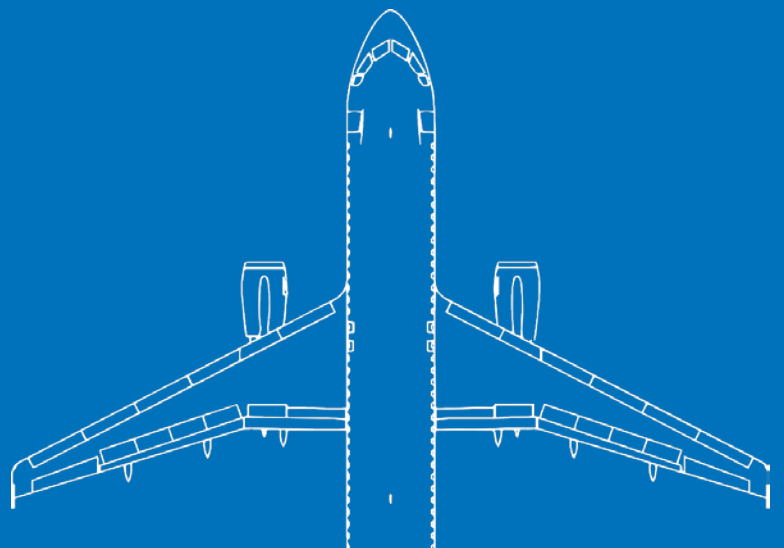# *Aviation Risk Management:*

Making Safe Aviation Even Safer

Medium and Large Aircraft Air Transport

Sector Risk Profile

Risks and proposed actions – implementation plan

CIVIL AVIATION AUTHORITY
OF NEW ZEALAND

Sector Risk Profile Action Implementation

The Sector Risk Profile (SRP) workshops have enabled the identification of risks, the causes of those risks, and the controls to manage those risks. The workshops also identified proposed action and proposed action owners. This document presents 11 key risks along with the causes, controls, proposed action(s), proposed owner(s), and the current status of the action. The workshops identified more than 30 causes and nearly 200 possible controls that needed strengthening or development. Not all risks, causes, and controls can be addressed immediately. This document presents the first list of proposed actions, and the implementation plan. This plan will be revisited and updated annually.

A purpose of the SRP is that operators will be able to include the risks in their own SMS. The actions are not designed to be detailed. Specific actions may differ across operators and other participants in the sector.

Sector risk and action description

#	Risk
Risk	This is the risk definition.
Cause	The causes identified in the workshops. Risks may have multiple causes.
Control	The controls identified in the workshops. Risks may have multiple controls.
Action	The proposed action(s)
Owner	The proposed action owner(s)
Status	Active or Scoping Active: means the action has already been implemented or action is currently being undertaken. Action owners will be able to show evidence of this action. Scoping: means the action is in the early stages of design and implementation. Action owners will be able to show evidence of activity to begin implementation.

Note: A frequently proposed action is participation in an educational outreach activity. This action is based on the success of a Flight Path Management outreach seminar (March 2017) which saw strong engagement with the sector.

The implementation plan is a description of the activities and arrangements for the implementation of the risk treatments. This may include risk mitigation, risk elimination, risk prevention or risk reduction.
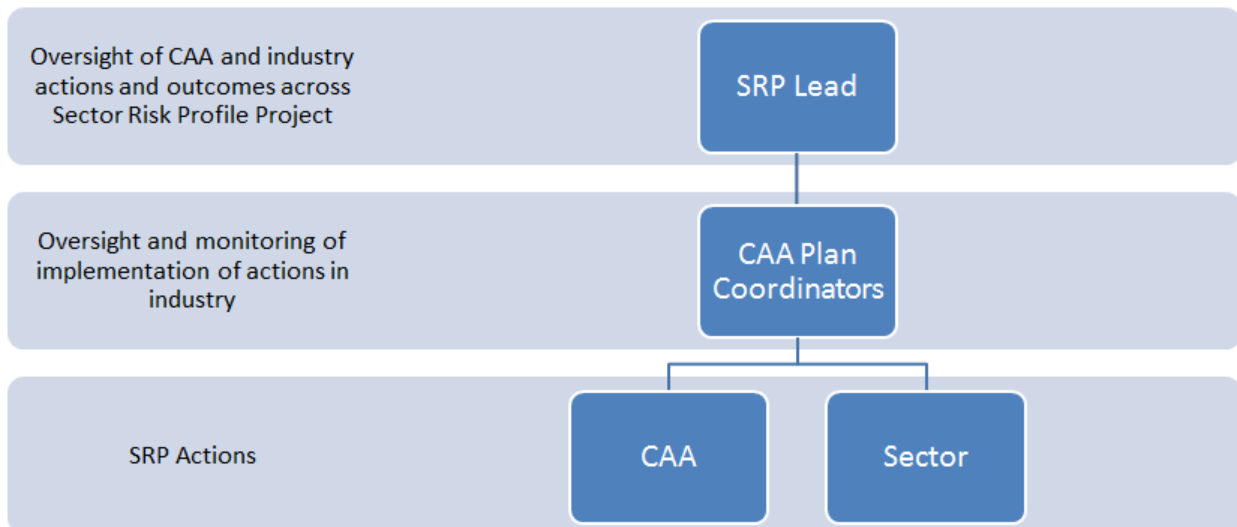
Sector implementation and action

#	Sector Implementation Plan
Plan Coordinator	The Person who is responsible for coordinating the implementation of the control.
Outcome	The improved state, the result of the improvement process.
Planned Actions	Specific description of the actions and associated supporting actions to implement the control.
Benefits	The benefits to be gained by implementing the actions.
Resource requirements	Resource required to complete the required actions.
Performance Measures	The 'measureable' desired result i.e. what success looks like.
Timing	Time frame for implementation of planned actions.

All actions will be reviewed annually. Where it is believed a risk has been sufficiently managed by the sector, new risks will be considered from the wider list following consultation with the sector in the annual SRP Action survey.

Implementation plan monitoring and action structure

The implementation plans are aided by a monitoring structure. Figure 1 shows how the implementation plan will be monitored and actioned. The performance of the actions will be measured through annual SRP Action Surveys and occurrence analysis.

Contents

Runway excursions

1.1 - Inadequate control and monitoring (Flight Operations)

Sector Risk

1.1	Runway excursions - 1.1 - Inadequate control and monitoring (Flight Operations).
Risk	A runway excursion (RE) is a veer off or overrun from the runway surface. These surface events occur while an aircraft is taking off or landing, and involve many factors ranging from unstable approaches to the condition of the runway. (ICAO)
Cause	**1.1 - Inadequate control and monitoring (Flight Operations).**
Control	Up-to-date CRM techniques and training.
Action	Airlines - Evidence of ongoing CRM refresher activity. CAA – Monitor and advise on crew training.
Owner	Airlines and CAA.
Status	Scoping

Sector Implementation Plan

1.1	Runway excursions - 1.1 - Inadequate control and monitoring (Flight Operations).
Plan Coordinator	Airlines
Outcome	All Airlines will demonstrate evidence of effective ongoing CRM refresher training activity (with a runway excursion prevention focus).
Planned Actions	Airlines to design and implement a plan of ongoing up-to-date CRM techniques and training associated with runway excursions and control and monitoring to mitigate the risks. Measure and monitor safety performance and share results with sector (through CAA coordinator/Airline Flight Safety Committee etc.).
Benefits	Strengthen flight deck control and monitoring. Airline operators will be able to demonstrate strengthened controls which enable risk mitigation associated with runway excursions. Potential reduction in the frequency of runway excursion occurrences and to minimise the impact of these events.
Resource requirements	Airline flight safety departments and airline training departments. CAA flight operations during surveillance and monitoring.
Performance measures	Evidence that effective management of inadequate flight deck control and monitoring is included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	Provide evidence of progress toward performance measures by December 2018 and during risk based surveillance.

