



AIRSERVICES AUSTRALIA

**Airport Capacity Enhancement Project
Melbourne Runway Nomination Crosswind Increase
Exemption from MOS Part 172
All Phases Safety Case**

NAME AND POSITION	SIGNATURE	DATE
Prepared by: [REDACTED] Position: Project Safety Specialist	Original Signed	21/12/2010
Proposed by: [REDACTED] Position; Programme Manager	Original Signed	21/12/2010
Accepted by: [REDACTED] Senior ATC Specialist	Original Signed	21/12/2010
Accepted by: [REDACTED] Manager CSI	Original Signed	21/12/2010
Accepted by: [REDACTED] SDL Manager ECSS	Original Signed	22/12/2010
Approved by: [REDACTED] General Manager, ATC	Original Signed	23/12/2010
Endorsed by: [REDACTED] General Manager, Safety & Assurance	Original Signed	1/2/2011

This document and the information contained herein are the property of Airservices Australia. No part of this work may be reproduced or copied in any form or by any means (graphic, electronic or mechanical, including photocopying, recording, taping or information retrieval system) or otherwise disclosed to any party outside Airservices without the prior consent of Airservices Australia's Executive. © Airservices Australia 2007. All rights reserved.

i. Document control information

Document Owner	[REDACTED], Programme Manager
Airservices File Reference(s)	Nil
Electronic Master Storage	ATM_BN1-1037511
Hard Copy Master Storage	Nil
Document Register Number	SAF-SC-10025

Amendment Record			
Issue Number	Section(s) Amended	Amended by	Date
0.1	Initial Draft	[REDACTED]	13/12/10
0.2	Post Peer Review	[REDACTED]	15/12/10
1.0	Final Post OI&C Review	[REDACTED]	21/12/10

- ii. Table of contents**
- iii List of Acronyms 4**
- 1. Background 5**
- 1.1 Safety Activities..... 6**
- 2. Purpose..... 6**
- 3. Scope of the change 6**
- 3.1 The Current Requirements 6**
- 3.1.1 Crosswind Rules for RWY Nomination 6**
- 3.3 Operational Benefits 9**
- 3.4 Service Provision10**
- 3.5 Business Groups, Service Delivery Lines, Business Branches and Units....10**
- 3.6 Systems, Facilities and Equipment10**
- 3.7 People and Associated Procedures10**
- 4. Assumptions, Constraints and Dependencies10**
- 5. Responsibilities 11**
- 6. Consultation and Communication12**
- 6.1 General12**
- 6.2 Consultation and Communication Process12**
- 7. Design Process13**
- 8. Implementation Process 14**
- 9. Procedures and Engineering Support 19**
- 10. Safety Performance Monitoring.....19**
- 11. Training and Education.....20**
- 12. Business Continuity20**
- 13. Conclusion.....20**
- 14. Post Implementation Review21**
- 15. Document Review21**
- 16. Appendices22**
- 17. Related documents22**

iii List of Acronyms

Acronym	Meaning
ATC	Air Traffic Control
ATM	Air Traffic Management
ATS	Air Traffic Service
ICAO	International Civil Aviation Organisation
LAHSO	Land and Hold Short Operations
MOS	Manual of Standards
ORA	Operational Risk Assessment
SDL	Service Delivery Line
TAS	Technology and Asset Services
TNA	Training Needs Analysis

1. Background

ICAO Document 4444 (PANS-ATM) recommends in Para 3.1.4, that to enhance ATC capacity the appropriate ATS authority should:

- Periodically review ATS capacities in relation to traffic demand; and,
- Implement steps aimed at maximising the use of the existing system capacity; and,
- Develop plans to increase capacity to meet the actual or forecast demand.

Runway capacity at a number of Australian capital city airports is at a premium during peak periods and is the scarcest ATM resource. There are no capital city runway infrastructure programmes scheduled, other than Brisbane Airport for 2020, that will provide additional capacity in the next 10 years.

Lack of airport capacity at a number of airports, particularly during peak traffic periods, is a serious challenge to the growth of Australian air transport.

Improved runway efficiency and maximised runway capacity is fundamental to supporting ATC ability to optimise the National Airspace System.

Airservices Australia has initiated an Airport Capacity Enhancement (ACE) project to study airport operations at five major airports and report back to the airlines, airports and Airservices Australia management on possible efficiency enhancements.

Melbourne ATC had previously recognised the limitations imposed on the nomination of RWY 27/09 and RWY 34 for LAHSO¹ and other operations by the 20 knot crosswind limit in MOS 172. Because work has already been done to achieve airline stakeholder agreement for an increase in the crosswind limit to 25 knots, this proposal is now being facilitated through the ACE project.

