

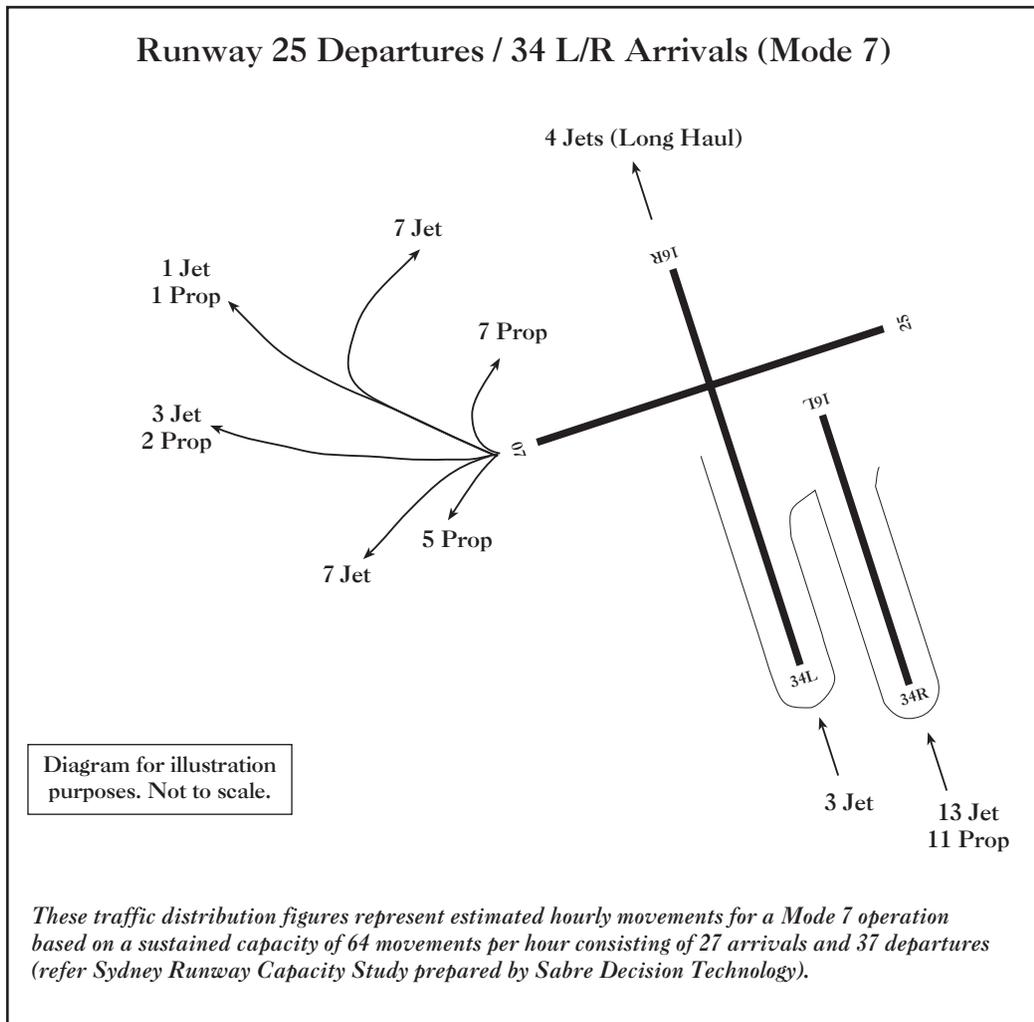
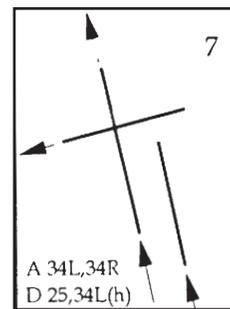
## Mode 7

### Method of operation

Departures over the north-west, west and south-west from Runway 25. Arrivals from the south on Runways 34L and 34R.

Departures over the north and northwest from Runway 34L for aircraft requiring the long runway for departure.

This Mode confines arrivals to over-water, and runs the majority of departures westward. This Mode also uses crossing runways (34L and 25).



