

Brisbane Basin

Aircraft Noise Information Report

Quarter 1 2016 (January to March)

Version Control

Version Number	Detail	Prepared by	Date
1	-	Environment	June 2016

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This report contains a summary of data collected over the specified period and is intended to convey the best information available from the NFPMS at the time. The system databases are to some extent dependent upon external sources and errors may occur. All care is taken in preparation of the report but its complete accuracy cannot be guaranteed. Airservices Australia does not accept any legal liability for any losses arising from reliance upon data in this report which may be found to be inaccurate.

Brisbane Basin - Aircraft Noise Information Report

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1 Purpose

This report summarises data for Quarter 1 of 2016 (January to March), primarily from Airservices' Noise and Flight Path Monitoring System (NFPMS) and Noise Complaints and Information Service (NCIS) for the Brisbane basin (including Brisbane Airport and Archerfield Airport) as well as some other sources (such as the Flight Charging System).

1.1 Brisbane Airport

Brisbane Airport is located 14km north east of the central business district. It is bounded by residential areas to the west, south and north (see Figure 1). The majority of operations at Brisbane Airport are international and domestic regular passenger services, mostly medium to large jets. During Quarter 1 of 2016 there were approx. 53 300 operations at Brisbane Airport. More information about operations at Brisbane Airport is available from the Airservices website at www.airservicesaustralia.com/aircraftnoise/airport-information/.

1.2 Archerfield Airport

Archerfield Airport is located 13km south west of the central business district and is surrounded by residential developments (see Figure 1). Corporate and charter services operate from the airport and it is also Queensland's largest centre for flight training¹. More information about operations at Archerfield Airport is available from the Airservices website at www.airservicesaustralia.com/aircraftnoise/airport-information/.

1.3 Aircraft noise monitoring in Brisbane

Airservices NFPMS captures and stores radar, flight plan and noise data. The NFPMS covers eight city regions around Australia. For the Brisbane region, noise data is captured by five noise monitors - also known as Environmental Monitoring Units (EMUs) – located around Brisbane Airport (see Figure 1).

1.4 Short term monitoring program

Airservices carries out a rolling program of short term monitoring around the country to collect data for specific operational purposes and to investigate potential new sites for permanent monitoring units. Reports on short term monitoring are available at <http://www.airservicesaustralia.com/publications/noise-reports/short-term-monitoring/>.

¹ A factsheet about circuit training is available at www.airservicesaustralia.com/aircraftnoise/factsheets/

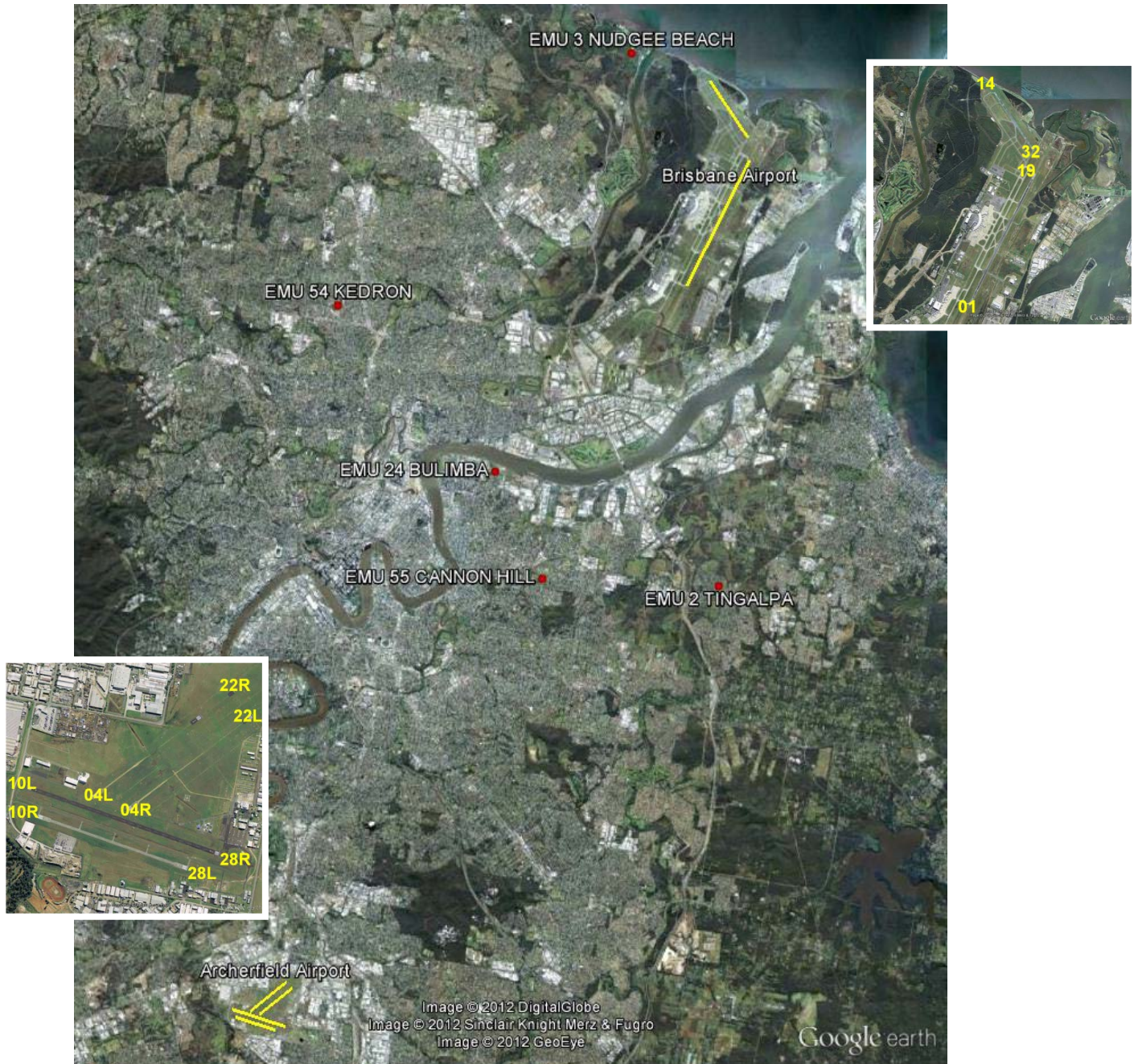


Figure 1: Location of Brisbane Airport and Archerfield Airport. (Runway orientation at both airports is shown in the inserts. Noise monitoring sites are shown as red dots).

The main runway at Brisbane Airport, 01/19, is 3.5 km long, orientated approximately south to north. This means that on Runway 01, aircraft arrive over suburbs to the south of the airport and take off over water to the north. On Runway 19, aircraft arrive over water from the north and take off over suburbs to the south. There is a smaller 1.7km long cross runway, 14/32, orientated north-west to south-east, which is primarily used by propeller aircraft.

At Archerfield Airport there are two sets of parallel runways, 04L/22R - 04R/22L (oriented south west to north east) and 10L/28R – 10R/28L (oriented east to west). Both directions are used for circuit training. Runway selection is determined by wind direction as aircraft normally land and take-off into the wind for safety and performance reasons.

Information about runway selection and circuit training is available on the Airservices website at www.airservicesaustralia.com/aircraftnoise/factsheets/.

2 Flight patterns

2.1 Jet aircraft

Figure 2 below shows jet aircraft track plots for arrivals and departures at Brisbane Airport and Archerfield Airport. Noise monitors (EMUs) are shown as yellow circles.

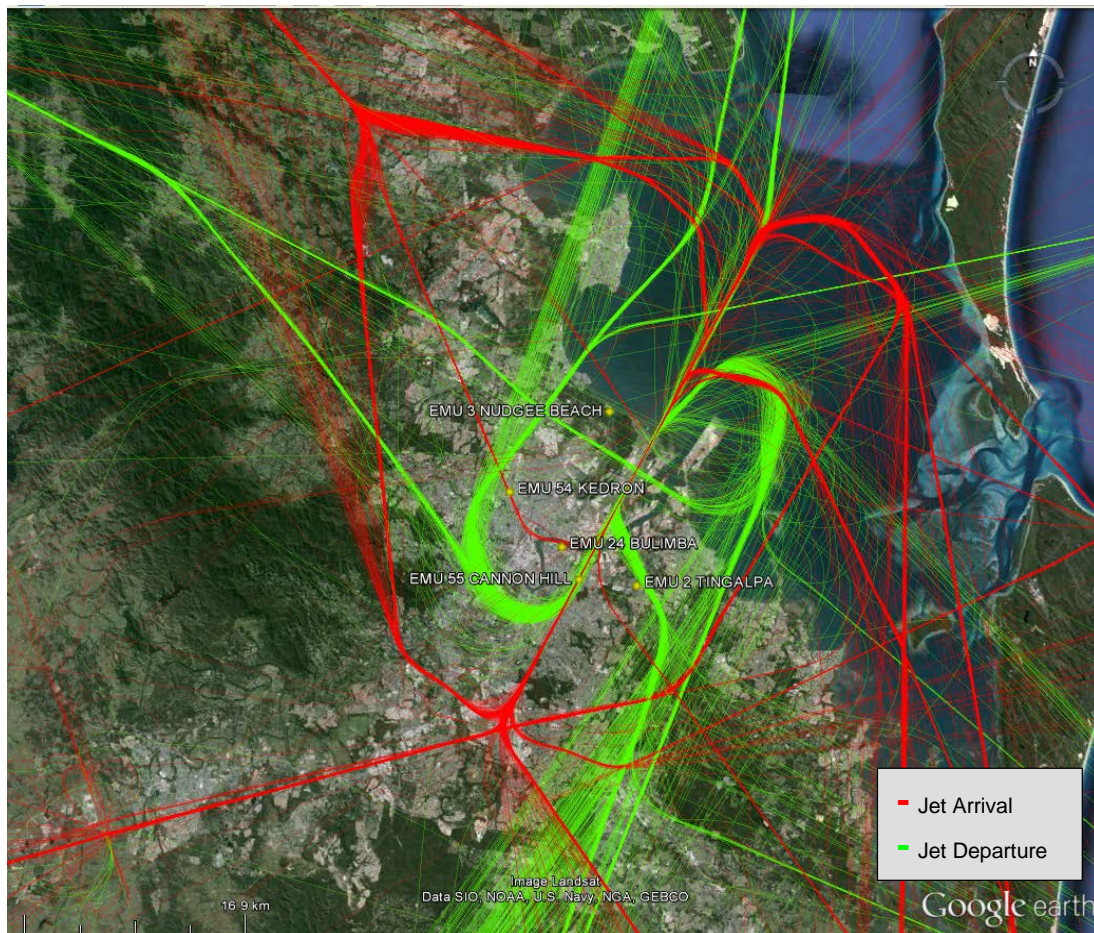


Figure 2: Jet flight paths for the Brisbane region

The key points shown are:

- Arrivals are generally aligned with runways from around 10km from the airport. Departures tend to turn closer to the airport.
- Jet aircraft are sometimes required to fly routes that are not standard flight paths. This can be due to a number of things including; adverse weather conditions, or high levels of air traffic. Therefore areas that are not shown on the map as being under a flight path can still be overflowed by jet aircraft on occasions.