While ICAO PANS/ATM Doc.4444 is silent on a crosswind limit for runway nomination for reasons other than noise abatement; the Manual of Standards Part 172 - Air Traffic Services specifies criteria for ATC nomination of runways at controlled airports. Paragraph 10.3.1 specifies that controllers must not nominate a runway for use, if an alternative runway is available, when the cross-wind component, including gusts, exceeds 20 knots.

Most aircraft operating scheduled services in Australia have a certified cross-wind capability in excess of 20 knots.

During peak traffic periods at Melbourne airport, ATC nominates a runway mode to deliver optimum movement rates for the prevailing conditions.² The specified cross-wind restriction often results in the nomination of a less efficient runway mode leading to airborne delay for inbound aircraft and on ground delay for departing aircraft.

The resultant delay causes airline schedule disruption, additional fuel burn, operational inefficiencies and additional greenhouse gas emissions.

¹ LAHSO requires an aircraft landing on a crossing runway to hold short of the other crossing runway (the active participant) in order for operations to continue on the other runway (the passive participant) without the need for ATC sequencing. The procedure effectively shortens the landing run available to the active aircraft "holding short". Therefore it is confined to operators who have trained their pilots and sought approval from CASA.

² AIP DAP Melbourne NAP. Note 4 states: Higher capacity modes may be used during peak periods when significant airborne delay would occur.

1.1 Safety Activities

A [ML XW Part 172 SCARD](#) (Appendix 1) was prepared that determined that a safety statement was sufficient. However, because an exemption from the Manual of Standards Part 172 is being sought, safety case documentation is being prepared.

Pursuant to this determination an [ACE ML XW Increase Safety Plan PDF Copy](#) (Appendix 2) was created detailing the actions that will be taken to ensure that safety is not compromised by the trial exemption from MOS Part 172.

2. Purpose

This safety case will provide an argument and evidence that seeking a trial exemption to the Manual of Standards Part 172, so that Air Traffic Control at Melbourne airport may nominate runway modes which deliver optimum movement rates with a crosswind component including gusts, up to 25 knots on a dry or damp runway, will not adversely affect the safety of operations at Melbourne Airport.

This argument will contain evidence of consultation and hazard determination with ATC, airline, and, where necessary, airport staff. As all of the risk associated with crosswind landings is borne by the pilot in command, the successful argument will hinge around airline support for an increased crosswind for runway nomination.

3. Scope of the change

3.1 The Current Requirements

3.1.1 Crosswind Rules for RWY Nomination

Currently CASR Part 172 MOS Version 1.5 August 2010 requires that ATC not nominate a runway for use if the crosswind exceeds 20 knots, including gusts.

Part 172 MOS

10.3.1 Selection of Runway in Use

10.3.1.1 Use of other than nominated runways. Controllers must not nominate a particular runway for use if an alternative runway is available, when:

- (a) for runway conditions that are completely dry:
 - (i) the cross-wind component, including gusts, exceeds 20 kt;
 - (ii) the downwind component, including gusts, exceeds 5 kt.
- (b) for runway conditions that are not completely dry:
 - (i) the cross-wind component, including gusts, exceeds 20 kt;
 - (ii) there is a downwind component.

The Manual of Air Traffic Services (MATS) provides the rules that relate to the provision of Air Traffic Services to Air Traffic Controllers (ATC). MATS Para 12-15-

230 details the rules for ATC selection of the runway in use, when another runway is available, reflecting the criteria contained in the MOS.

Selection of Runway in Use

MATS 12:15:230 Crosswind/downwind limitations

Do not nominate a runway for use when:

<i>Runway Conditions</i>	<i>Wind</i>
<i>Completely dry</i>	<i>Crosswind exceeds 20 KT including gusts</i>
	<i>Downwind exceeds 5 KT including gusts</i>
<i>NOT completely dry</i>	<i>Crosswind exceeds 20 KT including gusts</i>
	<i>There is a downwind component</i>

3.1.2 Melbourne Runway Modes

A number of runway modes at Melbourne airport provide higher capacity during peak periods. The following runway modes provide greater capacity than traditional single runway, into wind operations:

- **27/34 LAHSO:** Provides for maximum arrival rate by allowing, for specified aircraft, simultaneous landing on runways 27 & 34. Departures are processed from RWY 27.
- **09/34 LAHSO:** Provides a comparable arrival rate to 27/34 LAHSO, allowing simultaneous landing on runways 09 & 34. Departures are processed from RWY 34. Departing traffic may experience delay in this mode due to conflicting traffic landing on RWY 09.
- **16 ARR/27 DEP:** Landing aircraft use RWY 16 and departing aircraft use RWY 27. Apart from the occasional long haul departure, landing aircraft are unencumbered by departing aircraft, resulting in an improved arrival and departure rate.
- **27/34 DEP/27 ARR:** Provides 2 runways for departures and allows optimum departure tracking for the majority of aircraft (RWY34 for aircraft to the north & east, RWY27 to the south & west). This mode does not accommodate peak arrival periods.

