

Proposed Runway Operating Modes



The preliminary draft Major Development Plan is based on a preliminary airspace design. To ensure the MDP assessment captures the possible runway operating modes, three options have been assessed and are described within this document.

The detailed design process will further refine the airspace concept (as detailed within the approved MDP) to develop an operable structure and plan for flight paths. The final airspace design shall conform with, and be bound by, the airspace concept presented in the M3R MDP.

In Detailed Airspace Design, flight paths will be designed according to the published Flight Path Principles, and the community-preferred operating mode will be considered in this design process as far as possible. Noting that there are some flight path design principles that will take precedence over the community preference (e.g. safety), so we cannot guarantee it. Detailed airspace design consultation will be held prior to runway opening.

Further information

M3R MDP – Chapter C2: Airspace Architecture and Capacity
M3R MDP – Chapter E4: Draft Runway Operating Plan

Proposed Runway Operating Modes

With a new parallel runway, new runway operating modes are available at Melbourne Airport. These include:

Mixed Mode Parallel Operations (Mixed Mode)

Simultaneous operations where runways are used for **arrivals** and **departures**



Segregated Parallel Operations (Segregated Mode)

Simultaneous operations where one runway is used for **arrivals** and the other for **departures**



Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS)

Simultaneous operations where one runway is used for **arrivals** and the other for **departures** in the opposite direction



What is Mixed Mode?

Mixed Mode Parallel Operations

Simultaneous operations where both runways are used for **arrivals** and **departures**.

This mode is the standard mode for parallel runways and provides the highest capacity during normal operations.



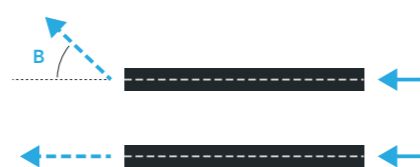
International standards require flight paths to diverge for parallel runways to safely separate aircraft during critical stages of flight. This divergence covers:

A. Departures by at least 10 degrees (RNP1¹ requirements) within 3.7 kilometers (two nautical miles).

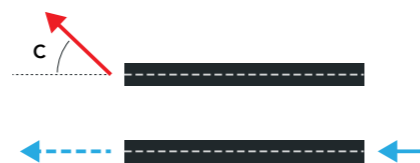


B. Missed approach arrival paths (dashed lines) from each runway must diverge by at least 30 degrees.

A 'go-around' or 'missed approach' is a standard procedure for aborting a landing. These can occur for several reasons and must be factored into safe operating procedures.



C. Similarly, the missed approach from one runway (dashed blue) must diverge by 30 degrees from the other runway's departure (solid red).



¹ RNP1 is the standard used for SID design in Australia. If aircraft are not using RNP1 SID, then the flight paths must diverge by 15 degrees.

How was the flight path divergence allocated?

The required divergence can be applied to either one runway or shared across both (provided the total angle meets the requirement). For example, one runway could have a flight path that diverge by 30 degrees whilst the other remains straight, or both paths diverge by 15 degrees away from each other.

Runway 34L Departures:

Departures from Runway 34L can make a sharp left turn after departure for destinations to the south and west, similar to the turn currently flown from existing Runway 34R. This turn is designed to keep aircraft south of Sunbury as far as practicable but many factors influence the actual radius of turn.

Other departures make a slight left turn to separate from the departures and missed approaches on the adjacent runway. Aircraft flying to western destinations using this departure will use the same flight path as currently used off existing Runway 34R, passing north of Sunbury.

Runway 34R Departures:

Departures from Runway 34R will fly straight for approximately 3.7 kilometers (2 nautical miles) before turning right to achieve the required separation from the departures and missed approach from Runway 34L. The delay in the turn is to avoid noise sensitive areas close to the airport. Flight paths follow wherever practicable those currently used from existing Runway 34R.