2.2 Non-jet aircraft

Figure 3 below shows non-jet tracks (arrivals and departures) at Brisbane Airport and Archerfield Airport. Noise monitors (EMUs) are shown as yellow circles.

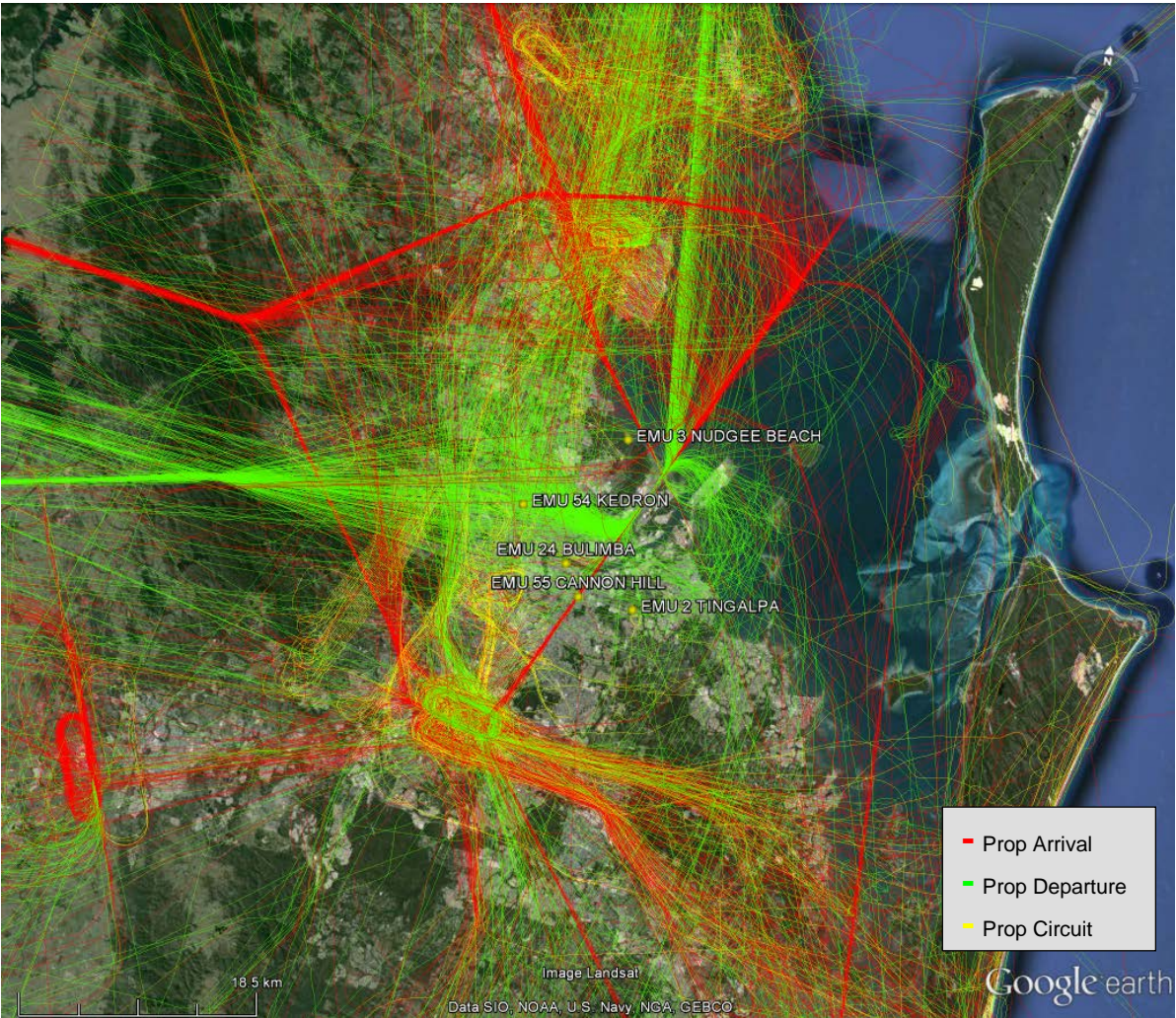


Figure 3: Non-jet arrivals and departures flight paths for the Brisbane region

Although jet aircraft tend to operate along defined paths, when smaller aircraft movements are included on the map there most areas of Brisbane are over-flown by aircraft at some time.

3 Aircraft Movements and Altitude

3.1 Jet Arrivals / Departures by Altitude

Figure 4 below shows jet aircraft track plots for arrivals and departures at Brisbane Airport and Archerfield Airport coloured by altitude. Noise monitors (EMUs) are shown as grey circles.

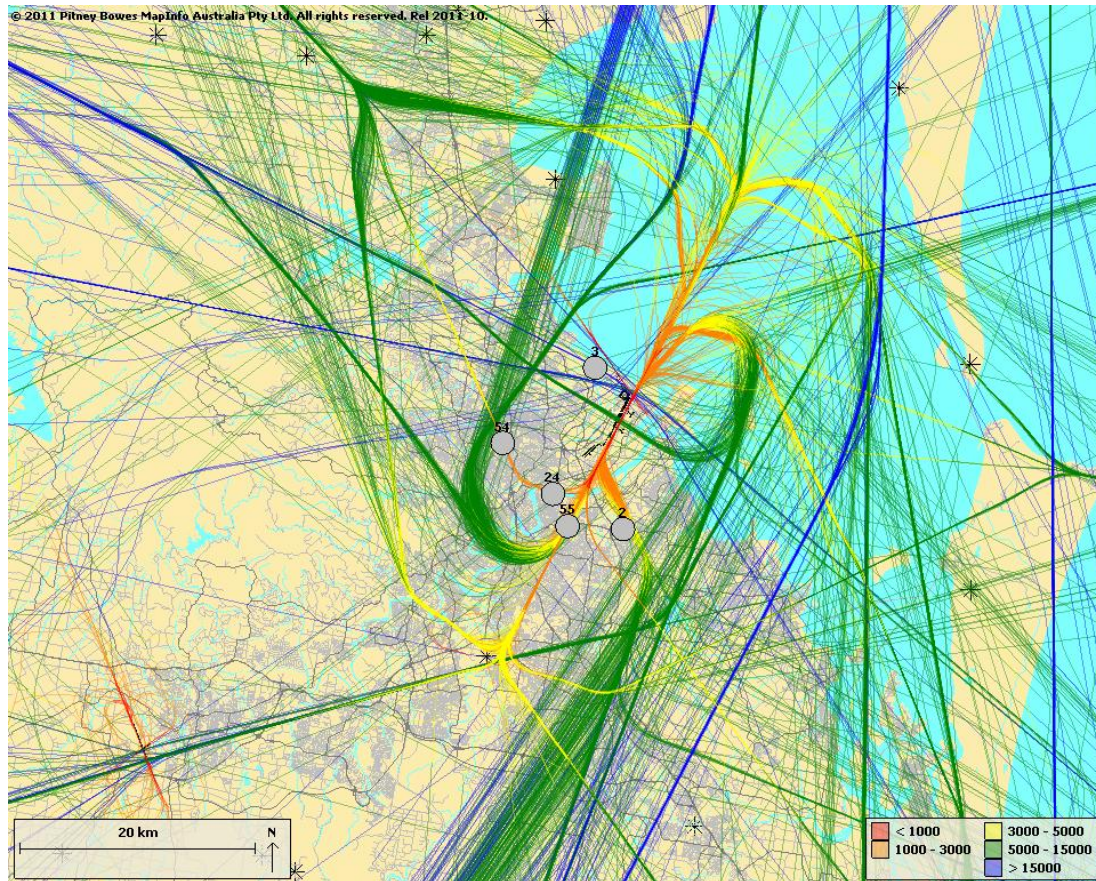


Figure 4: Jet Operations Displayed by Altitude

The key points shown are:

- Jet arrivals from the south tend to fly over residential areas at altitudes between 1 000 feet and 3 000 feet.
- Jet departures to the south tend to reach altitudes above 3 000 feet before they fly over residential areas.
- Some aircraft taking off to the north but bound for destinations to the south turn to the south over water and are therefore at altitudes above 5 000 feet when they cross back over land.

3.2 Non-Jet Arrival / Departures by Altitudes

Figure 5 below shows non-jet tracks (arrivals and departures) at Brisbane Airport and Archerfield Airport coloured by altitude. Noise monitors (EMUs) are shown as grey circles

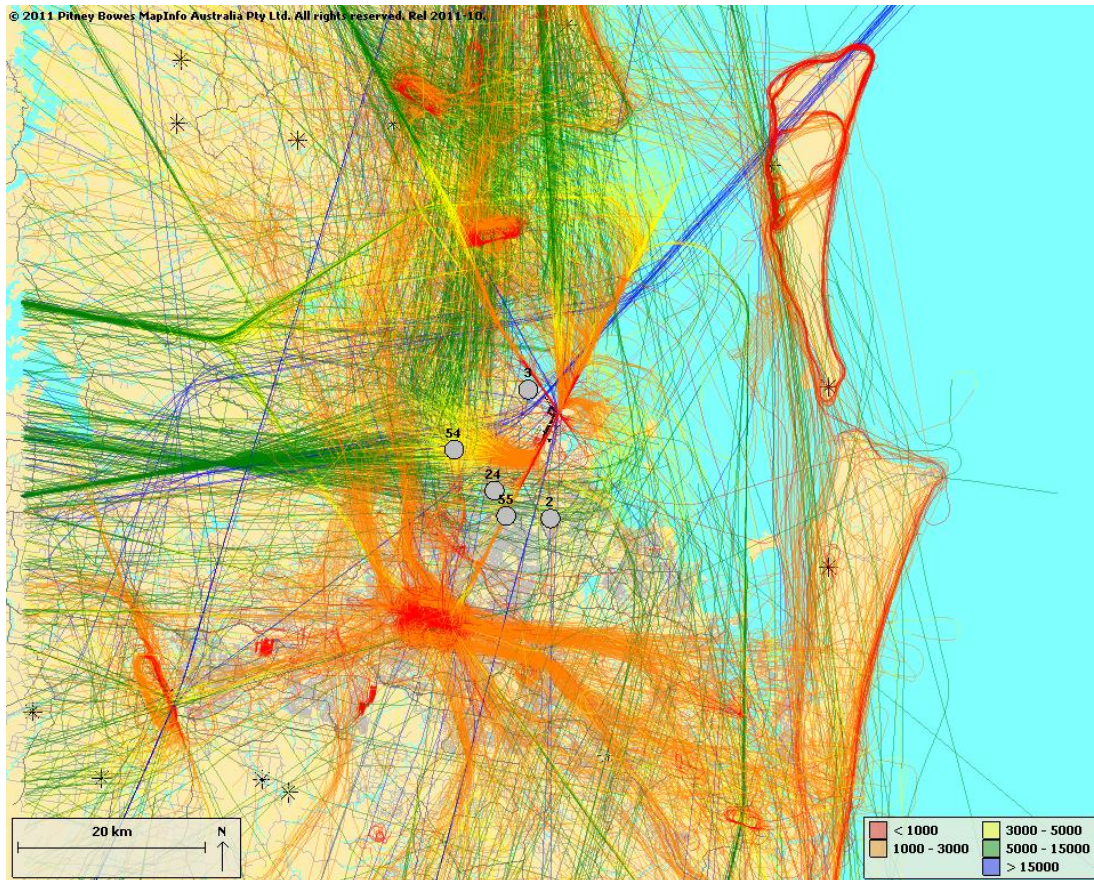


Figure 5: Non-Jet Operations Displayed by Altitude

The key points shown are:

- Most areas of Brisbane are overflowed by smaller aircraft at altitudes below 3 000 feet at some time.
- Aircraft using Archerfield Airport tend to stay at altitudes below 3 000 feet in order to avoid controlled airspace associated with Brisbane Airport.
- The circuit pattern (flight training) at Archerfield Airport is visible as the red oval to the south of the map.