During peak traffic periods at Melbourne airport, ATC endeavors to nominate the runway mode to deliver optimum movement rates for the prevailing weather conditions. The specified cross-wind restriction often results in the nomination of a less efficient runway mode leading to airborne delay for inbound aircraft and on ground delay for departing aircraft.

The proposed change will allow the extended availability of runway modes at Melbourne airport which support higher traffic throughput during peak periods.

3.1.3 Land and Hold Short Operations (LAHSO)

LAHSO for authorised aircraft & pilots, permit operations by an aircraft landing on one runway and another aircraft either taking off or landing simultaneously on a crossing runway, subject to the provisions of LAHSO.

In Melbourne, LAHSO is available on runways 27 & 34 or runways 09 & 34 and delivers the maximum arrival capacity. The participating aircraft are classified as either

- Active - required to hold short of the crossing runway, or
- Passive - unrestricted use of the crossing runway

Active participation is specifically limited to runways where the crosswind component, including gusts, does not exceed 20 KT. Downwind must not exceed 5 knots on a dry runway or zero knots on a damp or wet runway.

For passive participation, there is no specified LAHSO crosswind or downwind restrictions; however the rules of runway nomination still apply.

For example, a pilot can offer to land in a passive LAHSO role with a 30 knot crosswind even though the runway is not nominated. However a pilot cannot be authorised to land in the active LAHSO mode if the crosswind exceeds 20 knots.

3.2 Proposed Change

The proposal is to seek from the Civil Aviation Safety Authority (CASA) a dispensation against the Manual of Standards, giving approval for a trial as detailed below and agreed to by the participating airlines (See Section 8):

1. ATC may nominate higher capacity runway modes at Melbourne airport with crosswind, including gusts, up to and including 25 knots under the following conditions:
 1. for a trial period of 12 months
 2. during peak traffic periods
 3. only when the runway is DRY or DAMP

Note: AIP 60.2.1 describes a runway as DAMP³ when the surface shows a change of colour due to moisture.

2. Active participation in LAHSO will continue to be restricted to runways where the crosswind component, including gusts, does not exceed 20 KT.
3. ATC procedures related to runway nomination & allocation for arriving & departing aircraft, apart from the amended crosswind criteria, will remain unchanged.
4. Responsibility for safety of the aircraft, including crosswind operations & limitations, remains with the pilot in command. Within safe crosswind

³ The project has been advised by OI&C () that DAMP, as a runway condition, may one day not be included. If that change occurs and the new definitions of WET, DRY and CONTAMINATED become available a review will be required.

limitations (to be assessed and determined by the pilot in command), flight crew are expected to comply with the runway nominated by ATC.

5. Aircraft with operational requirements, as advised by the pilot in command, for a runway other than that nominated by ATC will be afforded the same priority when sufficient notice is provided. Notification requirements are:
 - a. Arriving aircraft: prior to 120 NM
 - b. Departing aircraft: prior to push back
6. Airservices will promulgate a Notice to Airmen (NOTAM) about the increased crosswind component trial.

```
MELBOURNE (YMML)
C0/00
RWY NOMINATION TRIAL BY ATC
CROSSWIND COMPONENT INCREASED TO 25 KTS FOR DRY AND DAMP RWY
IF NOT OPR SUITABLE PILOT TO ADVISE ATC "REQUIRE RUNWAY....."
REF AIP ENR 1.1-10 PARA 4.5 AND 4.6, ENR 1.1 - 28 PARA 14.2
FROM ..... TO ..... EST
```

7. An AIP SUP will also be published to provide an explanation of the change and detail ATC & pilot procedures.
8. Subject to CASA approval, the trial is scheduled to commence in March 2011. Approximately one month's notice will be provided prior to the trial's official commencement date.

3.3 Operational Benefits

The increased opportunity to nominate a higher capacity runway mode will lead to less delay. This in itself can be considered a safety enhancement as it reduces pilot frustration and holding pattern flying. Environmentally it reduces fuel burn which in turn reduces pollution.

For example, a wind of 340/20-25 kts would currently require the nomination of RWY34 for arrivals & departures. The typical outcome during a peak morning arrival period would be an average of 6 minutes airborne delay and a peak delay of 18 minutes. Departing aircraft would also experience on-ground delay.

Under the proposed change, ATC would nominate 27/34 LAHSO which would typically generate an average of 2 minutes delay and a maximum of about 7 minutes. Opportunities for departing aircraft are also increased with this mode resulting in less on-ground delay.