1.2 - Pilot competency and experience

Sector Risk

1.2	Runway excursions - 1.2 – Pilot competency and experience.
Risk	A runway excursion (RE) is a veer off or overrun from the runway surface. These surface events occur while an aircraft is taking off or landing, and involve many factors ranging from unstable approaches to the condition of the runway. (ICAO)
Cause	**1.2 – Pilot competency and experience.**
Control	Competency based training.
Action	Participation in educational outreach on Runway Excursions (e.g. a seminar including recent IATA work on Runway Safety).
Owner	Airlines and CAA.
Status	Scoping

Sector Implementation Plan

1.2	Runway excursions - 1.2 – Pilot competency and experience.
Plan Coordinator	ATU, CAA Safety Promotion, Airlines
Outcome	Airlines will demonstrate evidence of participation in educational outreach on Runway Excursions, including delivery of educational outreach. (Refer to spreadsheet for list of airlines).
Planned Actions	CAA ATU and Safety Promotion teams to work with the sector to provide a Runway Excursion outreach (likely in the form of a seminar). Subsequent surveillance and certification risk-based activity will focus on evidence of improvement in this area.
Benefits	Potentially reduce the frequency of runway excursion occurrences and minimise the impact of runway excursion events. Airline operators will be able to demonstrate risk mitigation associated with runway excursions.
Resource requirements	Airline pilots, flight safety departments, and airline training departments. CAA flight operations inspectors during surveillance and monitoring and CAA Safety Promotions unit.
Performance measures	The frequency of accidents and incidents relating to runway excursions risk is trending downwards, resulting in an increase in the travelling public's confidence in the safety of the aviation system. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	Safety Outreach activity to be completed by December 2018.

1.3a - Unstable approach (Air traffic)

Sector Risk

1.3a	Runway excursions - 1.3a – Unstable approach
Risk	A runway excursion (RE) is a veer off or overrun from the runway surface These surface events occur while an aircraft is taking off or landing, and involve many factors ranging from unstable approaches to the condition of the runway. (ICAO)
Cause	**1.3a – Unstable approach (Air traffic).**
Control	ATC "Fly the Plan[1]" initiative. Airline promotion of safe clearance acceptance.
Action	ATC to continue "Fly the Plan" initiative and monitor effectiveness. Airline promotion of safe clearance acceptance. Education of ATC on factors leading to unstable approach by ATC. Establish stable approach criteria (e.g. same as flight safety foundation and make unstable approaches a reportable event.)
Owner	Airways and Airlines.
Status	Active

Sector Implementation Plan

1.3a	Runway excursions - 1.3a – Unstable approach
Plan Coordinator	Airlines, Airways, ASU
Outcome	An established stable approach criterion is in place. Airways will demonstrate continuation of the "Fly the Plan" initiative. Airlines will demonstrate promotion of safe clearance acceptance
Planned Actions	CAA will establish stable approach criteria (e.g. same as flight safety foundation). Airways will continue "Fly the Plan" initiative and monitor effectiveness, and educate ATC on factors leading to unstable approach by ATC. Airlines will promote safe clearance acceptance.
Benefits	Potentially reduce the frequency of runway excursion occurrences as a result of an unstable approach. Airline and Airways operators will be able to demonstrate risk mitigation associated with runway excursions, including the establishment of stable approach criteria.
Resource requirements	Airways and Airline safety departments and training departments. CAA aeronautical services officers and flight operations during surveillance and monitoring.
Performance measures	The frequency of accidents and incidents relating to runway excursions is trending downwards. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

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[1] "Fly the Plan" is a campaign to raise awareness of the importance of a predictable flight profile and a stabilized approach and the role Air Traffic Control can play in contributing to a stable approach. – Airways NZ.

1.3b - Unstable approach (Flight Operations)

Sector Risk

1.3b	Runway excursions - 1.3b - Unstable approach.
Risk	A runway excursion (RE) is a veer off or overrun from the runway surface. These surface events occur while an aircraft is taking off or landing, and involve many factors ranging from unstable approaches to the condition of the runway. (ICAO)
Cause	**1.3b - Unstable approach (Flight Operations).**
Control	Adhere to SOPs for unstable approaches and monitoring.
Action	Participation in CAA-led sector educational outreach on Runway Excursions. National Runway Safety Group established.
Owner	Airlines, Aerodromes, Airways and CAA.
Status	Scoping

Sector Implementation Plan

1.3b	Runway excursions - 1.3b - Unstable approach.
Plan Coordinator	CAA ATU and Safety Promotion, Airlines
Outcome	Airlines will demonstrate evidence of participation in CAA-led educational outreach on Runway Excursions, including delivery of educational outreach. (Refer to spreadsheet for list of airlines). The National Runway Safety Group to actively provide advice, leadership, and assistance with respect to unstable approaches.
Planned Actions	Surveillance and Certification activity to continue with a focus on this runway excursion. CAA and Airline implementation of educational outreach associated with runway excursions and adherence to SOPs to mitigate the risks.
Benefits	Potentially reduce the number of runway excursion occurrences and minimise the impact of these events. Airline operators will be able to demonstrate risk mitigation associated with runway excursions.
Resource requirements	Airline flight safety departments and airline training departments. CAA flight operations inspectors during surveillance and monitoring. CAA Safety Promotions.
Performance measures	The frequency of accidents and incidents relating to runway excursions risk due to an unstable approach trends downwards. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	Ongoing, all to implement the actions and meet the required performance measure by 30 June 2019. Safety outreach activity prior to December 2018.

1.4 - Runway surface conditions

Sector Risk

1.4	Runway excursions - 1.4 - Runway surface conditions.
Risk	A runway excursion (RE) is a veer off or overrun from the runway surface. These surface events occur while an aircraft is taking off or landing, and involve many factors ranging from unstable approaches to the condition of the runway. (ICAO)
Cause	**1.4 - Runway surface conditions.**
Control	Real-conditions surface condition monitoring and provision.
Action	Aerodromes to continue to provide surface monitoring service at applicable aerodromes. National Runway Safety Group established.
Owner	Aerodromes and CAA.
Status	Active

Sector Implementation Plan

1.4	Runway excursions - 1.4 - Runway surface conditions.
Plan Coordinator	CAA Manager Aeronautical Services Unit. Aerodrome operators
Outcome	Aerodrome operators will demonstrate provision of surface monitoring service at applicable aerodromes. National Runway Safety Group will be established to promote real-conditions surface monitoring and provision.
Planned Actions	CAA will establish the National Runway Safety Group. Aerodrome Operators will continue to "provide surface monitoring service at applicable aerodromes".
Benefits	Reduce the frequency of runway excursion occurrences and to minimise the impact of these events. Aerodrome operators will be able to demonstrate risk mitigation associated with runway excursions, including the establishment of surface monitoring service at applicable aerodromes.
Resource requirements	Aerodrome Operators including their operations and safety departments. CAA aeronautical services during surveillance and monitoring.
Performance measures	The frequency of accidents and incidents relating to runway excursions risk as a result of runway surface conditions trends downwards. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

Runway incursions

2.1 - ATS and Pilot fatigue

Sector Risk

2.1	Runway incursions - 2.1 - ATS and Pilot fatigue.
Risk	A runway incursion is any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft (ICAO).
Cause	**2.1 - ATS and Pilot fatigue.**
Control	Understanding and management of runway incursion events related to ATS and Pilot Fatigue.
Action	Establish, implement and monitor an appropriate FRM training and management addressing. Assess for effectiveness.
Owner	Airways, Pilots association, and Airlines.
Status	Active