3.3 Track density plots

The track plots in the previous section show that residents living up to 15km from the airports and in line with Brisbane Airport's runway are regularly over-flown by jet aircraft below 5 000 feet. However, beyond this the regularity of flight path use is not discernible from the track plot display. A track density plot, which includes all aircraft types, can be useful in showing the underlying track patterns.

A track density plot is a map which displays the pattern of aircraft flight tracks passing over the region around the airport. The region is divided into a set of small grid elements and the number of flights passing over each grid element is summed. Each grid element is coloured according to the number of over-flights.

The following illustration shows a track density plot for all movements over the Brisbane Basin for Quarter 1 of 2016. The grid size adopted is 200m x 200m. The colour coding from green to red represents the range two flight tracks per day to 20 (182 to 1 820 flight tracks for the quarter). If any grid element is not colour coded, the number of aircraft flight tracks passing over that element during the quarter was less than two per day on average. Note the absence of a colour for a grid element does not mean the grid element is free of aircraft over-flights. The grey circles show the location of each noise monitor (EMU).

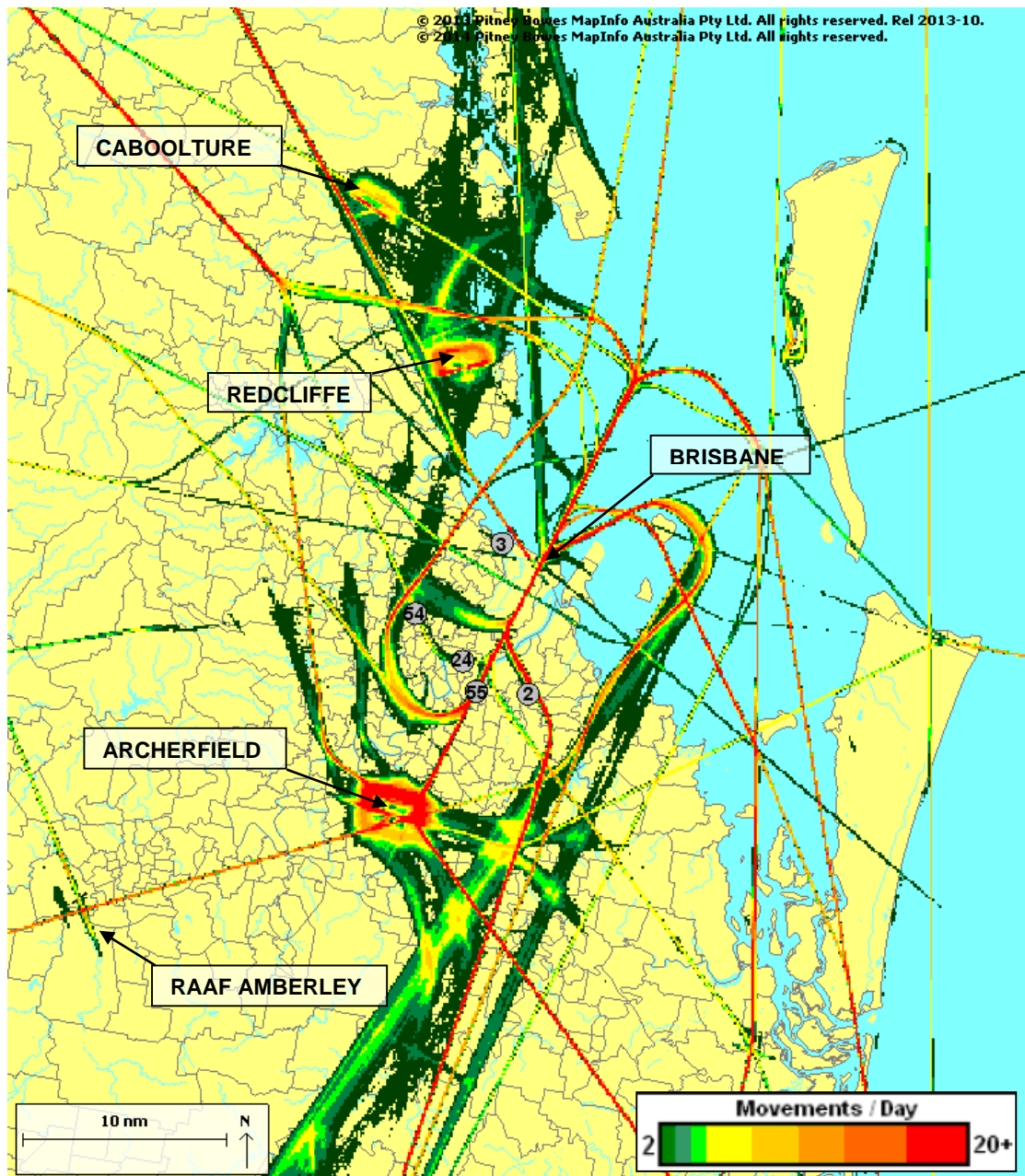


Figure 6: Track density plot for the Brisbane region, Quarter 1 of 2016

The key points shown are:

- There are distinct flight paths to and from Brisbane Airport.
- Lanes into and out of the circuit pattern at Archerfield Airport are visible.
- Circuit patterns can be identified at both Caboolture Airport and Redcliffe Airport, to the north of the map. These are both small airports operating single engine aircraft, largely for training purposes.

4 Airport Statistics and Noise Events

4.1 Brisbane Airport

Figure 7 below shows aircraft movements at Brisbane Airport for the 12-month period to the end of Quarter 1 of 2016 (and three-year average per month).

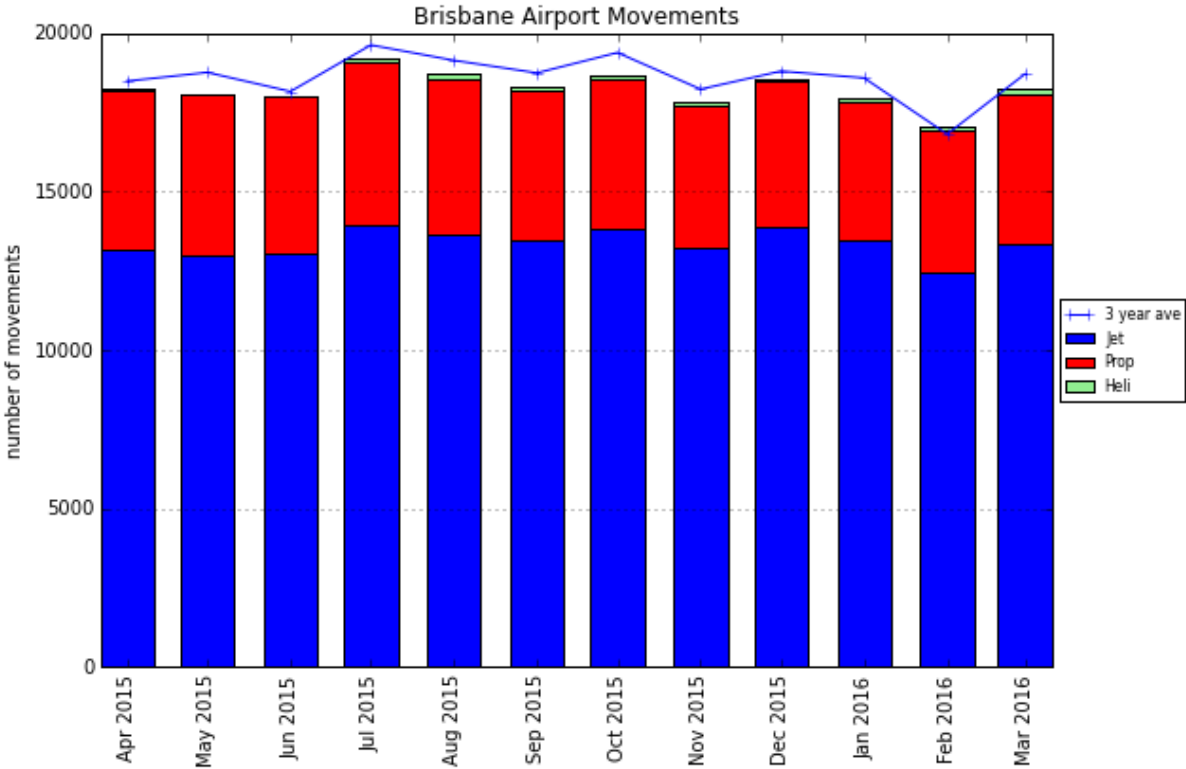


Figure 7: Aircraft movements at Brisbane Airport to Quarter 1 of 2016

The key points shown are:

- The number of movements at Brisbane Airport has been steady over the last year and is generally in line with the three-year average.
- There are consistently more than twice as many jet movements as propeller movements.

4.1.1 Runway Usage

Figure 8 - Figure 10 below show aspects of runway usage for arrivals and departures at Brisbane Airport for the year up to the end of Quarter 1 of 2016 (and three-year average per month) and Figure 16 and Figure 17 further below shows usage over a four-year period for the two busiest runways at the airport.

Runway selection is based on wind direction and weather conditions, traffic volume and Noise Abatement Procedures. Aircraft primarily take off and land into the wind for safety and performance reasons. Therefore, as the wind direction changes the runway in operation may also change depending on the strength of the wind.