A similar but non-LAHSO example is a wind of 190/25 which would currently require nomination of 16 for both arrivals and departures resulting in a reduced movement rate. The proposal would allow the nomination of 16 for arrivals and 27 for departures, so increasing the movement rate.

Based on historical wind data, the combined availability of higher capacity arrival modes is conservatively estimated to reduce airborne delay for arriving aircraft by 85 hrs per year.

This equates to a reduced fuel burn of 227,217 kg and an associated reduction in CO2 production of 718,006 kg.

The availability of higher capacity modes significantly reduces schedule disruption due to air traffic management delay to both arriving & departing traffic. Single runway operations can lead to airborne & on ground delay in the vicinity of 10 to 20 minutes for a number of aircraft in each peak period.

3.4 Service Provision

The change does not affect the Airservices Australia provider certificates or schedules however the Part 172 MOS and MATS contain the runway nomination criteria and will need to be waived during the trial and eventually changed.

3.5 Business Groups, Service Delivery Lines, Business Branches and Units

The change will affect ATC Group SDL East Coast Services South, specifically the controllers from Melbourne Approach, Melbourne Tower and the adjacent en route sectors servicing Melbourne airport.

3.6 Systems, Facilities and Equipment

There is unlikely to be any affect on systems, facilities and equipment.

3.7 People and Associated Procedures

There is unlikely to be any affect on people though it is likely that workload may be redistributed because less holding can be expected. This increases terminal area activity although current traffic metering will continue.

Other than to allow a waiver to MOS and MATS, procedures will not change.

4. Assumptions, Constraints and Dependencies

4.1 Assumptions

- Responsibility for the safety of the aircraft, including crosswind operations & limitations, remains with the pilot in command. Operational requirements, as advised by the pilot in command, for a runway other than that initially allocated will be accommodated by ATC.
- ATC procedures for aircraft arriving & departing from Melbourne will remain unchanged. These procedures include:
 - Runway mode selection (excluding crosswind criteria)
 - Airspace structures
 - Clearance delivery, SID and departure runway allocation
 - STAR & arrival runway allocation
 - MAESTRO operations
 - Land and Hold Short Operations (LAHSO) and runway allocation
 - Management of non-duty runway operations
 - Auto-release for departing aircraft

4.2 Constraints

- If a significant number of operators refuse the allocated runway because of the increased crosswind component, the operational efficiencies of this change will be significantly reduced and the complexity of ATC operations increased.
- Ongoing monitoring & assessment of this aspect of the change will be an important component of the trial.
- Civil Aviation Safety Authority approval of the change.

4.3 Dependencies

- Agreement from the airlines using Melbourne airport

5. Responsibilities

Title	Responsibility
Project Sponsor: [REDACTED]	Go/No-Go decision on Project Safety Document Approvals
Manager Strategic Operational Initiatives [REDACTED]	Project Oversight
Project Director/Manager [REDACTED]	<p>Overview and monitoring of process to ensure completion of the project within the constraints of safety, time, cost and scope with ongoing reporting.</p> <p>Sponsorship and processing of project plans through the approvals process</p> <p>Development, monitoring and approval of Project Plan</p> <p>Monitoring and review of Risk Register</p>
Project ATC Operational Specialist: [REDACTED]	<p>Development of requirements and plans for implementation of the agreed technical proposal, including Delivery and Transition Plan</p> <p>Identification of technical hazards and development of controls and safety requirements</p> <p>Assist with development of communication, risk and training plans</p> <p>Liaison with ATC, TAS and other branches as necessary</p>

Subject Matter Experts: 	Development of operational documentation and procedures TNA Development and delivery of Training Participation in Hazard Identification Workshops Endorsement of Staff
Safety Specialist: 	Facilitate the preparation of Safety Plans, Safety Assessment Reports or Safety Case in accordance with the SMS Facilitate Hazard identification workshops Interact and liaise with Safety Management group sections Liaison with CASA, through Regulatory Services, regarding regulatory issues

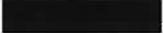
6. Consultation and Communication

6.1 General

 initiated discussions about extension of the use of LAHSO by increasing the cross wind limit; however consultation and communication was aimed at ensuring that all stakeholders including Melbourne ATC, airlines and the airport were aware of the issues. The issues of safety versus efficiency; in particular that the airlines accepted the increased crosswind requirements were canvassed, to ensure that the overall level of safe operations at Melbourne airport would not deteriorate.