Sector Implementation Plan

2.1	Runway incursions - 2.1 - ATS and Pilot fatigue.
Plan Coordinator	CAA Manager Air Transport
Outcome	Airlines and Airways will demonstrate evidence of ongoing FRM training and management activity.
Planned Actions	CAA Surveillance and Certification activity will include a focus on ATS and Pilot fatigue. Operator's implementation of ongoing up to date FRM training and management associated with runway incursions. Specifically, understanding and management of runway incursion events related to ATS and Pilot Fatigue to mitigate the risks.
Benefits	Reduce the frequency of runway incursion occurrences and to minimise the impact of these events. Improved sector knowledge of risk mitigation associated with runway incursions.
Resource requirements	Airways and Airline health and safety departments and training departments. CAA flight operations inspectors and CAA aeronautical services during surveillance and monitoring.
Performance measures	The frequency of accidents and incidents relating to runway incursions risk as a result of fatigue trends downwards. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

2.2 - Pilots, drivers, ATS, and aerodrome personnel instruction misunderstanding

Sector Risk

2.2	Runway incursions - 2.2 - Pilots, drivers, ATS, and aerodrome personnel instruction misunderstanding.
Risk	A runway incursion is any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft (ICAO).
Cause	**2.2 - Pilots, drivers, ATS, and aerodrome personnel instruction misunderstanding.**
Control	Modern technology solutions implemented to monitor surface movement.
Action	Aerodromes, Airways and Airlines - Develop and implement procedures with ADS-B/MLAT (or equivalent technology that provides electronic visibility) - (Auckland approved, case by case thereafter). AIP phraseology content review and improvement (e.g. Holding point phraseology). CAA – Assess for regulatory intervention. National Runway Safety Group established.
Owner	Aerodromes, Airways and Airlines. CAA.
Status	Active

Sector Implementation Plan

2.2	Runway incursions - 2.2 - Pilots, drivers, ATS, and aerodrome personnel misunderstanding.
Plan Coordinator	Aerodromes, Airways, and Airlines ground handling services. CAA.
Outcome	Aerodromes, Airways and Airlines demonstrate evidence of on-going development and implementation of procedures with ADS-B/MLAT (or equivalent technology that provides electronic visibility). AIP phraseology content reviewed and improved. National Runway Safety Group established to actively provide advice, leadership, and assistance with respect to modern technology solutions.
Planned Actions	CAA will establish the National Runway Safety Group. Surveillance and Certification activities will include a focus on runway safety. Operators to continue implementation of ongoing modern technology solutions including training and management associated with runway incursions.
Benefits	Potentially reduce the frequency of runway incursion occurrences and to minimise the impact of these events. Operators will be able to demonstrate risk mitigation associated with runway incursions through the SMS.
Resource requirements	Aerodromes, Airways and Airline operations departments, safety departments, and training departments. CAA flight operations and CAA aeronautical services officers during surveillance and monitoring.
Performance measures	The frequency of accidents and incidents relating to runway incursions risk is trending downwards. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

2.3 - Unclear/non-standardized runway signage or lighting

Sector Risk

2.3	Runway incursions - 2.3 - Unclear/non-standardized runway signage or lighting.
Risk	A runway incursion is any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft (ICAO).
Cause	**2.3 - Unclear/non-standardized runway signage or lighting.**
Control	Standard aerodrome signage and lighting meets rules specifications. CAA ensures rules and exemptions are up-to-date and fit for purpose.
Action	Aerodromes to ensure compliance with CAR 139. (E.g. AIP Supplements and NOTAM for runway works, etc.). CAA to assess rules and exemptions to ensure appropriateness. National Runway Safety Group established.
Owner	Aerodromes and CAA.
Status	Active

Sector Implementation Plan

2.3	Runway incursions - 2.3 - Unclear/non-standardized runway signage or lighting.
Plan Coordinator	CAA Manager Aeronautical Services Unit
Outcome	Aerodrome operators demonstrate evidence of Standard aerodrome signage and lighting meets rules specifications. CAA demonstrates that rules and exemptions are up-to-date and fit for purpose. National Runway Safety Group established to actively provide advice, leadership, and assistance with respect to standardized runway signage or lighting.
Planned Actions	Aerodrome operators will ensure compliance with CAR 139. (E.g. AIP Supplements and NOTAM for runway works, etc.) and/or steps are being taken to meet compliance or reduce exemptions. CAA will assess rules and exemptions to ensure appropriateness. CAA will establish the National Runway Safety Group.
Benefits	Potentially reduce the frequency of runway incursion occurrences as a result of unclear runway signage. Operators will be able to demonstrate risk mitigation associated with runway incursions through their SMS.
Resource requirements	Aerodromes, and Airways operations departments, and safety departments. CAA flight operations and CAA aeronautical services officers surveillance and monitoring.
Performance measures	The frequency of accidents and incidents relating to runway incursions as a result of unclear signage trends downwards. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

Airborne Conflict

3.1 - Air Traffic Service Error

Sector Risk

3.1	Airborne conflict (Dangerous proximity to airborne objects (e.g. RPAS) or aircraft) - 3.1 - Air Traffic Service error.
Risk	Airborne Conflict is the dangerous proximity to airborne objects or aircraft while in flight.
Cause	**3.1 - Air Traffic Service error.**
Control	Enhance the ATS safety performance monitoring system. Ensure safety analysis outputs are fed back across the organisation.
Action	CAA and Airways use combined safety performance analysis to inform evidence based/competency training across all staff. Airways to monitor performance in order to find better ways of reducing critical incidents across the organisation.
Owner	CAA and Airways.
Status	Scoping

Sector Implementation Plan

3.1	Airborne conflict (Dangerous proximity to airborne objects (e.g. RPAS) or aircraft) - 3.1 - Air Traffic Service error.
Plan Coordinator	CAA Manager Aeronautical Services Unit. Airways NZ.
Outcome	Enhanced ATS safety performance monitoring system that ensures safety analysis outputs are fed back across the Airways organisation.
Planned Actions	CAA Surveillance and Certification activity will have some focus on understanding and management of airborne conflict related to ATS error to mitigate the risks. CAA and Airways will use combined safety performance analysis to inform evidence based/competency training across all staff. Airways to monitor performance in order to find better ways of reducing critical incidents across the Airways organisation.
Benefits	Potentially reduce the number of airborne conflict occurrences as a result of ATS error. Enhanced ATS safety performance monitoring system.
Resource requirements	Airways and Airline safety departments and training departments. CAA flight operations and CAA aeronautical services officers during surveillance and monitoring.
Performance measures	The frequency of accidents, incidents, and occurrences relating to airborne conflict risk due to ATS error trends downwards. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting December 2018.

3.2 - Lack of situational awareness.