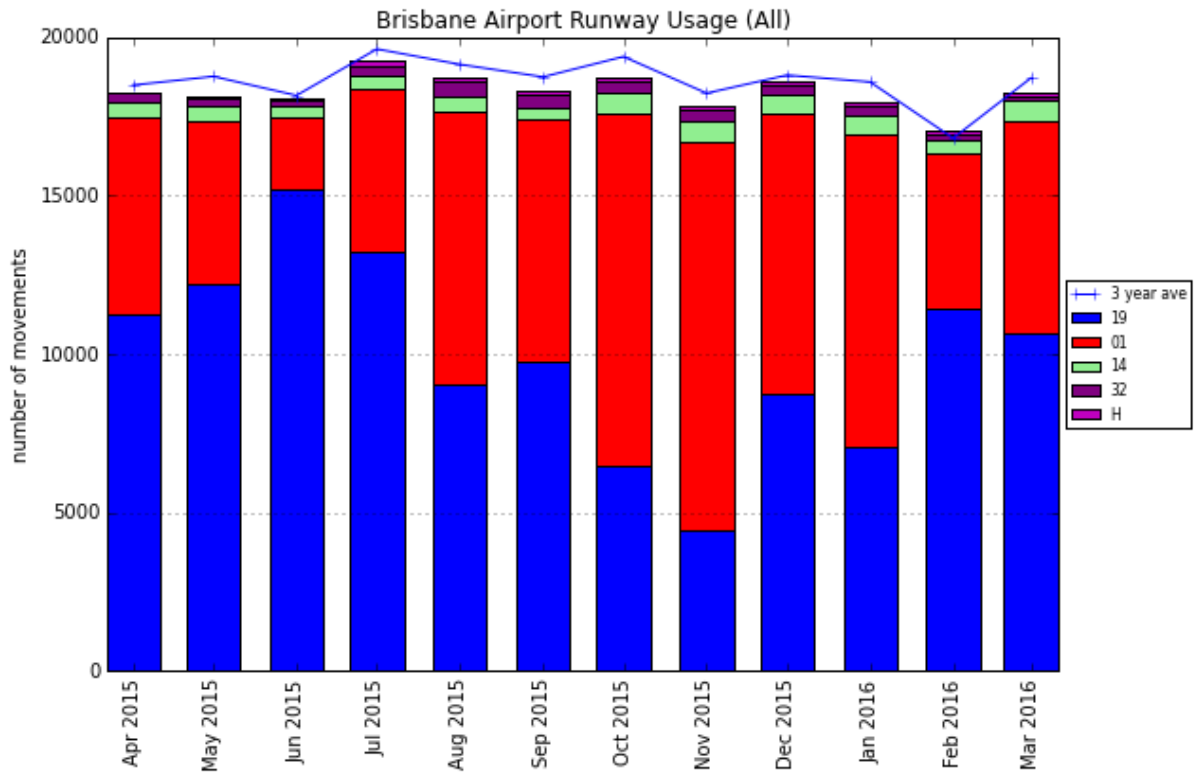


Figure 8: Runway usage (All) at Brisbane Airport to Quarter 1 of 2016

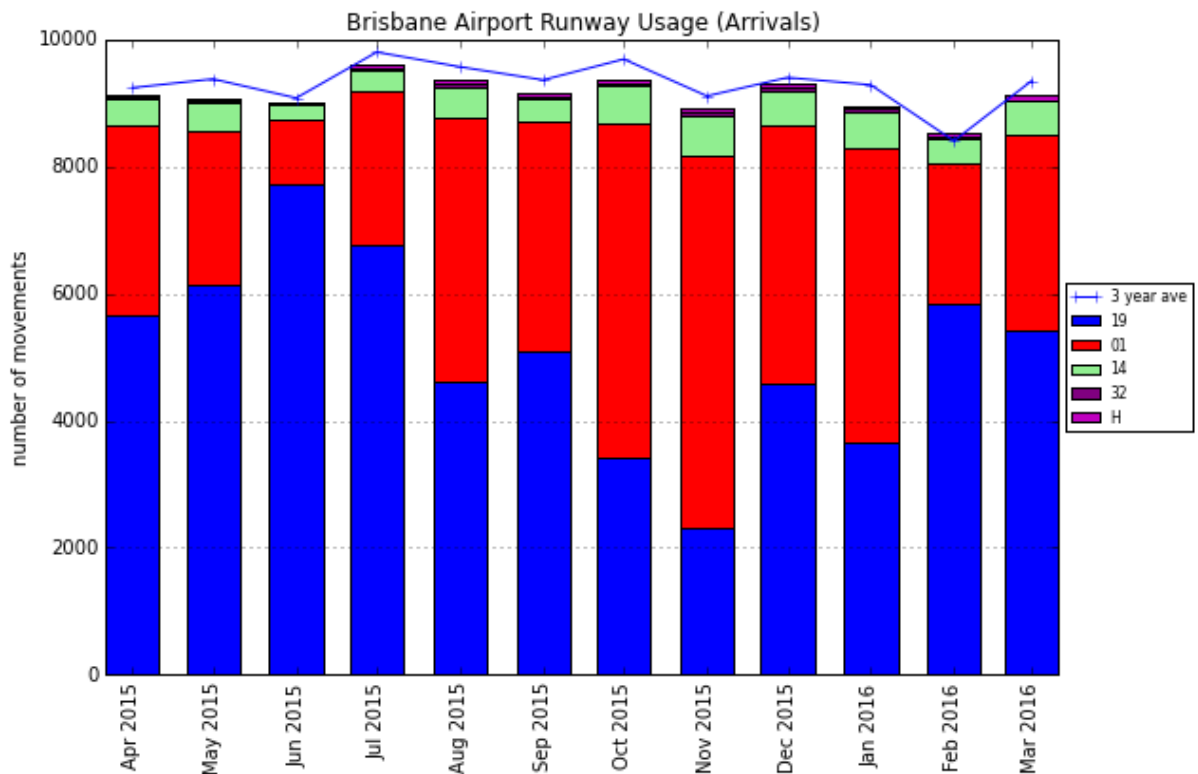


Figure 9: Runway usage (Arrivals) at Brisbane Airport to Quarter 1 of 2016

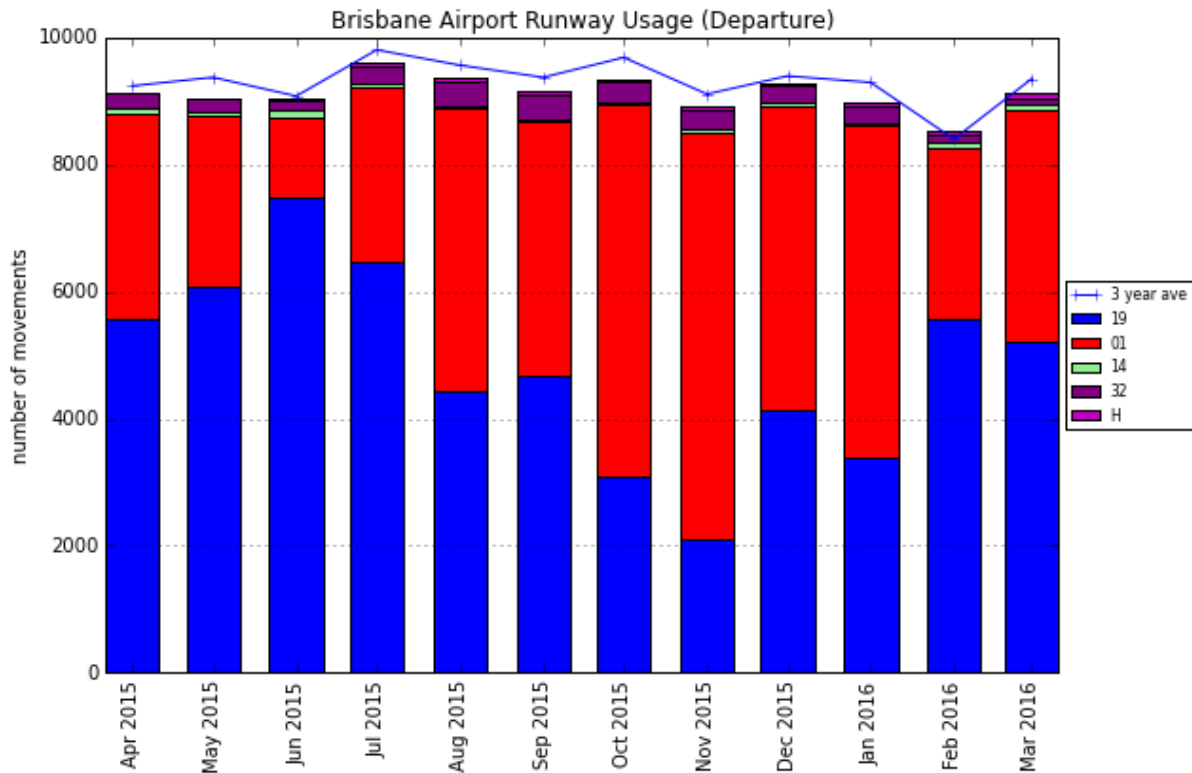


Figure 10: Runway usage (Departures) at Brisbane Airport to Quarter 1 of 2016

The key points shown in Figures 8 to 10 are:

- In Quarter 1 2016, Runway 19 was predominantly used. This meant that aircraft departed to the south over the city and arrived from the north over Moreton Bay.
- Movements on the smaller cross Runway 14-32 accounted for less than 5% of the total movements at Brisbane Airport during 2016.

4.2 Noise monitoring

Airservices collects noise and operational data from noise monitors (EMUs) around Brisbane Airport. This data can be expressed in a number of ways, to show average noise during a period, background noise levels and number of noise 'events' over a certain threshold.

Sound is measured on a logarithmic scale with the decibel (dBA) as the unit of measure. The sound level of typical daytime urban-based activities can vary between 40 dBA and 80 dBA.

Figure 11 through Figure 15 show data from the five Brisbane EMUs for the last 15 months (see Figure 1 for the location of EMUs). Note the term *N65* refers to the average number of daily noise events caused by aircraft that are over 65 dBA. Figures for *N70*, *N80* and *N90* are also provided.

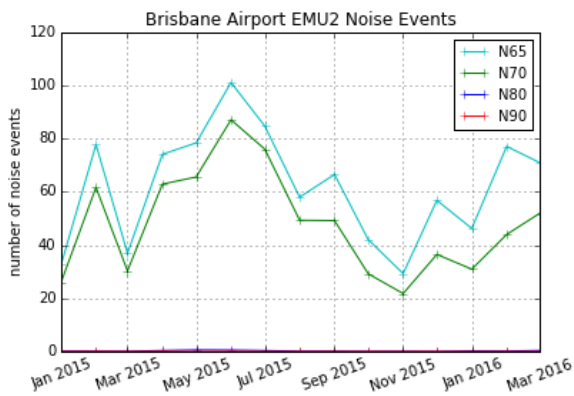


Figure 11: Average daily noise events at EMU 2 (Tingalpa) from Quarter 1 of 2015 to end of Quarter 1 of 2016

The key points shown are:

- EMU 2 mainly captures noise from departures from Runway 19 and some arrivals to Runway 01.
- EMU 2 is directly over-flown by departures off Runway 19 heading south (to airports in other eastern states). The number of aircraft noise events recorded corresponds with the number of Runway 19 departures. The pattern for aircraft noise events recorded by EMU 2 reflects the seasonal use of Runway 19 for departures.