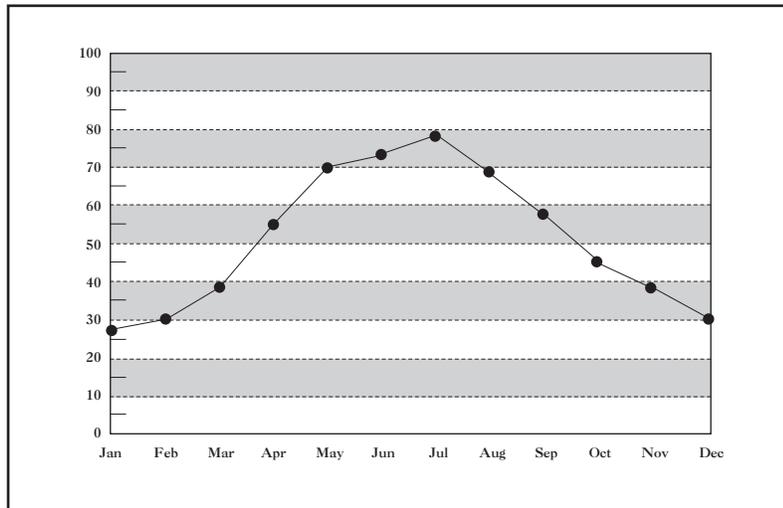
### Availability of configuration

Operationally acceptable in wind conditions from southwest to north depending on wind strength

The Bureau of Meteorology (BOM) wind data for the 55 years to December 1995 indicates that:

- the all months average availability would be 50 per cent.
- the average monthly availability ranges from 28 per cent in January to 78 per cent in July.

Mainly available Autumn and Spring.



*The graph indicates the 55 year average availability from January to December. Where nil downwind criteria is specified the average of all months availability is 38 per cent*

### *Operational capacity*

Initially Sabre SIMMOD modelling found a sustained capacity of 64 operations per hour

- operations consisted of 27 arrivals and 37 departures if all non-long haul arrivals were placed on 34R
- operations consisted of 37 arrivals and 27 departures if arrivals were balanced between 34L and 34R
- peak observed capacity of 65 operations

Mode 7 has more departure capacity than Mode 6 due to the fanning departure tracks which decreases the procedure times

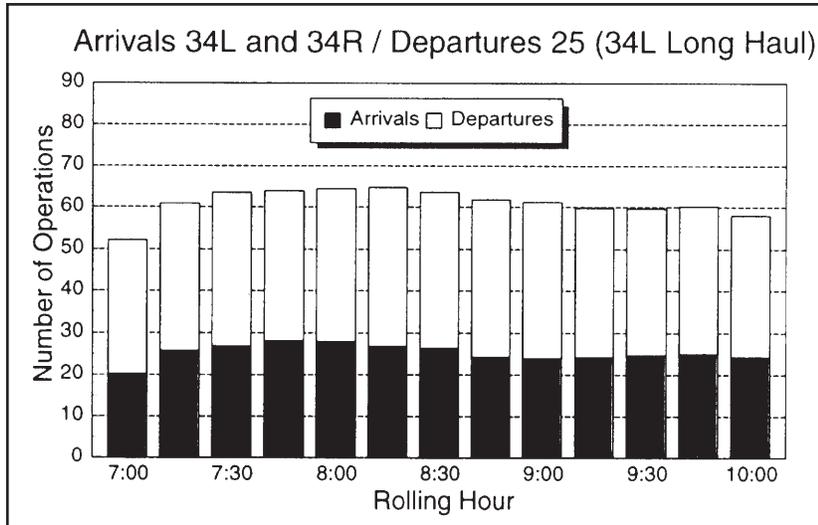
Sabre modelling indicates that arrival capacity is limited due to inefficient exit locations on both runways, crossing runway operations, and the need for slightly increased spacing on the arrival track to runway 34L. Departure capacity is limited due to the crossing runway operations.

This Mode may attain 80 movements per hour. However, new runway exits for 34L and 34R would be required and LAHSO should be applied to 34L arrivals whenever possible. The addition of new runway exits to 34L will probably remove the need for increased spacing in the arrival track.

Further Sabre modelling with the new runway exits in land and hold short operations found sustained capacity of 73 movements per hour consisting of 38 arrivals and 35 departures. Peak observed capacity of 75 movements.

Sabre found that when the new runway exits were used without land and hold short operations a sustained capacity of 69 movements per hour could be achieved (38 arrivals and 31 departures). Also Sabre found that when the 34L buyout is reduced to 2 nautical miles (the distance required between a 34L departure and the next 34L arrival) the sustained capacity increased to 75 movements (39 arrivals and 36 departures).