External consultation was limited to email and telephone exchanges due to the limited nature of the change and that there would be minimal changes for ATC and participating airlines. (For responses see Appendix 3 ML XW Increase Communications Log and Section 8.3.3)

6.2 Consultation and Communication Process

- Feb 2010:  ATM Performance Group raised a concern that, when weather conditions at Melbourne lead to single runway operations, the reduction in capacity is problematic to airline scheduling & on-time performance.
- June 2010: Melbourne Airport Capacity Enhancement Report seeks to explore changes to wind parameters which will potentially deliver extended periods of higher capacity runway modes.
- Sept 2010: discussions with  about a trial to increase the allowable crosswind component at Melbourne
- Sept 2010: discussion with , CASA ATS Specialist, about a Melbourne trial with increased crosswind component. Airservices to develop a proposal for CASA consideration.

- Sept 2010: meeting and workshop with Melbourne TWR (██████████) & TCU (██████████) and ACE Project Team to develop options for Melbourne trial. Agreement reached about the proposal.
- Oct 2010: detailed proposal, in the form of a discussion paper, developed for consideration by Melbourne ATC.
- Oct 2010: ATC HAZID ██████████ (ML TCU), ██████████ (ML TWR) and ECS South En Route was represented by ██████████.
- Oct -Nov 2010: Consultation with Melbourne airline operators – ██████████, ██████████, ██████████, ██████████, ██████████, ██████████, ██████████ and International airlines. Discussion Paper provides details of the proposal and offers options to assist with reaching agreement on the proposal to be presented to CASA.
- Oct 2010: Consultation with Melbourne Airport represented by ██████████, GM Strategy, Asset & Planning, & ██████████, Airfield Mgr.
- Nov 2010: Consultation with ██████████, National Manager AIS, regarding industry promulgation requirements. Agreement that AIP SUP & a NOTAM will meet communication objectives.
- Nov 2010: Consultation with ATC Continuous Service Improvement (CSI) Mgr, ██████████, to ensure proposal does not conflict with national standardisation objectives. CSI Unit supports the proposal.
- Nov 2010: Preliminary briefings to ██████████, GM Safety & Assurance, ██████████, Mgr OI&C, ██████████, ATS Integrity Mgr, and ██████████, Regulatory Services Mgr.
- Dec 2010: Email from ██████████, Airfield Mgr, Melbourne Airport, supporting increase crosswind proposal.
- Dec 2010: Preliminary discussion with CASA Mgr Airways & Aerodromes, ██████████, detailing proposal and gaining an understanding of the activities required to gain approval. Offered to be available to provide briefing to CASA representatives.
- Dec 2010: Communication with RAPAC & ██████████ detailing the proposal.
- Dec 2010: Airservices' Safety Management review of proposal & documentation.
- Dec 2010: Present Safety Case to CASA

7. Design Process

There were a number of design elements involved in decisions regarding crosswind operations:

- This enhancement was designed to maximise the availability of runway modes at Melbourne airport which in turn will deliver optimum capacity during peak periods
- Airline representatives were asked to consider the options available (see Section 8.3.3.1)
- The trial will be implemented so that, apart from the change in the crosswind component, all other ATC operating procedures for aircraft operating in and out of Melbourne remain unchanged.
- Under law, the Pilot in Command is responsible for the safety of the aircraft, including the determination of crosswind operating limitations. Existing ATC

procedures safely and efficiently accommodate aircraft operational requirements for changes of runway. This will not change.

- Aircraft manufacturers design aircraft to land in accordance with regulations agreed internationally. CASA certifies aircraft for operation in Australia in accordance with manufacturers' specifications and requirements laid down by CASA and the certifying agency in the aircraft's country of manufacture.
- The crosswind landing capabilities of each aircraft type is published in the aircraft manuals and each pilot knows their own personal allowed crosswind limit.
- ICAO does not publish a general crosswind limit for runway nomination although limits pertaining to specific operations (not applicable to this operation) are published. CASA regulates Australian ATC operations through the Part 172 MOS.
- There are many airports in Australia where alternative into wind runways do not exist so landing with crosswinds in excess of 20 knots is not an unusual practise.
- The agreed design was then detailed in an "Agreed Procedures" document that was circulated for signature and signed by the Airservices Manager in Melbourne, [REDACTED]. (see Section 8.3.3.2)

- 7.1 Design Safety Management Activities**
- 7.2 Design Hazards, Controls and Safety Requirements**
- 7.3 Design procedures and Standards**
- 7.4 Design Limitations and Shortcomings**
- 7.5 Design Authorities**
- 7.6 Design Safety Management Activities**
- 7.7 Design Hazards, Controls and Safety Requirements**
- 7.8 Design Risk Management**

See section 8 for implementation issues, no hazards were discovered for the design process.

8. Implementation Process

8.1 Transition to Operations

Following CASA's approval of the proposal, Airservices will notify airline operators regarding the commencement date of the trial procedures and will promulgate an AIP SUPP. Draft AIP SUPP (Appendix 4). The AIP Supplement will provide an explanation of the change and detail ATC & pilot procedures. At least 28 days notification will be provided.

