Air Traffic Flow Management User Manual

C-MAN0125

Version 12

Effective 30 November 2018

Prepared:	Joe Ellwood ATM Information Specialist
Authorised:	Paddy Goodall ATM Network Services Manager

Change summary

Version	Date	Change description	NRFC
12	30 November 2018	Updated Airport Capacity/AAR tables (Part 20)	38896

This document was created using Generic Document Template C-TEMP0047 Version 8.

Table of contents

1 Terms and Acronyms

Term/acronym	Definition
AAR	Airport Acceptance Rate
ACA	Airport Coordination Australia
A/CDM	Airport Collaborative Decision Making
A/DMAN	Integrated Arrival and Departure Management
AFIS	Aerodrome Flight Information Service
AFTN	Aeronautical Fixed Telecommunication Network
AIP	Aeronautical Information Publication
ANSP	Air Navigation Service Provider
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATFMU	Air Traffic Flow Management Unit
Airservices	Airservices Australia
ATFM System	A system which provides demand and capacity management to airports and airspace volumes
ATOT	Actual Take off Time
AVMET	Aviation Meteorologist
BoM	Bureau of Meteorology
CDM	Collaborative Decision Making
CDM participants	Participants in CDM processes
COBT	Calculated Off Blocks Time (For flights on a gate requiring pushback, this is the pushback time. For other flights this is the taxi time)
Compass	Qantas Ops Control System
Compliance	Compliance is a measure of the difference between a flights actual operating time and the programmed time in the ATFM system. The variance required to be determined ‘compliant’ is defined in Business Rules.
CSV	Comma-separated values
DAP	Departure and Approach Procedures
CTOT	Calculated Take off Time
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure

Eurocat	Eurocat X – ATC automation system
FIB	Flight Information Broker
ESM	Enhanced Substitution Module is a plug-in sub component of ATFM for airline use to enable flight substitution.
GDP-A	Ground Delay Program applicable to flights arriving into the specified airport. A system of delaying departing traffic to meet enroute or arrival slot times. A Ground Delay advice is associated with a COBT/CTOT.
GDP-D	Ground Delay Program applicable to flights departing from the specified airport. A system of delaying departing traffic to align departure demand with planned departure capacity. A Ground Delay advice is associated with a COBT/CTOT.
ISE	Inter Aircraft Operator Slot Exchange
LTOP	Long Term Operating Plan
Maestro	A tactical arrival management system
MATS	Manual of Air Traffic Services
METCDM	Meteorological Collaborative Decision Making
NCC	Network Coordination Centre
NCCMET	Network Coordination Centre Meteorologist
OAG	Official Airline Guide
Pop-Up Flight	A flight that is scheduled or plans to arrive during the time period of a GDP, but which was not known to the ATFM system when the GDP was issued. Pop-up flights are generally created from a flight plan that is filed after the GDP was issued.
Pre-tactical	From the day prior to the day of operation of a flight up to two hours prior to departure
Program Airport	An airport that is subject to a TMI
Purge	A cancellation of a TMI
SM	ATC Shift Manager, including the Sydney Traffic Manager
SMC	Surface Movement Controller
Strategic	More than one day prior to the day of operation of a flight
TAF	Terminal Area Forecast
Tactical	Less than 2 hours prior to departure until the end of the flight
TMI	Traffic Management Initiative. This is a requirement put in place to manage demand and capacity issues
Whispir	Multi-channel communication system used by the NCC for external notifications

2 Introduction

Air Traffic Flow Management (ATFM) is a service provided by Airservices Australia (Airservices) aimed at achieving a balance between forecast air traffic capacity and actual air traffic demand.

The purpose of this manual is to provide a single reference document containing information and procedures relating to ATFM. This manual is available to all stakeholders and participants in ATFM.

2.1 Target Audience

The target audience of this manual includes all participants in the ATFM process. This audience includes:

- Air Traffic Control (ATC), including Defence
- Network Coordination Centre (NCC)
- Aircraft operators
- Airport operators
- Ground handling agents
- Pilots
- Relevant members of the aviation community.

Procedures and instructions for Air Traffic Control, Defence and the NCC are issued separately via standard internal processes and documentation such as Temporary Local Instructions, Local Instructions and MATS Supp.

2.2 Scope

This manual covers those aspects of ATFM relating to Traffic Management Initiatives (TMI), Airport Slots issued by Airport Coordination Australia (ACA), Calculated off Blocks Times (COBT) issued as part of a TMI, and the Collaborative Decision Making (CDM) data exchange requirements associated with these functions.

2.3 ICAO DOC 4444 Reference

This document is produced in accordance with ICAO DOC 4444 Chapter 3 Paragraph 3.2.1.5 recommendation that:

‘Detailed procedures governing the provision of the ATFM measures, and service within a region or area should be prescribed in a regional ATFM manual or handbook’.

2.4 ATFM Business Rules

The procedures and practices contained in this document are derived from and aligned with the ATFM Business Rules, which have been developed and endorsed in conjunction with industry stakeholders.

The ATFM Business Rules are available on the CDM portal of the Airservices website.

2.5 CDM Documents Portal

This manual is published in electronic format only and will be located on the Airservices website:

http://www.airservicesaustralia.com/projects/collaborative-decision-making-cdm/

2.6 Document Amendments and Notification

Amendments and additions to this document will be in the form of an ATFM User Manual SUP which will be posted on the CDM Documents Portal.

New versions of the ATFM User Manual will be posted on the CDM Documents Portal two weeks prior to the effective date.

Directed notification of an ATFM User Manual SUP or a new version of the ATFM User Manual will be by email to CDM participants only. All other users will be notified when accessing the website.

2.7 Document Errors

Document errors can be notified to the ATFMU mailbox: ATFMU@AirservicesAustralia.com.

3 Collaborative Decision Making (CDM)

CDM improves air traffic management by sharing information and data between airport operators, aircraft operators, ground handlers and ATC.

It allows all users to be aware of network demand, network capacity, constraints affecting the capacity, and the needs of users and service providers.

The overall effect of CDM is a more knowledgeable and participative aviation community that enhances safety, optimises airspace usage, and improves services, resulting in reduced costs and reduced carbon emissions.

CDM can apply to all time frames of decisions, from long-range planning of schedules to the tactical decisions made prior to the implementation of TMIs. Each user may participate to a level that suits their operations and information requirements. However, in order to maximise the benefits, it is important that all affected users participate in the information sharing and comply with TMIs when they are in place.

The effectiveness of CDM is dependent upon the commitment of all participants to the spirit and philosophy of CDM. This may require individual participants to adjust some established practices and procedures which are no longer compatible with the desired outcomes of the CDM group as a whole.

CDM entitles participants to an increased input into the decision making process but it also increases each participant's share of responsibility in achieving desired outcomes and objectives.

3.1 Components of CDM

3.1.1 Air Traffic Flow Management (ATFM)

ATFM is defined as the identification and management of demand and capacity imbalances, both at airports and in airspace volumes. Where imbalances are identified, ATFM enables the implementation of Traffic Management Initiatives (TMI) to reduce airborne delays.

3.1.2 Airport Collaborative Decision Making (A-CDM)

A-CDM is defined as improving data sharing between airport stakeholders to provide a common operational picture that enables refinement of the turnaround process for aircraft. This, in turn, provides for more efficient use of airport infrastructure and aircraft operator resources.

3.1.3 Integrated Arrival and Departure Management (A/DMAN)

A/DMAN is defined as providing the capability to dynamically balance airport arrival and departure demand to ensure more efficient use of airports and airspace that results in further reduction in airborne delays.

4 Harmony Software

Harmony is a software based tool that enables an Air Navigation Service Provider (ANSP) to monitor demand and capacity across the network, and to implement TMIs when demand exceeds capacity in any component of the network, particularly at a network airport.

4.1 Aircraft Operators Interface to the Harmony Web Client

Aircraft operators are able to interface with Harmony using the Harmony Web Client, Harmony for airlines (using the Enhanced Substitution Module (ESM)) or Harmony for ANSPs client.

4.2 Harmony Web Client

During the hours of operation of a TMI, aircraft operators are able to manage and optimise their fleet's operation using the Harmony Web Client connecting via the internet. This tool enables aircraft operators to swap landing slots internally using the Slot Substitution functionality and to advertise for external swaps using the Inter Aircraft Operator Slot Exchange (ISE) functionality. Once proposed changes have been made, the aircraft operators submit them to the Harmony server. The Harmony server responds automatically and displays the results on the Web client.

Airport operators and other approved aviation community members are able to access Harmony Web Client in a read only format.

4.3 Harmony for Airlines Client

Subscribing major airlines are able to interface with Harmony using the ESM software available on Harmony for airlines client. This tool enables subscriber airlines to manage and optimise their fleet's operation with a much higher level of automation than is available on the Web client. With the exception of Qantas COMPASS, Harmony client does not interface with airline systems.

4.4 Harmony for ANSPs Automation

Automated data transfer is available between Harmony and Qantas COMPASS. Automated data transfer between Harmony and other external systems is not yet available.

5 Air Traffic Flow Management (ATFM)

5.1 ATFM Phases

ATFM operates in various phases relating to the time of operation of the flight. The ATFM process is applied consecutively through these phases to gradually refine the times at which a flight operates into a program airport.

5.1.1 Strategic

Strategic ATFM generally refers to planning that occurs more than one day prior to the day of operation of a flight. Generally this takes the form of a schedule management scheme which allocates strategic landing slots to aircraft operators based on the known capacity of the airport.

Legislation relating to an airport's hours of operation or maximum permitted aircraft movements falls into this phase.

5.1.2 Pre-tactical

Pre-tactical ATFM refers to the planning that occurs from the day prior to the day of a flight's operation until two hours prior to the flight's departure. This planning includes a review of airline schedules, an assessment of forecast wind and weather, and any other capacity constraints. The ATC Shift Managers (SM) at program airports will consult with other relevant stakeholders and implement a TMI to manage any forecast capacity/demand imbalance.

Harmony is the primary ATFM tool used in this phase. Harmony sources data from OAG, aircraft operator schedules, ACA slot allocations and weather forecasts to generate TMIs when scheduled demand exceeds forecast capacity.

Subsequently, prior to or after its implementation, a change in forecast wind or weather may necessitate a revision of the original TMI or implementation of another TMI.

5.1.3 Tactical

Tactical ATFM refers to planning that occurs from two hours prior to a flight's departure until the end of a flight. Maestro is the primary tool used at Sydney, Brisbane, and Melbourne for tactical ATFM. Eurocat Traffic Management Lists are used at other locations where Maestro is not available.

Flow Controllers at program airports determine the tactical landing sequence and landing times for all arriving flights. Landing times determined by the Flow Controller may vary, and will take precedence over landing times determined by pre-tactical processes and ATFM systems such as Harmony for ANSPs.

Harmony may be used in the tactical phase to revise an existing TMI or to implement another TMI.

6 ATFM Processes

6.1 Access to the ATFM System

Major CDM participants (airlines) will be provided with ATFM client software which allows the user to access all of the information contained within ATFM. This includes displays of airport demand and capacity and is accessible from the airline operations centres.

Other CDM participants (aircraft operators/airport operators/defence) will be provided with access to the Harmony Web Client which is accessible via secure login and password from any internet location.

ATC CDM participants will be provided with Harmony client software which is accessible from the NCC and from SM positions at program airports.

Tower and Flow control ATC positions will be provided with dedicated web pages via the Harmony Web Client displaying TMI information and other information specifically relevant to their area of operation.

6.2 Schedule Upload Format

Airlines and aircraft operators who operate more than five flights in total each day into Sydney, Melbourne, Brisbane and/or Perth shall upload schedules to Harmony daily or weekly using the Web client.

The schedule data will be in Comma Separated Values (CSV) file format as defined in the ‘Aircraft Operator Schedule Upload Interface Control Document’. This document will be provided upon approval of access to the Harmony system. Application for system access is available on the CDM portal of the Airservices website.

6.3 Traffic Management Initiatives (TMI)

6.3.1 Ground Delay Program – Arrivals (GDP-A)

A GDP-A will be initiated at a program airport for a specified time when forecast demand exceeds forecast capacity. The purpose of a GDP is to convert airborne delay

at the destination airport to ground delay at the departure airport, thereby reducing both fuel burn and carbon emissions.

Airport Meteorological Collaborative Decision Making (METCDM) is used in conjunction to existing ATFM procedures and is used in the pre-tactical stage of traffic management. METCDM provides a more comprehensive weather product to enable more accurate planning for Airport Acceptance Rates (AAR). The Network Coordination Centre Meteorologist (NCCMET) in collaboration with ATC SM, Bureau of Meteorology (BoM) regional forecasters and Aviation Meteorologists (AVMET) produces an Airport METCDM Matrix, which is designed to communicate detailed predictions of weather phenomena that affect arrival rates and any other airport capacity restraints. The determined rates are entered into Harmony.

At the same time, airlines and aircraft operators enter their schedule for the following day into Harmony. The Harmony software then determines if the number of scheduled arrivals exceeds the AAR during any portion of the day, and if so, distributes ground delay equitably and proportionately to those flights which would have received airborne delay had they departed on schedule. The ground delay assigned to an affected flight is notified to airline and aircraft operators via their Harmony interface as a Calculated Off Blocks Time (COBT).

A current GDP may be terminated earlier than its programmed end time if it is no longer required. In the Harmony system this early termination of a GDP is described as a ‘Purge’. Purging a GDP allows airlines and aircraft operators to revert to scheduled times as quickly as is practicable.

6.3.2 Ground Delay Program – Departures (GDP-D)

A GDP-D will be run for Perth Airport for the period 2130-0030 UTC Monday to Friday.

Up until 20 minutes prior to Calculated Take Off Time (CTOT), aircraft operators may swap their allocated COBT in the Perth Departure GDP. When a COBT has been amended after receiving airways clearance, the pilot must advise SMC of amended COBT when calling for a start/pushback/taxi clearance.

If a flight is unable to utilise the allocated COBT, pilots must contact their airline operator to obtain a new COBT.

6.4 GDP Operating Times

Times are quoted in UTC unless otherwise annotated, and are subject to daylight saving time variations applicable to the program airport, which will be advised by NOTAM.

GDPs will be implemented as follows:

- Sydney 2000-1300 UTC daily (as amended for daylight saving)
- Perth Departures 2130-0030 UTC; and
  Arrivals 0030-1400 UTC Monday-Friday
- Brisbane 2000-1300 UTC daily
- Melbourne 2000-1400 UTC daily (as amended for daylight saving).

6.5 Teleconferences

The NCC will manage a daily teleconference between major CDM stakeholders at 0620 Local and will facilitate input from all stakeholders. These stakeholders would normally include airport operators, airline operations sections, BoM staff and if appropriate the ATC SMs/ORMs.

The purpose of the early morning teleconference is to provide a forum for CDM processes relating to network operations, weather, infrastructure constraints, current and proposed TMIs and their impact.

Additional teleconferences will be initiated by the NCC when operational issues affect ATFM, specifically for GDP revisions. Notification of additional teleconferences will be through the utilisation of the NCC messaging system, Whispir.

6.6 Workflow – COBT Allocation Process

Times are quoted in UTC and are subject to daylight saving time variations applicable to NSW, ACT and VIC, which will be advised by NOTAM.

Stakeholders based in states in different time zones or states not participating in daylight saving may need to make allowance for time differences.

TAF issue times are not modified by any daylight saving time variations.

Additional teleconferences will be initiated by the NCC when operational issues affect ATFM. Notification of additional teleconferences will be through the utilisation of the NCC messaging system, Whispir.

All schedules and requests from itinerant flights must be received and entered into Harmony by 0800 UTC.

The times that the NCC runs GDPs are stated in AIP ENR 1.9. Any changes to times are notified via NOTAM.

6.7 COBT Requirements

6.7.1 Flights Originating From Within Australia

All flights arriving at Sydney, Melbourne, Brisbane or Perth from Australian airports during the hours of operation of a GDP are required to obtain a COBT for the departure airport.

6.7.2 Flights Originating From Outside Australia

Flights originating from outside Australia are not required to obtain a COBT.

6.7.3 Obtaining GDP operating times

Published GDP operating times may be varied by NOTAM. Airlines and aircraft operators can obtain these operating times from the Harmony client or Harmony Web Client interfaces or the NCC on 1800 020 626.

6.8 Post-Operational Flight Times

Airlines and aircraft operators who operate into Sydney, Melbourne, Brisbane and/or Perth are required to provide to the NCC their Actual Off Blocks Time (AOBT) and/or Actual In Blocks Time (AIBT) within two days post their flight

The post-operational data will be in CSV file format as defined in the 'Harmony for ANSPs Web User's Guide'.

7 Airservices – Procedures and Practices

7.1 TMA Shift Manager (SM)

7.1.1 GDP

The SM will review and finalise the METCDM Matrix. The NCC will then propose and run the GDP.

7.1.2 GDP Revision

Whenever capacity is likely to be significantly reduced or increased at a program airport, a current or pending GDP may be revised (individual airports can be revised separately). A revised METCDM Matrix may be prepared and utilised for the revision if weather is the reason for the change of rate otherwise the SM will notify the NCC of the revised rates.

The NCC will manage, coordinate and run the actual GDP. The revised GDP will be run as soon as possible, but no more than 30 minutes after the initial notification to the NCC. Aircraft operators are required to comply with the COBTs generated by the revised GDP within 30 minutes of the running of the actual revised GDP.

7.2 Network Coordination Centre (NCC)

7.2.1 GDP Run

The NCC will manage GDPs as follows:

- Propose and model GDPs in accordance with the approved METCDM Matrix,
- Produce a Daily Brief detailing parameters for the next day's operations,
- Facilitate the teleconference to discuss the proposed GDPs (if required),
- Supporting the SM as appropriate,
- Run the actual GDPs.

7.2.2 GDP Revision

If a current or pending GDP is to be revised, a teleconference will be called with the airlines prior to the implementation of the revised GDP except for the 0400 Local Sydney revision at 0400 Local daily.

7.2.3 Itinerant Flights

The NCC will use Harmony Web Client to issue a COBT for itinerant flights operated by aircraft operators who do not have access to the ATFM system, and if Sydney, Brisbane or Perth is the destination, the NCC will also issue an ACA slot if required.

7.2.4 De-prioritisation and Extenuating Circumstance Log

A log will be held and maintained by Airservices for entry of flight details for flights that have been de-prioritised and flights that have been approved to operate non-compliant due to extenuating circumstances. The SM will transmit the Harmony non-compliance record sheet to the NCC each evening. The Log will be available in real time on the NCC Portal.

7.3 ATC Towers

7.3.1 Participants

The following Australian towers and AFIS will be participants in the CDM process.

Adelaide	Essendon	Melbourne
Albury	Canberra	Perth
Alice Springs	Gold Coast	Port Hedland AFIS
Avalon	Hamilton Island	Rockhampton
Broome	Hobart	Sydney
Brisbane	Karratha	Sunshine Coast
Cairns	Launceston	Tamworth
Coffs harbour	Mackay	Williamtown
Darwin	Townsville	

7.3.2 Non-Compliant Flights – Tower Procedures

Tower controllers will apply the following procedures unless precluded by safety considerations or a significant operational requirement:

- If a flight requests push back or taxi clearance more than 5 minutes prior to COBT, clearance will be withheld, and the pilot will be advised of the reason using the following phraseology:

‘(callsign), PUSH BACK (or taxi) CLEARANCE NOT AVAILABLE DUE FLOW MANAGEMENT. EXPECT CLEARANCE AT TIME (COBT – 5 minutes)’.

If a significant apron or gate requirement necessitates push back or taxi more than 5 minutes prior to COBT, the Tower will, if practicable, appropriately delay the flight on the ground by other means.

Towers may issue a clearance to push back or taxi earlier than

COBT – 5 minutes if there is a reasonable expectation that, due to taxi or holding point delays, the required amount of ground delay will be achieved.

If it is not possible to absorb any or all of the assigned ATFM delay and the flight departs non-compliant, any residual delay will be managed airborne by the destination Flow Controller.

- If a flight requests push back or taxi clearance more than 15 minutes after COBT, clearance will not be withheld but the pilot will be advised of the flight's non-compliance using the following phraseology:

'(callsign), YOU ARE NON-COMPLIANT WITH FLOW MANAGEMENT. EXPECT AIRBORNE DELAY'.

- If a pilot requests a new or amended COBT, or has any other query regarding ATFM, they will be advised to contact their company or the NCC.

- To mitigate an inconsistency whereby the COBT displayed to ATC and the COBT with which the pilot is required to comply may not be in alignment after a GDP revision, tower controllers will not apply ATFM compliance management procedures to flights departing for an airport during the first 30 minutes following a GDP revision at that airport. The exception is in the case of an immediate compliance revision.

7.3.3 Non-Compliant Flights – AFIS Procedures

AFIS Units may issue the following statement to flights operating more than 5 minutes prior to, or more than 15 minutes after its COBT:

'(callsign), YOU ARE NON-COMPLIANT WITH FLOW MANAGEMENT. EXPECT AIRBORNE DELAY'.

Note: The above statement is not applicable if there has been a GDP revision at the destination airport and the flight is operating within 30 minutes of the time of implementation of the GDP revision. The exception is in the case of an immediate compliance revision.

If a pilot requests a new or amended COBT, or has any other query regarding ATFM, they will be advised to contact their company or the NCC.

7.4 Flow Controllers

7.4.1 Non-Compliance

Flow Controllers at program airports will monitor the GDP for non-compliance and take action to de-prioritise non-compliant flights where appropriate.

To mitigate an inconsistency whereby the COBT displayed to ATC and the COBT with which the pilot is required to comply, may not be in alignment after a GDP revision, Flow Controllers will not apply ATFM compliance management procedures to flights departing for an airport during the first 30 minutes following a GDP revision at that airport. The exception is in the case of an immediate compliance revision.

Where action is taken by the Flow Controller to de-prioritise a non-compliant flight, the Flow Controller will enter the details onto the Harmony non-compliance record sheet, which is transmitted to the NCC each evening.

7.4.2 Start Approval

In addition to the requirement to obtain a COBT:-,

- all flights departing from Bankstown or Camden for a landing at Sydney will contact ATC on 9556 6515 prior to starting engines.
- all flights departing within a 60 NM radius of Melbourne must obtain a start clearance from the departure airport ATC when active or from 03 9235 7337.
- all flights departing from Archerfield for a landing at Brisbane will contact 07 3866 3588 prior to starting engines.
- pilots of inbound flights to Brisbane with a duration of 45MIN or less must contact the Brisbane Flow Controller on 07 3866 3588 to validate their COBT and confirm a Flow tactical landing slot.
- RFDS pilots must contact the Brisbane Flow Controller on 07 3866 3588 as soon as possible with an updated ACFT operating time.
- all flights departing from Jandakot for a landing at Perth will contact Perth Centre on 135.25 prior to starting engines.

7.4.3 HF

Due to communication difficulties in remote areas pilots may be unable to check the COBT for their return flight to a program airport. Where this occurs pilots should contact HF to request a COBT check.

8 Airlines and Aircraft Operators – Procedures and Practices

8.1 COBT Requirements

All flights arriving at Sydney, Melbourne, Brisbane or Perth from Australian airports during the hours of operation of a GDP are required to obtain a COBT for the departure airport.

8.2 Airlines

8.2.1 Schedules

Prior to 0800 UTC each day, airlines and aircraft operators with appropriate access to Harmony Web Client and with flights into Sydney, Melbourne, Brisbane and/or Perth will upload bulk schedules.

The schedule data is to be in CSV file format in accordance with the Aircraft Operator Schedule Upload Interface Control document. A copy of this document is available on the CDM website.

8.2.2 Pop-Up Flights

A Pop-Up flight is a flight that is scheduled or plans to arrive at a program airport during the time period of a GDP, but which was not known to the ATFM system when the GDP was issued.

Pop-Up flights are generally created from a flight plan that is filed after the GDP was issued.

8.2.3 In-flight Diversions

All in-flight diversions will be managed tactically by the ATC system.

8.2.4 Diversion Recovery Flights

Diversion recovery flights are subject to standard flight planning and relevant airport slot requirements.

All flights returning to their original destination after diverting to and landing at an alternate airport will require a COBT if the destination airport is subject to a GDP.

International diversion recovery flights will, as far as is practicable, be exempt from ground delay.

Under exceptional circumstances airlines may request the NCC to exempt a domestic diversion recovery flight from ground delay; however this will be managed on a case by case basis.

Operators who do not have access to ESM or the web client should contact the NCC for a COBT for the diversion recovery flight.

8.2.5 Teleconferences

The airlines participate in teleconferences to discuss ATFM issues in accordance with section 6.5 Teleconferences.

8.2.6 Changes to Flights

To enable accurate demand and capacity predictions in the ATFM System, airlines and aircraft operators will update flight details when changes of greater than 15 minutes are made to operating times.

To adhere to AIP requirements, an AFTN message may also be required.

8.2.7 GDP Revision

Whenever airport capacity is likely to be significantly reduced or increased at a program airport, a current or pending GDP may be revised. This may result in amendments to previously issued COBTs.

A Level 1 Revision is a standard revision whereby a demand/capacity imbalance has occurred requiring a change to GDP rates. A 30 minute compliance exempt period applies. During this period, flights are able to depart on their previous COBT (prior to revision) if the previous COBT falls within the 30 minute period following a Level 1 Revision. This differs from a Level 2 or Level 3 Revision where immediate compliance

with the new COBT is required, see section 11 – Revisions with Immediate Compliance.

The Sydney GDP will be revised at approximately 0400 Local daily so that ATOT for international and long haul domestic flights can be incorporated into the GDP. This GDP revision will facilitate more accurate ground delay for short haul flights, particularly during the morning peak period.

8.3 International Airlines Operating Domestic Legs

International Airlines operating flights on domestic legs are subject to TMIs. These airlines are required to obtain a COBT for their departure airport for operation into the GDP airport. The COBT can be obtained through the NCC, or the flights managing company.

8.4 Nomination of Major to Manage Flights in Harmony

Airlines/operators who elect to assign a different Major to manage their flights within Harmony are required to notify the NCC of the authorised major and any subsequent changes.

The NCC will ensure that the major in Harmony is correct to ensure the nominated major can manipulate flights and upload schedules as required. Refer to section 19 for a current list of nominated Majors.

8.5 Placeholders

Airlines/operators shall not deliberately use flights as placeholders.

Airlines/operators are prohibited from delaying a flight's ELOBT deliberately to gain a later slot in a congested program where the flight was never intended to be delayed.

This includes moving a flight to an early slot and then altering the ELOBT to gain a later slot in a GDP run. This is generally done before a TMI revision and the flight is moved back to a vacant slot after the operators' flight list has been manipulated post a TMI revision.

Where a TMI is run, flights are used to manipulate through the program. On occasion, these flights are then left in a slot that they will not operate to for an extended period of time. In doing so, other flights that actually need the slot cannot gain an appropriate COBT and can often become non-compliant. Place holder time is limited to a maximum of 30 minutes unless the operator provides the NCC with information to support an extension to 60 minutes.

9 Airports

Program airport operators are able to access the Harmony system via the Web Client interface. This interface shows current and pending TMIs and can be configured to show updated arrival and departure information which assists in planning to reduce gate and taxiway congestion.

Program airport operators participate in the daily ATFM teleconferences and are able to provide information to other stakeholders regarding short and long term airport works which may impact AAR and operations.

10 Pilot Procedures

10.1 General

All flights subject to a GDP are subject to the following procedures.

Flights are allocated a COBT for their departure to a program airport based on the available capacity of the airport. COBTs may be varied due to changes in conditions e.g. unexpected weather conditions or system constraints resulting in sudden changes in airport capacity. Any changes to COBTs will be advised to pilots either via their company operations, the NCC, or when possible email and SMS.

COBTs for the following day operations will be available after the ATFM program has been run for each respective airport.

10.2 Scheduled Flights

Pilots of scheduled flights will be advised of their current COBT in accordance with company procedures.

10.3 Itinerant Flights

Prior to submitting a flight plan, pilots of itinerant flights intending to operate into Sydney, Melbourne, Brisbane and Perth Airports during the hours of a GDP are required to call the NCC on 1800 020 626 for a COBT and ACA slot if required, for their flight.

The following information is required:

a) Aircraft callsign

b) Aircraft type

c) Departure aerodrome

d) Destination aerodrome

e) ETD

f) ETA

g) Pilot's name, mobile phone number and email address if available.

It is recommended that where possible, on the day prior to the flight, a slot is obtained from ACA, and then the NCC is contacted prior to 0800 UTC with the information listed above. This will ensure that the flight is included in the Sydney, Melbourne, Brisbane or Perth GDP and will minimise any potential delay.

This information must be provided not later than 60 minutes prior to the planned operation. Any changes to the information provided above will be notified to the NCC prior to departure.

Notification of flight details to the NCC is additional to all existing flight plan notification requirements.

Where communication facilities exist, pilots of all itinerant flights must either check their COBT with the NCC within one hour of the flight, or be able to check their mobile phone/email for any amendments.

Due to communication difficulties in remote areas pilots may be unable to check the COBT for their return flight to a program airport. Where this occurs pilots should contact HF to request a COBT check.

Failure to obtain a COBT and/or to submit a flight plan for a flight to a program airport may result in extensive airborne holding or airways clearance being withheld if the program airport has no compatible arrival slots available.

11 Revisions with Immediate Compliance

11.1 Overview

During periods of extensive airborne holding, or when potential airborne holding is projected to exceed published traffic advisories, further measures are required to manage traffic flows. GDP revisions with immediate compliance aim to reduce extensive holding and workload, however tactical traffic management may still be required.

Note 1: Priority flights as per AIP ENR 1.4 para 10.1 are exempt from Level 2 and 3 GDP revision procedures.

Note 2: Flights departing Perth, Darwin, Karratha, Port Hedland and Broome for Sydney, Melbourne or Brisbane are issued a COBT but are not subject to GDP revision immediate compliance procedures.

Note 3: Flights departing for Perth from outside 1200NM are issued a COBT, but are not subject to GDP revision immediate compliance procedures. Two additional levels of GDP revision are available to manage network disruptions occurring at GDP airports (Sydney, Melbourne, Brisbane or Perth):

- A Level 2 GDP revision requires immediate compliance as the GDP airport is no longer able to maintain the published AAR. Flights that have already pushed back or taxied are allowed to depart;
- A Level 3 GDP revision requires immediate compliance as the GDP airport cannot accept flights for a certain period. No flights may depart for GDP airports until the GDP is revised. Flights already taxiing are required to return to the bay or remain at a holding point unless specifically approved to depart by the Brisbane or Melbourne Operations Room Manager (ORM).

In both cases, a non-compliance period does not apply and flights must immediately comply with their new COBT.

It may not be possible to accurately determine the length of the reduced capacity, therefore a second GDP revision may be required in order to return the program to normal operations. Upon notification of a Level 2 or 3 GDP revision, airline operators will use company procedures to ensure that flights to the GDP destination do not depart until a new COBT is issued.

11.2 Specific Responsibilities

11.2.1 ORM

- Coordinate the GDP revision with the NCC, other ORM, and SM as required.
- Set appropriate rates to manage the workload of all affected sectors.
- Advise affected CDM towers within their area of responsibility, if appropriate for expediency. It is primarily a NCC responsibility to provide this advice.
- Approve or deny the release of aircraft already taxiing during a Level 3 revision.

11.2.2 GDP Manager

- Determine program rates in consultation with the ORM(s) as appropriate.
- Propose a GDP revision to the NCC.

11.2.3 NCC

- Implement the GDP revision as directed by the GDP Manager (the operational manager in charge of terminal operations at the GDP airport).
- Advise towers of the impending and completed GDP revision.
- Advise airlines of the impending and completed GDP revision.
- Record details of aircraft which depart non-compliant with the COBT.

11.2.4 ATC SM

- Notify affected sectors that a GDP airport is subject to a Level 2 or 3 GDP Revision.
- Advise CDM towers of a Level 2 or 3 GDP Revision at the direction of the ORM.
- Provide operating agreement to the ORM on flights that have pushed/taxied from feeder airports, subject to enroute workload.

11.2.5 Enroute

- Advise affected CDM towers that a Level 2 or 3 GDP revision has occurred if you believe the tower has not previously received this advice and not coordinating the GDP revision may affect the imminent operation of an aircraft.
- For 30 minutes after notification of the GDP revision, advise aircraft taxiing for the GDP revision airport; 'GDP REVISION IN PLACE AT (airport), OBTAIN NEW COBT FROM YOUR COMPANY [or THE NCC]'.

11.2.6 Tower

- Do not issue a taxi clearance to flights departing to a Level 2 or 3 GDP revision airport until new COBTs have been obtained. Subject to workload, you may pass the new COBT to the pilot, otherwise it is the pilot’s responsibility to obtain the new COBT from their company or the NCC.

- Obtain ORM approval for any Level 3 GDP revision flights that have pushed back or taxied and require to depart.
- Advise affected aircraft; 'GDP REVISION IN PLACE AT (airport), OBTAIN NEW COBT FROM YOUR COMPANY [or THE NCC]'.

11.2.7 Airports

Participating airport contacts will be included in the message distribution list for Level 2 and 3 revision notifications for Sydney, Melbourne, Brisbane and Perth Airports. Notifications will advise the reason for the revision and the revised arrival rates for the airport with an indicative time period, if known.

11.2.8 Airlines and Aircraft Operators

Participating airline/operators will be included in the message distribution list for Level 2 and 3 revision notifications for Sydney, Melbourne, Brisbane and Perth Airports.

In addition to ATC notifications to aircraft, the NCC will advise those contacts notified for inclusion in message distribution lists of the immediate compliance revision. For those contacts not included in NCC messaging, it is up to airlines/operators to provide notification to those flights departing non-controlled airports.

Airlines are requested to utilise short term planning to ensure that there is an adequate supply of flights when capacity increases then returns to normal operations.

This is due to the probability of a second revision occurring after the initial revision. A stepped up approach where rates are increased during the transition to full capacity will be utilised in most cases.

12 Defence

The VIP squadron (34 SQN) will provide flight details of the next day's flights to the NCC.

As defence pilots do not have access to the system, they are required to:

- contact the NCC on 1800 020 626 for a COBT and for a Sydney, Brisbane or Perth ACA slot if required;
- submit flight notification.

13 Airport Coordination Australia

Pilots operating into and out of Sydney, Brisbane, and Perth Airports are required to obtain a slot from Airports Coordination Australia (ACA) in advance of the operation. Slots are obtained from ACA on 02 9313 5469 or email slots@airportcoordination.org from Monday to Friday 2200-0600 UTC (as amended for daylight saving). Arrival slots allocated by ACA may be subject to change by ATFM because of operational constraints. Slots for short notice non-scheduled flights may be obtained on the day of operation from the NCC on 1800 020 626. These slots will be allocated from the available pool.

14 Monitoring and Performance Reporting

All aspects of the ATFM system, including compliance, are extensively monitored and are subject to routine reporting by the NCC. The monitoring and performance reporting requirements are detailed in a separate CDM performance and reporting document which is available on the CDM website.

15 ATFM System Allocated Ground Delay

The ATFM system allocates nil, or minimal ground delay to the following flights:

- Flights from all international departure ports
- Perth GDP – flights departing from outside 1200 NM of Perth
- Melbourne/Sydney/Brisbane GDP – flights departing from Perth.

Note: The above flights are still issued a COBT for their operation, and are required to operate in accordance with the program compliance requirements. During the period of the Perth departures program, the departure program COBT has priority over an arrivals COBT.

16 System Issues

The NCC is responsible for providing assistance to the aviation industry on Harmony for ANSPs access issues.

They can be contacted on 1800 020 626.

17 Suggestions for Improvements to ATFM

Any correspondence relating to suggested improvements in the ATFM system should be directed to the ATFMU mailbox: atfmu@airservicesaustralia.com.

18 Business Continuity Plan

18.1 Responsibility

The NCC is responsible for notification of Business Continuity Plan options to the affected stakeholders.

18.2 Notifications

Any Harmony user who is aware of issues with the Harmony system should report the issue to the NCC. In addition the user should carry out normal fault reporting action in accordance with their local procedures.

18.3 Procedures

The following table details the restrictions in operation in the event of possible system failures, with recommended actions. The final actions required may vary, and may be amended as a result of CDM.

Item	Service failure	Stakeholders affected	Expected duration of outage	Consequences	Actions
1	Harmony server	All	Less than 1 hour	Loss of system	1) NCC – notify aircraft operators and airports (ML, SY, BN, PH and CS via Whispir), ATC units, RAAF ATC (44 Wing) 2) NCC to fault report to Airservices Service Desk, Airways and Harmony 3) NCC to monitor/assess the loss of service with Airservices technical and Harmony. If assessed as < 1 hour, contingency implementation not required 4) If assessed as > 1 hour, NCC to implement contingency actions for > 1 hour 5) Notify Airservices management and Airservices Corporate Affairs.
2	Harmony server	All	More than 1 hour	Loss of system	1) Complete actions in item 1 2) NCC to initiate CDM Telecon to determine contingency actions. Possible options: a) Operate to schedule b) Amend holding fuel 3) NCC to produce alternative slot allocation mechanism.

Item	Service failure	Stakeholders affected	Expected duration of outage	Consequences	Actions
3	FIB and associated system inputs (OAG, AFTN, Eurocat ML and BN)	All	Less than 24 hours	1) TMIs may still be implemented 2) With the exception of Airline Schedules (uploaded through Web Client or CDM Data Exchange), no Airservices data is automatically provided to Harmony Server. No real time information provided to aircraft operators, airports and ATC. Demand graphs not updated 3) Flights will time out delay then time out cancel due to no real time information.	1) NCC – notify aircraft operators and airports (ML, SY, BN, PH and CS via Whispir), ATC units, RAAF ATC (44 Wing) 2) NCC to fault report to Airservices Service Desk, Airways 3) NCC to monitor/assess loss of service with Airservices technical. If assessed as < 24 hours, contingency implementation not required 4) NCC to turn off ISE for all airports and notify affected users 5) Notify Airservices management and Airservices Corporate Affairs.
4	FIB, and associated system inputs (OAG, AFTN, Eurocat ML and BN)	All	More than 24 hours	1) TMIs may still be implemented 2) With the exception of airline schedules (uploaded through web client or CDM data exchange), No Airservices data is automatically provided to Harmony server. No real time information provided to aircraft operators, airports and ATC. Demand graphs not updated 3) OAG data may not be available if < 48 hours. OAG data not available if > 48 hours 4) Flights will time out delay then time out cancel due to no real time information.	1) NCC – notify aircraft operators and airports (ML, SY, BN, PH and CS via Whispir), ATC Units, RAAF ATC (44 Wing) 2) NCC to fault report to Airservices Service Desk, Airways 3) NCC to turn off ISE for all airports and notify affected users 4) Notify Airservices management and Airservices Corporate Affairs 5) NCC to complete schedule uploads for flights that would normally be sourced solely from OAG data. **Note:** TMIs may be implemented after schedule upload.

Item	Service failure	Stakeholders affected	Expected duration of outage	Consequences	Actions
5	Airservices web service	1) Aircraft Operators using web connection 2) Airports 3) ATC towers, including defence towers 4) NCC.	Less than 1 hour	Loss of system to web client users	1) NCC – notify aircraft operators and airports (ML, SY, BN, PH and CS via Whispir), ATC units, RAAF ATC (44 Wing) 2) NCC to fault report to Airservices Service Desk, Airways and Harmony 3) NCC to turn off ISE for all airports 4) NCC to monitor/assess loss of service with Airservices technical. If assessed as < 1 hour, contingency implementation not required 5) If assessed as > 1 hour, NCC to implement contingency actions for > 1 hour 6) Notify Airservices management and Airservices Corporate Affairs.
6	Airservices web service	1) Aircraft Operators using web connection 2) Airports 3) ATC towers, including defence towers 4) NCC.	More than 1 hour	Loss of system to web client users	1) Complete actions in item 5 2) NCC to initiate CDM Telecon to determine contingency actions. Possible options: a) operate to schedule b) amend holding fuel c) NCC to produce TMIs if required but distribute by alternative methods to aircraft operators. 3) NCC to turn off ISE for all airports.

Item	Service failure	Stakeholders affected	Expected duration of outage	Consequences	Actions
7	Loss of web service to single aircraft operator	Aircraft operator using web connection	Less than 1 hour	Loss of system to web client user	1) NCC to fault report to Airservices Service Desk, Airways 2) NCC to monitor/assess loss of service with Airservices technical. If assessed as < 1 hour, contingency implementation not required 3) If assessed as > 1 hour, NCC to implement contingency actions for > 1 hour.
8	Loss of web service to single aircraft operator	Aircraft operator using web connection	More than 1 hour	Loss of system to web client user	1) Complete actions in item 4 2) NCC to turn off ISE and notify other aircraft operators 3) NCC to produce TMIs if required but distribute by alternative methods to affected aircraft operators 4) NCC to assist in uploading schedule data.
9	Loss of web service to read only users	Airports and ATC towers	Any period	1) Loss of system to web client user 2) No real time data available 3) COBT data not available for compliance management.	1) NCC to fault report to Airservices Service Desk, Airways 2) NCC to monitor/assess loss of service with Airservices technical.
10	Loss of web service to NCC	NCC	Any period	1) Loss of system to web client user 2) No real time data available via web client 3) No ability to create flights or interact with unassigned slots.	1) NCC to fault report to Airservices Service Desk, Airways 2) NCC to log into the web client via wireless connection/VPN 3) NCC to monitor/assess loss of service with Airservices technical.

Item	Service failure	Stakeholders affected	Expected duration of outage	Consequences	Actions
11	Loss of Harmony client service to single aircraft operator	Aircraft operator	Less than 1 hour	1) Loss of ESM to user 2) No data available via Harmony client 3) Live data and limited interaction still available via web client.	1) NCC to fault report to Airservices Service Desk, Airways 2) NCC to monitor/assess loss of service with Airservices technical. If assessed as < 1 hour, contingency implementation not required 3) If assessed as > 1 hour, NCC to implement contingency actions for > 1 hour.
12	Loss of Harmony client service to single aircraft operator	Aircraft operator	More than 1 hour	1) Loss of ESM to user 2) No data available via Harmony client 3) Live data and limited interaction still available via web client.	1) Complete actions in item 10 2) NCC to produce TMIs if required but distribute by alternative methods to affected aircraft operators.
13	Loss of Harmony client service to single ATC unit	ATC unit using Harmony client: • ATC SM • FLOW.	Any period	1) Loss of system to user 2) No data available via Harmony client 3) No TMI modelling or submission capability.	1) NCC to fault report to Airservices Service Desk, Airways 2) NCC to monitor/assess loss of service with Airservices technical 3) NCC to monitor the demand at the affected airport and advise ATC if a new TMI is required or an existing TMI is underperforming 4) NCC to set the TMI parameters and implement the program as directed by the affected ATC unit 5) NCC to populate and/or update the RCT as directed by the affected ATC unit.

Item	Service failure	Stakeholders affected	Expected duration of outage	Consequences	Actions
14	Loss of Harmony client service to NCC	NCC	Any period	1) Loss of system to user 2) No data available via Harmony client 3) No TMI modelling or submission capability.	1) NCC to fault report to Airservices Service Desk, Airways 2) NCC to monitor/assess loss of service with Airservices technical 3) NCC to advise all users 4) NCC to advise ATC units responsible for proposing TMIs 5) ATC units required to implement their own TMIs.
15	Qantas Harmony – COMPASS link	Qantas	Any period	1) Loss of COMPASS connectivity 2) No schedule upload capability 3) No data feed to COMPASS.	1) NCC to fault report to Airservices Service Desk, Airways 2) NCC to monitor/assess loss of service with Airservices technical 3) QFA to upload schedule via web client 4) QFA to update flights as required via ESM or web client.
16	Failure of GDP to show in Web Client, Harmony Thick Client, and web services after GDP run or GDP shows with no flights	Aircraft operator and NCC	Less than 10 minutes	1) Airlines without ESM unable to manipulate flights 2) No data available via Harmony Web Client for a GDP	1) NCC to put SUBS OFF immediately the issue becomes evident 2) NCC to hold teleconference with airlines to discuss revision if an airline has manipulated flights prior to the SUBS OFF command affecting the GDP 3) Airline that has been able to manipulate flights are to move flights back the previous slot 4) NCC to consider Purging the GDP within 30 minutes of the GDP run

Harmony users will notify the NCC of any Harmony system issues, and comply with local/internal fault reporting procedures.

19 List of Nominated Majors

ATFM Participant	ATFM System – Managing Airline Operator	Responsibility
Air Caledonie (ACI)	QFA	Provide schedule/Manage flights
Air Canada (ACA)	QFA	Provide schedule/Manage flights
Air China (CCA)	QFA	Provide schedule/Manage flights
Air Pacific (FJI)	QFA	Provide schedule/Manage flights
Air New Zealand (ANZ)	VOZ	Provide schedule/Manage flights
Air Nuigini (ANG)	QFA	Provide schedule/Manage flights
Air Vanuatu (AVN)	QFA	Provide schedule/Manage flights
American Airlines (AAL)	QFA	Provide schedule/Manage flights
Asiana Airlines (AAR)	QFA	Provide schedule/Manage flights
British Airlines (BAW)	QFA	Provide schedule/Manage flights
Cathay Pacific (CPA)	QFA	Provide schedule/Manage flights
China Airlines (CAL)	QFA	Provide schedule/Manage flights
China Eastern Airlines (CES)	QFA	Provide schedule/Manage flights
Cobham Aviation – Airlink (QJE)	QFA	Provide schedule/Manage flights
Delta Airlines (DAL)	VOZ	Provide schedule/Manage flights
Emirates (UAE)	QFA	Provide schedule/Manage flights
Etihad Airways (ETD)	VOZ	Provide schedule/Manage flights
Federal Express (FDX)	QFA	Provide schedule/Manage flights
Hawaiian Airlines (HAL)	VOZ	Provide schedule/Manage flights
Japan Airlines (JAL)	QFA	Provide schedule/Manage flights
Korean Airlines (KAL)	QFA	Provide schedule/Manage flights
Lan Chile (LAN)	QFA	Provide schedule/Manage flights
Malaysian Airlines System (MAS)	QFA	Provide schedule/Manage flights
Philippine Airlines (PAL)	QFA	Provide schedule/Manage flights
QANTASLink (QLK)	QFA	Provide schedule/Manage flights
Singapore Airlines (SIA)	VOZ	Provide schedule/Manage flights
Skywest (OZW)	VOZ	Provide schedule/Manage flights

ATFM Participant	ATFM System – Managing Airline Operator	Responsibility
South African Airlines (SAA)	QFA	Provide schedule/Manage flights
Vietnam Airlines (HVN)	QFA	Provide schedule/Manage flights

20 Airport Capacity

The following tables detail the ATFM Business Rules and MET CDM rates for Sydney, Melbourne, Brisbane and Perth. It should be noted that the responsible ATC SM may vary these rates following MET CDM consultation and consideration of additional factors influencing the processing of arriving flights.

20.1 Sydney Airport

In accordance with DAP East – Noise Abatement Procedures Sydney – Kingsford Smith, the Sydney GDP will be run with a reduced AAR in the first hour Monday – Saturday, and for the first two hours on Sunday. This is to facilitate the Sydney LTOP. In addition, the last hour of the GDP will normally be reduced due to staff numbers declining parallel to demand.

ATFM Business Rules						
RWY	Configuration	Cloud Ceiling (ft)		Visibility (m)	Exclusions	AAR
16//	IVA	>4000	and	>5000		46
16//	PRM	-		-		42
16//	FEW030	<3000 (FEW)		-		42
16//	DVA A	>3000	and	>5000		42
16//	DVA B	>2000	and	>5000	HW>25KT	38
16//	HW (>25KT)	1500<CLD≤3000		≤5000		36
16//	ILS A	>1500	and	>5000		36
16//	ILS B	≤1500	and/or	≤5000		34
34//	IVA	>3500	and	>5000		50
34//	PRM	-		-		46
34//	FEW030	<3000 (FEW)		-		46
34//	DVA A	>2500	and	>5000	HW>25KT	44
34//	DVA B	>2000	and	>5000	HW>25KT	40
34//	HW (>25KT)	1500<CLD≤3000		≤5000		38
34//	ILS A	>1500	and	>5000		36
34//	ILS B	≤1500	and/or	≤5000		34
07/25	VSA	>3000	and	>5000		23
07/25	IMC	≤3000	and/or	≤5000		20
		mod/sev turb fcst				
*	TSRA					20-34
//	XW >25					34
	Forecast XW 20-25kts or forecast XW >25kts on both parallel and crossing RWY.					

MET CDM: Application	AAR	Rationale
Thunderstorms	20-34	MET CDM process to estimate anticipated event severity, position, duration and set rates accordingly within a range of 20-34. *The matrix will show a standard initial selection of AAR 26 for TSRA <20nm and AAR 34 for TSRA >20nm. Note these are starting points only to convey the greater potential impact of TSRA on rates when within 20nm. The assessment of rates between 20-34 is based on likelihood, timing and impact on ATFM within a forecast event and the initial starting AAR of 26 or 34 may be used at any distance from the aerodrome and changed with a combination of x-factors and text explanations.
Single RWY25/07 operations	20,23,34	Sustained crosswind in excess of 25 knots forecast. - AAR of 34 from commencement of forecast period, - AAR of 23 or 20 for the core period when a high likelihood of single RWY operations is agreed between METCDM participants. A forecast crosswind of 20-25 knots results in a parallel runway nomination with the nominal AAR 34 to be run. Should single RWY operations be triggered by actual "Sustained crosswind gusts occur when more than 50% of
Strong southerly change	Up to -6 from lowest AAR	A strong wind change is expected which would necessitate an immediate runway change. Subtract up to 6 from the applicable post event runway AAR for the hours either side of the forecast wind change.
METCDM X Factor	-2 to +2	Applied for other impacts; not to exceed the maximum AAR.
	-10 to -1	The METCDM process may propose other changes to business rule rates based on forecast meteorological

20.2 Melbourne Airport

ATFM Business Rules and AAR					
RWY	Configuration	Cloud Ceiling (ft)	Visibility (m)	Exclusions	AAR
34	VMC	≥1600	>8000	wind on ground >30kts	24
34	*VMC (wind)	≥1600	>8000		*22
34	IMCA	≥1200	>8000		20
34	IMCB	<1200	>0550		18
16	VMC	≥1600	>8000		24
16	IMCA	≥1200	>8000		22
16	IMCB	<1200	>0550		20
16	IMCC	≤0200	≤0550		10
09	VMC	≥1600	>8000		21
09	IMCA	≥1200	>8000		20
09	IMCB	<1200	>0550		18
27	VMC	≥1600	>8000	wind on ground >40kts	24
27	*VMC (wind)	≥1600	>8000		*22
27	IMCA	≥1200	>8000		22
27	IMCB	<1200	>0550		20
16/27	VMCA (daytime)	≥2300	>8000		27
16/27	VMCB	≥1600	>8000		25
16/27	IMCA	≥1200	>8000		23
16/27	IMCB	<1200	>0550		20
16/27	IMCC	≤0200	≤0550		15
27/34	LAHSO (daytime)	≥2000	>8000		40
27/34	LAHSO (nighttime)	≥2000	>8000		36

Application	AAR	Rationale
Probable LAHSO (PR LAHSO)	30	Numerous meteorological conditions will rule out LAHSO. If the probabilities of these adverse conditions add up the estimated likelihood of LAHSO being greater than 50% but less than 80%, a Probable LAHSO configuration shall be nominated. Reasons as to why LAHSO cannot be guaranteed shall be discussed with the Traffic Manager and ATFM LM and CDM. 'Probable LAHSO' is suitable for short periods of uncertainty and/or transition periods. Prolonged periods should be avoided due to the inherent uncertainty of the full LAHSO rate being achieved and the risk that consecutive hours of holding could build as a result.
VMC (Wind) **RWY 27 RWY 34 only**	22	1. In VMC conditions only, where winds at the surface are expected to exceed: -30kts for RWY 34 or -40kts For RWY 27 2. Additional x-factors may be considered with greater wind speeds over the ground and aloft and in non-VMC conditions. VMC conditions: cloud >1600ft Vis >8000m
MET CDM X Factor	'+2 to -2 Positive numbers cannot be applied to exceed the maximum rate An X Factor down to -10 can be applied for extreme weather events.	1. There may be phenomena that affect traffic flow that are not conveyed in the TAF or are not part of the business rules. i.e. TMA TS, TS, TS with PROB below 30%, low-level wind shear, gusts 20-24kts and other meteorological factors. 2. In consideration of the need for further x-factors, Traffic managers should be informed of possible wind gusts at the surface in excess of 40knots; winds at or below 3000ft exceeding 40 kts, wind shear and severe turbulence. 3. Certainty in a severe event (i.e. +TSRA could reduce by -2) 4. Transition creating closer acceptance rates, i.e. 24, 27, 30 instead of 24, 24, 30 over a 3-hour period. 5. Overcomes hourly granularity and other TAF limitations 6. MET CDM X Factors may be applied to end up between two configurations when forecasting confidence is moderate or low.

20.3 Brisbane Airport

ATFM Business Rules and AAR				
Mode ID	**Runway**	**Configuration**	**Cloud and Vis**	**AAR**
1	01R	VMC	Significant cloud to west above 4000 FT or Significant cloud to east above 3000 FT + Vis 5 km or more	24
2	01R	IMC	Significant cloud to west below 4000 FT or Significant cloud to east below 3000 FT + Vis 5 km or more	24
3	01R	ILS	Cloud < 1500 FT +/or Vis < 5 km	21
4	01R	FOG	Vis < 1500 m	12
5	01R/14 CROPS	VMC	Cloud 2500 FT and above + Vis 8 km or more	28
6	01R/32 CROPS	VMC	Cloud 2500 FT and above + Vis 8 km or more	26
7	19L	VMC	Significant cloud above 3000 FT +Vis 5 km or more	24
8	19L	IMC	Significant cloud below 3000 FT +Vis 5 km or more	24
9	19L	ILS	Vis < 5 km	21
10	19L	FOG	Vis < 1500 m	12
12	14	VMC	Vis 5 km or more	12
13	14	IMC	Vis < 5 km	12
14	32	VMC	Vis 5 km or more	12
15	01R Dep/19L Arr 1200 – 2000 UTC	ALL	All conditions	10
16	01R or 19L	TS	PROB30 INTER TS	22
17	01R or 19L	TS	PROB40 INTER TS	21
18	01R or 19L	TS	PROB30 TEMPO TS	20
19	01R or 19L	TS	PROB40 TEMPO TS	19
20	01R or 19L	TS	INTER/TEMPO TS W/O PROB30 or PROB40	18

MET CDM: Application	AAR	Rationale
CROPS	26-28	In addition to the criteria listed in table 4b, ability to nominate CROPS may be inhibited by reported wind shear and reported or forecast turbulence on finals. In some instances Traffic Managers may not utilise 01R/32 CROPS when cloud less than 4000ft is evident due to the added complexity to air traffic approaching from the north of the aerodrome.
Thunderstorms	18-22	Assessment of likely timing and impact on ATFM within a probabilistic event. Thunderstorm rates can be applied if the METCDM process estimates a significant risk and there are no thunderstorms on the TAF.
MET CDM X Factor	'+2 to -2 Positive numbers cannot be applied to exceed the maximum CROPS rate An X Factor down to -10 can be applied for extreme weather events.	1. There may be phenomena that affect traffic flow that are not conveyed in the TAF or are not part of the business rules. i.e. TMA TS, TS, TS with PROB below 30%, low-level wind shear, gusts 20-24kts and other meteorological factors. 2. Certainty in a severe event (i.e. +TSRA could reduce by -2) 3. Transition creating closer acceptance rates, i.e. 18, 17, 16 instead of 18, 16, 16 over a 3 hour period. 4. Overcomes hourly granularity and other TAF limitations 5. MET CDM X Factors can be applied to end up between two configurations when forecasting confidence is moderate or low. 6. When cloud ceiling is forecast to near 1500ft consider use of x-factor to convey risk of periods falling below 1500ft and moving to an ILS configuration. Impact of lengthy periods of time at 1500ft may also require x-factor consideration

20.4 Perth Airport

ATFM Business Rules				
Airport Acceptance Rates				
RWY	**Configuration**	**Cloud Ceiling (ft)**	**Visibility (m)**	**AAR**
21/24	VMC	>2,900	≥8,000	26
21/24	IMC_A	≥1,500 to ≤ 2900'	≥8,000	26
21/24	IMC_B	<1,500	<8,000	22
03, 21 , 24 or 03A 03/06D*	VMC	>2,900	≥8,000	24
03, 21 , 24 or 03A 03/06D*	IMC_A	≥1,500 to ≤ 2900'	≥8,000	24
03, 21 , 24 or 03A 03/06D	IMC_B	<1,500	<8,000	20
06*	VMC	>2,900	≥8,000	22
06*	IMC_A	≥1,500 to ≤ 2900'	≥8,000	22
06	IMC_B	<1,500	<8,000	20
03, 21	IMC_C	LVP nominated on ATIS		10
TSRA within 15NM				20
Winds aloft or Mech Turbulence	VMC/IMC			AAR -2
* AAR reduced by 2 for RWY06 due to limited exit taxiways leading to increased RWY occupancy.				
Departure rates				
Cloud ceiling (ft)	**>4,000**	**>3,000**	**>2,000**	**≤2,000**
Visibility (m)	**>10,000**	**>10,000**	**>6,000**	**≤6,000**
RWY03/06	40	38	37	35
RWY21	40	38	37	35
RWY03	38	36	35	33
RWY06	35	34	33	31
RWY24	34	33	32	31

MET CDM: Application	AAR	Rationale
1. Thunderstorms	20	In general, a thunderstorm rate of no less than 20 shall be used when traffic flows will be affected or forecast thunderstorms within 15NM will occur. X-factors may be discussed for circumstances listed in point 6 or when planning for recovery post thunderstorm event.
2. Seabreeze	X Factor -3 to 0	If the seabreeze change forces RWY03 arrivals onto RWY21 arrivals, 3 slots will be lost to allow for the runway end change. If the change foreces RWY03 onto RWY24, no slots will be lost
3. Winds aloft	X Factor -2 to 0 to lower limit of 20	Strong winds aloft (>35kts at 3000ft) affect the AAR due to a greater arrival sequencing requirement. If these winds are significantly stronger or from a different direction than surface winds, consider a note for reduction in AAR of up to 2. This would not generally be used in conjunction with point 4.
4. Mechanical Turbulence	X Factor -2 to a lower limit of 20	Strong Easterly winds over the escarpment increase the potential for go-arounds due to mechanical turbulence. Where greater than 40KTs is expected aloft (1500-3000ft) a reduction of 2 shall be applied. This would not generally be used in conjunction with point 3.
5. Observed fog	10	A fog rate of 10 shall be used with any fog occurring within the Perth airport precinct (not just the Basin) and requiring LVP (IMC-C). X-factors may be discussed when planning for recovery post fog event.
6. MET CDM X Factor	+2 to -2 Positive numbers cannot be applied to exceed the maximum rate.	**1.** There may be phenomena that affect traffic flow that are not conveyed in the TAF or are not part of the business rules. i.e. TMA TS, TS, TS with PROB below 30%, low level wind shear, gusts 20-24kts and other meteorological factors. **2.** Certainty in a severe event (i.e. +TSRA could reduce by -2) **3.** Overcomes hourly granularity and other TAF limitations **4**. MET CDM X Factors can be applied to end up between two configurations when forecasting confidence is moderate or low. **5.** A MET CDM rate of 20 would be suitable for most adverse weather situations. Any additional x-factors resulting in a rate below 20 would generally not be required but may be considered for recovery post weather event.