

New Zealand Aviation State Safety Programme

January 2018



New Zealand Government



Ministry of Transport
TE MANATŪ WAKA

Table of Contents

Foreword	ii
New Zealand State Safety Policy Statement	1
Introduction	2
1. State Safety Policy and Objectives	3
1.1. Background.....	3
1.2. Legislative framework	6
1.3. Responsibilities and accountabilities.....	10
1.4. Accident and incident investigation	13
2. State Safety Risk Management	15
2.1. Safety requirement for a service provider's SMS	15
2.2. Agreement on service providers' safety performance	16
3. State Safety Assurance	17
3.1. Safety oversight	17
3.2. Safety data collection, analysis and exchange.....	18
3.3. Data-driven targeting of oversight of areas of greater concern or need	19
4. State Safety Promotion	22
4.1. Internal training, communication and dissemination of safety information	22
4.2. External training, communication and dissemination of safety information	22
5. Glossary	24

Foreword

Aviation in New Zealand has steadily grown and diversified - a trend that is expected to continue into the future. This presents significant opportunities for innovation, including new technologies and types of aircraft, and to make a greater contribution to our economy.

With these opportunities, however, come some significant challenges to ensure that we continue to maintain and further improve aviation safety and security.

Recognising these challenges and presenting a way to help meet them, the International Civil Aviation Organization (ICAO) requires States to implement a State Safety Programme (SSP). It is a cohesive framework to help a country effectively and efficiently manage its aviation safety and security. As a signatory to the Convention on Civil Aviation, New Zealand is expected to implement a SSP.

The SSP described in this document is the roadmap for maintaining and improving aviation safety and security in New Zealand, through:

- the legislative framework and responsible authorities;
- formalised safety management practices;
- assurance of safety through effective intelligence and analysis;
- education, training, promotion and communication of safety issues; and
- investigation and learnings.

The SSP is an extensive system that will continue to evolve over time. Consequently, this document will evolve to accurately reflect New Zealand's aviation safety framework.

New Zealand will embrace the opportunities and challenges of the continual development that characterises aviation. We will do so based on a robust, internationally respected, safety, and security regulatory system.



Graeme Harris

Director

*Civil Aviation Authority of New Zealand and
State Safety Programme Accountable Executive*

New Zealand State Safety Policy Statement

The Government promotes and regulates civil aviation in New Zealand to:

- manage and reduce safety risks;
- deliver economic benefits for New Zealand;
- support a safe, efficient and resilient transportation system; and
- support environmental sustainability.

To achieve these objectives, the New Zealand Government, through its agencies, will:

- Enable the adoption of innovative technologies where appropriate;
- Set policies and rules in line with the Standards and Recommended Practices of the International Civil Aviation Organization (ICAO), where to do so is in New Zealand's best interest;
- Ensure its regulatory approach and interventions meet best practice regulatory principles to facilitate safe aviation, based on sound assessment of the level of risk associated with particular aviation operations;
- Identify safety trends within the aviation system and, where appropriate, adopt a risk-based and performance-based approach to address areas of safety concern or need;
- Investigate accidents, incidents and non-compliance with aviation regulation and legislation to contribute to the maintenance and continuous improvement of the safety and integrity of New Zealand's aviation system;
- Engage internationally (ICAO and the Asia-Pacific region, in particular) to deliver complementary safety outcomes;
- Encourage the collection, analysis, protection and sharing of relevant safety information at all levels of the aviation system to improve safety management;
- Continuously monitor and measure the aviation system's safety performance;
- Actively collaborate and consult with the aviation sector, including the public, to identify and address safety matters, to continuously enhance aviation safety;
- Promote good safety practices and a positive safety culture within the aviation sector based on sound safety management principles; and
- Allocate sufficient resources to equip aviation regulatory staff with the proper skills and expertise to discharge their safety oversight and management responsibilities competently.

Introduction

Aviation is a key part of New Zealand's integrated transport system. New Zealand's transport policy direction is detailed in *Connecting New Zealand: A summary of the Government's policy direction for transport*.¹ Its overall objective is:

An effective, efficient, safe, secure, accessible and resilient transport system that supports the growth of our country's economy, in order to deliver greater prosperity, security and opportunities for all New Zealanders.

New Zealand maintains some of the safest skies in the world; however, like many other States, it has an increasing volume of traffic and an increasing diversity of aviation participants.² In the 2016/17 year:

- 99 percent of international visitors arrived and departed New Zealand by air;
- \$8 billion worth of goods exported by air (15.5 percent of the total value of New Zealand's exports in the past 12 months);
- 13.4 million international and domestic passengers screened; and
- Visitors to New Zealand are expected to grow 4 percent a year, reaching 3.8 million by 2021.

Connecting New Zealand provides clear guidance that the aviation sector must respond to technological changes and changing international safety and security standards to continue to ensure safety in the face of this growth.

In the international context, New Zealand is a founding signatory to the Convention on International Civil Aviation 1944.³ ICAO, a specialist agency of the United Nations, administers the Convention. As an ICAO State, New Zealand has an obligation to the highest degree practicable, to comply with the standards set by ICAO, including implementing a SSP.

¹ [Connecting New Zealand: A summary of the government's policy direction for transport](#), New Zealand Government, 2011.

² [New Horizons: A report on New Zealand's Aviation Industry](#). Prepared for New Zealand Trade and Enterprise by Knotridge Ltd, 2010.

³ [ICAO Chicago Convention 1944](#).

1.State Safety Policy and Objectives

1.1.Background

New Zealand's desired outcome for civil aviation is:

Safe flight for social connections and economic benefits.

Safe flight is realised through:

- *low and reducing numbers of accidents;*
- *reducing social cost of accidents (death, injury and property loss valuation); and*
- *no airside or in-flight security incidents that compromise safety.*

To achieve this, New Zealand, led by the Ministry of Transport (the Ministry) and the Civil Aviation Authority (CAA), develop and implement strategies, regulatory frameworks, and processes to ensure that aviation activities perform to the highest level of safety practicable.

Where possible, New Zealand aims to take a risk-based approach to aviation safety regulation, to encourage and support New Zealand service providers' Safety Management Systems (SMS), and implement ICAO's Standards and Recommended Practices (SARPs) to the highest degree practicable

1.1.1. International obligations

Annex 19 *Safety Management* to the Convention on International Civil Aviation, brings together the standards for safety management that require ICAO States to establish a SSP. A SSP is an ICAO framework for States to co-ordinate their risk-based regulatory oversight and achieve an Acceptable Level of Safety Performance (ALoSP) in civil aviation. A SSP is intended to support a risk-based aviation system and the implementation of SMS by aviation service providers and the regulator.

1.1.2. New Zealand Aviation Safety Programme

New Zealand's SSP is a system-level description of its aviation safety management and the specific safety activities it undertakes to support its responsibilities to achieve safe and efficient aviation. It combines the elements of both the traditional prescriptive and the modern performance- and risk-based approaches to safety management.

As required in ICAO Annex 19, the core of New Zealand's SSP consists of the eight critical elements (CE) of safety that ICAO requires States to manage effectively. These are as follows:

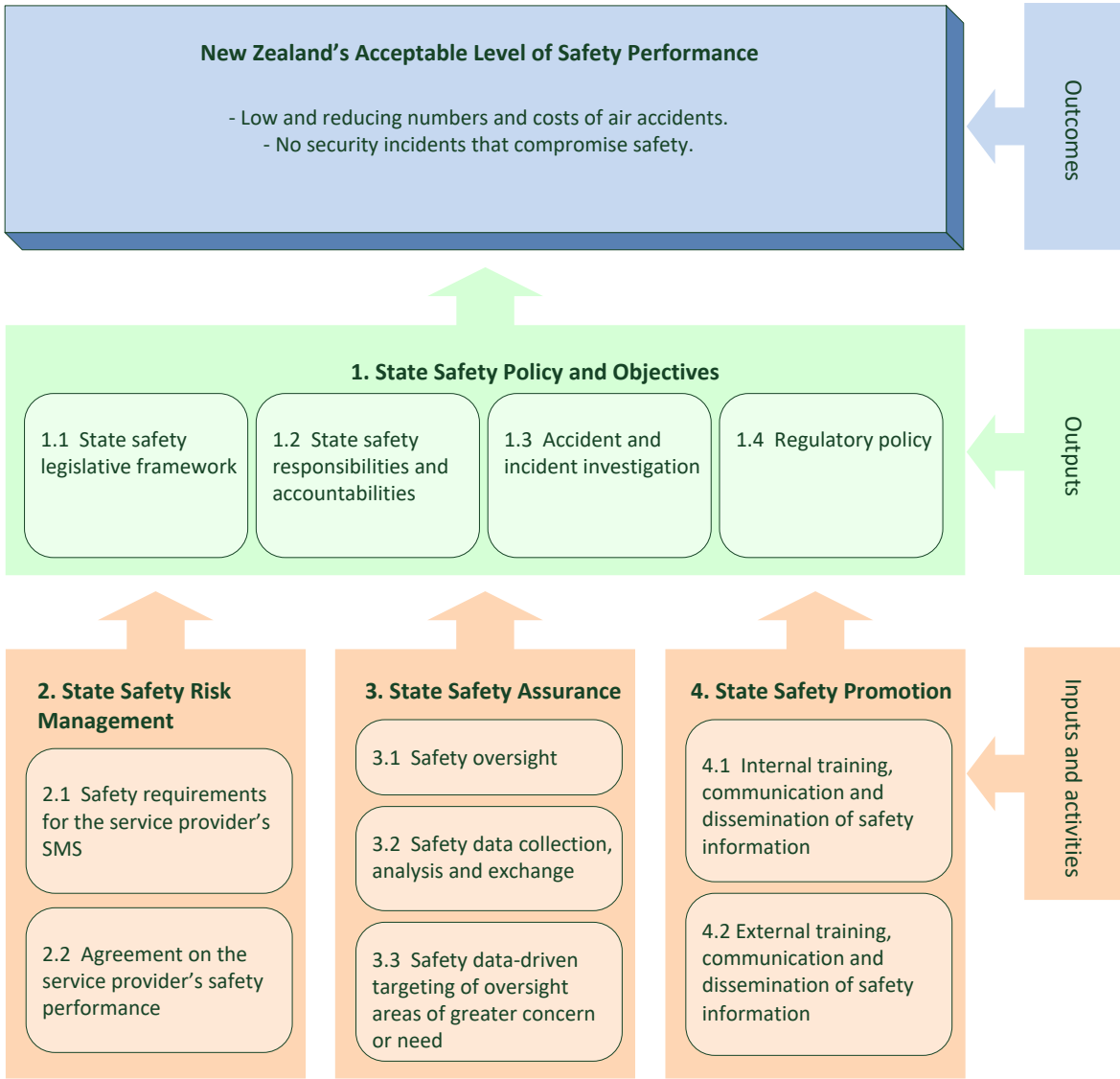
- Primary aviation legislation (CE-1);
- Specific operating regulations (CE-2);
- State system and functions (CE-3);
- Qualified technical personnel (CE-4);
- Technical guidance, tools and provision of safety-critical information (CE-5);
- Licensing, certification, authorization and approval obligations (CE-6);
- Surveillance obligations (CE-7); and
- Resolution of safety issues (CE-8).

These are incorporated in the four components of New Zealand's SSP framework, which are:

1. State safety policy and objectives;
2. State safety risk management;
3. State safety assurance; and
4. State safety promotion.

This document and the State Safety Policy Statement is structured to align with this framework. The figure below depicts the relationship of these components to New Zealand’s ALoSP.

Figure 1



The monitoring and oversight framework described in this document also guides the establishment and maintenance of the SMS that New Zealand’s certificated aviation service providers are required to establish.⁴

1.1.3. Monitoring the State Safety Programme

A collaborative inter-agency SSP Coordination Committee (the Committee) is used to ensure SSP functions are effective by monitoring its implementation and guiding development. This includes the identification and initiation of new activities to improve the system.

The Committee brings together the following representatives and agencies:

⁴ SMS is the systematic approach to managing safety recommended by ICAO for aviation organisations (see page 15, *State Safety Risk Management*).

- Civil Aviation Authority of New Zealand
 - Deputy Chief Executive;
 - Deputy Director, General Aviation;
 - Deputy Director, Air Transport and Airworthiness; and the
 - Deputy Director, Aviation Infrastructure and Personnel.
- Ministry of Transport
 - Deputy Chief Executive, Regulatory and Data.
- Transport Accident Investigation Commission
 - Chief Investigator of Accidents.
- Royal New Zealand Air Force
 - Director of Air Force Safety and Health.

To improve and monitor the activities of SSP, the Committee has the following objectives:

- ensure the maintenance and continued improvement of the SSP, including New Zealand's performance in the eight CEs;
- identify and address gaps and shortcomings in the SSP;
- monitor and evaluate activities undertaken to rectify identified SSP gaps and shortcomings; and to
- communicate with relevant government entities and the aviation sector on the Committee's work and outcomes.

New Zealand's SSP is a continually evolving system. To that end, the SSP is reviewed and updated regularly by the Committee in consultation with relevant agencies, industry, and community stakeholders.

1.2. Legislative framework

New Zealand has an aviation legislative framework supported by the necessary rules and regulations that aim to implement the Chicago Convention and its Annexes.

New Zealand's aviation legislative framework is as follows:

1.2.1. International obligations

The international standardisation and safety of civil aviation is the primary purpose of ICAO and the Convention on International Civil Aviation 1944 (the Convention).

Articles 37 and 38 of the Convention require States to adopt SARPs to the extent practicable. SARPs are implemented through the Ministry wherever they are relevant in the New Zealand context and justified by robust cost-benefit economic analysis.

1.2.2. New Zealand Legislative Framework

The Civil Aviation Act 1990

The [Civil Aviation Act 1990](#) (the Act) is New Zealand's primary aviation legislative document.

The Act establishes the operational rules and divisions of responsibility within the civil aviation system in order to promote aviation safety, and ensures that New Zealand's obligations under international aviation agreements are implemented.

The Director of Civil Aviation has powers conferred by the Act, which, when applied to a specific case, are performed independently of both the Minister and the Authority (the CAA Board). These powers include controlling entry and exit from the aviation system, monitoring performance, enforcing compliance with the Act and the Civil Aviation Rules, and approving emergency Rules where circumstances require immediate action.