8.2 Implementation Procedures and Standards

This trial will not commence without formal notification from CASA that Airservices' has a dispensation to CASR Part 172 MOS paragraph 10.3.1 in regard to ATC runway nomination. The MATS and AIP entries reflect the MOS requirement.

From the commencement date of the trial, ATC runway nomination at Melbourne will be based on the increased crosswind criteria for dry and damp runways during peak traffic periods. Other ATC procedures related to runway nomination and allocation for arriving and departing aircraft will remain unchanged.

The operating procedures are contained in the Agreed Operating Procedures document.

8.3 Implementation Safety Management Activities

To manage safety and identify hazards and controls the project methodically went about communication and consultation.

8.3.1 Initial Briefings

A document, [Melbourne Airport Capacity Enhancement](#) (Appendix 5), was prepared by Airservices Australia to explain to industry the current air traffic management performance at Melbourne Airport and presented a number of potential activities that could deliver improved capacity. The report was delivered to the ATM Performance Group in June 2010 and work commenced on the proposal to increase the availability of higher capacity runway modes.

Fundamental to increasing the availability these modes was the need to review crosswind criteria for ATC runway selection. A [Discussion Paper – Increased Crosswind Trial at Melbourne](#) (Appendix 6) was distributed to the principle airline operators at Melbourne. The discussion paper sought to develop, in consultation with the operators at Melbourne, a proposal for the Civil Aviation Safety Authority (CASA) to allow ATC to nominate runway modes with a cross-wind component, including gust, up to 25 knots.

It was explained that:

Airservices will:

- Develop the proposed operational concept for consideration & assessment by industry
- Consult with Melbourne airport
- Consult with airline operators – [REDACTED], [REDACTED], [REDACTED], [REDACTED], [REDACTED], [REDACTED], International operators
- Identify ATC operational hazards and develop & implement the necessary safety requirements & risk controls
- Liaise with airline operators to develop the final proposal for presentation to CASA
- Complete CASA approval process
- Promulgate & implement the change

Principle airline operators will:

- Contribute to the detailed development of the proposal for submission to CASA
- Identify operational hazards and develop safety requirements & risk controls.
- Liaise with Airservices to ensure safety requirements & risk controls are addressed and included in the proposal
- Support the proposal and, within safe crosswind limitations, comply with the runway nomination determined by ATC

- Sign a document committing to the trial as detailed in the proposal developed for presentation to CASA

8.3.2 ATC Risk Assessment

Advice was received from ATC Group ECSS TCU and Tower personnel that there was very little change involving Airservices. This was predicated on the basis that ATC at Melbourne Airport:

- Nominate Runways in accordance with the MOS/MATS/AIP instructions;
- Nominate LAHSO procedures whenever environmental and air traffic conditions permit;
- Flow and vector aircraft to facilitate the runway modes;
- Accommodate pilot operational requirements for runways other than those nominated, for both take off and landing;
- Change traffic flows as required due to changing environmental conditions.

It is not expected that a 5 knot change to the maximum allowable crosswind for runway nomination will have any effect other than to prolong the use of higher capacity runway modes, including LAHSO. This in itself is considered a benefit as it will allow maximum landing and take off rates to continue for longer, relieving inner sectors of holding requirements.

A Hazard Identification meeting was held on 26/10/10 to discuss the issues formally. Brainstorming through the use of flight threads considered in differing weather and wind conditions were the primary tool used, though contributors experience also played a role. This method was proven to be efficient in the ATC environment and it was enhanced by using a checklist of possible areas affected that could be used as a reference. The notes from the meeting 26Oct10 ACE HAZID Notes ML RWY Nomination Crosswind Increase (Appendix 7) demonstrate that although a number of different exceptions to LAHSO already exist, no hazards were recorded. The checklist referred to in the previous sentence is included in the meeting notes.

Those involved in the HAZID were:

Name	Position
[REDACTED]	Project Safety Specialist
[REDACTED]	ACE Project ATC Specialist
[REDACTED]	ML TCU ALM
[REDACTED]	ECS ALM
[REDACTED]	ML TWR ALM

Other operational controllers were requested but could not be made available. Hazards that might arise outside of the HAZID process would be sent to the Project Safety Specialist for incorporation into HAZLOG for later review and classification.

A ML XW Part 172 SCARD (Appendix 1) was prepared by the same SMEs that attended the HAZID and an existing hazard concerning the increased workload caused by pilots requesting an in to wind runway was included in the PHA.