Graph below presents SDT results for a rolling hour period.



### *Operational complexity*

This mode is best suited where the arrival demand exceeds the departure demand. Heavy departure demand results in taxiway congestion at the departure threshold which can impact on operations at domestic terminals.

Experience with this Mode of operation indicates significant departure delays in other than light to moderate traffic. Resulting taxiway congestion increases the complexity of managing ground traffic and increases controller workload.

The operating efficiency of controllers may be impaired by the high workload generated by this mode of operation. Efficiency may be improved with the provision of an aerodrome control coordinator to assist the aerodrome controller.

Some complexity for tower control exists with interaction between arrivals on the long runway with departing traffic. Landing operations on Runway 34R can proceed independently.

*Constraints to optimisation of capacity*

Single runway operations for departures.

Provision of PARM required to maintain arrival rates in non-visual conditions.

Interaction of arrivals on Runway 34L with departures on Runway 25.

All arriving aircraft must cross the active departure runway when taxiing after landing.

Risk associated with this mode is provided for in the procedures employed and in the development of the operating standard.

*Environmental implications*

*Arrivals 34L&R*

The number of people exposed to noise of 70 dB(A) or more for B747-200 (34L) and B767 (34R) aircraft is a total of 700.

At the outer tip of the contour for each particular type of aircraft the noise reaching the ground will be close to 70 dB(A) and the aircraft will be at the following heights.

B747-200	3,400ft	at	Over Water
B747-400	3,100ft	at	Over Water
B767	2,900ft	at	Over Water
Saab 340	850ft	at	Kurnell Peninsula

*Departures 25*

The number of people exposed to noise of 70 dB(A) or more for B747-200 aircraft is a total of 787,200.

At the outer tip of the contour for each particular type of aircraft the noise reaching the ground will be close to 70 dB(A) and the aircraft will be at the following heights.

B747-200	10,000ft	at	Belrose (north), Heathcote/Royal National Park (south), over water/Middle Harbour (east), Horsley Park (west), Toongabbie (northwest) & Parklea (northwest-early turn)
B747-400	6,500ft	at	Lindfield (north), Royal National Park (south), North Sydney (east), Cabramatta (west), Merrylands (northwest) & Northmead (northwest-early turn)

B767	6,000ft	at	Tennyson (north), Sutherland (south), Gladesville (north), Bankstown Aerodrome (west), Yagoona (northwest) & Silverwater (northwest-early turn)
Saab 340	3,000ft	at	Arncliffe (north), Brighton le Sands (south), Arncliffe (east), Arncliffe (west) & Arncliffe (northwest)

*Departures 34L*

The number of people exposed to noise of 70 dB(A) or more for B747-200 aircraft is a total of 606,300.

At the outer tip of the contour for each particular type of aircraft the noise reaching the ground will be close to 70 dB(A) and the aircraft will be at the following heights.

B747-200	10,000ft	at	Kuring-gai Chase National Park (north), Cromer (east), Royal National Park (south), Horsley Park (west) and Kellyville (northwest)
B747-400	6,500ft	at	Davidson (north, east), Royal National Park (south), Wetherill Park (west), Baulkham Hills West (northwest)

For further details refer to Appendix 9

*Conclusions*

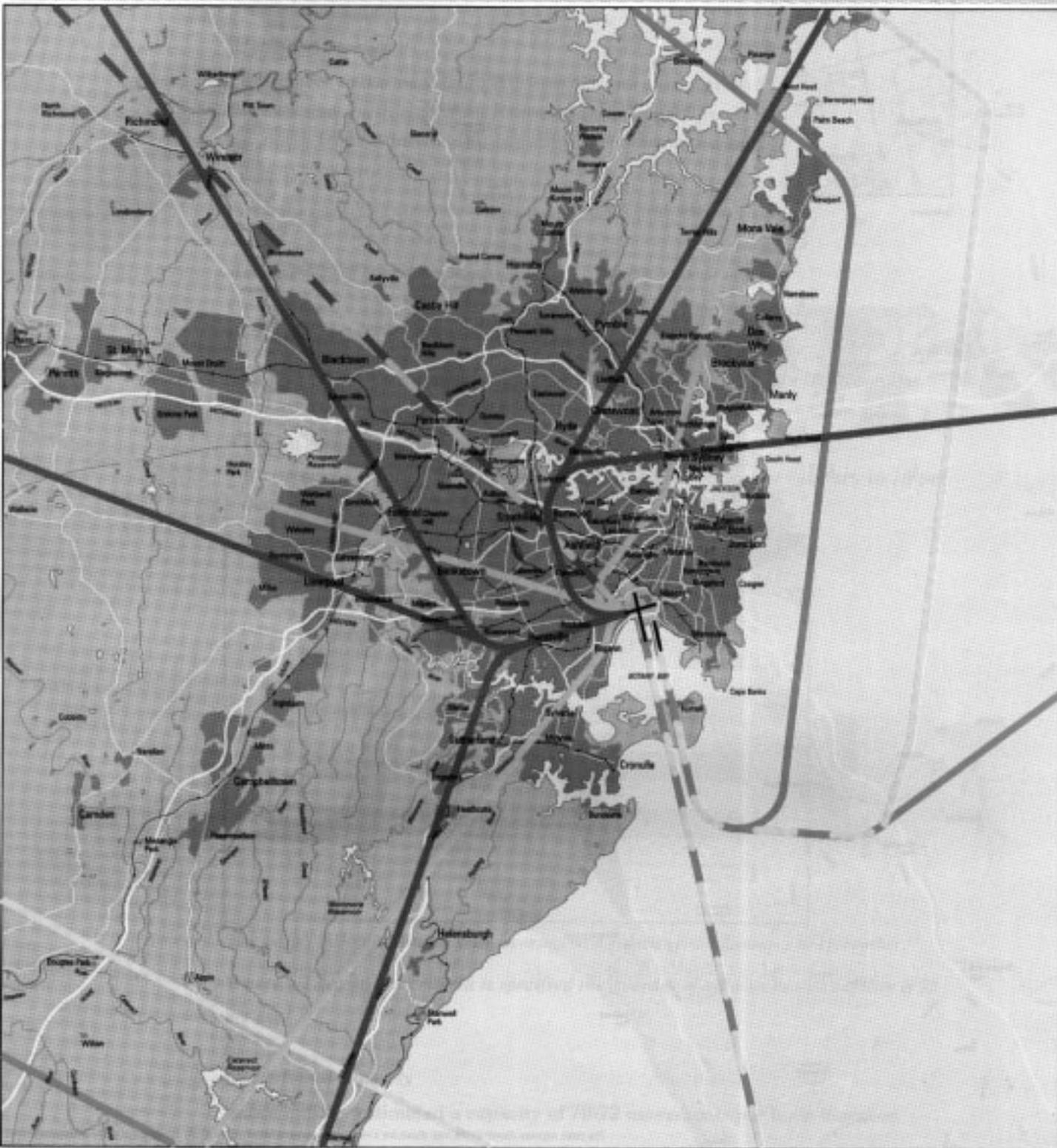
This Mode can be utilised when the wind is a north westerly. It will provide respite to the east and the northern suburbs from the operations of Mode 9 (34L and 34R parallel operations).

*Proposed use*

It is proposed that this Mode be included in the plan as part of the initial nine Modes selected for initial implementations.



**SYDNEY MODE 7 DEPARTURES 25 ARRIVALS 34L, 34R  
(LONG HAUL JET DEPARTURES 34L)**



NP 96/544.8.7  
November 1996

■ Built-up-area (1993)  
Note: Tracks shown are indicative  
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0 km 6  
Scale approx



**DEPARTURES**  
 — Jet track  
 — Non-Jet track  
 - - Dual track

**ARRIVALS**  
 — Jet track  
 — Non-Jet track  
 - - Dual track



# SYDNEY NOISE IMPRINT MODE 7 JET DEPARTURES 25 ARRIVALS 34L, 34R



November 1996 MP 98/544.9.7 © Commonwealth of Australia

0 km 5  
Scale approx



Note: The noise imprints shown are based on a single aircraft movement on the centreline of the indicative flight track



The diagram above indicates that a 767, 737 and similar aircraft leave a significantly smaller imprint than 747-200 series aircraft

- Noise imprint Arrivals (70dB(A) or above based on a single movement of a 747-200 series aircraft)
- Noise imprint Departures (70dB(A) or above based on a single movement of a 747-200 series aircraft)
- Built-up-area (1993)