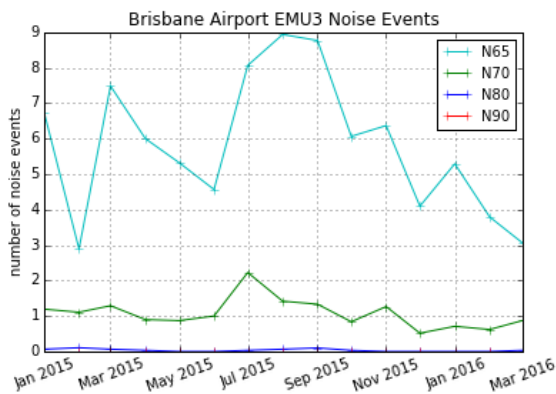


Figure 12: Average daily noise events at EMU 3 (Nudgee Beach) from Quarter 1 of 2015 to end of Quarter 1 of 2016

The key point shown is:

- EMU 3 captures movements on Runway 14/32 and some departures from Runway 01.
- Less than five per cent of all movements use Runway 14/32. As a result EMU 3 (Nudgee Beach) records the lowest number of aircraft noise events of all the noise monitors. Some non-jet aircraft heading north after taking off from Runway 01 overfly EMU 3.

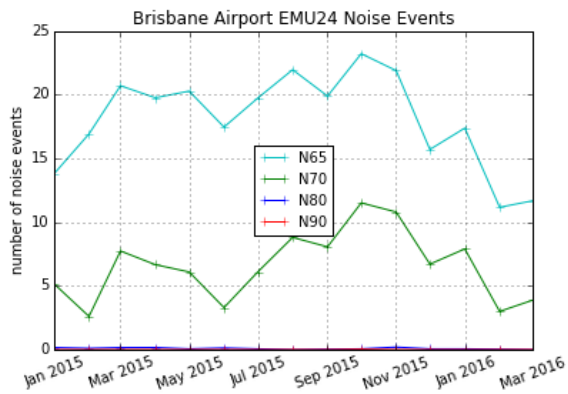


Figure 13: Average daily noise events at EMU 24 (Bulimba) from Quarter 1 of 2015 to end of Quarter 1 of 2016

The key point shown is:

- EMU 24 captures arrivals to Runway 01.
- The pattern for noise events recorded by EMU 24 usually reflects the seasonal use of Runway 01 for arrivals.

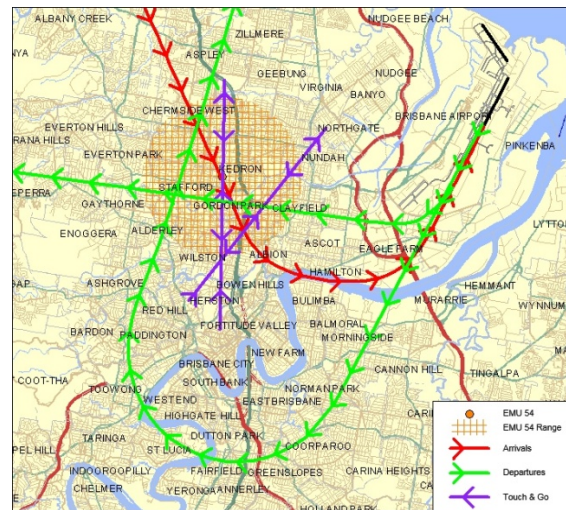
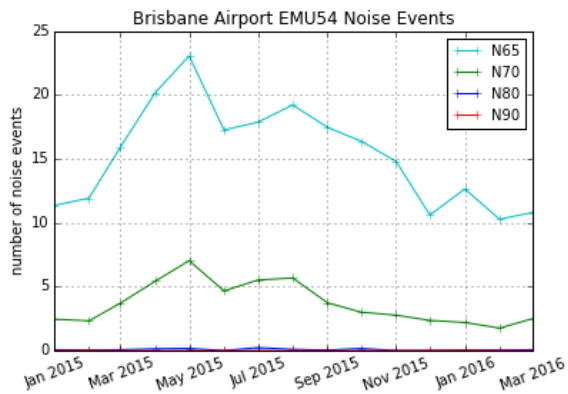


Figure 14: Average daily noise events at EMU 54 (Kedron) from Quarter 1 of 2015 to end of Quarter 1 of 2016

The key points shown are:

- EMU 54 captures arrivals to Runway 01.
- EMU 54 records a relatively low number of noise events as it is located beneath aircraft flying at higher altitudes than other noise monitors.
- The pattern for noise events recorded is similar to EMU 24 and reflects the seasonal use of Runway 01 for arrivals.

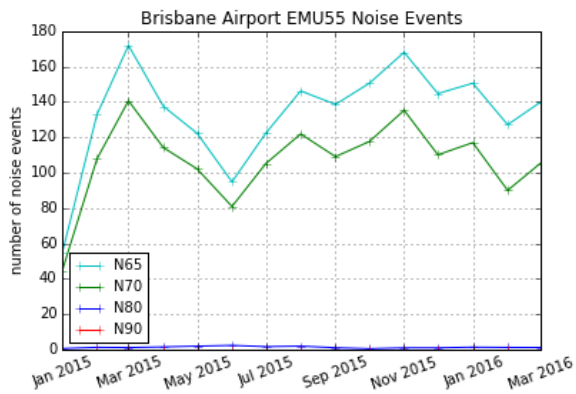


Figure 15: Average daily noise events at EMU 55 (Cannon Hill) from Quarter 1 of 2015 to end of Quarter 1 of 2016

The key points shown are:

- EMU 55 captures arrivals to Runway 01 and departures from Runway 19.
- Along with EMU 2 (Tingalpa), EMU 55 records the highest number of aircraft noise events as these noise monitors are close to the flight paths for 19 departures.
- The pattern for noise events from EMU 55 reflects the seasonal use of Runway 19.
- EMU 55 had a site power issue from 1 to 21 of January 2015. The monitor was not operational during this time causing the downward spike in the graph above.

4.3 Historic Brisbane Runway Statistics

Historic movement data over a four-year period is given below for the two most frequently used runways at Brisbane Airport.

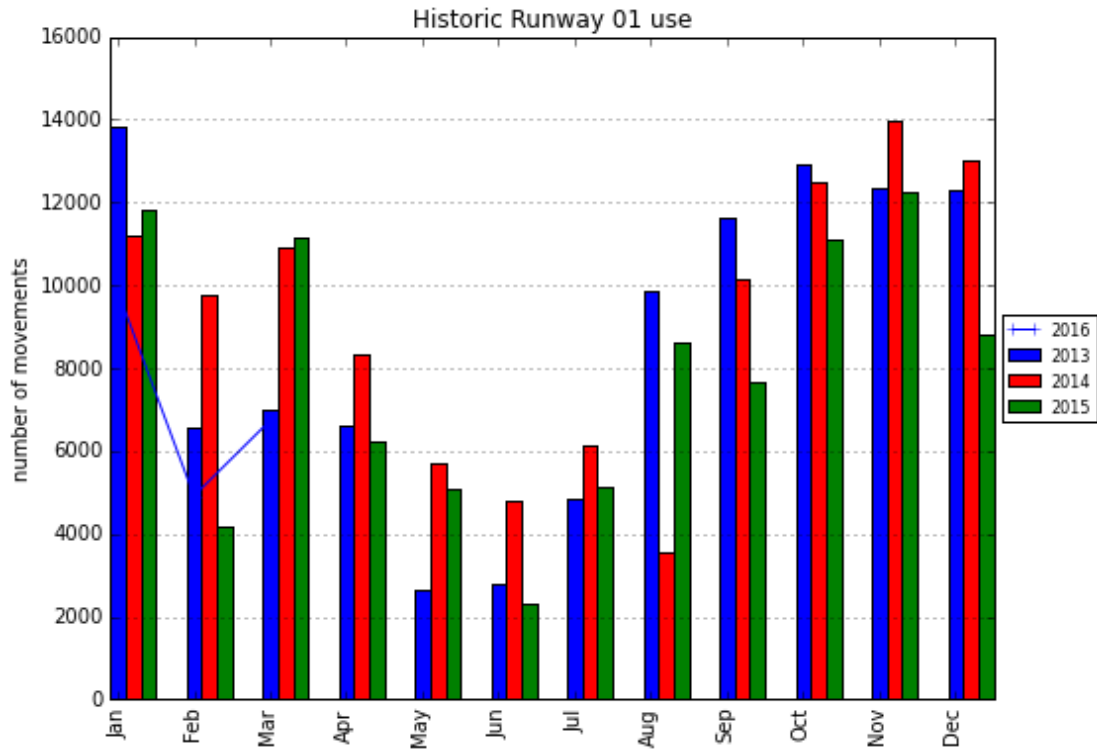


Figure 16: Runway 01 usage at Brisbane Airport 2013 to 2016

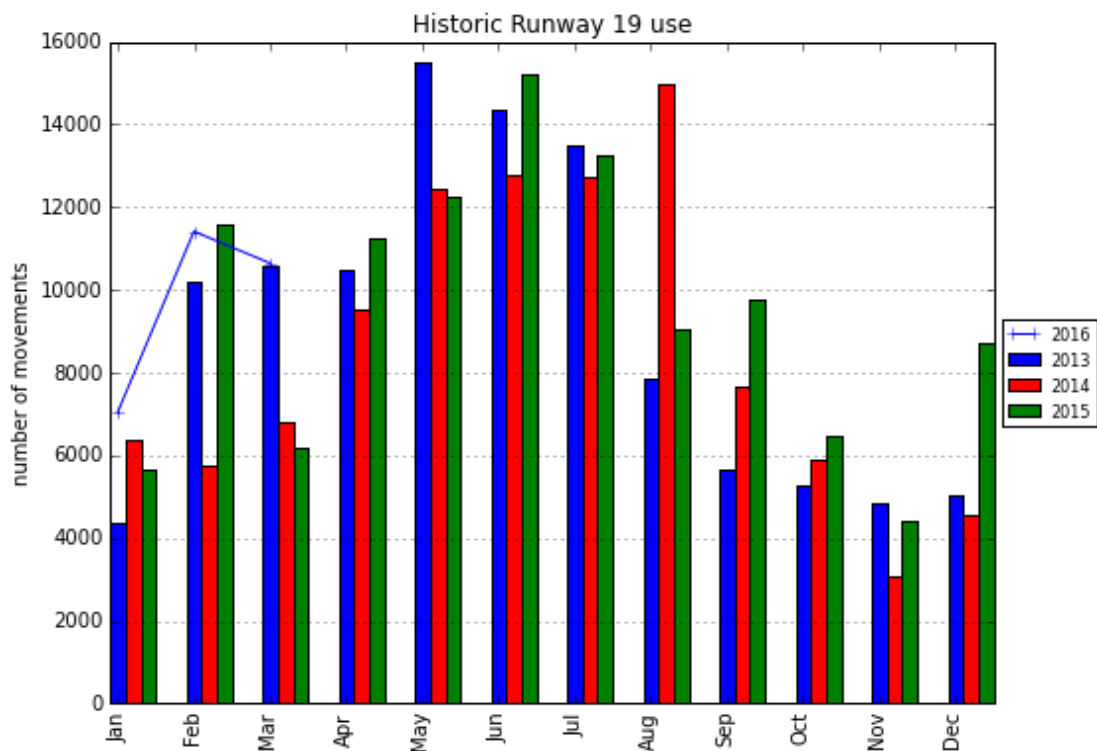


Figure 17: Runway 19 usage at Brisbane Airport 2013 to 2016

The key points shown in Figure 16 and Figure 17 are:

- Seasonal variations in wind direction account for differences in runway use. Generally, in summer, prevailing winds at Brisbane Airport are from the north. This means that aircraft take off over Moreton Bay and arrive from the south. In winter, prevailing winds tend to be from the south, so aircraft generally arrive over water and take off to the south.
- In Quarter 1 of 2016, use of Runway 19 was higher due to more days with winds from the south during that quarter than normal.