The CAA through the issue of aviation documents controls entry and exit from the aviation system. These include a pilot's licence, air operator certificate, aircraft registration, engineer's licence, and air traffic control licence and aerodrome certificate. These documents are granted only after applicants have demonstrated that they meet the standards set in the Act and Rules.

In addition to the powers of the Minister, the Authority, and the Director, the Act places clear safety responsibilities on aviation document holders themselves. Section 12 of the Act outlines the requirement for document holders to establish and follow a management system that ensures compliance with safety standards. This must include the provision of resources to ensure compliance, and provide training and supervision for employees.

Civil Aviation Rules

[Civil Aviation Rules](#) (the Rules) set the common minimum standards to manage risks in aviation and for entering and operating within the civil aviation system. Rules function as a combination of prescriptive standards and performance- and risk-based requirements.

Rules are made by the Minister of Transport under the Civil Aviation Act 1990 and cover all aspects of the aviation system, including:

- all aircraft, including Remote Piloted Aircraft Systems (RPAS);
- pilots;
- air traffic controllers;
- engineers;
- airspace;
- commercial operations;
- recreational operations;
- aerodromes;
- designers and manufacturers;

- aviation security; and
- occurrence reporting.

The Ministry of Transport contracts the CAA to develop the Rules and supporting policy work in consultation with the aviation community. Rules are developed from needs identified by the CAA or the aviation community. Rules take into account changes to SARPs, recommendations from Transport Accident Investigation Commission (TAIC) investigations, CAA accident and incident investigations and safety data and audits, industry service providers' petitions, and Coroner's Reports.

Emergency Rules

The Director of Civil Aviation can make [emergency Rules](#) to alleviate or minimise the risk of death, serious injury, or damage to property. Emergency Rules are rare and temporary, often lasting just 90 days. The Director may extend them an additional 30 days, and if necessary, the Minister may extend the period a further 180 days. This is intended to allow the ordinary Rule-making process to address the issue when appropriate.

CAA Notices

From time to time, Rules may be made empowering the use of [CAA Notices](#) to ensure those Rules remain responsive and adaptable to changes or emerging risks in the civil aviation system.

Section 28(5) of the Civil Aviation Act 1990 enables the Minister to make Rules that “empower the Director, the Authority, or any other person” to issue approvals, determinations, requirements, conditions or procedures for purposes specified in the Rule.

This provision was inserted into the Act in 2010 in order to create some flexibility to allow the regulatory framework to better meet the demands and challenges of an evolving aviation sector. Where the Minister makes a Rule under section 28(5), he or she could allow for approvals, determinations, or requirements to be set out in an additional document, which can be more readily amended in future.

Where the Minister approves a Rule that allows for the use of a Notice, that Rule will set out the objectives, criteria for consideration and procedures to follow, as appropriate, for developing the Notice. The Rule requires compliance with the Notice lists the specific detail, for example technical standards or training conditions.

Once the Rule is in place, its Notice can be developed and amended more rapidly than other Rules. Other benefits include the support of performance-based regulation, adaptability to technological changes, responsiveness to immediate safety issues, and the ability to reference specific operations and equipment.

Advisory Circulars

[Advisory Circulars](#) (ACs) are developed by the CAA to provide guidance on complying with the rules. There are ACs for most Rules and are used by the CAA to explain an acceptable means of compliance, but they may not be the only acceptable means. They are not mandatory.

Airworthiness Directives

Sometimes an aircraft or component of an aircraft may have a safety problem that requires all other aircraft of the same type to be checked. To do this, the Director issues an [Airworthiness Directive](#) (AD).

ADs usually require aircraft owners or operators to have specific inspections, repairs, or modifications completed by a Licensed Aircraft Maintenance Engineer (LAME). ADs can result from defect reports by engineers, accident investigations, manufacturers' recommendations, or

from ADs issued by other States. The CAA issues new and amended ADs monthly, but emergency ADs can be issued at any time.

Exemptions

Participants can make applications to the Director to be exempted from a specified Rule. The Director may grant an exemption from a Rule requirement, with appropriate conditions. The applicant must provide a risk and evidence based justification for the proposed exemption. This applies regardless of any exemptions granted in the past. To successfully assess an application, the Director requires documentation and evidence that clearly demonstrate the reason for the exemption, including any proposed actions or conditions to maintain an equivalent level of safety.

1.2.3. Aviation security

Aviation Crimes Act 1972

Part 8 of the Civil Aviation Act 1990 outlines the duties and responsibilities for aviation security in New Zealand, including for the prevention of crime against the [Aviation Crimes Act 1972](#). Act gives effect to New Zealand's commitments and responsibilities to various international agreements for the prevention of crimes against international air services.⁵

National Aviation Security Programme

In accordance with the Annex 17 Standard 4.1.1, New Zealand has developed a National Aviation Security Programme (NASP) that sets the policy for the implementation of aviation security in New Zealand.

The NASP aims to protect the security, regularity and efficiency of aircraft and international and domestic airports by developing and implementing appropriate security procedures. This must happen within the NASP's provisions for safeguarding against acts of unlawful interference on persons, terminals, air navigation installations, aircraft, and equipment. The NASP reflects the relevant legislation, regulations (including the Rules), practices, and procedures that "safeguard civil aviation operations against acts of unlawful interference".

Other legislation, which assists in the implementation and enforcement of the NASP, includes the Crimes Act 1961, the Trespass Act 1980, the Bill of Rights Act 1990, and the Charges Regulations. This framework contributes to New Zealand achieving the eight CEs required and audited by ICAO.

1.2.4. Other legislation placing additional specific duties on the CAA

Health and Safety at Work Act 2015

While WorkSafe New Zealand is the designated agency responsible for health and safety, under section 191 of the [Health and Safety at Work Act 2015](#) (HSWA), the CAA is the designated agency for health and safety concerning:

- *work to prepare an aircraft for imminent flight;*
- *work on board an aircraft for the purpose of imminent flight or while in operation; and*
- *aircraft as workplaces while in operation.*

A dedicated [Health and Safety Unit](#) leads the CAA's regulatory responsibilities and functions under the HSWA. The HSWA recognises that a well-functioning health and safety system relies on participation, leadership, and accountability by government, business and workers. A key

⁵ This includes the *Hague Convention for the Suppression of Unlawful Seizure of Aircraft*; the *Montreal Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation*; the *Montreal Protocol for the Suppression of Unlawful Acts of Violence at Airports Servicing International Civil Aviation*, and the *Tokyo Convention on Offences and Certain other Acts Committed on Board Aircraft*. The terms and provisions of these are given legal effect in New Zealand by the *Civil Aviation Act 1990*, *Aviation Crimes Act 1972*, *Civil Aviation (Offences) Regulations 2006*, and various Civil Aviation Rule Parts.

principle of HSWA is that workers and other persons should be given the highest level of protection against harm to their health and safety from work risks as is reasonably practicable.

Hazardous Substances and New Organisms Act 1996

The [Hazardous Substances and New Organisms Act 1996](#) aims to “protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms.”

Section 97 of this Act places a responsibility upon the Director of Civil Aviation to enforce this Act “in or on any aircraft”, and for hazardous substances discharged from aircraft. The CAA employs warranted officers to undertake this function.

1.2.5. Transport Accident Investigation Commission Act

The [Transport Accident Investigation Commission Act 1990](#) established the Transport Accident Investigation Commission (TAIC). The principal purpose of the TAIC is to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future, rather than to ascribe blame to any person, in accordance with ICAO Annex 13 *Aircraft Accident and Incident Investigation*.

1.2.6. Emerging and disruptive aviation technology

Unmanned aviation is a rapidly emerging and growing sector. Significant growth in the number and complexity of operations requires the CAA and others to balance an ‘enabling’ approach to the introduction of new, often disruptive technology, while at the same time adequately managing risk.

Rules for RPAS, and unmanned aerial system (UAS) operations, were introduced in August 2015. This included the performance-based [Part 102](#) that allows any operation as long as the operator can prove that they have appropriately mitigated the risks involved in the operation. This allows for research, development, and commercial application of the rapidly advancing technology.

New Zealand strives to adapt and respond to new technology while maintaining existing safety and security. This requires the ability to identify and manage emerging risks. New Zealand is committed to this approach despite the fact that it demands greater capacity and capability than the more traditional compliance-based regulatory approach of the past.

The Ministry coordinates interagency efforts to fully integrate RPAS, UAS, and associated technologies across the spectrum of New Zealand Government’s interests. The CAA is actively engaged in this and other work providing technical and analytical support to the Ministry.

At an international level, New Zealand is an active member of bodies leading the development of UAS and RPAS standards. This includes the ICAO RPAS Panel that is preparing amendments to the Annexes of Chicago Convention and the Joint Authorities for the Rulemaking of Unmanned Systems ([JARUS](#)). The latter is a group of experts from 52 national aviation authorities working to recommend a single set of technical, safety and operational requirements for the certification and the safe integration of Unmanned Aircraft Systems (UAS) in airspace and at aerodromes.

As these are finalised and officially adopted, New Zealand will consider and incorporate as far as reasonably practicable in its legislative framework.

1.3.Responsibilities and accountabilities

Safety oversight of New Zealand's aviation sector can be depicted as follows:

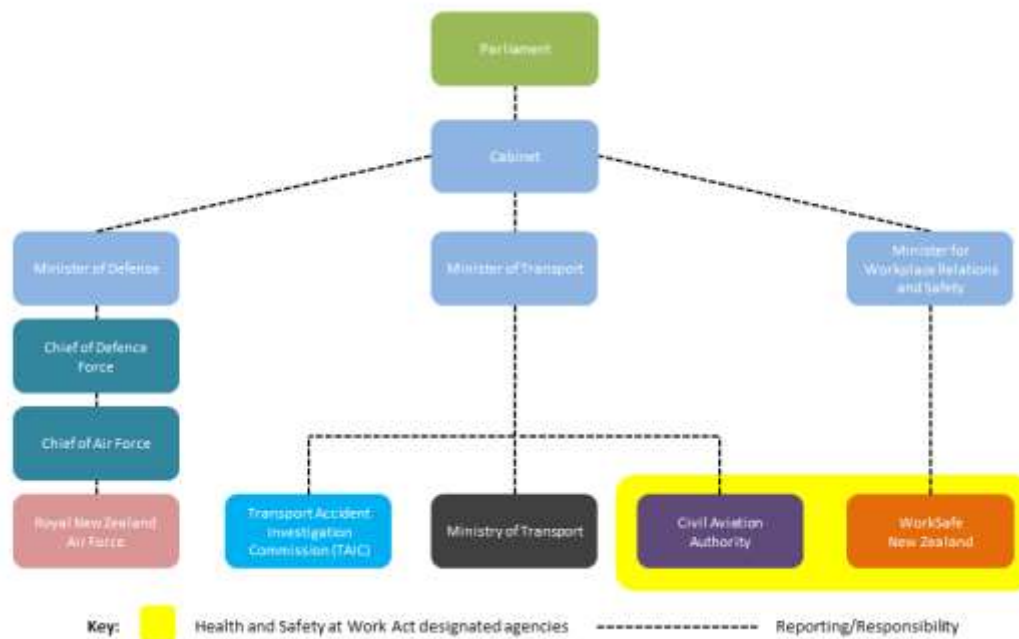


Figure 2

1.3.1. Minister and Ministry of Transport

The [Minister of Transport](#) oversees New Zealand's transport sector and reports to Cabinet and Parliament for significant policy and regulatory matters involving the transport sector. They are responsible for New Zealand's ICAO obligations.

The [Ministry of Transport](#) is the New Zealand Government's principal transport advisor, focusing primarily on providing policy and legislative advice and support to the Minister and Government. The Ministry's aims are to:

- improve the overall performance of the transport system;
- improve the performance of transport Crown entities, including the CAA and TAIC; and to
- achieve better value for money for the Government from its investment in the transport system.

The Ministry plays a key role in representing New Zealand's transport interests internationally. It is also largely responsible for the economic regulation of international air transport and negotiating New Zealand's bilateral air services agreements. The Ministry and the CAA have a close working relationship to ensure aviation safety and security in New Zealand.

1.3.2. Civil Aviation Authority of New Zealand

The Civil Aviation Authority ([CAA](#)) is New Zealand's aviation safety and safety regulator.

It carries out accident and incident investigations, certification, inspection, auditing, and other activities, and collates this material to establish an industry-wide safety picture. This information becomes the basis of safety initiatives ranging from education campaigns to increased monitoring and regulatory action.

A five-member board (the Authority) is appointed by the Minister to represent the public interest in civil aviation and to govern the CAA. The Authority appoints the CAA's Chief Executive, who is also the Director of Civil Aviation, and is delegated certain independent functions and powers.

The CAA's regulatory functions ensure that New Zealand's civil aviation system is:

- *robust and responsive to technological, environmental and human change;*
- *respected internationally; and*
- *applies an appropriate level of safety and security for the New Zealand public.*

CAA interventions are focused on the greatest safety concerns. Its aim is to influence attitudes, change behaviour, and encourage aviation participants to operate well above safety minimums.

The CAA works to achieve this by utilising a regulatory toolkit for interventions that includes:

- developing minimum safety and security standards to be met by civil aviation participants;
- using certification and licensing to control entry and exit to the civil aviation system and intervening when aviation participants operate outside the rules or standards;
- monitoring compliance with safety and security standards, investigating and analysing accidents and incidents, and carrying out corrective action, surveillance and enforcement;
- administering the provisions of the HSWA as per its designation, providing information and guidance, conducting work place inspections, auditing health and safety management systems and investigating workplace accidents and concerns; and
- developing policy and other non-regulatory interventions including promoting safety and supporting civil aviation participants with aviation safety publications, courses, seminars and advice.

In collaboration with the Ministry, the CAA produces and maintains the SSP to ensure it reflects changes and initiatives at the domestic and global levels.

1.3.3. Aviation security

National Aviation Security Programme Reference Document

The details of New Zealand's national aviation security programme are contained in the National Aviation Security Programme Reference Document. It provides information on the security responsibilities and accountabilities of various State agencies, including the CAA, New Zealand Police and others, and industry service providers. It is maintained by the CAA and provided under appropriate controls to relevant industry service providers and wider Government stakeholders. The sensitive nature of some of the content precludes wider public release. Not all elements of the SSP are directly transferable to or relevant in a security context.

Aviation Security Service

The Aviation Security Service ([Avsec](#)) is the State provider of aviation security in New Zealand. It is a business unit of the CAA. Avsec is an aviation document holder under Rule Part 140: *Aviation Security Service Organisations*.

To fulfil its regulatory mandate, Avsec's work consist of four principal programmes:

- screening passengers and carry-on baggage at all security designated airports;
- screening checked baggage at international airport and airport access controls. This includes perimeter patrols at all security-designated aerodromes, guarding of aircraft and aircraft searches;
- screening of airport workers with access to, and within security enhanced areas; and

- managing and issuing the Airport Identity Cards (AIC) under delegation from the Director.

1.3.4. Transport Accident Investigation Commission

The Transport Accident Investigation Commission ([TAIC](#)) is a standing Commission of Inquiry and an independent Crown entity. Established by the Transport Accident Investigation Commission Act 1990, its principal purpose is:

To determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future, rather than to ascribe blame to any person.

TAIC investigates marine, rail, and air accidents and incidents where it considers there is, or could be, significant implications for safety. It also investigates if it believes it can make non-binding findings and recommendations to agencies and individuals with respect to its conclusions to improve safety.

TAIC's work reflects the ICAO Annex 13 *Aircraft Accident and Incident Investigation* requirements regarding specific requirements for independent accident and incident investigations. It promotes learning from its investigations and other work to influence transport safety to fulfil New Zealand's obligations under Annex 13.

TAIC's legislation sets the requirements for the disclosure and admissibility of specified accident or incident investigation records, in particular, on-board recorders. As far as New Zealand law allows, TAIC follows SARPs in relation to its aviation accident investigation procedures that require:

- an independent accident investigation authority - that is an agency whose responsibility it is to investigate accidents or incidents and report on causes without seeking to identify individuals or organisations to be held accountable for an accident or incident;
- adoption of particular investigation practices; and
- reporting of findings and recommendations, as well as specific information about accidents and incidents, to ICAO.

As RPAS and UAS operations begin to become more frequent and complex, TAIC is beginning to develop the necessary technical skills to both understand the technology behind these operations and effectively investigate future incidents or accidents involving these aircraft. In order to meet future demands, TAIC is employing a Forensic Data Recovery Specialist to work with its existing Recorders Specialist.

1.3.5. Royal New Zealand Air Force

The [Royal New Zealand Air Force](#) is considered a part of New Zealand's SSP to provide an opportunity for interagency discussion regarding safety and security as the interface between military and civil aviation increases.

1.3.6. WorkSafe New Zealand

WorkSafe is the primary workplace health and safety regulator in New Zealand, established as a Crown entity under the [WorkSafe New Zealand Act 2013](#). WorkSafe collaboratively works with other agencies as far as practicable, to coordinate activities. It also works with businesses, workers, and their representatives to embed and promote good work health and safety practices.

Other Government agencies can be designated to carry out health and safety regulatory functions areas under the HSWA, as the CAA has been with respect to aviation operations.

1.4. Accident and incident investigation

Both TAIC and CAA conduct aviation accident and incident investigations in New Zealand. Regardless of who conducts the investigation, the ultimate aim is to improve the safety performance of the aviation system.

1.4.1. TAIC investigations

To improve transport safety, TAIC promotes learnings from its investigations with a view to avoiding similar future occurrences. TAIC's legislative mandate does not allow for wider work. Its activities are based on investigation activity alone.

It can make recommendations aimed at resolving safety issues arising from its inquiries. These are usually provided to the CAA as it is often better placed to implement the recommendations across the entire aviation industry where relevant. Notice of these recommendations is given to other parties involved.

TAIC also monitors the implementation of its recommendations in a live online [database](#). Findings, recommendations, safety actions taken and key lessons learnt are published in its inquiry reports, which are available on its website. Reports with potential application beyond New Zealand are given to the appropriate international body. TAIC's work practices are subject to periodic audit by ICAO.

1.4.2. CAA investigations

The CAA investigates aviation accidents and incidents in its capacity as the responsible authority. Safety investigations are carried out alongside service providers to find the root causes of occurrences, and to make recommendation that aim to improve safety. Reports of these investigations are made public to enable other service providers to identify any similar risks they may have and improve their safety performance.

The CAA also conducts separate investigations of alleged or suspected breaches of the Rules and relevant legislation. If a safety investigation shows a service provider has deliberately endangered people or property, the CAA may consider law enforcement or other regulatory action. As the designated HSWA regulator for aviation, the CAA also undertakes health and safety investigations and acts when it is necessary and appropriate.

Where appropriate, the CAA works alongside other agencies involved in an accident or incident investigation, for example [New Zealand Search and Rescue](#), the Police and TAIC.

1.4.3. Regulatory policy⁶

New Zealand recognises that the majority of people and organisations involved in civil aviation want to operate safely and comply with their obligations.

The aviation system will achieve its ALoSP when all organisations and individuals accept their responsibility for safety, voluntarily comply with aviation safety standards, and adopt a systematic approach to safety management. The CAA's primary regulatory approach, on behalf of New Zealand, is to encourage and support such attitudes and behaviour on behalf of the public.

The CAA's approach to aviation regulation is based on the premise that the purpose of regulatory intervention is to meet the safety and security expectations of the public.

⁶ The ICAO framework uses the term "Enforcement Policy" whereas in the New Zealand context the term Regulatory Policy is a more appropriate description of the activities envisaged by ICAO. In the New Zealand context, enforcement is a specific legal regulatory tool for achieving compliance.

The CAA operates a [Regulatory Operating Model](#) (ROM) that outlines the principles that underpin its risk-based regulatory approach. The ROM applies to all activities in the civil aviation system, enabling the CAA to take a holistic and coordinated approach to ensuring aviation safety by utilising the most appropriate means considering the facts and circumstances of a particular safety event.

The choice of tool or combination of tools is influenced by informed assessments of how the CAA can best minimise harm, maximise benefit, change participant behaviours, and promote sustained compliance. Regulatory [tools](#) available to the CAA to address risks and ensure safety include:

- education and safety promotion;
- certification, monitoring and investigation;
- administrative actions;
- regulatory enforcement action;
- policy and rule development; and
- other activities as appropriate.

The Civil Aviation Act 1990 enables the CAA to take both administrative action and enforcement action to ensure safety. Administrative action includes the ability for the Director to amend, revoke or place conditions on service providers' operating certificates and/or individual documents. Enforcement action includes the ability to issue formal warnings or notices, or take prosecution action against aviation participants.

The CAA's regulatory intervention decisions, including whether to take prosecution action, are based on the following principles:

- proportionality;
- consistency; and
- the CAA demonstrating reasonable judgement.

The [CAA's Regulatory Enforcement Policy](#) provides clear guidelines for the application of the Director's regulatory enforcement powers, as defined in the Civil Aviation Act 1990, the Civil Aviation (Offences) Regulations 2006, the HSWA, and the Hazardous Substances and New Organisms Act 1996. This policy also applies to the CAA regulatory workforce exercising the delegation and authorisation of the Director's functions and powers when undertaking investigations into alleged breaches of the aviation legislation.

1.4.4. Security

New Zealand's aviation security system also operates under a risk-based approach consistent with the provisions of Annex 17 *Security*, as set down by the State National Aviation Security Programme. There is some overlap with elements of the regulatory policy described above. However, there are some instances where they differ in acknowledgment of additional considerations that need to be taken into account when maintaining a State level programme aimed at preventing deliberate criminal acts.

2.State Safety Risk Management

New Zealand has a high level of aviation safety and security. To improve safety in the face of modern challenges, a systematic and all-encompassing approach to managing safety risks is needed – [Safety Management Systems](#) (SMS).

A successful SMS is inherently risk-based and forward-looking. It combines the elements of Quality Management and Risk Management into an integrated system that helps organisations:

- identify the hazards and associated risks that affect the whole organisation;
- control, monitor, communicate and review those risks;
- assure the quality of products and services while complying with standards; and
- continually improve the products and services.

Quality and risk management systems enhance safety and are essential and complementary tools that underpin SMS.

Establishing, maintaining, and improving an SMS is now mandatory for most certified service providers and the CAA actively encourages implementation. New entrants to the civil aviation system must fully comply with SMS from initial entry certification.

SMS in New Zealand is designed to:

- manage risks within an organisation, with a particular focus on risks which impact safety;
- provide ongoing monitoring and assessment of safety performance;
- make continuous improvements to the level of safety in operations;
- develop and improve the safety culture within an organisation; and to
- ensure compliance with the appropriate minimum standards contained in the Rules.

A service provider cannot have an effective SMS without applying Quality and Risk Management principles. Moving to SMS is shifting from Rule compliance to safety compliance and risk management.

2.1.Safety requirement for a service provider's SMS

Under a SMS, service providers have systems for hazard identification and risk management, safety targets and reporting processes, procedures for audit, investigations, remedial actions, and safety education.

SMS is intended to be a comprehensive and scalable system that suits the size of the organisation or service provider. It should consist of the 13 elements derived from Annex 19 *Safety Management* and *Doc 9859 Safety Management Manual* and supplemented by the CAA's own requirements.

Rule [Part 100 Safety Management](#) has been in effect since 1 February 2016. High-level performance-based principles define the management outcomes expected to achieve increased safety performance. It also provides the flexibility for organisations to adapt to the future and to scale SMS to their needs and circumstances.

Following consultation and engagement with industry on Rule Part 100 *Safety Management*, the supporting [AC](#) was revised. Additional information on acceptable means of compliance and guidance was included to assist service providers with their SMS implementation planning to meet the Rule's requirements.

A range of New Zealand-specific resources has been developed by the CAA to assist service providers adopting a SMS. This includes a SMS implementation strategy, educational and

guidance material, and industry implementation and development workshops with service providers and industry.

Table 1 below demonstrates how the structure of SMS in New Zealand aligns with ICAO's SMS structure.

Table 1

NZ SMS Structure	ICAO SMS Structure
	1. Safety Policy and Objectives
1. Safety policy and accountability	1.1 Management commitment and responsibility 1.2 Safety accountabilities 1.3 Appointment of key safety personnel
2. Coordinated Emergency Response Planning	1.4 Coordination of emergency response planning
3. Development, control and maintenance of safety management documentation	1.5 SMS documentation
	2. Safety risk management
4. Hazard identification	2.1 Hazard identification
5. Risk Management	2.2 Safety risk assessment and mitigation
	3. Safety assurance
6. Safety investigation	3.1 Safety performance monitoring & measurement
7. Monitoring and measuring performance	
8. Management of change	3.2 The management of change
9. Continual improvement of the SMS	3.3. Continuous improvement of the SMS
10. Internal audit programme	
11. Management review	
	4. Safety promotion
12. Safety training and education programme	4.1 Training and education
13. Communication of safety critical information	4.2 Safety communication

2.2. Agreement on service providers' safety performance

In New Zealand, the legislative framework creates a shared safety responsibility between the regulator and the aviation community. The Civil Aviation Act 1990 creates the framework that embodies the construct of joint responsibility. As part of this, the CAA works with certified service providers to ensure the safety objectives of their SMS plans align with and support New Zealand's ALoSP (see section 3.2.1 below).

Certified service providers' operating expositions set out their safety goals and practices. These are assessed and approved by the CAA, who then conducts regular monitoring and surveillance to ensure expositions are met. Expositions reflect the level of risk in a service provider's operation as well as the complexity of their organisation, as does the CAA's oversight of that organisation.

It is up to the organisation to determine how they will achieve the agreed safety goals and manage their safety risks, subject to CAA approval and oversight as appropriate. A service provider's safety goals and practices will also require regular revision and review as goals are achieved or new hazards and risks are identified, and to ensure alignment to safety indicators.

3.State Safety Assurance

New Zealand's aviation safety and security oversight system is not simply focused on the avoidance of accidents and incidents, but the development, implementation and monitoring of proactive safety practices and the maintenance of public confidence in the aviation industry.

A risk-based system, including the use of SMS, operates on mutual responsibility and accountability. Certified service providers have more responsibility than previously to focus on safety throughout their organisation's structures, policies and procedures. The CAA is accountable to the Government for effectively assuring system-wide safety, including safety and security oversight, and data collection, analysis and exchange.

3.1.Safety oversight

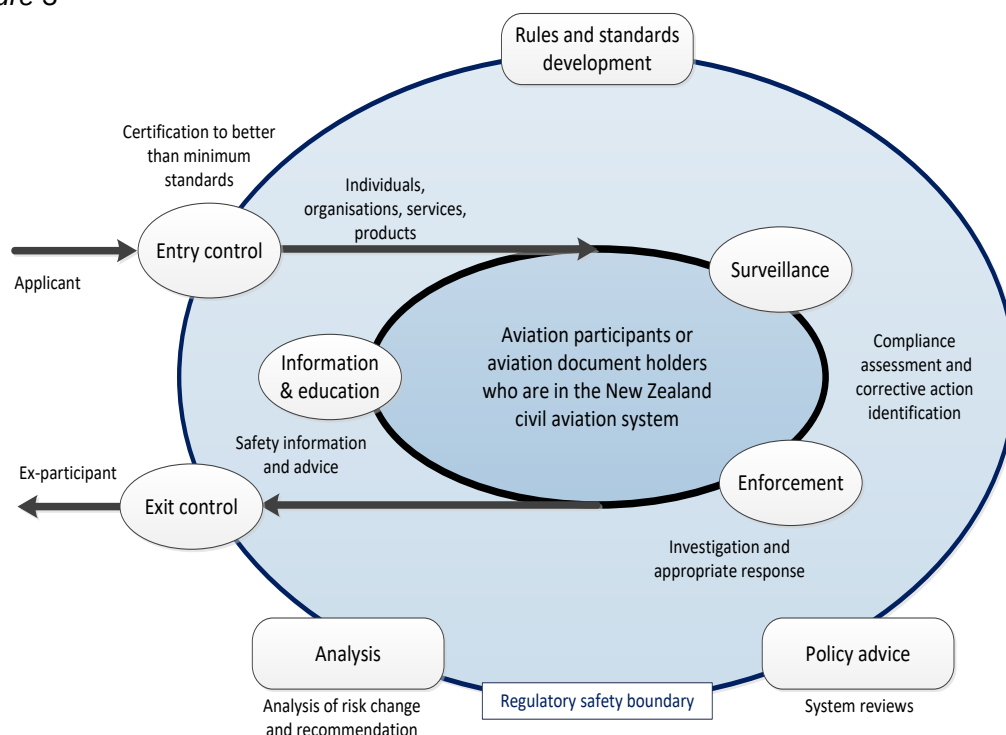
New Zealand is subject to ICAO's Universal Safety Oversight Audit Program-Continuous Monitoring Approach (USOAP-CMA). This enables ICAO to take a harmonised and consistent approach to monitoring New Zealand's safety oversight capabilities on an ongoing basis against other States.

To meet the standards of the USOAP-CMA, the CAA's safety oversight system includes:

- ensuring appropriate aviation legislation and regulations;
- technical personnel qualification and training;
- technical guidance, tools and the provision of safety critical information;
- enhancing the collection, use and exchange of safety information;
- robust licensing, certification, authorisation and approval obligations;
- continuous improvement of a risk-based surveillance system; and
- Proportionate, risk-based resolution of safety concerns.

The figure below illustrates how the CAA oversees safety during the lifecycle of a service provider.

Figure 3



3.2. Safety data collection, analysis and exchange

Safety information is required to measure the performance of both service providers and industry sectors in achieving New Zealand's ALoSP.

Additionally, it allows the CAA to identify emerging safety trends, share findings with service providers, and then act in the most appropriate way to prevent accidents or incidents and maintain public confidence.

3.2.1. Acceptable Level of Safety Performance

Annex 19 *Safety Management* requires States to establish an ALoSP as part of its SSP, and as part of operators' SMS. New Zealand has a high-level ALoSP that consists of two overarching goals:

1. low and reducing numbers and costs of air accidents, and
2. no security incidents that compromise safety.

Progress against this ALoSP is measured through the CAA [2016-2026 Statement of Intent](#) (SOI). The SOI details targets and indicators relating to New Zealand maintaining international credibility and achieving a low and decreasing risk profiles in aviation document holders. It is also measure in the CAA's [Annual Report](#).

Further, the ALoSP is linked to specific safety performance targets and indicators for the different sectors of New Zealand aviation. Other initiatives such as the [Security and Safety Focus Areas](#) and targeted [Sector Risk Profiles](#) also influence the extent to which the ALoSP is targeted, measured, and achieved.

ICAO defines an ALoSP as:

The minimum level of safety performance of civil aviation in a State, as defined in its State safety programme, or of a service provider, as defined in its safety management system, expressed in terms of safety performance targets and safety indicators.

An ALoSP is designed to be the mechanism to verify the operational performance of a SSP or SMS. There are three key elements to define an ALoSP:

- *safety performance indicators* – short-term, measurable safety performance outcomes of an aviation operation or a sector of the industry;
- *safety performance targets* – long-term, strategic measurable safety performance outcomes of an aviation operation or a sector of the industry; and
- *safety requirements* – the tools and means to achieve the safety performance indicators and targets of a SSP, including operational procedures, technology, systems and programmes.

ICAO guidance notes that an ALoSP should be expressed by multiple indicators and targets, as well as by safety requirements in the form of remedial actions. Although ICAO provides significant guidance on the concept of an ALoSP, there remains a number of uncertainties amongst States as to what constitutes an ALoSP and how to establish one.

3.2.2. Safety data collection and management

A key CAA objective is to improve the targeting of its safety oversight and the effectiveness of its interventions. This means greater use of safety information and risk assessments to target risks at the appropriate level and through the appropriate means.

New Zealand legislation requires mandatory reporting by participants on a wide range of accidents and incidents, including aircraft and airspace occurrences, facility occurrences, defects, bird incidents, and workplace health and safety incidents.

Data can be submitted to the CAA by any method. There is an established electronic reporting system in addition to email, phone calls and paper forms. Further safety information is captured during safety and regulatory investigations, and during routine surveillance activity. Members of the public can also report concerns or complaints online or by phone.

Data and information is processed by the CAA and recorded in an electronic system. The data is presented in the [Aviation Safety Reports](#) every quarter. The CAA also publishes quarterly Bird Hazard [Reports](#), a version of which is provided to aerodrome operators with more detail specific to their aerodrome.

The CAA's regulatory approach is based on the principles outlined in its ROM (see section 1.4.3). It describes the CAA's approach to enforcement action against those who fully report details of accidents and incidents in a timely manner. Where accidents and incidents are fully reported, appropriate regulatory tools may be used to provide immediate protection of the public, aircraft and participants in the aviation system, and where applicable, to address any likely future non-compliance.

Under [Rule Part 12](#), reported safety information may only be used for prosecution if it reveals an act or omission that caused unnecessary danger to another person or any property, if false information is submitted, or when the CAA is obliged to release the information due to a statutory requirement or Court order.

The CAA's [Collection and Use of Safety Information Policy](#) and [Use of Regulatory Tools Policy](#) provide further details about how the CAA responds to safety information.

- [Section 27](#) of the Civil Aviation Act 1990 requires the CAA to notify the TAIC of accidents and incidents reported to the CAA where it is an aircraft accident or is a serious incident;
- [Section 10](#) of the TAIC Act 1990, requires TAIC to notify the CAA of every civil aviation accident or incident reported to TAIC that is either outside of TAIC's jurisdiction or that TAIC has decided it will not investigate. This enables the CAA to consider whether it will investigate the accident or incident.

3.3.Data-driven targeting of oversight of areas of greater concern or need

The ability to interpret information and analyse risk needs to be enhanced to inform intervention decisions. The effective allocation of the CAA's regulatory resources is determined by the levels of risk involved in each sector, service provider or issue.

Good information and analysis is the foundation for good interventions. This requires the CAA to improve its collection of information and to look as wide as possible for sources that may indicate developing safety issues.

Analysis of the underlying causes of a safety issue allow an intervention to be effective and sustainable, instead of simply addressing the symptoms. Rule development is just one tool for consideration alongside effective use of education, training, surveillance and enforcement.

The CAA collects and analyses safety data and information, providing input and support across the organisation and to other relevant agencies to support safety data-driven identification and resolution of issues.

3.3.1. Risk profiles

In accordance with the Civil Aviation Act 1990, the CAA is responsible for the continual oversight of the civil aviation system to ensure its continued safety. Implementation of surveillance processes, such as inspections and audits proactively ensure that aviation service providers meet their safety obligations.

The CAA's [surveillance programme](#) is a comprehensive system of quantitative and qualitative inputs that provide essential information on the safety risk and compliance of service providers. Information is recorded to develop an accurate profile of service providers. Profiles reflect all of the information the CAA holds about each service provider.

In conducting surveillance, the CAA assesses a variety of organisational categories to identify areas of higher risk. A risk profile is then developed which informs the CAA's overall surveillance programme and the scope of individual audits. In this way, the CAA can identify a service provider's key processes on which to focus regulatory efforts.

3.3.2. Sector risk profiles

The CAA uses [Sector Risk Profiling](#) (SRPs) to examine the underlying influences on safety with a specific aviation sector. Sector Risk Profiles use quantitative and qualitative methods to capture the knowledge, experience and perceptions of as many participants as possible within a particular sector. This results in expressions of risk statements that are specific to that sector.

SRP methodology is based on factors such as safety trends, wider analysis of the aviation industry, the impact of new technologies, emerging performance trends, and the consequences of an accident or incident in a physical, social and economic context.

SRPs enable service providers to identify clear risk statements that apply to them and determine what they can do to minimise that risk. The idea being that by addressing individual risk elements in a sector, overall safety can be improved.

To date, SRPs have been completed for [Part 135 Air Operations – Helicopters and Small Aeroplanes](#) and [Rule Part 137 \(Agricultural Aircraft Operations\)](#). Work is currently underway on a number of other areas, including a for [Air Transport Operations - Medium and Large Aircraft](#).

3.3.3. Safety and Security Focus Areas

Utilising international trend data and regulatory intelligence, the CAA has identified [eight safety and security focus areas](#) that give rise to safety or security risks that need to be mitigated in order to improve the aviation system. They are:

1. **Loss of control in flight** — the risk of aircraft divergence from normal flight parameters or paths, for reasons of weather, malfunction, automation, etc.;
2. **Runway excursions** — the risk associated with runway take-offs and landings;
3. **Airborne conflicts** — increasing concerns over reported air space incidents in controlled and uncontrolled airspace with the potential for airborne conflicts and resulting mid-air collisions;
4. **The helicopter sector** — various indicators suggest the industry is not in a good position regarding its safety performance;
5. **Queenstown operations** — Queenstown airspace has a variety of flying activities, mountainous terrain, changeable weather and high density of traffic; all of which create a challenging operational environment with an increased potential for accidents to occur;
6. **Security threat level and responses** — the CAA need to be able to respond to changes in threat levels with clear decision pathways and responsibilities and mechanisms for implementing new or additional security controls;

7. **International air cargo security** — air cargo security depends on a robust and trusted supply chain system. Informed and targeted intervention activity will sustain levels of compliance throughout the entire air cargo supply chain and retain wide stakeholder assurance as to the level of security applied to international air cargo; and
8. **Smart security** — to be well-informed, agile thinkers, capable of evaluating options in response to changing situations, resilience needs to be built into the current aviation system to meet future demands. This involves thinking smarter to improve security outcomes, enhanced passenger facilitation and optimised utilisation of equipment and staff.

Addressing these areas enable the CAA to ensure New Zealand continues to have an efficient, effective and safe aviation system; effective and efficient security services; and improved sector safety performance.

As the CAA seeks to be informed, risk-based, and targeted in its regulatory and non-regulatory interventions, resources and action plans have been organised around each focus area to improve sector safety performance. These focus areas drive annual planning, day-to-day work, serve to sharpen existing regulatory interventions, and helps New Zealand achieve its ALoSP.

3.3.4. Safety Risk Panel – continuously improving CAA interventions

The CAA has established a Safety Risk Panel to continuously improve the effectiveness of its interventions. The Panel is tasked with assimilating safety data, identifying, and analysing risks to make recommendations for action. This includes choosing a response appropriate to the situation, which may involve regulatory action, participant action, or a combination of both.

The desired outcome of this approach is zero accident and harm events. The Panel's approach will soon be fully integrated across the CAA and will have oversight of all actions within the organisation.

4.State Safety Promotion

Training and education in the aviation system is often more important for changing behaviour to help participant comply rather than enforcement and surveillance.

4.1.Internal training, communication and dissemination of safety information

The CAA has established organisation-wide training programmes for staff.

All CAA staff undertake training and development relevant to their individual needs to meet CAA's capability requirements. The type of technical or non-technical training is commensurate with the individual's role. There are also common training programmes that encompass a wide range of groups within CAA, including for requirements for the introduction of Safety Management Systems. Training is an ongoing exercise to continuously improve the CAA's capabilities. A dedicated Learning and Development team within the CAA works to ensure the regulatory workforce are capable and trained to effectively do their jobs.

The Safety Reports discussed in section 3.2.2 above are also disseminated internally through the CAA and are important drivers for safety promotion. Other safety information is disseminated through safety investigations findings and ad hoc seminars on topical issues.

4.2.External training, communication and dissemination of safety information

Education and awareness of safety risks is communicated to aviation participants through a number of means, including safety related seminars, courses, publications, safety reports, and Aviation Safety Advisers.

4.2.1. Aviation Safety Advisers

CAA Aviation Safety Advisers (ASAs) provide broad safety advice to industry service providers. ASAs are assigned to geographic areas throughout New Zealand to develop contacts with aviation businesses and service providers to:

- *provide a CAA link and perspective at industry user-group meetings and give broad advice on the application of rules;*
- *refer industry views and problems to the appropriate CAA technical staff and management; and*
- *contribute to the CAA's safety courses and seminars.*

Industry and individuals receive advice and support from their ASAs who provide liaison between the regulator and industry. ASAs are not auditors, inspectors, approvers, or enforcers

4.2.2. Safety publications

In addition to the *Safety Reports* discussed in section 3.2.2 above, the CAA publishes a number of public safety products, predominately targeted at the General Aviation sector.

These include topical safety articles in the bi-monthly [Vector](#) magazine distributed by CAA to 15,500 aviation sector participants. *Vector* is produced solely for the promotion of safe practise for the entire civil aviation community.

Other publications targeted to respond to identified safety concerns include promotional posters and brochures. The production and regular updating of more than 20 titles of [Good Aviation Practice](#) (GAP) booklets, which add useful information on specific topics, to assist in all areas of aviation.

The products are all part of a layered approach to the dissemination of safety information and the promotion of safe aviation practice relevant to the New Zealand aviation community. They are provided free of charge and are available online.

The CAA's [Statement of Intent and Annual Report](#) also provides information about New Zealand's aviation safety goals and outcomes.

Airways New Zealand is a state-owned enterprise that serves as New Zealand's air navigation service provider. Aeropath, under contract to the CAA, publish the [Aeronautical Information Publications](#) (AIP), which provides air navigation routes and aerodrome information.

TAIC also [publish](#) *Aviation Occurrence Reports* detailing its investigations, findings and recommendations. The Ministry of Transport also produces a number of publications providing information and detail about New Zealand's transport policies and goals.

4.2.3. Safety programmes

Annually, the CAA produces the [AvKiwi](#) Safety Seminar presentation, to promote good safety attitudes. These are delivered in cities and towns across New Zealand. Each year the topic differs based on data feedback and trends. AvKiwi often profiles an accident or incident in an effort to learn lessons from the experience of others.

Other programmes include the Maintenance Controller course, Aviation Safety Coordinator course, Inspector Authorisation Certificate course, SMS training, Instructors Seminars, resources and more.

5. Glossary

AC	Advisory Circular
AD	Airworthiness Directive
AIC	Airport Identity Card
AIP	Aeronautical Information Publication
ALoSP	Acceptable Level of Safety Performance
ASA	Aviation Safety Adviser
Avsec	The Aviation Security Service
CAA	The Civil Aviation Authority of New Zealand
CE	Critical Element
GAP	Good Aviation Practice booklet produced by the CAA
HSWA	Health and Safety at Work Act 2015
ICAO	International Civil Aviation Organization
JARUS	Joint Authorities for the Rulemaking of Unmanned Systems
LAME	Licensed Aircraft Maintenance Engineer
MOT	Ministry of Transport
NASP	National Aviation Security Programme
ROM	Regulatory Operating Model
RPAS	Remote Piloted Aircraft Systems
Rules	Civil Aviation Rules
SARPs	Standards and Recommended Practices
SMS	Safety Management System
SOI	Statement of Intent
SRP	Sector Risk Profile
SSP	State Safety Programme
TAIC	Transport Accident Investigation Commission
The Authority	The five-member governing board of the CAA
UAS	Unmanned aerial system
USOAP-CMA	Universal Safety Oversight Audit Program-Continuous Monitoring Approach