Sector Risk

3.2	Airborne conflict (Dangerous proximity to airborne objects (e.g. RPAS) or aircraft) - 3.2 - Lack of situational awareness.
Risk	Airborne Conflict is the dangerous proximity to airborne objects or aircraft while in flight.
Cause	**3.2 - Lack of situational awareness.**
Control	Use appropriate Frequency management. Frequencies must be sectored appropriately.
Action	CAA led policy development (e.g. rationalisation within Class G) - CAA safety promotion activity.
Owner	CAA.
Status	Scoping

Sector Implementation Plan

3.2	Airborne conflict (Dangerous proximity to airborne objects (e.g. RPAS) or aircraft) - 3.2 - Lack of situational awareness.
Plan Coordinator	CAA Manager Aeronautical Services Unit. Airways NZ. CAA Corporate Communications. CAA Policy Unit.
Outcome	A developed policy that sets out appropriate frequency management, and frequencies sectored appropriately to the airspace. Safety promotion to support the improvements.
Planned Actions	CAA will lead policy development (e.g. rationalisation within Class G airspace) - CAA safety promotion activity.
Benefits	Reduce the frequency of airborne conflict occurrences and to minimise the impact of these events. Improved situational awareness for pilots. A policy that addresses the risk mitigation associated with airborne conflicts, in relation to appropriate frequency management, and frequencies sectored appropriately.
Resource requirements	CAA Policy specialist, CAA safety promotion specialist.
Performance measures	A completed policy that potentially leads to the number of accidents, incidents, and occurrences relating to airborne conflict risk trending downward. Effective management of the risks included as part of the policy. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

3.3 - Pilot non-compliance with ATC instructions.

Sector Risk

3.3	Airborne conflict (Dangerous proximity to airborne objects (e.g. RPAS) or aircraft) - 3.3 - Pilot non-compliance with ATC instructions.
Risk	Airborne Conflict is the dangerous proximity to airborne objects or aircraft while in flight.
Cause	**3.3 - Pilot non-compliance with ATC instructions.**
Control	Pilot compliance with ATC instructions and other airspace rules.
Action	Airways, CAA, and professional and recreational pilots association joint targeted safety promotion activity to clarify ATC procedures and expectations (e.g. Collaborative approach between pilots and controllers to focus on phraseology and communications to assist in the control of this risk, etc.).
Owner	Pilots Association, CAA, and Airways.
Status	Scoping (CAA and Airways to quantify and categorise)

Sector Implementation Plan

3.3	Airborne conflict (Dangerous proximity to airborne objects (e.g. RPAS) or aircraft) - 3.3 - Pilot non-compliance with ATC instructions.
Plan Coordinator	CAA Manager Aeronautical Services Unit
Outcome	A delivered joint targeted safety promotion activity to clarify ATC procedures and expectations. Improved pilot compliance with ATC instructions and other airspace rules.
Planned Actions	Airways, CAA, and professional and recreational pilots association joint targeted safety promotion activity to clarify ATC procedures and expectations (e.g. Collaborative approach between pilots and controllers to focus on phraseology and communications to assist in the control of this risk, etc.).
Benefits	Reduce the number of airborne conflict occurrences as a result of pilot non-compliance with ATC instructions. Improved Pilot compliance with ATC instructions and other airspace rules.
Resource requirements	CAA Aeronautical Services Officers, CAA Safety promotions specialist, SFORA officers, Airways specialists, pilots and pilot associations.
Performance measures	The frequency of accidents, incidents, and occurrences relating to airborne conflict risk as a result of non-compliance with ATC instruction trends downward. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

3.4 - Unauthorised RPAS operating in controlled airspace.

Sector Risk

3.4	Airborne conflict (Dangerous proximity to airborne objects (e.g. RPAS) or aircraft) - 3.4 – Unauthorised RPAS operating in controlled airspace.
Risk	Airborne Conflict is the dangerous proximity to airborne objects or aircraft while in flight. This can include other piloted aircraft and RPAS.
Cause	**3.4 – Unauthorised RPAS operating in controlled airspace.**
Control	User compliance with CAR 101 and existing airspace rules.
Action	CAA education to all users. Educational outreach to 102 and wider GA, sports aircraft. Airlines to report RPAS activity.
Owner	CAA, Airlines, Aerodromes, and GA sector.
Status	Airlines reporting RPAS activity is active. Scoping (CAA to continue monitoring and risk assessment)

Sector Implementation Plan

3.4	Airborne conflict (Dangerous proximity to airborne objects (e.g. RPAS) or aircraft) - 3.4 – Unauthorised RPAS operating in controlled airspace.
Plan Coordinator	CAA Manager Safety Promotions, Manager Special Flight Operations & Recreational Aviation
Outcome	Improved RPAS user compliance with CAR 101 and existing airspace rules.
Planned Actions	CAA education to all users. Educational outreach to 102 and wider GA, sports aircraft. Airlines to report RPAS activity.
Benefits	Reduce the number of airborne conflict occurrences with unauthorised RPAS in controlled airspace. Improved RPAS user compliance with CAR 101 and existing airspace rules.
Resource requirements	CAA flight operations specialist, CAA Safety promotions specialist, Aeronautical Services Officer
Performance measures	The frequency of accidents, incidents, and occurrences relating to airborne conflict risk with an unauthorised RPAS in controlled airspace trends downwards. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

Reduction in terrain separation

4.1 - Lack of specific PBN approach competency, including local experience and familiarity

Sector Risk

4.1	Reduction in Terrain Separation - 4.1 - Lack of specific PBN approach competency, including local experience and familiarity.
Risk	Similar to Controlled flight into terrain (CFIT), in the NZ context, Reduction In Terrain Separation can involve aerodrome terrain challenges, landing short of the runway, warnings, and adverse weather.
Cause	**4.1 - Lack of specific PBN approach competency, including local experience and familiarity.**
Control	A) Ongoing targeted education. b) ALAR (Approach and Landing Accident Reduction) Toolkit.
Action	Greater promulgation of PBN approach with APV (Approaches with Vertical guidance). Ensure properly trained crews. Sector wide engagement with the NSS project with a focus on regulatory framework and crew competency requirements.
Owner	NSS, CAA, Airways, and Airlines.
Status	Scoping

Sector Implementation Plan

4.1	Reduction in Terrain Separation - 4.1 - Lack of specific PBN approach competency, including local experience and familiarity.
Plan Coordinator	CAA Director, NSS.
Outcome	Improved specific PBN approach competency, including local experience and familiarity.
Planned Actions	a) Education. Consider what other aviation authorities have done in this area. b) ALAR (Approach and Landing Accident Reduction) Toolkit. Greater promulgation of PBN approach with APV (Approaches with Vertical guidance). Ensure properly trained crews. Promulgation of information on the NSS range of projects that are beginning to address the needs in this area including a PBN regulatory framework and crew competency requirements.
Benefits	Reduction in the frequency of accidents and incidents relating to reduction in terrain separation, and to minimise the impact of these events. Operators will be able to demonstrate risk mitigation associated with the above, including heightened oversight by the CAA.
Resource requirements	NSS projects specialists, Airways and Airline safety departments and training departments. CAA flight operations and CAA services aeronautical officers during surveillance and monitoring.
Performance measures	Reduction of the frequency of accidents and incidents relating to reduction in terrain separation risk from lack of PBN competency trends downward. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

4.2 - Loss of situational awareness

Sector Risk

4.2	Reduction in Terrain Separation - 4.2 - Loss of situational awareness.
Risk	Similar to Controlled flight into terrain (CFIT), in the NZ context, Reduction In Terrain Separation can involve aerodrome terrain challenges, landing short of the runway, warnings, and adverse weather.
Cause	**4.2 - Loss of situational awareness.**
Control	Training to improve pilot situational awareness.
Action	CAA and industry to hold situational awareness workshop to collate and analyse data and share safety initiatives. The workshop will also build on threat and error management principles. Airlines and pilots to engage with Threat and Error Management.
Owner	CAA, pilots association and Airlines
Status	Scoping