4.4 Night Movements

Figure 18, Figure 19 and Figure 20 below show aircraft movements at Brisbane Airport at night (11.00pm to 06.00am), by aircraft type and direction of movement.

There is no curfew at Brisbane Airport. Noise Abatement Procedures are used to reduce the impact of aircraft operations on residential areas, especially at night. From 10pm to 6am the following day, when wind and traffic conditions permit, aircraft arrive and depart over Moreton Bay (i.e. arrive on Runway 19 and depart from Runway 01). When conditions are not suitable for the application of noise abatement procedures (e.g. when there is a northerly wind on Runway 01), aircraft will depart over Moreton Bay and land over the southern suburbs. The opposite applies in the case of a southerly wind.

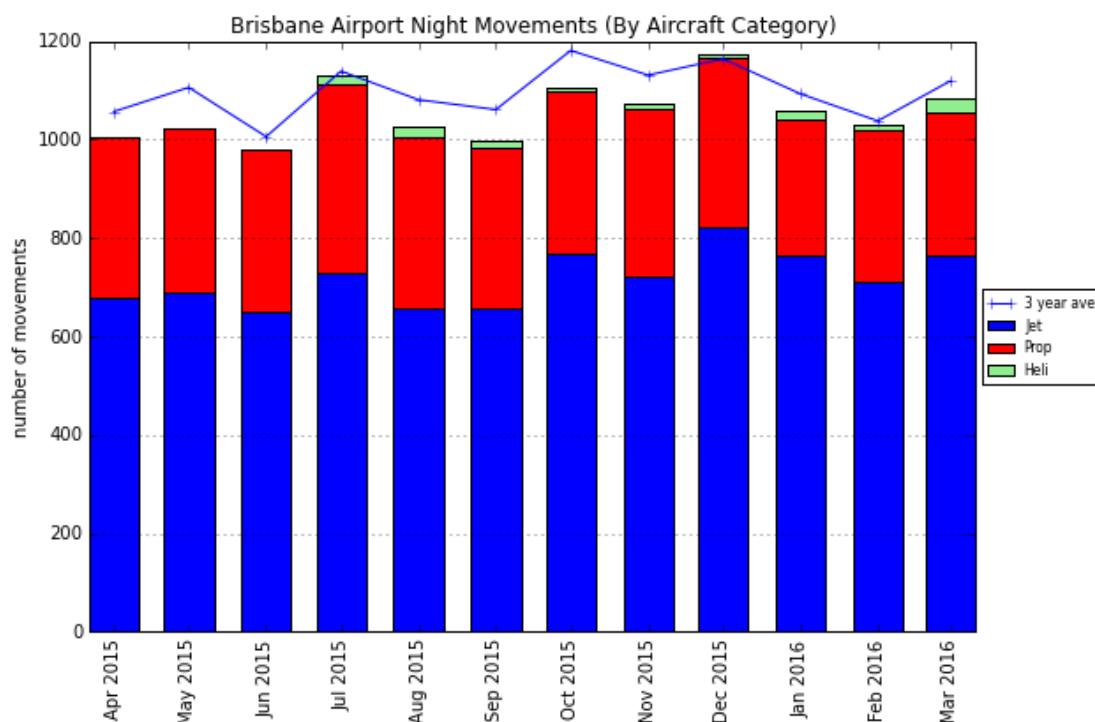


Figure 18: Night movements (11.00pm to 6.00am) at Brisbane Airport April 2015 to March 2016 (and three-year average per month) by aircraft type

The key points shown are:

- In general, there were twice as many jet movements as propeller aircraft movements at night. In Quarter 1 of 2016, there were on average around 34 movements per night, which is slightly lower than the three-year average.
- Night-time movements at Brisbane Airport are seasonal, with generally more night movements in summer and fewer during the non-daylight saving period (April to September). Due to the scheduling of flights between non-daylight saving time zones (including Brisbane) and daylight savings time zones (such as Sydney and Melbourne), there is an increase in the number of

flights arriving and departing Brisbane Airport before 6am between October and March.

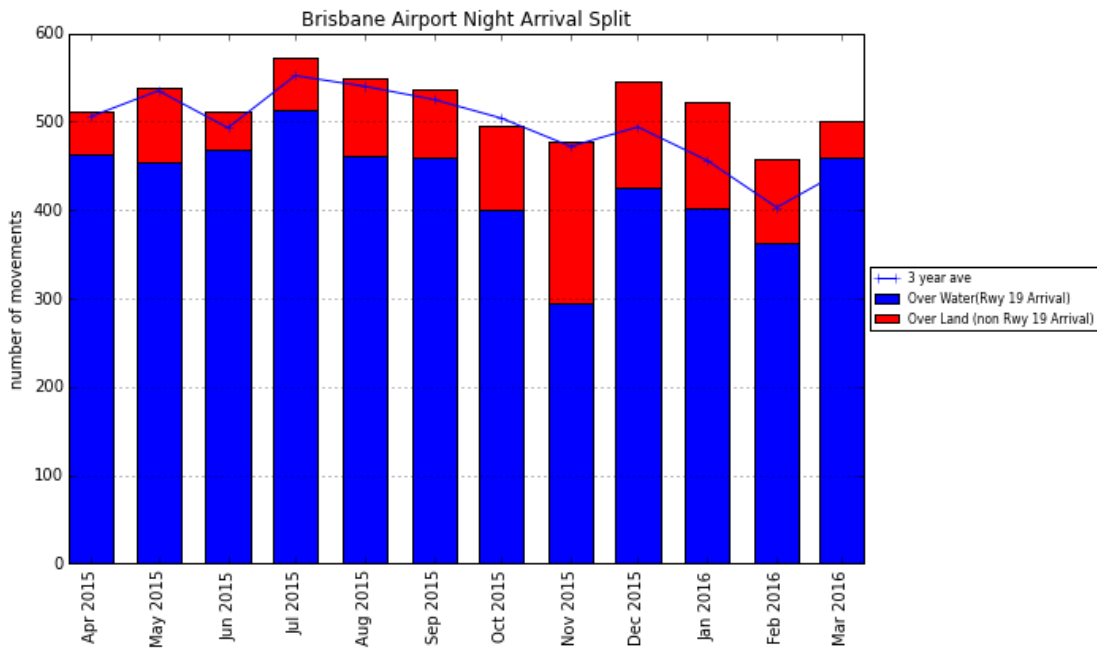


Figure 19: Runway usage for night (11.00pm to 06.00am) arrivals at Brisbane Airport April 2015 to March 2016 (and three-year average per month)

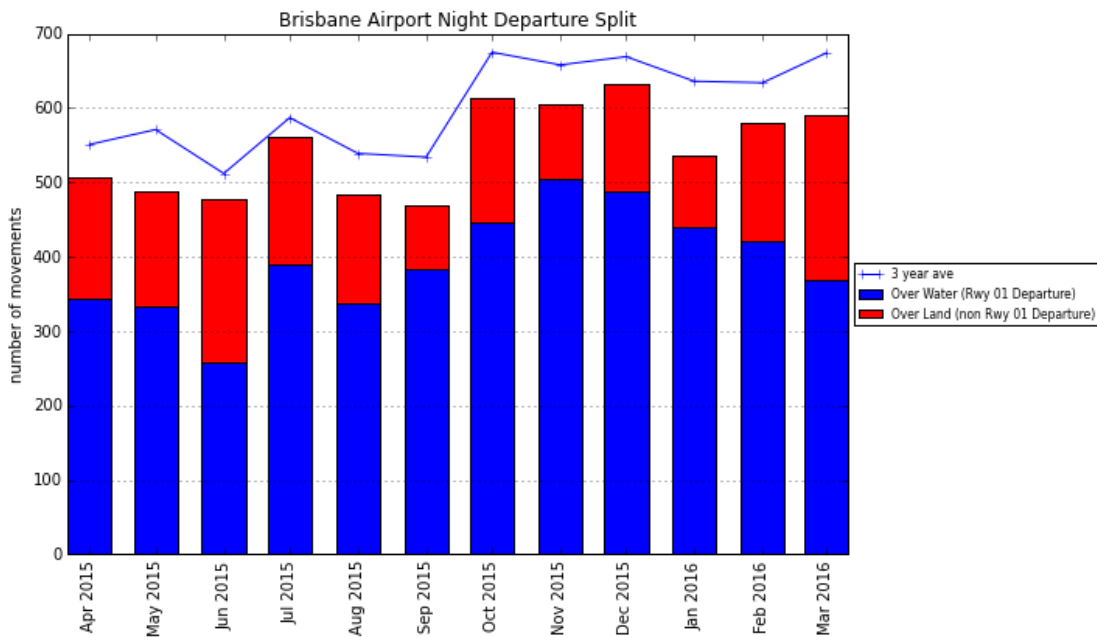


Figure 20: Runway usage for night (11.00pm to 06.00am) departures at Brisbane Airport April 2015 to March 2016 (and three-year average per month)

The key point shown in Figure 19 and Figure 20 is that in Quarter 1 of 2016, the vast majority of night arrivals and departures were over water (i.e. Reciprocal Runway Operations), with departures from Runway 01 and arrivals to Runway 19 in line with the Noise Abatement Procedures (NAPs).