For Runways 16L and 16R:

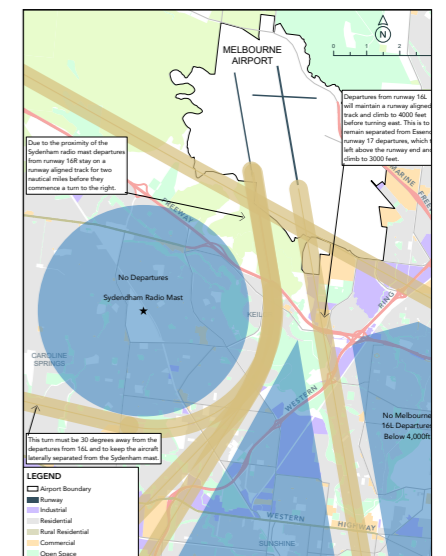
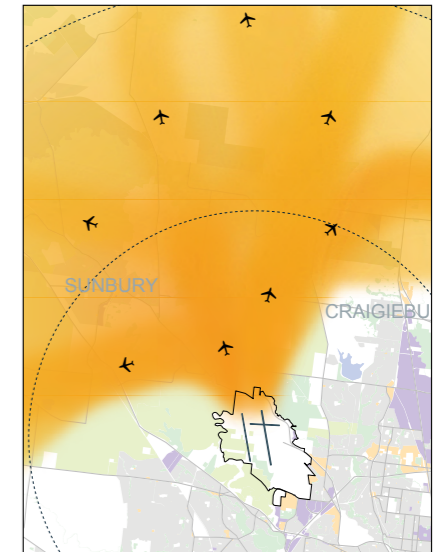
Due to proximity of Essendon Fields Airport, the preliminary design requires departures from the new runway to diverge by 30 degrees.

Runway 16R Departures:

Due to the proximity of the Sydenham radio mast, departures from Runway 16R will fly straight for approximately 3.7 kilometers (2 nautical miles) before they commence a turn to the right.

Runway 16L Departures:

Departures from Runway 16L will maintain a runway-aligned path and climb to 4000 feet before turning east. This is to remain separated from Essendon runway 17 departures, which turn left and climb to 3000 feet.



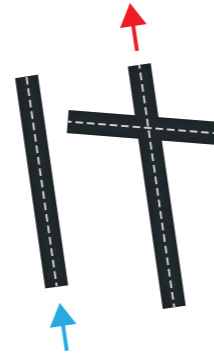
What is Segregated Mode?

Mixed Mode Parallel Operations

Simultaneous operations where one runway is used for **arrivals** and the other for **departures**.

In some situations, when demand is lower outside of peak periods, and during poor weather when low visibility procedures are in use, it may be more manageable and efficient to use segregated parallel operations.

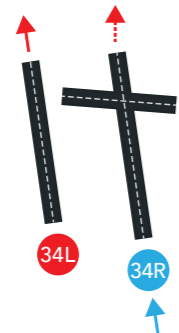
This mode also helps managing the impacts of aircraft noise on the local community.



Four segregated modes have been identified as part of the proposed operating modes.

Mode SM1

Arrivals Runway 34R
Departures Runway 34L



Aircraft will use existing runway for long haul departures when operationally required.

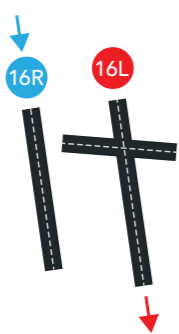
Mode SM3

Arrivals Runway 34L
Departures Runway 34R



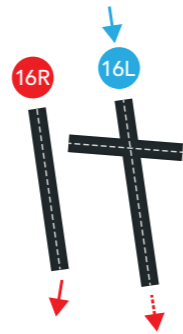
Mode SM2

Arrivals Runway 16R
Departures Runway 16L



Mode SM4

Arrivals Runway 16L
Departures Runway 16R



Aircraft will use existing runway for long haul departures when operationally required.

Two segregated mode operating principles are included within the MDP.

OPTION 1

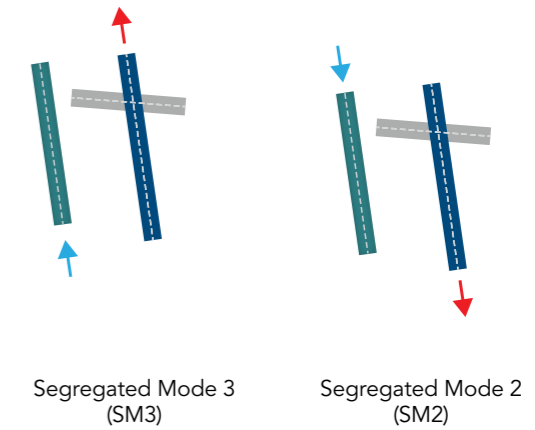
Arrivals on the **new** runway

Departures on the **existing** runway

SM3 will be used in northerly winds and at times when weather allows (1st priority).

SM2 will be used in southerly winds and when SM3 is not available.

This mode also helps managing the impacts of aircraft noise on the local community.



OPTION 2

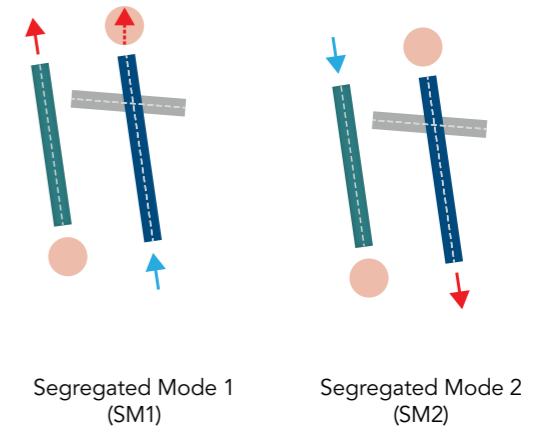
Alternates between;

Day 1:

Provides **respite** to the south of the **new** runway and north of the **existing** runway.

This involves Segregated Mode 1 (SM1) and Segregated Mode 2 (SM2).

For SM1, Aircraft will use existing NS runway for long haul departures when operationally required

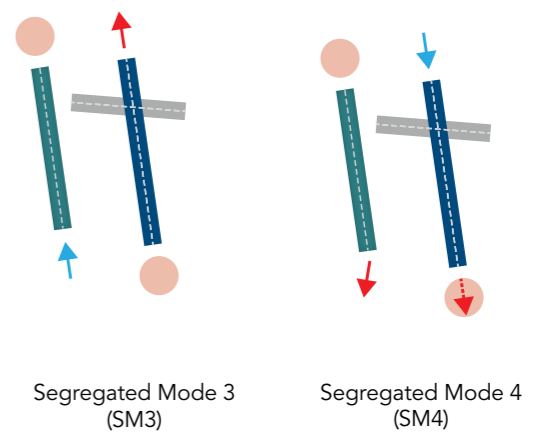


Day 2:

Provides **respite** to the north of the **new** runway and south of the **existing** runway.

This involves Segregated Mode 3 (SM3) and Segregated Mode 4 (SM4).

For SM4, Aircraft will use existing runway for long haul departures when operationally required



What is SODPROPS?

Simultaneous Opposite Direction Parallel Runway Operations

Simultaneous operations where Runway 16R is used for **arrivals** and Runway 34R is used **departures** in the opposite direction.

When can it be used?