Sector Implementation Plan

4.2	Reduction in Terrain Separation - 4.2 - Loss of situational awareness.
Plan Coordinator	Airlines
Outcome	Improved training to improve pilot situational awareness in relation to reduction in terrain separation.
Planned Actions	CAA and industry to hold situational awareness workshop to collate and analyse data and share safety initiatives. The workshop will also build on threat and error management principles.
Benefits	Reduction in the number of accidents and incidents relating to reduction in terrain separation as a result of a loss of situational awareness. Improved training to improve pilot situational awareness in relation to reduction in terrain separation. Improved cross-sector collaboration and data sharing.
Resource requirements	Airline safety departments and training departments. CAA flight operations, CAA Intelligence Safety and Risk Analysis Unit.
Performance measures	Reduction of the frequency of accidents and incidents relating to reduction in terrain separation risk as a result of loss of situational awareness trends downward. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

Unintended flight path deviation

5.1 - Fatigue

Sector Risk

5.1	Unintended Flight Path Deviation - 5.1 - Fatigue
Risk	Organisational flight operations factors that, over time, lead to an aircraft not being in its intended position. This includes such factors as CRM, communication, flight path management, planning, airworthiness, and air traffic management.
Cause	**5.1 - Fatigue**
Control	Identify and address systemic procedures leading to fatigue.
Action	CAA is engaging with the industry through the Fatigue Risk Management (FRM) Panel. CAA and the industry to work with representatives of the scientific and research sector to identify opportunities to recognise and reduce the causes of fatigue.
Owner	CAA, Pilots Association, and Airlines
Status	Active

Sector Implementation Plan

5.1	Unintended Flight Path Deviation - 5.1 - Fatigue
Plan Coordinator	CAA Manager Air Transport
Outcome	Airlines will demonstrate evidence of ongoing FRM training and management activity, to specifically identify and address systemic procedures leading to fatigue. (Refer to spreadsheet for list of airlines).
Planned Actions	CAA will engage with the industry through the Fatigue Risk Management Panel. CAA and the industry to work with representatives of the scientific and research sector to identify opportunities to recognise and reduce the causes of fatigue. CAA Surveillance and Certification activity will include a focus on FRM.
Benefits	Reduce the frequency of unintended flight path deviation occurrences related to FRM. Operators will be able to demonstrate risk mitigation associated with unintended flight path deviations, including heightened oversight by the CAA.
Resource requirements	FRM Panel, Airline safety departments and training departments. CAA flight operations inspectors.
Performance measures	The frequency of accidents and incidents relating to unintended flight path deviation occurrences trends downwards. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

5.2 - Mismanaging aircraft automation

Sector Risk

5.2	Unintended Flight Path Deviation - 5.2 - Mismanaging aircraft automation.
Risk	Organisational flight operations factors that, over time, lead to an aircraft not being in its intended position. This includes such factors as CRM, communication, flight path management, planning, airworthiness, and air traffic management.
Cause	**5.2 - Mismanaging aircraft automation.**
Control	Enhanced crew competency in use of automation.
Action	a) Part 121/125 operators to enhance recurrent and upgrade training with appropriate automation competency assessment and evidence based training. b) Operators with Single Pilot Operations to consider multi-pilot operations as part of SMS, for flights that have greater threats/risks. CAA to investigate hours credit for co-pilots. c) usage of VVM for flight crew (verbalise, verify, monitor)
Owner	a) Airlines and CAA. b) Airlines and CAA. c) Airlines and Pilots
Status	Scoping

Sector Implementation Plan

5.2	Unintended Flight Path Deviation - 5.2 - Mismanaging aircraft automation.
Plan Coordinator	Airlines
Outcome	Airlines and crews will be confident in use of aircraft automation.
Planned Actions	Airline operators to enhance recurrent and upgrade training with appropriate automation competency assessment and evidence based training. Operators with single pilot operations to consider multi pilot operations as part of SMS for flights with greater threats/risks. CAA to investigate policy of hours crediting for co-pilots. Airlines and pilots to demonstrate application of VVM (verbalise, verify, monitor).
Benefits	Reduce the frequency of occurrences as a result of mismanaged aircraft automation.
Resource requirements	Airways and Airline safety departments and training departments. Pilots. CAA flight operations surveillance and certification.
Performance measures	The number of occurrences related as a result of mismanaged aircraft automation trends downward. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

5.3 - Mismanaging aircraft automation

Sector Risk

5.3	Unintended Flight Path Deviation - 5.3 - Mismanaging aircraft automation.
Risk	Organisational flight operations factors that, over time, lead to an aircraft not being in its intended position. This includes such factors as CRM, communication, flight path management, planning, airworthiness, and air traffic management.
Cause	**5.3 - Mismanaging aircraft automation.**
Control	OEM A/C instructions and operational needs based on best practice used to develop clear SOPs.
Action	Analysis to establish if there is a link between Airline SOPs and any differences between OEM aircraft recommended SOPs and analysis of difference in SOPs between airlines and operating practices within airlines. Operators to demonstrate effective flight path management policies (e.g. Operators to have flight path management/automation policy, and CAA assessment to ensure it is consistent with requirements of 121.77)
Owner	CAA and Airlines.
Status	Scoping

Sector Implementation Plan

5.3	Unintended Flight Path Deviation - 5.3 - Mismanaging aircraft automation.
Plan Coordinator	CAA Manager Air Transport. Airlines.
Outcome	Airlines will have effective SOPs based on OEM and best practice.
Planned Actions	CAA and the sector will work together to analyse data to ensure SOPs have been developed with OEMs and best practice. CAA Surveillance and Certification activity will include a focus on the A/C SOPs.
Benefits	Reduce the frequency of occurrences as a result of mismanaged aircraft automation. Operators will be able to demonstrate risk mitigation associated with runway incursions, including heightened oversight by the CAA.
Resource requirements	Airways and Airline safety departments and training departments. CAA flight operations. CAA ISRA Unit.
Performance measures	The number of accidents and incidents relating to mismanaged aircraft automation trends downwards. Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

Degraded air navigation service

6.1 - Ineffective change management

Sector Risk

6.1	Degraded air navigation service (e.g. ATC, coms, navigation, aircraft technology) - 6.1 - Ineffective change management.
Risk	Air traffic and/or air navigation services are degraded or lost. This includes the ATS capacity (human/technical), capability (Human/Technical), infrastructure, and aircraft navigation systems both internal and external (dependant on external navigation data providers).
Cause	**6.1 - Ineffective change management.**
Control	Appropriate planning, governance, consultation, and structures.
Action	Sector participation in initiatives such as PBN Regulatory framework, GBNA Review Panel, NSS working group.
Owner	NSS, CAA, Airlines, and Airways.
Status	Active

Sector Implementation Plan

6.1	Degraded air navigation service (e.g. ATC, coms, navigation, aircraft technology) - 6.1 - Ineffective change management.
Plan Coordinator	Airways and Airlines
Outcome	The sector is informed and confident with upcoming changes and developments in ANS.
Planned Actions	Sector wide participation in initiation and consultation for ANS change initiatives.
Benefits	Acceptable level of risk and cost effectiveness during transition between system changes.
Resource requirements	Operations and technical support departments of Airways and Airlines
Performance measures	All affected sector participants demonstrate participation in change initiatives. Positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting December 2018.

6.2 - *Unfamiliarity with alternate navigation systems (flying or air traffic management) for emergency use*

Sector Risk

6.2	Degraded air navigation service (e.g. ATC, coms, navigation, aircraft technology) - 6.2 – Unfamiliarity with alternate navigation systems (flying or air traffic management) for emergency use.
Risk	Air traffic and/or air navigation services are degraded or lost. This includes the ATS capacity (human/technical), capability (Human/Technical), infrastructure, and aircraft navigation systems both internal and external (dependant on external navigation data providers).
Cause	**6.2 – Unfamiliarity with alternate systems (flying or air traffic management) for emergency use.**
Control	Training and competency in alternate systems which may include legacy systems.
Action	ATS and Airlines to demonstrate proficiency on alternate systems (Airways) and non-precision approaches (Airlines).
Owner	Airways and Airlines.
Status	Active

Sector Implementation Plan

6.2	Degraded air navigation service (e.g. ATC, coms, navigation, aircraft technology) - 6.2 – Unfamiliarity with alternate navigation systems (flying or air traffic management) for emergency use.
Plan Coordinator	Airlines and Airways.
Outcome	Airlines and Airways can demonstrate effective familiarity with alternate navigation systems.
Planned Actions	Airways to demonstrate proficiency in application of alternate navigation systems for air traffic management. Airlines to demonstrate proficiency in application of alternate navigation systems for flight operations. CAA will confirm proficiency through surveillance and certification activity.
Benefits	Sector disaster preparedness is at a high level.
Resource requirements	Airways and Airline safety departments and training departments. CAA flight operations and Aeronautical Services Unit.
Performance measures	Effective management of the risks included as part of the operators Safety Management System. Positive shift in related Air Transport SRP Action Survey responses.
Timing	Ongoing, first reporting by December 2018.

Aircraft unintentionally deviates from normal inflight parameters

7.1 - Over reliance on automation/Pilot lack of knowledge of aircraft systems and procedures

Sector Risk

7.1	Aircraft unintentionally deviates from normal inflight parameters - 7.1 - Over reliance on automation/Pilot lack of knowledge of aircraft systems and procedures.
Risk	Controlled flight within the bounds of the aircraft design is suddenly, unexpectedly, and unintentionally, lost.
Cause	**7.1 - Over reliance on automation/Pilot lack of knowledge of aircraft systems and procedures.**
Control	Competency based training including use of automation. Recurrency training and ongoing evaluation.
Action	Evidence based training, UPRT, and competency assessments based on enabling skills (e.g. TEM, pilot monitoring, assertiveness and challenge, decision making, operator policies/procedures for flight path management including cross-check, deviation call outs, escalation protocol – up to and including controls take-over, competency standards of the trainers, manual flying in a certain controlled condition [in line with IATA recommendation], etc.).
Owner	CAA and Airlines.
Status	Active

Sector Implementation Plan

7.1	Aircraft unintentionally deviates from normal inflight parameters - 7.1 - Over reliance on automation/Pilot lack of knowledge of aircraft systems and procedures.
Plan Coordinator	Airlines
Outcome	All Airlines can demonstrate evidence of high level of pilot competency of knowledge of aircraft systems and procedures, aircraft automation, and upset recovery training.
Planned Actions	Airlines will conduct evidence based training, UPRT, and competency assessments based on enabling skills (e.g. TEM, pilot monitoring, assertiveness and challenge, decision making, operator policies/procedures for flight path management including cross-check, deviation call outs, escalation protocol – up to and including controls take-over, competency standards of the trainers, manual flying in a certain controlled condition [in line with IATA recommendation], etc.). Airlines to conduct critical analysis of training and apply learnings.
Benefits	Increased confidence of pilots and airlines in pilot management of aircraft and upset aircraft recovery.
Resource requirements	Airways and Airline safety departments and training departments. CAA flight operations officers during business as usual (BAU).
Performance measures	Evidence that effective pilot aircraft knowledge of systems, competency and upset recovery training is included as part of the operators Safety Management System. There is increasing confidence of crew and airline management in skills of pilots to manage aircraft and aircraft upset situations demonstrated by a positive shift in related Air Transport SRP Action Survey responses.
Timing	Ongoing, all airlines to implement the actions and meet the required performance measure by December 2018.

7.2 - Pilot loss of situational awareness

Sector Risk

7.2	Aircraft unintentionally deviates from normal inflight parameters - 7.2 - Pilot loss of situational awareness.
Risk	Controlled flight within the bounds of the aircraft design is suddenly, unexpectedly, and unintentionally, lost.
Cause	**7.2 - Pilot loss of situational awareness.**
Control	Training should include upset recovery including STARTLE factor.
Action	UPRT and competency assessments based on enabling skills (e.g. TEM, pilot monitoring, assertiveness and challenge, decision making, operator policies/procedures for flight path management including cross-check, deviation call outs, escalation protocol – up to and including controls take-over, etc.).
Owner	CAA and Airlines.
Status	Active

Sector Implementation Plan

7.2	Aircraft unintentionally deviates from normal inflight parameters - 7.2 - Pilot loss of situational awareness.
Plan Coordinator	Airlines
Outcome	Airlines can demonstrate a high level of pilot competency (knowledge/skills) of aircraft systems and procedures, aircraft automation, and upset recovery training.
Planned Actions	Implement/review UPRT and competency assessments based on enabling skills (e.g. TEM, pilot monitoring, assertiveness and challenge, decision making, operator policies/procedures for flight path management including cross-check, deviation call outs, escalation protocol – up to and including controls take-over, competency standards of the trainers, manual flying in a certain controlled condition (in line with IATA recommendations), etc.).
Benefits	Increased confidence of pilots and airlines in pilot's management of aircraft and upset aircraft recovery.
Resource requirements	Airways and Airline safety departments and training departments. CAA flight operations.
Performance measures	Evidence that effective pilot upset recovery training is included as part of the operators Safety Management System. Evidence of CAA, airline and pilot confidence in pilot management of aircraft and upset aircraft prevention and recovery as demonstrated by a positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

7.3 - Unreported/unnoticed damage to aircraft on ground and/or improper loading, leading to aircraft not responding as designed or an unbalanced load

Sector Risk

7.3	Aircraft unintentionally deviates from normal inflight parameters - 7.3 – Unreported/unnoticed damage to aircraft on ground and/or improper loading, leading to aircraft not responding as designed or an unbalanced load.
Risk	Controlled flight within the bounds of the aircraft design is suddenly, unexpectedly, and unintentionally, lost.
Cause	**7.3 – Unreported/unnoticed damage to aircraft on ground and/or improper loading, leading to aircraft not responding as designed or an unbalanced load.**
Control	Appropriate ground handling SOPs and training.
Action	Education outreach on ground handling management including operator processes for quality and safety management oversight of ground handlers (including contractors) and crew pre-flight activity training. Operator review of SOPs and training to ensure fit-for-purpose. Implementation of Just Culture to encourage hazard reporting.
Owner	Airlines, Aerodromes and CAA.
Status	Scoping

Sector Implementation Plan

7.3	Aircraft unintentionally deviates from normal inflight parameters - 7.3 – Unreported/unnoticed damage to aircraft on ground and/or improper loading, leading to aircraft not responding as designed or an unbalanced load.
Plan Coordinator	Airlines, Aerodromes, CAA Manager Air Transport. CAA Manager Aeronautical Services Unit. CAA Manager Corporate Communications.
Outcome	Ground handling is safe and efficient, damage to aircraft is minimised and reported, and aircraft loading is safe and efficient.
Planned Actions	CAA surveillance and certification activity will include a focus on ground handling. The CAA and operators will engage in an educational outreach to establish areas of risk in ground handling and loading and ensure SOPs and training is fit-for-purpose.
Benefits	Potentially reduce the number of occurrences involving damage to aircraft and improper loading. Potentially reduce the risk of damage to aircraft going unnoticed and/or unreported.
Resource requirements	Aerodrome and Airline safety departments, ground handling management, and training departments. CAA flight operations, CAA aeronautical services, and safety promotions.
Performance measures	The number of accidents and incidents relating to unreported aircraft damage or improper loading trends downward. Effective management of the risks included as part of the operators Safety Management System. A positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting by December 2018.

Damage or accident due to aerodrome/ground challenging operating conditions

8.1 - Ineffective promulgation of aerodrome infrastructure operations and developments

Sector Risk

8.1	Damage or accident due to aerodrome/ground challenging operating conditions. - 8.1 – Ineffective promulgation of aerodrome infrastructure operations and developments.
Risk	Damage to aircraft while taxiing or parked, due to other vehicles, ground staff, and while loading or unloading, or preparing for takeoff.
Cause	**8.1 – Ineffective promulgation of aerodrome infrastructure operations and developments.**
Control	Appropriate promulgation of works in progress.
Action	Regular updates on progress and changes, coordinated by stakeholders to all - single clear message. (E.g. AIP Supplements and NOTAM for runway works, etc.) Airlines and aerodromes coordinate risk management planning on taxiing and parking areas, FOD management, etc.
Owner	Aerodromes, Airlines, and CAA.
Status	Scoping

Sector Implementation Plan

8.1	Damage or accident due to aerodrome/ground challenging operating conditions. - 8.1 – Ineffective promulgation of aerodrome infrastructure operations and developments.
Plan Coordinator	Aerodrome operators and airlines
Outcome	Effective promulgation of aerodrome infrastructure operations and development activity including works in progress reduces the risk of damage or accidents to aircraft.
Planned Actions	Review of promulgation of works-in-progress, regular updates on progress and changes to ensure effective communication to all stakeholders. (E.g. AIP supplements and NOTAM for runway works etc.). Aerodrome operators will demonstrate evidence of effective coordinated risk management including planning around taxiing and parking areas, FOD management etc. CAA surveillance and certification will include this risk as a focus.
Benefits	Reduce the frequency of occurrences related to ineffective promulgation of aerodrome infrastructure operations and development. Operators will be able to demonstrate risk mitigation associated with aerodrome upgrades and works-in-progress.
Resource requirements	Aerodromes and airlines safety departments, CAA aeronautical services.
Performance measures	The number of accidents and incidents relating to ineffective promulgation of aerodrome works trends downwards. Effective management of the risks included as part of the operators Safety Management System. A positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting December 2018.

8.2 - Variable performance of ground handlers

Sector Risk

8.2	Damage or accident due to aerodrome/ground challenging operating conditions. - 8.2 - Variable performance of ground handlers.
Risk	Damage to aircraft while taxiing or parked, due to other vehicles, ground staff, and while loading or unloading, or preparing for takeoff.
Cause	**8.2 - Variable performance of ground handlers.**
Control	Supervision, performance, oversight.
Action	Aerodrome and Airlines to work together to reduce damage to aircraft. CAA could assist with quantification of problem, coordination of approach, educational outreach (e.g. clarification of ground responsibilities – [apron vs manoeuvring area] to reduce the taxi/pushback conflictions.) Encourage hazard reporting amongst ground handlers.
Owner	Airlines, Aerodromes and CAA.
Status	Scoping

Sector Implementation Plan

8.2	Damage or accident due to aerodrome/ground challenging operating conditions. - 8.2 - Variable performance of ground handlers.
Plan Coordinator	Airlines
Outcome	Ground handling operations provide safe and efficient services to air transport operators and aerodromes.
Planned Actions	Airlines, aerodromes, and ground handling operators will workshop the risks to safe air transport operations due to variable performance of ground handling. CAA could assist with quantification of problem, coordination of approach, educational outreach (e.g. clarification of ground responsibilities – [apron vs manoeuvring area] to reduce the taxi/pushback conflictions.) Operators to encourage hazard reporting amongst ground handlers. CAA surveillance and certification activity will include a focus on ground handling.
Benefits	Potentially reduce the frequency of occurrences as a result of variable performance of ground handlers.
Resource requirements	Airways and Airline safety departments and ground handling operations. CAA flight operations and CAA aeronautical services units.
Performance measures	The number of accidents and incidents relating to variable performance of ground handlers trends downwards. Effective management of the risks included as part of the operators Safety Management System. A positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting December 2018.

Degraded safety margin (peculiar to NZ environment)

9.1 - Single runway operations

Sector Risk

9.1	Degraded safety margin (peculiar to NZ environment) - 9.1 - Single runway operations.
Risk	Aviation factors unique to the NZ aviation environment.
Cause	**9.1 - Single runway operations.**
Control	Appropriate operator Flight planning, fuel policies, fuel planning. CAA surveillance (e.g. Part 129, 121 ramp checks.) Appropriate ATC traffic management training.
Action	Operators and ATC demonstrate appropriate SMS activity addressing single runway operations.
Owner	Airways, CAA, and Airlines.
Status	Scoping

Sector Implementation Plan

9.1	Degraded safety margin (peculiar to NZ environment) - 9.1 - Single runway operations.
Plan Coordinator	Airlines, Aerodromes, Airways, Metservice, and pilots associations.
Outcome	The sector operators (airlines, aerodromes, and ATS) can demonstrate effective management of the risks associated with single runway operations.
Planned Actions	Airlines and Airways NZ will demonstrate evidence of appropriate mitigation strategies for risks associated with single runway operations including risk of unexpected runway closures and mandatory diversions to alternate aerodromes, etc. Actions include monitoring operator flight planning, fuel policies, fuel planning, weather briefings, earthquake contingency planning, etc. CAA surveillance and certification activity will include this as a focus.
Benefits	Potentially reduce the frequency of occurrences where safety margins are degraded due to single runway operations. Provide confidence that the sector is responding to challenges associated with single runway operations.
Resource requirements	Airways, Aerodrome, and Airline safety departments. CAA flight operations.
Performance measures	The number of accidents and incidents relating to single runway operations trends downwards. Effective management of the risks included as part of the operators Safety Management System. A positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting December 2018.

9.2 - Unexpected and compounded adverse changes in weather

Sector Risk

9.2	Degraded safety margin (peculiar to NZ environment) - 9.2 - Unexpected and compounded adverse changes in weather.
Risk	Factors unique to the NZ aviation environment.
Cause	**9.2 - Unexpected and compounded adverse changes in weather.**
Control	Appropriate weather forecasting promulgated to relevant users. Use of advanced technology to assist with weather information.
Action	Enhanced communication of PIREPS for any unforeseen significant weather systems. Airways and operators to anticipate, plan for, and encourage re-routing where necessary. AWS and SIGMETs.
Owner	Pilots Association, Airways, and Metservice.
Status	Forecasting and re-routing around bad weather - Active
	Improved PIREPS, use of new/advanced technology - Scoping

Sector Implementation Plan

9.2	Degraded safety margin (peculiar to NZ environment) - 9.2 - Unexpected and compounded adverse changes in weather.
Plan Coordinator	Airlines, Airways, Metservice, and Pilots association.
Outcome	Airlines
Planned Actions	Operators will review communication of PIREPS of any unforeseen significant weather systems to assess as fit-for-purpose and upgrade where possible. Airways and airlines to anticipate, plan for, and encourage re-routing to avoid adverse weather where possible. Operators to increase use of AWS and SIGMET information.
Benefits	More adverse weather information is available to pilots. Potentially fewer incidents involving damage or injury from adverse weather.
Resource requirements	Airline safety departments, operations, and training departments. Airways, Aerodromes, Metservice, and pilots.
Performance measures	The number of accidents and incidents relating to avoidable adverse weather trends downward. Effective management of the risks included as part of the operators Safety Management System. A positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting December 2018.

9.3 - Unique topography for key aerodromes

Sector Risk

9.3	Degraded safety margin (peculiar to NZ environment) - 9.3 - Unique topography for key aerodromes.
Risk	Factors unique to the NZ aviation environment.
Cause	**9.3 - Unique topography for key aerodromes.**
Control	Location training and familiarity for aircrew to standards.
Action	Operators to provide evidence of location specific training for high threat environments. Operator SMS will demonstrate risk management and mitigation controls (e.g. per SMS, risk managed and mitigating controls should be included in exposition [e.g. Route and Aerodrome Manual], etc.).
Owner	Airlines
Status	Scoping

Sector Implementation Plan

9.3	Degraded safety margin (peculiar to NZ environment) - 9.3 - Unique topography for key aerodromes.
Plan Coordinator	Airlines
Outcome	Airlines will demonstrate evidence of ongoing risk-based training with a focus on flight operations into high threat environments.
Planned Actions	Airlines to provide effective risk-based training with a focus on flight operations into high threat environments. CAA surveillance and certification activity will include a focus on airline training for high threat environments.
Benefits	Potentially reduce the number of occurrences related to flight operations in to high threat environments. Operators will be able to demonstrate risk mitigation associated with the unique NZ topography in terms of flight operations training for high threat environments.
Resource requirements	Airline safety and training departments.
Performance measures	The number of accidents and incidents relating to the unique topography for key aerodromes trends downward. Effective management of the risks included as part of the operators Safety Management System. A positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting December 2018.

Compromise of safety to people on aircraft

10.1 - Adverse weather

Sector Risk

10.1	Compromise of safety to people on aircraft - 10.1 - Adverse weather (e.g. severe turbulence, storms).
Risk	Decreased safety margin for passengers and crew in the cabin. This can include aircraft comfort facilities, unruly passengers, impact of severe weather on cabin environment.
Cause	**10.1 - Adverse weather (e.g. severe turbulence, storms).**
Control	Real-time weather information made available to pilots.
Action	Increased encouragement of PIREPS and ensuring Airways are passing on weather information. AWS and SIGMETs.
Owner	CAA, Airways, and Pilots Association.
Status	Scoping

Sector Implementation Plan

10.1	Compromise of safety to people on aircraft - 10.1 - Adverse weather (e.g. severe turbulence, storms).
Plan Coordinator	CAA Deputy Director Air Transport and Airworthiness and NZALPA
Outcome	Open and widespread sharing of PIREPS amongst pilots, maximising information from Airways and Metservice.
Planned Actions	Engagement between CAA, Metservice, Airways, and NZALPA to identify the most effective way to enhance PIREPS. CAA surveillance and certification activity will include a focus on sharing of weather information.
Benefits	Greater promulgation of flight conditions leading to smoother, safer flights.
Resource requirements	CAA, Metservice, Airways, NZALPA representation.
Performance measures	The number of incidents of affecting passenger safety relating to adverse weather trends downward. Effective management of the risks included as part of the operators Safety Management System. A positive shift in related Air Transport SRP Action Survey responses.
Timing	First reporting December 2018.

10.2 - Passenger behaviour

Sector Risk

10.2	Compromise of safety to people on aircraft. - 10.2 - Passenger behaviour (including unruly passengers, cabin baggage, smoking etc.).
Risk	Decreased safety margin for passengers and crew in the cabin.
Cause	**10.2 - Passenger behaviour (including unruly passengers, cabin baggage, smoking etc.).**
Control	a) High threat passenger list. b) Develop learning, data analysis and sharing between participants.
Action	a) Airlines to work together to share high threat passenger information. b) CAA to investigate impact/potential of national caution list, unruly pax penalties issues assessment. c) CAA to work with airlines to share occurrence data.
Owner	Airlines and CAA.
Status	Scoping

Sector Implementation Plan

10.2	Compromise of safety to people on aircraft. - 10.2 - Passenger behaviour (including unruly passengers, cabin baggage, smoking etc.).
Plan Coordinator	Airlines
Outcome	High threat passengers will be managed appropriately across the air transport sector.
Planned Actions	Airlines to work together to share high threat passenger information.
Benefits	Reduction in the number of poor passenger behaviour occurrences and to minimise the impact of these events. Operators will be able to demonstrate risk mitigation associated with poor passenger behaviour, including heightened oversight by the CAA.
Resource requirements	Airline safety departments and training departments. CAA flight operations.
Performance measures	The number of incidents and occurrences relating to poor passenger behaviour risk is trends downward. Effective management of the risks included as part of the operators Safety Management System. A positive shift in related Air Transport SRP Action Survey responses.
Timing	December 2018.

Aircraft fire/fumes

11.1 - Inappropriate use and stowage of Lithium batteries

Sector Risk

11.1	Aircraft fire/fumes - 11.1 – Inappropriate use and stowage of Lithium batteries.
Risk	Inflight fire.
Cause	**11.1 – Inappropriate use and stowage of Lithium batteries.**
Control	Public and sector education.
Action	Update DG information on CAA website and dangerous goods poster, kiosks. CAA awareness campaign to members of the public and shippers (freight forwarders) i.e. What is a lithium battery? What does it look like? What is good practice for transporting lithium batteries as passenger/shipper? Enforcement of requirement to declare dangerous goods. Operators to publish DG information on website and during check-in.
Owner	CAA and Airlines.
Status	Scoping

Sector Implementation Plan

11.1	Aircraft fire/fumes - 11.1 – Inappropriate use and stowage of Lithium batteries.
Plan Coordinator	Airlines
Outcome	Decrease in the number of undeclared dangerous goods discovered on airline operations.
Planned Actions	Operators to ensure dangerous goods training and monitoring of loading operations is part of SMS where appropriate, and specifically includes handling of lithium batteries. Increasing awareness of dangerous goods at loading, check-in, and boarding management.
Benefits	Decreased likelihood of undeclared dangerous goods being transported on air transport.
Resource requirements	Airlines public safety office, airline loading, check-in, and boarding staff.
Performance measures	The number of occurrences related to the inappropriate use and stowage of lithium batteries trends downward. A positive shift in related Air Transport SRP Action Survey responses.
Timing	December 2018

11.2 - Undeclared dangerous goods

Sector Risk

11.2	Aircraft fire/fumes. - 11.2 - Undeclared dangerous goods.
Risk	Inflight fire.
Cause	**11.2 - Undeclared dangerous goods.**
Control	a) Public and sector education of dangerous goods. b) Loading and handling surveillance.
Action	a) CAA has introduced the Dangerous Goods Panel, and is beginning to raise awareness of dangerous goods, and working with operators to identify and reduce the risk of undeclared dangerous goods. b) Operators to ensure dangerous goods training and monitoring of loading operations is part of SMS where appropriate.
Owner	a) CAA b) Airlines
Status	Scoping

Sector Implementation Plan

11.2	Aircraft fire/fumes. - 11.2 - Undeclared dangerous goods.
Plan Coordinator	Airlines, CAA safety promotion
Outcome	Decrease in the number of undeclared dangerous goods discovered on air transport operations.
Planned Actions	Operators to ensure dangerous goods training and monitoring of loading operations is part of SMS where appropriate, and specifically includes handling of lithium batteries. Increasing awareness of dangerous goods at loading, check-in, and boarding management.
Benefits	Decreased likelihood of undeclared dangerous goods being transported on air transport
Resource requirements	Airlines public safety office, airline loading, check-in, and boarding staff
Performance measures	The number of occurrences involving the discovery of undeclared dangerous goods trends downward. A positive shift in related Air Transport SRP Action Survey responses.
Timing	December 2018