4.5 Archerfield Airport

Figure 21 shows aircraft arrival/departure movements at Archerfield Airport for the 12-month period to the end of Quarter 1 of 2016 (including three-year average).

The movements in the graph are based on arrival/departures at the airport and have excluded circuits. This is due to the difficulty in accurately reporting on the number of circuits at the airport. Circuits are usually performed by small General Aviation aircraft.

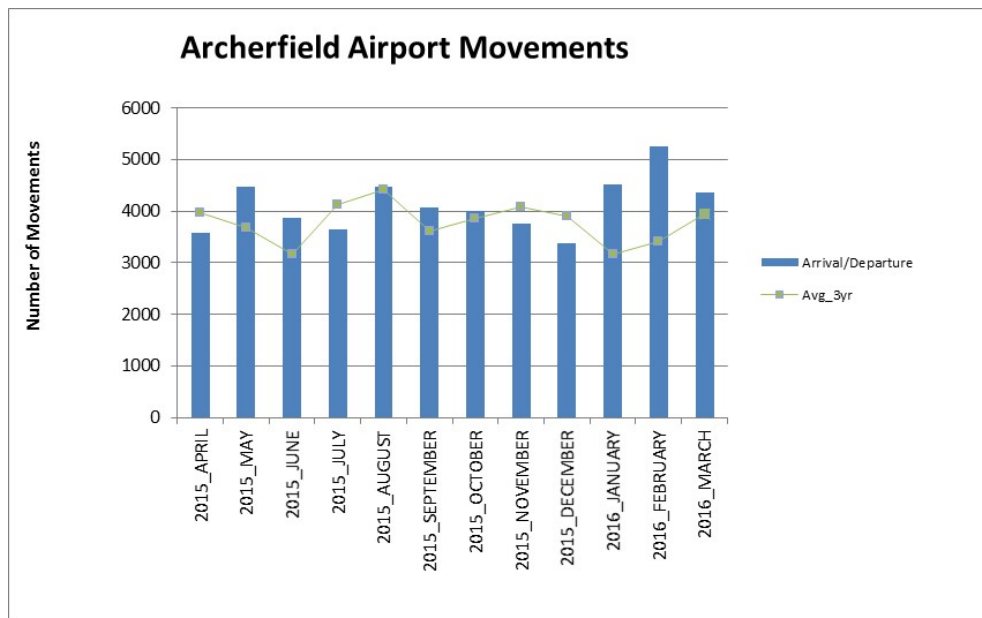


Figure 21: Aircraft movements at Archerfield Airport for the 12-month period to the end of Quarter 1 of 2016 (and three-year average per month)

The key point shown is:

- Movements during Quarter 1 2016 at Archerfield Airport were higher than the three year average. Fluctuations in movements at Archerfield result largely from the calendar of training schools at the airports. Students tend to undertake the circuit element of their training at the same time, which causes the peaks and troughs.

5 Complaints data

Airservices manages complaints and enquiries about aircraft noise and operations through its Noise Complaints and Information Service (NCIS). Complaints, enquiries and requests for information about aircraft operations received by the NCIS are collected and stored in a database for the purpose of complaint management, analysis of issues and identification of causal factors. Each complaint, enquiry or request for information is referred to as a contact and each person who makes contact with the NCIS is referred to as a complainant. For this report, only complainants making complaints have been included.

5.1 NCIS Complainants by suburb

The NCIS received complaints from 140 complainants regarding Brisbane Airport and Archerfield Airport during Quarter 1 of 2016. Complainant density maps are used to show the number of complainants from each suburb, with suburbs coloured according to how many complainants had contacted the NCIS. The data does not include complainants who contacted other organisations (e.g. airports).

Table 1 and Table 2 provide a breakdown of suburbs for Quarter 1 of 2016 with five or more complainants.

Figure 22 shows complainant density by suburb with flight tracks overlaid for Brisbane Airport and Archerfield Airports for Quarter 1 of 2016.

Figure 23 focuses on the complainant density for Archerfield Airport (for all of Quarter 1 of 2016), showing circuit training tracks (the main issue of complainants) overlaid.

The following data is derived from a dynamic database and is correct as at 15 April 2016 and may change without notification.

Table 1: Recorded Complainants by Suburb for Brisbane Airport, Quarter 1 of 2016

Suburb	Quarter 2 2015	Quarter 3 2015	Quarter 4 2015	Quarter 1 2016
Belmont	5	2	3	3
Cannon Hill	2	0	9	2
Coorparoo	6	5	8	4
Greenslopes	5	3	5	5
Morningside	5	3	8	8
Norman Park	1	2	7	1
Seven Hills	4	1	6	1
Sheldon	0	7	17	5
Tingalpa	5	2	2	5
Belmont	5	2	3	3
Cannon Hill	2	0	9	2
All Other Complainants	41	41	47	59
Total Complainants	74	66	112	93

Table 1 shows:

- The number of complainants for Quarter 1 of 2016 for Brisbane Airport was the second highest among the previous three quarters, but slightly lower than the previous quarter.
- Four suburbs had five or more complainants. Greenslopes, Morningside, Tingalpa suburbs are affected by departures from Runway 19. Sheldon is affected by arrivals to Runway 01 from southern and eastern destinations.

Table 2: Recorded Complainants by Suburb for Archerfield Airport, Quarter 1 of 2016

Suburb	Quarter 2 2015	Quarter 3 2015	Quarter 4 2015	Quarter 1 2016
Inala	0	2	8	6
Oxley	7	3	1	8
All Other Complainants	21	27	29	35
Total Complainants	28	32	38	49

Table 2 shows:

- Two suburbs had five or more complainants and the overall complainants increased in Quarter 1 2016.
- Issues raised by complainants included helicopter activities, predominately concerned by emergency services operating in the late evening and early morning hours and the increase in circuit training between midnight and 5am.

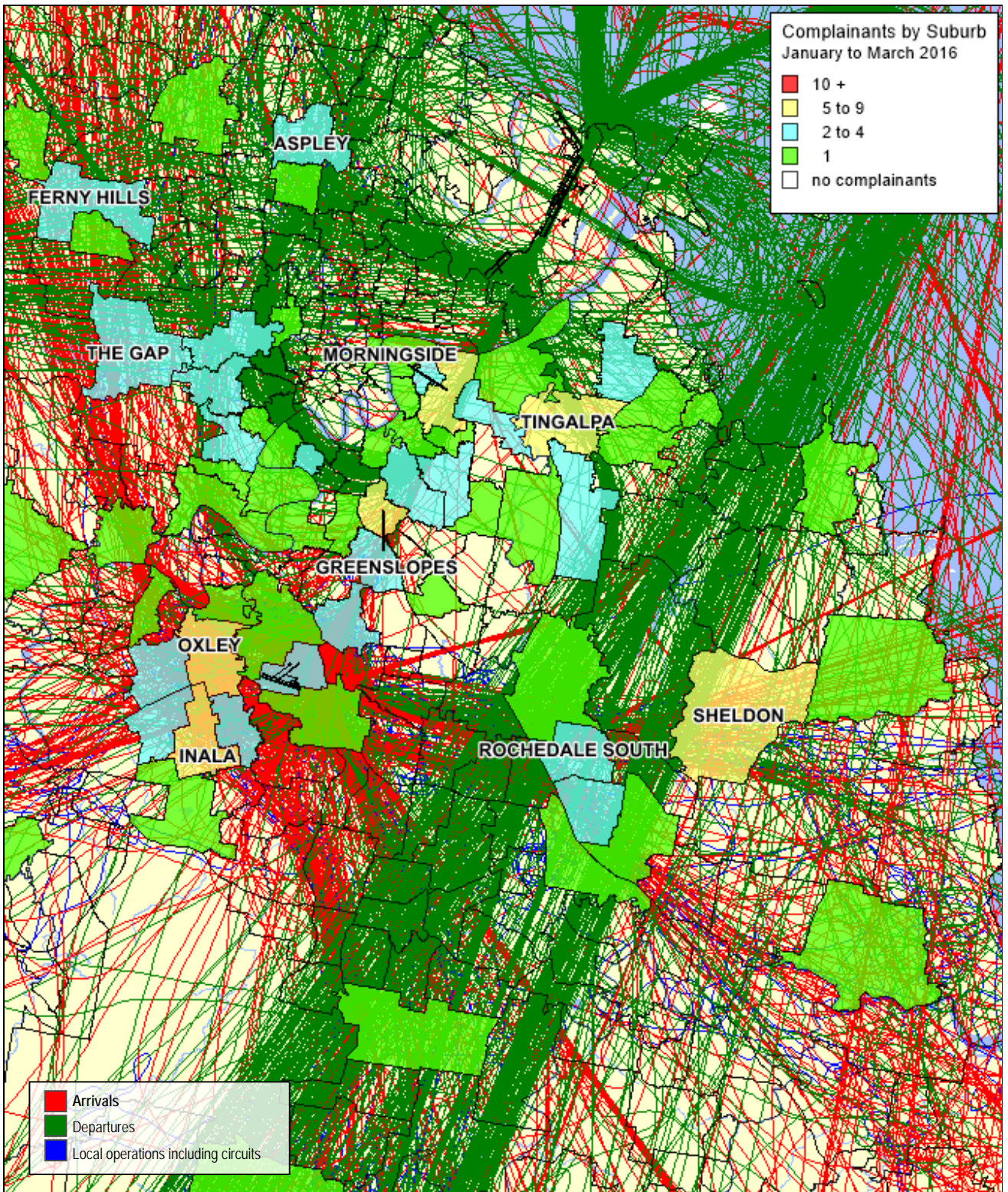


Figure 22: Complainant Density by Suburb with an overlay of tracks from the 1 to 4 March 2016 for the Brisbane region

The key points shown in Figure 22 are:

- Complainants with the highest number of complainants tended to live in suburbs affected by departures from Runway 19.
- The main areas of concern to complainants were arrivals to Runway 01 and departures from Runway 19, and specifically the perceived increased frequency of use of these flight paths.

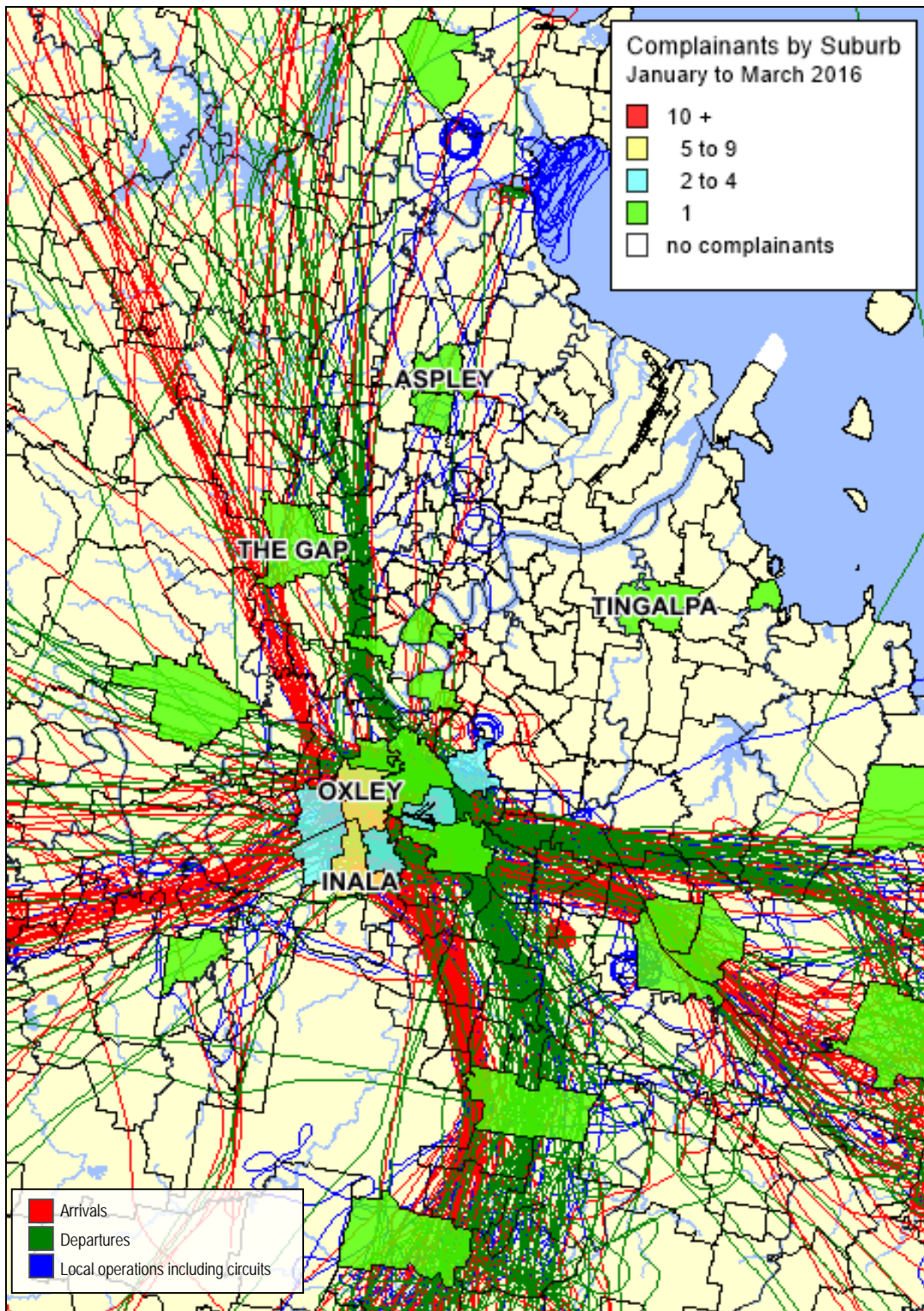


Figure 23: Complainant density by suburb with an overlay of tracks from 1st to 4th March 2016 at Archerfield airport

The key point shown in Figure 23 is:

- Complainants for Archerfield Airport came mainly from the Inala and Oxley suburbs.
- The main issues raised by complainants were circuit training and emergency services operations.

6 Airservices update

6.1 Community Aviation Consultation Groups

Airservices attends Community Aviation Consultation Group (CACG) meetings at Brisbane Airport to provide information to the community and assist in discussions on aviation matters. Appendix 1 provides a summary of issues raised by Airservices at recent CACG meetings.

6.2 Noise improvements

Airservices has developed a process to investigate aircraft noise improvements across Australia. Working with the community and the aviation industry, Airservices will assess the benefits of noise improvement proposals and implement them if feasible.

Airservices will assess the potential safety, efficiency and environmental impacts of proposals. We will seek community views throughout this process to help inform decisions. Safety remains our top priority and any change would have to meet rigorous Air Traffic Control requirements. This means that it may not be possible to implement some proposals.

Airservices will only implement a new procedure or a trial after a comprehensive community engagement process, including consultation with community forums. We will also discuss potential changes with the aviation industry. Airservices will publish details of any changes to procedures or trials on its website.

Appendix 1 provides details of all noise improvements that have been implemented in the Brisbane Basin.

6.3 Key Issues and initiatives identified and/or investigated by Airservices

Airservices has investigated a number of noise improvement initiatives in the Brisbane area over the past few years. A list of these initiatives is at Appendix 2. Recent noise improvements investigated for the Brisbane area:

Should the current preferred runways be reviewed?

Airservices' investigation found that whilst it may provide some relief for residents under the RWY 01 ILS flight path which is the issue that is the subject of most complaints in the Brisbane area, the recent increase in use of the RNP AR (smart tracking) procedures already provides some reduction in impact for these residents. On balance, the negative impacts of the proposal to change preferred runways on those living under existing departure flight paths would outweigh the benefits to those on the ILS arrival flight paths.

Can greater use be made of the Runway 01 Smart Tracking (RNP) to reduce the use of the ILS flight path?

Smart Tracking use has increased on Runway 01 from approximately 5% prior to implementation of ICAO Smart Tracking in September 2015 to approximately 13% in February 2016 providing some relief to residents under the ILS flight path.

Can heavy international departures at night turn left off Runway 19 and are there any other options for noise sharing at night?

Airservices has considered whether there could be any noise improvement feasible for heavy international departures at night including what flight paths are used at present and whether there were alternative options. Investigations concluded that any change to departure flight paths would newly expose populations to noise levels above 60dBA at night which would be potentially significant under the EPBC act. Airservices determined that the best noise outcome would be to maximise the use of the over the bay operations at night with information provided to international operators re the intent and compliance to ensure maximum use is made of Runway 01 for departures. Airservices continues to monitor and report to the Community Aviation Consultative Group on use of over the bay operations to ensure maximum participation.

Can a noise improvement be provided to the Ashgrove community, specifically for departing aircraft?

Air traffic control airspace requirements do not allow changes to the departure flight paths over Ashgrove. The airspace design is the most efficient and safe given the current restricted runway capacity. There will be a change in the overall airspace design for the new parallel runway to be commissioned in 2020 and the details of those changes will be discussed with the community when the current work on the airspace design is completed.

The noise abatement procedures in Brisbane currently are providing maximum benefit to the Ashgrove community. The increased climb requirements, use of runway reciprocal operations at night and Runway 01 as preferred runway during the day all help to minimise the effect of noise on this community to the amount practical.

7 Contact us

To lodge a complaint or make an enquiry about aircraft operations, you can:

- go to WebTrak (www.airservicesaustralia.com/aircraftnoise/webtrak/)
- use our online form (www.airservicesaustralia.com/aircraftnoise/about-making-a-complaint/how-to-make-a-complaint/)
- telephone 1800 802 584 (freecall) or 1300 302 240 (local call –Sydney)
- fax (02) 9556 6641
- write to, Noise Complaints and Information Service, PO Box 211, Mascot NSW 1460.

Airservices welcomes comments about this report. Please contact us via e-mail at community.relations@airservicesaustralia.com if you would like to provide feedback.

Appendix 1 Airservices update

Brisbane Airport Community Aviation Consultation Group (CACG) Meetings

22 March 2016

Airservices provided an update on Smart Tracking usage and [procedures that will be updated to enable a wider range of aircraft to use Smart Tracking at Brisbane Airport. Public Smart Tracking procedures to Runway 19](#) (arrivals over Moreton Bay) will be implemented on 26 May 2016.

The updated flight paths closely replicate the existing flight paths, with minor changes occurring over water. The updated flight path from the north moves the flight path very slightly to the west, and the updated flight path from the south has a slightly wider turn radius.

27 October 2015

Short Term Noise Monitoring commenced in Brisbane on 12 October for a three month period with a public report to be released for the Ashgrove monitoring. The data from other locations will be used internally to assist comparative noise levels for departures and assist with noise modelling for WebTrak.

Technical Noise and Environment Working Group (TNEWG) update provided, which included distribution of a flyer reminding international operators of the preferred runway requirements and asking them to use reciprocal runway operations whenever safe operation of the aircraft permits.

ICAO RNP (Smart Tracking) was implemented onto Runway 01 on 17 September 2015. Regular reporting will be provided to CACG meetings on the use of these procedures and feedback from the community.

14 July 2015

ICAO RNP (Smart Tracking) is scheduled for implementation on Runway 01 on 17 September 2015, with the environmental assessment complete and consultation under way. There is expected to be an incremental increase in use, particularly from the south, which will provide some benefit to those residents under the Runway 01 ILS flight path. From the north along the river track there will be approximately six aircraft per day on average that will fly slightly west of the river due to the increase in radius of turn. Airservices will monitor the use of these procedures and feedback from the community, and report back to the community members.

The noise improvement proposal for Ashgrove, specifically for departing aircraft has been investigated, with the outcome summarised. There are airspace design limitations, moving the flight path would significantly affect other populations and the Noise Abatement Procedures provide the best benefits for that area of Brisbane including RRO and a 10.8% climb gradient.

Archerfield Airport Community Aviation Consultation Group

16 March 2016

Airservices provided information on the new [Global Navigation Satellite System \(GNSS\) approach procedure to Runway 10L](#) to replace the current non-directional beacon (NDB) approach procedure, due to the NDB being decommissioned as part of the Navaid Replacement Program and CASA Performance Based Navigation mandate for February 2016. The new approach will be implemented on 26 May. There is not expected to be any noticeable change in noise and no change in volume of over-flight or aircraft types, although a change in tracking may be noticed.

4 November 2015

Airservices updated the meeting with the latest relevant Aircraft Noise Information Report data for Quarter 2 of 2015 and encouraged members to view the full report on the Airservices website.

Airservices reported on the Noise Complaints and Management System upgrade and due to this, the temporary closure of the Noise Complaints and Information Service phone line and subsequent methods available for lodging queries and complaints during this time.

Airservices advised the Annual Report 2014-15 was now publicly available and on the Airservices website.

Airservices also advised of a report now publicly available titled *Managing the impacts of aviation noise*. The report was a collaborative industry effort (including input from Airservices) and provides a best practice guide for reducing aviation noise.

7 July 2015

Airservices updated the meeting with the latest relevant Aircraft Noise Information Report data for Quarter 1 of 2015, and encouraged CACG members to view the full report on the Airservices website. For each month the main issue reported was helicopter noise.

Airservices provided additional location information (at the request of the CACG) for temporary noise monitoring conducted at Oxley and Acacia Ridge in May 2014. The Acacia Ridge placement was placed at a specified address (nominated by the CACG) and only a region was provided for deployment for the Oxley placement. The Oxley placement is approx. 700m from the M7 - Ipswich Motorway - and on a side road (rather than directly off the M7) and was positioned relative to the tracks.

Brisbane Noise Improvements Implemented

RNP AR (Smart Tracking) at Brisbane Airport – