropriation Arrangements

	2018 $'000	2017 $'000
Total comprehensive income /(loss) less depreciation/amortisation expenses previously funded through revenue appropriations	**(228)**	(5,570)
Plus: depreciation/amortisation expenses previously funded through revenue appropriation	**(715)**	(773)
Total comprehensive income - as per the Statement of Comprehensive Income	**(943)**	(6,343)

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.

People and Relationships

This section describes a range of employment and post employment benefits provided to our people and our relationships with other key people.

4.1 Employee Provisions

	2018 $'000	2017 $'000
4.1A: Employee Provisions		
Leave	**(3,931)**	(4,297)
Total employee provisions	**(3,931)**	(4,297)

Accounting Policy

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 FRR for reporting periods ending on or after 1 July 2015. The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

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 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 2018 represents outstanding contributions for the final fortnight of the year.

4.2: Key Management Personnel Remuneration

Key management personnel are those persons having authority and responsibility for planning, directing and controlling the activities of the ATSB, directly or indirectly.

Key management personnel of the ATSB include the Portfolio Minister, Chief Commissioner, Commissioners and other senior executive who the Chief Executive considers to be a KMP because of their responsibilities or nature of their work. Key management personnel remuneration is reported in the table below:

	2018	2017
	$	$
Short-term employee benefits	**(1,590,870)**	(1,546,830)
Post-employment benefits	**(216,349)**	(250,133)
Other long-term employee benefits	**(140,697)**	(135,106)
Termination benefits	**-**	(271,217)
Total key management personnel remuneration expenses[1]	**(1,947,916)**	(2,203,286)

The total number of key management personnel that are included in the above table is 10 individuals (2017: 12 individuals).

1. The above key management personnel remuneration excludes the remuneration and other benefits of the Portfolio Minister. The Portfolio Minister's remuneration and other benefits are set by the Remuneration Tribunal and are not paid by the ATSB.

4.3: Related Party Transactions

Related party relationships:

The ATSB is an Australian Government controlled entity. Related parties to the ATSB are the Key Management Personnel (KMP) identified at Note 4.2, their close family members, the Executives, bodies controlled by the KMP or their close family members, and other Australian Government entities.

Transactions with related parties:

Given the breadth of Government activities, related parties may transact with the government sector in the same capacity as ordinary citizens. Such transactions include the payment or refund of taxes, and higher education loans. These transactions have not been separately disclosed in this note.

No material transactions with related parties occurred during the financial year.

Managing Uncertainties

This section analyses how the ATSB manages financial risks within its operating environment.

5.1 Contingent Assets and Liabilities

Quantifiable Contingencies

There are no quantifiable contingencies.

Unquantifiable Contingencies

There are no unquantifiable contingencies.

Accounting Policy

Contingent liabilities and contingent assets are not recognised in the statement of financial position but are reported in the 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 settlement is greater than remote.

5.2: Financial Instruments

	2018 $'000	2017 $'000
5.2A: Categories of Financial Instruments		
Financial Assets		
Loans and receivables		
Cash and cash equivalents	**90**	368
Trade and other receivables	**59**	352
Total loans and receivables	**149**	720
Total financial assets	**149**	720
Financial Liabilities		
Financial liabilities measured at amortised cost		
Trade creditors	**(265)**	(263)
Finance leases	**(143)**	(222)
Total financial liabilities measured at amortised cost	**(408)**	(485)
Total financial liabilities	**(408)**	(485)
5.2B: Net Loss on Financial Liabilities		
Financial liabilities measured at amortised cost		
Interest expense	**(7)**	(6)
Net loss on financial liabilities measured at amortised cost	**(7)**	(6)
Net loss on financial liabilities	**(7)**	(6)

5.3 Fair Value Measurement

Accounting Policy

The ATSB has Heritage & Cultural and Property plant and equipment assets and the fair value for each asset is 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 are carried at fair value. Valuations are conducted with sufficient frequency to ensure that the carrying amounts of assets do not differ materially from the asset's fair value as at the reporting date. The regularity of independent valuations depends on the volatility of movements in market values for the relevant assets.

The ATSB engaged Australian Valuation Solutions (AVS) in 2016-17 to undertake a revaluation of all plant and equipment assets as at 30 June 2017 and confirm that the models developed comply with AASB 13.

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.

Fair Value Measurements

	Fair value measurements at the end of the reporting	
	2018	2017
	$'000	$'000
Non-financial assets		
Heritage and cultural	**15**	15
Property, plant and equipment	**1,412**	1,268
Total non-financial assets	**1,427**	1,283

SECTION 8

Management and accountability

8

MANAGEMENT AND ACCOUNTABILITY

The Commission

The ATSB is governed by a Commission, comprising a Chief Commissioner and three part-time Commissioners.

The Commission provides guidance on the selection of accidents and other safety incidents to be investigated. It also supports the ATSB in encouraging safety action ahead of final reports, thus reducing the need to issue safety recommendations.

The Commission operates within the corporate governance framework of the *ATSB Commission Governance Manual*. The manual sets out the Commission's legislative requirements, parliamentary and ministerial accountability, membership and functions, administrative policies and procedures, and reporting obligations.

The Commission meets face-to-face at least four times a year and manages ATSB business through regular teleconferences and electronic communications in accordance with its obligations under the *Transport Safety Investigation Act 2003* and its agreed policies.

Commissioner Chris Manning was the ATSB spokesperson for the reopened investigation into the ditching of Israel Aircraft Westwind 1124A aircraft, VH-NGA, 5 km SW of Norfolk Island Airport, on 18 November 2009 (**AO-2009-072**).

Executive management

The ATSB Executive meets weekly to discuss strategic management issues and priorities. The ATSB Executive consists of the Chief Commissioner, the Executive Director Transport Safety and the Chief Operating Officer.

Audit Committee

The Audit Committee provides independent assurance and advice to the Chief Commissioner on the ATSB's financial and performance reporting responsibilities, risk oversight and management, and system of internal controls. The Audit Committee consists of an independent chair, an independent member and an ATSB management nominee. The Committee held four meetings throughout the financial year, in September and December 2017, and March and June 2018.

In 2017–18, the Committee advised and provided assurance on a range of matters including the ATSB's:

- 2017–18 Internal Audit Annual Program
- enterprise risk management, fraud control and business continuity frameworks
- performance reporting
- financial statement preparations
- work health and safety management
- compliance with the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) and the associated Rule
- internal audit governance framework—including the Internal Audit Charter and *Internal Audit Strategic Plan 2017–20*.

The audit program for 2017–18 focused on assuring the ATSB's legislative compliance and performance against its core functions. The program included the following internal audits:

- major accident preparedness
- incident response framework
- conflict of interest
- impact of organisational change.

Business planning and reporting

Each year, the ATSB develops an Annual Plan to set business objectives for the financial year. The Annual Plan is consistent with the strategic direction provided through the Corporate Plan, published on the ATSB website. The Annual Plan incorporates the operational priorities, activities, deliverables and key performance indicators for the financial year.

The *ATSB Annual Plan 2017–18* gave priority to:

- safety data recording, analysis and data sharing
- occurrence and safety issue investigations of accidents, serious incidents and other occurrences
- communication and education
- maintaining and enhancing capability and readiness
- strategic projects
- managing ATSB resources.

Risk management

Consistent with the *Public Governance, Performance and Accountability Act 2013* (the PGPA Act), the ATSB maintains a risk management framework. The framework includes a Risk Management Policy, Risk Management Strategy, Risk Management Plan and Enterprise Risk Register. The framework is an integral element of the ATSB's broader governance, planning and management framework. The ATSB has integrated risk assessment and mitigation into 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 2017–18, the ATSB focused on risks related to capability, reputation, health and safety, and jurisdictional reach.

The Commission, the Executive and the Audit Committee regularly review the risk management framework. 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 practiced across the agency.

Business Continuity Plan

The ATSB's business continuity management framework details the policies and procedures for the agency to respond to a business disruption. The framework ensures the ATSB is well-placed to implement recovery processes and return to business-as-usual as quickly as possible while preserving the safety of staff and limiting the damage and disruption to business operations.

In 2017–18, the ATSB continued to review and test its operational risk management processes and responses, which mitigate the impact of non-routine business disruptions. The Audit Committee regularly reviews the ATSB's business continuity operations.

Fraud control

In accordance with the *Public Governance, Performance and Accountability Act 2013* (the PGPA Act), the ATSB maintains a fraud management framework which includes a Fraud Policy and Strategy Statement and a Fraud Control Plan. The ATSB reviewed and updated both documents in 2017–18.

The ATSB manages a fraud risk register to identify potential fraud risks and subsequently minimise the incidence of fraud. This process is accompanied by development, implementation and regular assessment of fraud prevention, detection and response strategies.

The ATSB's staff awareness program incorporates activities for existing and new staff.

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

Ethical standards

During the reporting period, the ATSB continued to demonstrate its commitment to promoting ethical standards and behaviours relating to our workplace and employment.

Highlights of 2017–18 include:

- providing briefing information on the APS Values, Employment Principles and Code of Conduct in induction packages and during training sessions
- promoting the APS Values, Employment Principles and Code of Conduct through individual performance development plans
- providing staff with access to information on ethical standards via the ATSB's intranet and the Australian Public Service Commission's (APSC) website
- providing staff with guidance on Public Interest Disclosure policy and procedures
- delivering specific training on conflict of interest and conducting an internal audit, ensuring all staff completed a conflict of interest form
- providing staff with information and guidance on bullying and harassment policy and procedures
- providing staff with training on the ATSB's fraud control policy and procedures, and acceptance of gifts and benefits
- promoting the APS Values, Employment Principles and Code of Conduct in our recruitment and selection activity.

Management of human resources

Over this reporting period, we supported and developed our staff through workforce planning, performance and development plans, leadership and capability development programs, health and wellbeing programs, and workplace arrangements and advice.

During the year, we dedicated significant time and resources to the implementation of Evolution Program initiatives; our focus this year was on sourcing, recruiting and developing a capable workforce to mitigate workforce risks associated with meeting our primary objective, key functions and broader portfolio responsibilities.

Highlights of 2017–18 include:

- developing and implementing a new sourcing model that revitalised our employer brand and sourcing channels, and enabled us to broaden our talent community to better manage, monitor and support our evolving workforce
- designing and implementing a new recruitment model incorporating a range of assessment tools that considered and assessed the competencies required to function as a modern transport safety agency
- identifying, sourcing and introducing new and diverse methods for the delivery of ATSB induction information and training programs, including embracing greater opportunities for learning on the job (70%) and relational learning (20%)
- building our management and leadership capability by implementing a bespoke leadership program with a particular focus on incorporating coaching capabilities to drive high performance
- working with and supporting our managers to embed a revised approach to managing performance and providing development opportunities to build capability
- inviting Comcare to conduct an audit of our workplace health and safety (WHS) framework, to promote continuous improvement, manage risk and ensure a safe and healthy workplace for our staff
- providing support and advice to managers and staff on employment matters, and maintaining effective payroll services
- expanding partnerships with other Australian Public Service (APS) agencies and industry networks to build capability and inter-agency mobility options.

Staffing profile

In accordance with our workforce planning projections, the ATSB's staffing profile has remained relatively stable, from 107 at the end of June 2017 to 109 by the end of June 2018. The associated staff turnover rate was approximately 17 per cent. Table 16 displays the ATSB staff numbers, by classification, as of 30 June 2018.

Table 16: The ATSB's staffing profile at 30 June 2018

Substantive classification	Gender x (full time)	Female (full time)	Female (part time)	Male (full time)	Male (part time)	Non-ongoing	Total
Statutory Office Holders			1	1	2		4
Senior Executive Service Band 1				3		1	3
EL 2		6	3	30			39
EL 1	1	9		17			27
APS 6		8	1	13			22
APS 5		6	2	4			12
APS 4		1				1	1
APS 3					1	1	1
Total	**1**	**30**	**7**	**68**	**3**	**3**	**109**

This total is comprised of the following employment arrangements:

- 102 staff (representing all non-SES employees) covered by the enterprise agreement
- three SES employees covered by section 24(1) determinations, established in accordance with the ATSB's SES remuneration policy
- four 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.

Of the 105 SES and non-SES employees, 80 employees were based in Canberra, 15 based in Brisbane, three based in Adelaide, four based in Perth, two based in Melbourne and one based overseas in Port Moresby.

Non-salary benefits provided to employees under the enterprise agreement include:

- options for home-based work
- ability to work part-time
- flexible working arrangements
- access to different leave types
- influenza vaccinations and health checks
- access to the Employee Assistance Program.

Indigenous employees

At 30 June 2018, the ATSB had one ongoing employee who identified as Indigenous.

The ATSB has embraced the *Commonwealth Aboriginal and Torres Strait Islander Employment Strategy* and aims to build indigenous representation within the public sector. The ATSB's key action areas for this reporting period include:

- investing in Indigenous capability and provide development opportunities for our staff
- improving the awareness of Indigenous culture in the workplace through information and training sessions
- participation by staff at Indigenous networks run throughout the APS and portfolio-wide by the Department of Infrastructure, Regional Development and Cities.

Salary rates

Table 17 displays the salary rates supporting the above employment arrangements at 30 June 2018.

Table 17: The ATSB's salary rates at 30 June 2018

Substantive classification	Lower ($)	Upper ($)
Statutory Office Holders	As determined by the Remuneration Tribunal	
EL 2	116,767	143,512*
EL 1	98,259	119,076
APS 6	78,160	91,208
APS 5	70,717	76,356
APS 4	63,344	68,832

* Maximums include Transport Safety Investigator and respective supervisor's salaries, representing a $2,002–$10,238 increase on standard APS6–EL2 rates.

** Senior executive remuneration for the 2017–18 financial year is captured and presented through the ATSB website (About the ATSB).

Organisational culture

During 2017–18, implementation of the ATSB's Evolution Program continued. A key focus of the Evolution Program for this reporting period was to implement initiatives to create a culture that:

- supports both practical and innovative ways of working
- improves leadership and management at all levels
- supports a capable and diverse workforce
- embraces different learning opportunities.

Highlights of 2017–18 include:

- embedding a new multi-modal operating model
- implementing a bespoke leadership and cultural program
- implementing a new sourcing and recruitment strategy
- implementing learning and development recommendations from last year's review.

When taking into account our agency's wellbeing indicators, derived from the 2018 staff census results, it is pleasing to see that our staff remain positive in terms of their jobs, attachment to the purpose of the agency, feelings of personal accomplishment and workplace safety—as evidenced by these census results:

- 80% of staff are proud to work in the ATSB
- 86% of staff believe strongly in the purpose and objectives of the ATSB
- 84% of staff think their immediate supervisor cares about their health and wellbeing
- 77% of staff say that the ATSB is committed to creating a diverse workforce
- 89% of staff are happy to go the 'extra mile' at work when required
- 95% of staff believe the ATSB is committed to workplace safety
- 86% of staff feel that people in the workgroup treat each other with respect
- 94% of staff believe their immediate workgroup act in accordance with the Australian Public Service values.

Conversely, we have a number of results (trends) that have been identified as new or ongoing challenges. Themes associated with internal communications, and dealing with underperformance, change management and innovation will be analysed, and areas for continuous improvement will be implemented over the year ahead.

Training and development

The ATSB is committed to building a strong, capable and resilient workforce. We do so by embracing greater opportunities for learning through on-the-job activities (70%), relational learning through peers and networks (20%) and blended training (10%).

During 2017–18, the ATSB implemented a further 13 recommendations from the learning and development review completed last year. With 70% of the recommendations implemented, the ATSB delivered a strong growth in the learning and development opportunities offered to staff this year.

Highlights for 2017–18 include:

- implementation of our partner arrangements with a Registered Training Organisation with 20% of our investigative workforce being enrolled into the Diploma of Transport Safety Investigation
- making further enhancements to our training resources and materials, and providing over 25 different centrally funded face-to-face training courses to staff throughout the year
- sourcing and implementing a new e-Learning system to advance delivery methods and provide greater assurance and reporting frameworks
- providing a strong investment throughout the year to build management and leadership capabilities through our leadership program, with a particular focus on building coaching capabilities to drive high performance
- providing training opportunities for a broad range of industry-based personnel through our human factors awareness course.

Purchasing

The ATSB purchases goods and services in accordance with the Commonwealth Procurement Rules (CPRs). These rules are applied through the Accountable Authority Instructions. 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 when 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.

The ATSB policies on selection and engagement of consultants are in accordance with the CPR's. 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 an external contractor.

During 2017–18, six new consultancy contracts were entered into involving total actual expenditure of $129,062. There were two ongoing consultancy contracts carried over from the 2016–17 year involving total actual expenditure of $6,944.

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

Australian National Audit Office access clauses

There were no contracts during 2017–18 that did not provide for the Auditor-General to have access to the contractors' premises.

Exempt contracts

No contracts were exempted on public interest grounds from publication on AusTender during 2017–18.

Procurement initiatives to support small business

The ATSB supports small business participation in the Commonwealth Government procurement market. Small and medium enterprises (SME) and small enterprise participation statistics are available on the Department of Finance's website at **www.finance.gov.au**

The ATSB seeks to support SMEs, consistent with paragraph 5.4 of the Commonwealth Procurement Rules. It ensures that its communications are expressed in clear and simple language. Its finance system is set up to ensure prompt payments to all contractors and suppliers and it makes use of credit cards.

Legal services and expenditure

Paragraph 11.1(a) of the Legal Services Directions 2017, 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 ATSB's expenditure on legal services for 2017–18 was $262,765 comprising:

- $29,565 on external legal services
- $233,200 on internal legal services

External scrutiny and participation

Coronial Inquests

The ATSB was required to participate in one coronial inquest in 2017–18.

Loss of control involving Eurocopter AS350BA, VH-RDU 93 km N of Rockhampton Airport, Queensland 8 September 2011.

On 8 December 2017, Coroner David O'Connell made findings following an inquest for an accident where there was loss of control of a Eurocopter AS350BA, VH-RDU, resulting in collision with terrain near Rockhampton. The pilot and front seat passenger were fatally injured and the rear seat passenger received serious injuries.

The ATSB found that the pilot lost control of the helicopter at low speed or while hovering. The reason for that loss of control could not be positively established, although it is most likely to have resulted from environmental and operational factors.

The investigation was unable to determine whether authorisation of pilot tasking in this case had complied with the operator's procedures. The assignment of the pilot to the task did not directly contribute to the accident. However, had a formalised and documented risk assessment of the task been prepared and considered as part of the authorisation

process, as prescribed by the operator's Safety Management System, it is likely there would have been a greater awareness of the suitability or otherwise of the pilot for the tasking. The physical characteristics of the Helicopter Landing Site (HLS) were not a contributing factor to the accident.

However, the HLS was found to be potentially hazardous for a pilot who was unfamiliar with its characteristics and not current with the difficulties likely to be encountered with pinnacle and confined helicopter landing sites.

Three ATSB investigators were called as witnesses to the inquest. The Coroner made more specific findings than the ATSB determining the collision was due to a sudden adverse wind gust, and a lack of sufficient familiarity with the aircraft, leading to a loss of control by the pilot whilst the helicopter was manoeuvring slowly. The finding was not inconsistent with the general scope of the ATSB findings. The inquest did not present any new or significant evidence that would lead the ATSB to reopen its investigation.

The ATSB released its findings on 18 February 2014. The ATSB investigation report (**AO-2011-110**) is available on the ATSB's website at **www.atsb.gov.au**.

Other Coronial Matters

Collision with terrain Cessna 172, VH-PFT, Maingon Bay (9km south of Port Arthur), Tasmania, on 29 December 2014.

On 21 July 2017, Coroner Simon Cooper made findings following an inquest for an accident where a Cessna 172S aircraft, registered VH-PFT, impacted the water near Port Arthur in Tasmania while conducting low-level photography runs of the Sydney to Hobart yacht race. The pilot and photographer were fatally injured.

The ATSB's investigation found that as a result of a steep climbing turn, the aircraft's upper wing aerodynamically stalled, resulting in a rapid rotation out of the turn. There was insufficient height for the pilot to recover.

The factors that increased the risk of the occurrence were:

- The exceptionally low height at which airborne photography of yachts was routinely being conducted at was contrary to the Civil Aviation Safety Authority low-flying regulations, and the operator's procedures.
- The operator's safety risk management processes and practices were not sufficient to facilitate the identification of all key operational risks associated with low-level flying that was being conducted on Sydney Hobart race yachts.

ATSB investigators were not called as witnesses. The Coroner agreed with the ATSB's findings regarding the manner in which the aircraft entered the water.

The ATSB released its findings on 21 July 2016. The ATSB investigation report (**AO-2014-192**) is available on the ATSB's website at **www.atsb.gov.au**

Flight preparation event involving Kavanagh Balloons E-260, VH-FSR, near Alice Springs Airport, Northern Territory, 13 July 2013

On 9 January 2018, Deputy Coroner Kelvin Currie made findings without an inquest for an accident where a passenger preparing to board a hot air balloon was fatally injured after her scarf was caught in a fan used to inflate the balloon.

The ATSB found that pre-loading of the passengers during the inflation process, although appropriate in the wind conditions, resulted in them coming into close proximity to the operating inflation fan. Additionally, the mesh and steel tubing guard positioned around the inflation fan was ineffective in preventing loose items of clothing from becoming entangled in the wooden fan blades and driveshaft. As a result, when the passenger approached the balloon basket in preparation for loading, their scarf was drawn into the fan blades, leading to fatal injuries.

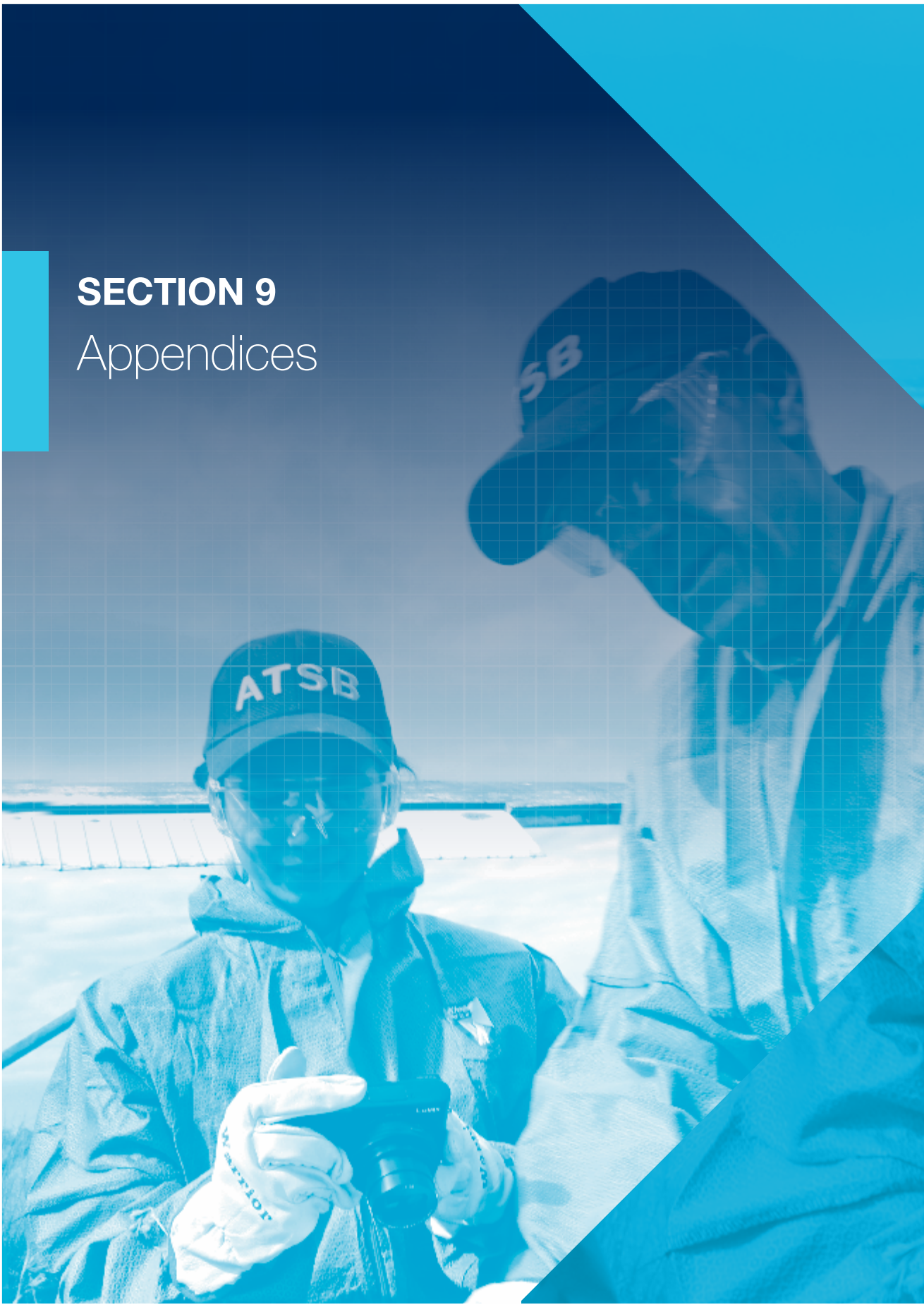
The pilot conducted two safety briefings prior to the proposed flight that advised the passengers to remain clear of the fan as it was noisy and dangerous. A warning sign fitted to the fan was also pointed out. However, none of the passengers recalled that the specific danger of fan entanglement had been mentioned.

The Coroner considered that the ATSB investigation report was very comprehensive and that an inquest was unlikely to uncover further information.

The ATSB released its findings on 9 December 2015. The ATSB investigation report (**AO-2013-116**) is available on the ATSB website at **www.atsb.gov.au**.


ATSB

SECTION 9
Appendices



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APPENDIX A: OTHER MANDATORY INFORMATION

Work health and safety

The ATSB ensures employees have a healthy and safe workplace. This includes providing effective and timely incident investigation and injury management solutions.

During 2017–18, no compensation claims were accepted and the ATSB had no reportable incidents under the *Work Health and Safety Act 2011*.

Highlights for 2017–18 include:

- the effective management of the Work Health and Safety Committee which met six times, and membership was renewed mid-year ensuring coverage of all designated work areas
- implementing an education and awareness program to promote effective work health and safety practices across our different work areas, includes formal training: due diligence training for Officers; WHS training for managers and staff; and dedicated training for Health and Safety Representatives
- transiting to a new Employee Assistance Program provider, providing information sessions and ensuring resources are readily available for staff to access
- providing support and advice to meet specific organisational and individual needs
- monitoring the wellbeing of staff and implementing early intervention solutions where appropriate
- effective case management of compensation claims, contributing to a significant reduction in the ATSB's Comcare premium
- working with Comcare to audit our WHS framework, to continuously improve our work health and safety procedures and practices
- enhancing our Critical Incident Stress Management training and supports for our Transport Safety Investigators undertaking field work.

Advertising and market research

During 2017–18, the ATSB spent $2,744.96 on advertising for recruitment. There were no further payments of $13,000 or more for advertising or market research.

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 and through its sub-lease office accommodation arrangements with the Department of Infrastructure, Regional Development and Cities, the ATSB's environmental management system complies with ISO 14001:2004—the international standard for environmental management systems. The system is focused on the ATSB's office-based activities in Canberra. Initiatives are applied at regional office premises, where appropriate.

The ATSB has contracted out its data centres to private providers, with the result that servers and information and communication technology (ICT) infrastructure are located outside the ATSB premises. This produced a significant saving in energy use. The ATSB has limited its energy use through various initiatives that focus on improving the energy efficiency of the property portfolio, for example:

- operating a virtualised IT server environment
- we use 7% green energy
- ensuring that desktop IT equipment uses energy-saving policies, such as automatic turn-off for monitors and hard drives after periods of inactivity
- reducing the number of printers in the network
- setting each printer default to mono (black) and double-sided printing
- using photocopy paper containing 60 per cent recycled paper for internal use
- conserving energy, water, paper and other natural resources yet still maintaining a comfortable work environment
- actively recycling paper waste
- promoting the separation of general waste into recyclable and non-recyclable items before disposal
- promoting video conferencing as an alternative to travel, where practicable
- using 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 during 2017–18.

Diversity and Inclusion

During 2017–18, the ATSB focused on initiatives to provide an inclusive workforce diverse in background, thinking and experiences.

Highlights for 2017–18 include:

- the ATSB placed a strong emphasis on attracting women to apply to be a transport safety investigator through our sourcing strategy
- the ATSB advertised four positions under *RecruitAbility,* to improve our recruitment practices and encourage candidates with disability to apply
- providing staff with information about APS-wide diversity networks and forums, to enable them to participate and network with colleagues
- the ATSB provided specific development and networking opportunities for women looking to progress to more senior technical roles.

Changes to disability reporting in annual reports

The National Disability Strategy 2010–2020 sets out a ten-year national policy framework to improve the lives of people with disability, promote participation and create a more inclusive society.

High level reporting 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 reports can be found at **www.dss.gov.au**.

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). It also explains what records the ATSB holds, and what arrangements the ATSB has in place for outside participation.

Entities 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 website at **www.oaic.gov.au** and the Federal Register of Legislation website at **www.legislation.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**

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).

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 6294
Email: **FOI-ATSB@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) required through a request under the FOI Act. These charges are imposed in accordance with the FOI Act and the Freedom of Information (Charges) Regulations 1982. 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 with an estimate of the charges associated with the 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:

- 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, to explain why they meet the criteria, or to inform the agency of overall circumstances which justify non-payment of 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 2017–18

The ATSB received 25 new requests for access to documents under the FOI Act in 2017–18. Table 18 provides details of the ATSB's Freedom of Information activity for 2017–18.

Table 18: Freedom of Information activity

2017–2018	Numbers
Requests	
On hand at 1 July 2017 (A)	2
New requests received (B)	25
Requests withdrawn (C)	13
Requests transferred in full to another agency (D)	0
Requests on hand at 30 June 2018 (E)	5
Total requests completed at 30 June 2018 (A+B-C-D-E)	9
Action on requests	
Access in full	0
Access in part	4
Access refused	5
Access transferred in full	0
Request withdrawn	13

1 These statistics cannot be compared directly with the deadlines set in the *Freedom of Information Act 1982*, as the FOI Act provides for extensions of time to allow for consultation with third parties, negotiation of charges and other issues.

2017–2018	Numbers
Response times (excluding withdrawn)1	
0–30 days	7
31–60 days	2
61–90 days	0
90+ days	0
Internal review	
Requests received	3
Decision affirmed	2
Decision amended	0
Request withdrawn	0
Review by Office of the Australian Information Commissioner	
Applications received	0
Administrative Appeals 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, in which the ATSB services or participates
- 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 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.

To find out more about the types of personal information the ATSB holds, please refer to the ATSB Privacy Policy on the ATSB website at **www.atsb.gov.au**

For further information, please contact the ATSB either by telephone on 1800 020 616 or by email at **atsbinfo@atsb.gov.au**

Functions and decision-making powers

The ATSB's functions are detailed in Section 12AA of the *Transport Safety Investigation Act 2003* 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.legislation.gov.au**

To assist ATSB employees in exercising their powers appropriately, and enable access to their decision-making authorities, the ATSB uses an intranet site which allows employees to view 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 *Public Governance, Performance and Accountability Act 2013* 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.

APPENDIX B: ENTITY RESOURCE STATEMENT 2017–18

Table 19: ATSB Resource Statement 2017–18

	Actual available appropriation for 2017–18 $'000 (a)	Payments made 2017–18 $'000 (b)	Balance remaining 2017–18 $'000 (a) – (b)
Ordinary Annual Services[1]			
Departmental appropriation[2]	47,526	25,546	21,980
Total	**47,526**	**25,546**	**21,980**
Total ordinary annual services A	**47,526**	**25,546**	
Other services			
Departmental non-operating			
Equity injections	–	–	–
Total	**–**	**–**	
Total other services B	**–**	**–**	
Total net resourcing and payments for the Australian Transport Safety Bureau	**47,526**	**25,546**	

1 Appropriation Act (No.1) 2017–18 and includes prior year departmental appropriation and section 74 Retained Revenue Receipts.

2 Includes an amount of $0.364m in 2017–18 for the Departmental Capital Budget. For accounting purposes, this amount has been designated as 'contributions by owners'.

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.

Table 20: Expenses for Outcome

	Budget* 2017–18 $'000 (a)	Actual Expenses 2017–18 $'000 (b)	Variation 2017–18 $'000 (a) – (b)
Programme 1.1: Australian Transport Safety Bureau			
Departmental expenses			
Departmental appropriation[1]	22,006	22,198	(192)
Expenses not requiring appropriation in the Budget year	2,737	3,952	(1,215)
Total for Programme 1.1	**24,743**	**26,150**	**(1,407)**
Total expenses for Outcome 1			

* Full year budget, including any subsequent adjustment made to the 2017–18 Budget at Additional Estimates.

1 Departmental Appropriation combines Ordinary annual services (Appropriation Act Nos. 1 and 5) and Retained Revenue Receipts under section 74 of the PGPA Act 2013.

	2016–17	2017–18
Average Staffing Level (number)	107	103

APPENDIX C: GLOSSARY

Accident	An investigable matter involving a transport vehicle occurs when: > a person dies, or suffers serious injury, as a result of an occurrence associated with the operation of the vehicle > the vehicle is destroyed, or seriously damaged, as a result of an occurrence associated with the operation of the vehicle > 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, surveying, 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, kit built or experimental aircraft.
AMSA	Australian Maritime Safety Authority
ARTC	Australian Rail Track Corporation
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.
AUV	Autonomous underwater vehicle
Australian Accredited Representative	An Australian representative who is 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 blood contamination.
CASA	Civil Aviation Safety Authority
Catastrophic accident	A 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 Regular Public Transport operations.
Collective	The collective pitch control, or collective lever, changes the pitch angle of all the main rotor blades at the same time, independent of their position. Therefore, if a collective input is made, all the blades change equally. The result is that the helicopter increases or decreases its total lift derived from the rotor.
Commercial air transport	High capacity regular public transport (RPT) flights, low capacity RPT flights, charter flights and medical transport.
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
DCV	Domestic Commercial Vessel as defined by the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012*
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.
CVR (black box)	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. This also includes those whose reputations are likely to be affected following the release of the investigation report.
ETOPS	Extended twin operations—a rule that allows twin-engine airliners to fly long-distance routes that were previously off-limits to twin-engine aircraft. There are different levels of ETOPS certification. Each one allows aircraft to fly on routes that have a certain amount of flying time from the nearest suitable airport.
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 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, or check and training operations conducted by RPT operators.
General aviation (GA)	General aviation covers: > aerial work operations (including aerial agriculture, aerial mustering, search and rescue, and aerial survey) > flying training > private aviation > business and sports (including gliding) aviation—VH, or foreign-registered.
Hours flown	Calculated from the time 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 matter 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 Indonesia Transport Safety Assistance Package
JACC	Joint Agency Coordination Centre
LSA	Light sport aircraft
LOSA	Loss of separation assurance
Less complex investigations	Those rated at level 4 or level 5 under the ATSB's rating scheme.
MAIFA	Marine Accident Investigators Forum in Asia
Minor injury	An injury sustained by a person, in an accident, that was not fatal or serious and does not require hospitalisation.
Multi-modal	Across the three modes of transport covered by the ATSB: aviation, marine and rail.

National Transportation Safety Committee (NTSC)	An 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	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—including 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.
Other safety issue	Associated with a risk level regarded as unacceptable unless it is kept as low as reasonably practicable. Where there is a reasonable expectation that safety action could be taken in response to reduce risk, the ATSB will issue a safety recommendation to the appropriate agency when proactive safety action is not forthcoming.
PIF	Post-impact fire
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. Business flying refers to the use of aircraft as a means of transport to support a business, or profession, without the aircraft revenue directly.
PGPA Act	*Public Governance, Performance and Accountability Act 2013*
RAAus	Recreational Aviation Australia
Recreational aviation	Aircraft being used for recreational flying that are registered by a recreational aviation administration organisation.
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, as well as to protect the environment.
Regular public transport (RPT)	Refers to aircraft that transport passengers, and/or cargo, according to fixed schedules and fixed departure/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.

REPCON	The aviation confidential reporting scheme.
REPCON Marine	The marine confidential reporting scheme.
Reportable safety concern	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 than a safety recommendation and is 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—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 which can reasonably be regarded as having the potential to adversely affect the safety of future operations and: > is a characteristic of an organisation or a system, rather than a characteristic of a specific individual, or > is characteristic of an operational environment at a specific point in time.
Safety recommendation	ATSB safety recommendations are formal recommendations from 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 an accident nearly occurred.
Serious injury	An injury which is sustained by a person in an accident and involves one or more of the following: > 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) > involves 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, of 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, background engine sounds and warnings.
Sports aviation	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.
STAR	Standard arrival route
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 the *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 occurred that affected, is affecting, or might affect transport safety.
TSI Act	*Transport Safety Investigation Act 2003*
ULB	Underwater locator beacon

APPENDIX D: LIST OF REQUIREMENTS

PGPA rule ref	Description	Requirement	Page
17AI	Letter of transmittal	Mandatory	v
17AJ(a)	Table of contents	Mandatory	vi–x
17AJ(b)	Alphabetical index	Mandatory	205–211
17AJ(c)	Glossary of abbreviations and acronyms	Mandatory	194–199
17AJ(d)	List of requirements	Mandatory	200–204
17AJ(e)	Details of contact officer	Mandatory	xi
17AJ(f)	Entity's website address	Mandatory	xi
17AJ(g)	Electronic address of report	Mandatory	xi
Review by Accountable Authority			
17AD(a)	A review by the accountable authority of the entity	Mandatory	2–7
	Summary of significant issues and developments	Suggested	2–7
	Overview of the entity's performance and financial results	Suggested	2–7
	Outlook for the next reporting period	Suggested	7
	Significant issues and developments for the portfolio	Suggested for portfolio agencies	N/A
Overview of the entity			
17AE(1)(a)(i)	A description of the role and functions of the entity.	Mandatory	10–20
17AE(1)(a)(ii)	A description of the organisational structure of the entity.	Mandatory	21–26
17AE(1)(a)(iii)	A description of the outcomes and programmes administered by the entity.	Mandatory	27
17AE(1)(a)(iv)	A description of the purposes of the entity as included in corporate plan.	Mandatory	10–11
17AE(1)(b)	An outline of the structure of the portfolio of the entity.	Portfolio departments – mandatory	N/A
17AE(2)	Differences in the outcomes and programmes from any Portfolio Budget Statement, Portfolio Additional Estimates Statement or other portfolio estimates statement.	If applicable, mandatory	N/A

PGPA rule ref	Description	Requirement	Page
Report on the performance of the entity			
17AD(c)(i); 16F	Annual performance statement in accordance with paragraph 39(1)(b) of the Act and section 16F of the Rule.	Mandatory	34–40
17AF(1)(a)	A discussion and analysis of the entity's financial performance.	Mandatory	61–62
17AF(1)(b)	A table summarising the total resources and total payments of the entity.	Mandatory	192–193
17AF(2)	Discussion of any significant changes in financial results, the cause of any operating loss, response to and actions taken in relation to the loss; and any matter that may have a significant impact on the entity's future operation or financial results.	If applicable, mandatory	61–62
Management and Accountability			
Corporate governance			
17AG(2)(a)	Information on compliance with section 10 (fraud systems).	Mandatory	171
17AG(2)(b)(i)	A certification by accountable authority that fraud risk assessments and fraud control plans have been prepared.	Mandatory	v
17AG(2)(b)(ii)	A certification by accountable authority that appropriate mechanisms for preventing, detecting incidents of, investigating or otherwise dealing with, and recording or reporting fraud that meet the specific needs of the entity are in place.	Mandatory	v
17AG(2)(b)(iii)	A certification by accountable authority that all reasonable measures have been taken to deal appropriately with fraud relating to the entity.	Mandatory	v
17AG(2)(c)	An outline of structures and processes in place for the entity to implement principles and objectives of corporate governance.	Mandatory	168–180
17AG(2)(d)–(e)	A statement of significant issues reported to the Minister under paragraph 19(1)(e) of the Act that relates to non-compliance with Finance law and action taken to remedy non-compliance.	If applicable, mandatory	N/A

PGPA rule ref	Description	Requirement	Page
External scrutiny			
17AG(3)	Information on the most significant developments in external scrutiny and the entity's response to the scrutiny.	Mandatory	176–180
17AG(3)(a)	Information on judicial decisions and decisions of administrative tribunals and by the Australian Information Commissioner that may have a significant effect on the operations of the entity.	If applicable, mandatory	N/A
17AG(3)(b)	Information on any reports on operations of the entity by the Auditor-General (other than report under section 43 of the Act), a Parliamentary Committee, or the Commonwealth Ombudsman.	If applicable, mandatory	N/A
17AG(3)(c)	Information on any capability reviews on the entity that were released during the period.	If applicable, mandatory	N/A
Management of human resources			
17AG(4)(a)	An assessment of the entity's effectiveness in managing and developing employees to achieve entity objectives.	Mandatory	172–176
17AG(4)(b)	Statistics on staffing.	Mandatory	172–174
17AG(4)(c)	Information on any enterprise agreements, individual flexibility arrangements, Australian workplace agreements, common law contracts and determinations under subsection 24(1) of the *Public Service Act 1999.*	Mandatory	172–173
17AG(4)(c)(i)	Information on the number of SES and non-SES employees covered by agreements etc identified in paragraph 17AG(4)(c).	Mandatory	173
17AG(4)(c)(ii)	The salary ranges available for APS employees by classification level.	Mandatory	174
17AG(4)(c)(iii)	A description of non-salary benefits provided to employees.	Mandatory	172
17AG(4)(d)(i)	Information on the number of employees at each classification level who received performance pay.	If applicable, mandatory	173
17AG(4)(d)(ii)	Information on aggregate amounts of performance pay at each classification level.	If applicable, mandatory	173–174
17AG(4)(d)(iii)	Information on the average amount of performance payment, and range of such payments, at each classification level.	If applicable, mandatory	173–174
17AG(4)(d)(iv)	Information on aggregate amount of performance payments.	If applicable, mandatory	173–174

PGPA rule ref	Description	Requirement	Page
Assets management			
17AG(5)	An assessment of effectiveness of assets management where asset management is a significant part of the entity's activities.	If applicable, mandatory	N/A
Purchasing			
17AG(6)	An assessment of entity performance against the *Commonwealth Procurement Rules.*	Mandatory	176–178
Consultants			
17AG(7)(a)	A summary statement detailing the number of new contracts engaging consultants entered into during the period; the total actual expenditure on all new consultancy contracts entered into during the period (inclusive of GST); the number of ongoing consultancy contracts that were entered into during a previous reporting period; and the total actual expenditure in the reporting year on the ongoing consultancy contracts (inclusive of GST).	Mandatory	177
17AG(7)(b)	A statement that "During [reporting period], [specified number] new consultancy contracts were entered into involving total actual expenditure of $[specified million]. In addition, [specified number] ongoing consultancy contracts were active during the period, involving total actual expenditure of $[specified million]".	Mandatory	177
17AG(7)(c)	A summary of the policies and procedures for selecting and engaging consultants and the main categories of purposes for which consultants were selected and engaged.	Mandatory	177
17AG(7)(d)	A statement that "Annual reports contain information about actual expenditure on contracts for consultancies. Information on the value of contracts and consultancies is available on the AusTender website".	Mandatory	177
Australian National Audit Office access clauses			
17AG(8)	Absence of provisions in contracts allowing access by the Auditor-General.	If applicable, mandatory	N/A
Exempt contracts			
17AG(9)	Contracts exempted from publication on AusTender.	If applicable, mandatory	177

PGPA rule ref	Description	Requirement	Page
Small business			
17AG(10)(a)	A statement that "*[Name of entity] supports small business participation in the Commonwealth Government procurement market. Small and Medium Enterprises (SME) and Small Enterprise participation statistics are available on the Department of Finance's website*".	Mandatory	177
17AG(10)(b)	An outline of the ways in which the procurement practices of the entity support small and medium enterprises.	Mandatory	177–178
17AG(10)(c)	If the entity is considered by the Department administered by the Finance Minister as material in nature—a statement that "[Name of entity] recognises the importance of ensuring that small businesses are paid on time. The results of the Survey of Australian Government Payments to Small Business are available on the Treasury's website".	If applicable, mandatory	N/A
Financial statements			
17AD(e)	Inclusion of the annual financial statements in accordance with subsection 43(4) of the Act.	Mandatory	140–165
Other mandatory information			
17AH(1)(a)(i) and 17AH(1)(a)(ii)	Statement regarding the conduct of advertising campaigns during the reporting period.	If applicable, mandatory	184
17AH(1)(b)	Grant programs.	If applicable, mandatory	186
17AH(1)(c)	Outline of mechanisms of disability reporting, including reference to website for further information.	Mandatory	186
17AH(1)(d)	Website reference to where the entity's Information Publication Scheme statement pursuant to Part II of FOI Act can be found.	Mandatory	187
17AH(1)(e)	Correction of material errors in previous annual report.	If applicable, mandatory	N/A
17AH(2)	Information required by other legislation.	Mandatory	184–191

SUBJECT INDEX

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