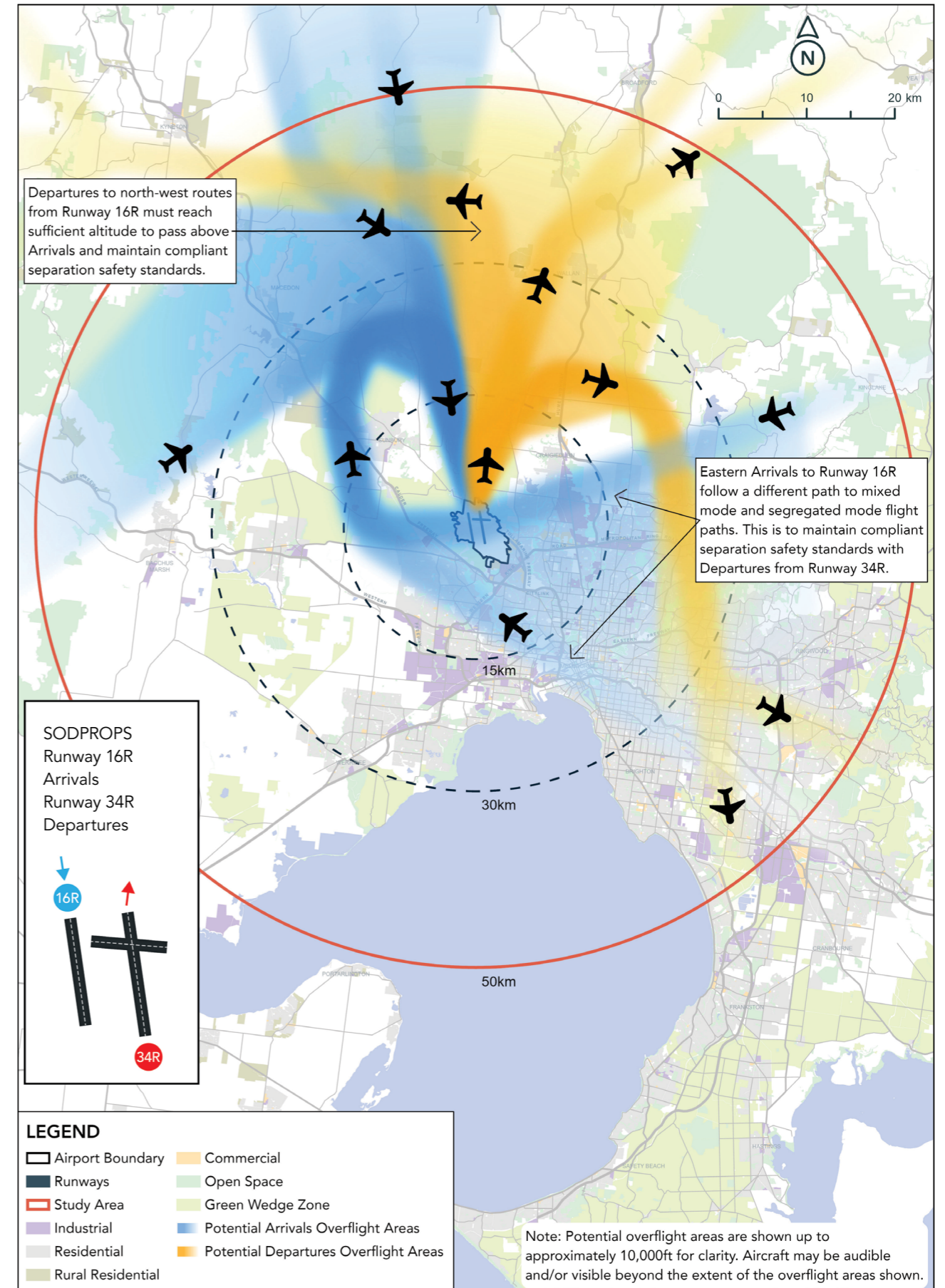
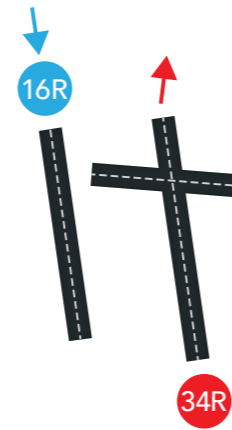
- during the night (11pm to 6am)
- when activity is low (outside of peak periods)
- when specific weather requirements are met

SODPROPS uses the green wedge to the north to concentrate noise in less populated areas when operational conditions allow.

There are specific weather requirements that apply to this mode in terms of cloud base, visibility and wind strength and direction.

Strict weather requirements enable use of SODPROPS for less than 30% of overall night operations.

Melbourne Airport will work closely with industry stakeholders¹ to explore safe changes to the criteria that may allow greater use of this mode.



¹ Department of Infrastructure, Transport, Regional Development and Communications (DITRDC), CASA, Airservices and airlines