8.3.3 Continued Development of the Proposal

As recorded in Section 6 - Consultation and Communication, Melbourne airport airline operators [redacted], [redacted], [redacted], [redacted], [redacted], [redacted], [redacted], [redacted] and International airlines were consulted. A second version of the discussion paper provided details of the proposal and offered options to assist with reaching agreement on the proposal to be presented to CASA. The discussion paper was sent to the following airline representatives:

- [redacted] - [redacted] < [redacted] >

General Aviation – Due to the proximity of Essendon Airport it is unusual for General Aviation aircraft to operate into Tullamarine however a letter explaining the trial has been sent to the Victorian RAPAC. Letter to Vic RAPAC (Appendix 8)

[redacted] – Except for [redacted], International Airlines do not take part in LAHSO procedures, which is when the increased crosswind limit would apply. [redacted] of [redacted] was contacted and the initiative was explained. He advised that if [redacted] and [redacted] had accepted the change [redacted] did not require any further information.

8.3.3.1 Options

The following table, extracted from the briefing paper, lists the different options that were available and which the airlines were asked to evaluate:

	General ATC RWY Nomination		LAHSO			
			Active		Passive	
	WET	DRY/DAMP	WET	DRY/DAMP	Wet	DRY/DAMP

Current	20	20	20	20	20	20
Option 1	25	25	25	25	25	25
Option 2	20	25	20	25	20	25
Option 3	20	25	20	20	20	25
Option 4	25	25	20	20	25	25
Option 5	25	25	20	25	25	25

The feedback indicated support for Option 3 so an [Agreed Operating Procedures](#) (Appendix 9) document was then prepared for signatures.

8.3.3.2 Airline Agreements

The agreements signed by the airlines and countersigned by [REDACTED], Airservices Australia, Manager East Coast Services South, have been collated together in the form of one PDF document. [ML RWY Nomination XW Increase Signed Airline Documents](#) (Appendix 10). The agreement covers a number of issues including confirmation from the airline representative that the necessary risk and safety assessments have been completed by the participating organisation.

The signatories are summarised below:

Name	Airline/Position
[REDACTED]	[REDACTED] Head of Compliance QA and Risk / Chair [REDACTED]
[REDACTED]	[REDACTED] General Manager Flight Operations
[REDACTED]	[REDACTED] Chief Pilot
[REDACTED]	[REDACTED] General Manager Flight Operations
[REDACTED]	[REDACTED] (Australia) Chief Pilot
[REDACTED]	[REDACTED] General Manager Flight operations & Chief Pilot

[REDACTED], [REDACTED], declined to sign an agreement but agreed to the proposal in an [REDACTED] (Appendix 11) sent to Project Director, [REDACTED], which, inter alia, contains the following:

Secondly I don't see a need for a formal agreement. Somewhat bureaucratic and not to be encouraged. In addition I cannot sign such documents without having the agreement vetted by legal.

As I see it, you have consulted with your customers and on the basis of feedback intend to amend your operating criteria for runway selection. On the basis of that you can initiate the "trial".

██████ has agreed to participate in allowing runway selection using 25kts including gusts on a dry runway. I am happy to initiate changes to our Flight Crew Route Guide (Mar revision) to highlight the change in criteria for runway selection...but don't accept the need to sign your document

It should be noted that the reason for declining to sign was not safety related; for the full text and replies please see the email.

8.3.3.3 Melbourne Airport Agreement

Consultation with Melbourne Airport management was conducted by ██████, the Project ATM Specialist and culminated in an email the from Airfield Manager ██████ (Appendix 12) which stated:

“This is to confirm Melbourne Airport’s support for the increased crosswind trial at Melbourne Airport. We acknowledge that this trial is aimed at increasing capacity but not at the cost of safety.”

8.4 Implementation Hazards, Controls and Safety Requirements

The outcome of the implementation hazard identification activities was that no hazards were discovered.

The Operational Risk Assessments for ML TCU and Tower were scrutinised for hazards associated with runway nomination, crosswind condition and LAHSO and none were found.

8.5 Implementation Risk Management

None was required

8.6 Pre-Implementation Risk Assessment

A meeting will be held approximately one month before the initiation of the trial to ensure that no new hazards have been produced by the trial proposal.

9. Procedures and Engineering Support

Implementation of the change requires promulgation of an AIP Supplement and a Notice to Air Men (NOTAM) to inform ATC and pilots.

A Temporary Local Instruction will be promulgated to advise relevant ATC of the change to existing runway selection criteria.

This proposal will have no impact on any engineering support activities.

10. Safety Performance Monitoring

Airservices Australia and the participating airlines have formal methods of the notification of safety issues. (E.g. ESIR) These will be used as normal and have not been excluded as part of the trial.

The project also intends, through the Post Implementation Review process (See Section 14) to have, as a minimum, a twelve-weekly cycle of meetings to determine not only whether any safety issues have arisen, but also whether the trial is meeting the intended targets.

The trial can be terminated at any time if the procedure is found by operators to be unsafe.

11. Training and Education

Apart from the change to the amended runway selection criteria, ATC procedures remain unchanged.

The ALMs decided that a TNA was not required and that ATC staff responsible for runway nomination will be briefed on the application of the change. Other ATCs affected by the change will be notified and tracked through the Airservices' change notification process.

Pilots will be advised of the change to runway selection criteria by internal company communication, the AIP Supplement and the NOTAM. All of these information sources will remind pilots of the availability of alternative runways should the crosswind component for the allocated runway not be operationally acceptable.

12. Business Continuity

If circumstances arise which establish that the trial procedures are unsafe or unworkable then the trial will be terminated. Cancellation of the relevant NOTAM, AIP Supplement and ATC Temporary Local Instruction (TLI) will result in a reversion to existing procedures published in the Part 172 MOS, MATS and AIP.

13. Conclusion

It has been demonstrated in section 8.3.1, and through the discussion papers, that the specified cross-wind limit of 20 knots often results in the nomination of a less efficient, single runway mode at Melbourne Airport, causing delays & congestion.

The Australian AIP requires another runway to be nominated when the crosswind, including gusts exceeds 20 knots if there is another runway available. Flight crews operating through Australian airports are normally certified to safely operate with a crosswind up to the design limit of their aircraft where alternative runways do not exist.

Following circulation of a Discussion Paper, responsible managers from all principle domestic airlines operating into Melbourne [REDACTED] signed an Agreed Operating Procedure document supporting an increased crosswind trial. [REDACTED] agreed in writing to the trial but declined to sign the offered agreement. The names and positions of those agreeing is supplied in Section 8.3.3.2

The trial is seeking to allow Air Traffic Control to nominate higher capacity modes at Melbourne airport with a crosswind, including gusts, up to and including 25 knots on a

dry or damp runway. The agreement, excepting [REDACTED], contains confirmation that the airlines have made their own risk and safety assessments.

Responsibility for the safety of the aircraft, including crosswind operations and limitations, remains with the Pilot in Command. The procedures, paragraph 5, make it clear that ATC will accommodate pilot initiated operational requirements for a change of runway.

ATC procedures related to runway nomination and allocation for arriving & departing aircraft, apart from the amended crosswind criteria, will remain unchanged. Hazard identification has taken place and ORAs inspected for hazards; none have been found.

Procedures have been put in place to consult regularly with the airlines to ensure safety is being maintained and to discuss efficiency gains.

It can therefore be concluded that, with the agreement of the airlines, the airport and ATC units involved at Melbourne Airport, it is safe to initiate the trial.

14. Post Implementation Review

Three months after the trial is implemented, a teleconference involving Airservices Australia, Melbourne Airport and the participating airlines will be undertaken to review the safety performance of ATC and pilot procedures following the introduction of the trial.

The review will include an assessment of any ATC or pilot incident & event reports and any safety lessons will be shared. Identified risks & hazards will be assessed & mitigated in a manner consistent with the Airservices' Safety Management System.

Subsequent three monthly teleconferences will be undertaken throughout the trial.

The trial can be terminated at any time if the procedure is found by operators to be unsafe.

15. Document Review

15.1 Service Delivery Line/Business Branch or Unit/Safety Services

Peer review of this document was sought in accordance with the Airservices Australia SMS. This consisted of an operational ATC from Melbourne Airport and a project safety Specialist, both not involved in the project. Their reviews have been evaluated and recommendations included as appropriate; both reviews are attachments and are stored electronically.

The reviews were by:

1. [REDACTED] – Project Safety Services 15/12/10
2. [REDACTED] – ML ATC 15/12/10

15.2 Service Integrity

Operational Service Integrity was asked to review the document due to it providing argument and evidence to CASA to enable an exemption from MOS Part 172. The review has been evaluated and recommendations included as appropriate. The review is an attachment and is stored electronically.

The review was by:

██████████ – OI&C 21/12/10

16. Appendices

1. [Part 172 SCARD](#)
2. [ACE ML XW Increase Safety Plan PDF Copy](#)
3. [ML XW Increase Communications Log](#)
4. [Draft AIP SUPP](#)
5. [Melbourne Airport Capacity Enhancement](#)
6. [Discussion Paper – Increased Crosswind Trial at Melbourne](#)
7. [26Oct10 ACE HAZID Notes ML RWY Nomination Crosswind Increase](#)
8. [Letter to Vic RAPAC](#)
9. [Agreed Operating Procedures](#)
10. [ML RWY Nomination XW Increase Signed Airline Documents](#)
11. [██████████ Email](#)
12. [an email from the Airfield Manager ██████████](#)

17. Related documents

ICAO Doc. 4444 PANS/ATM
MOS Part 172
Manual of Air Traffic Services
Aeronautical Information Publication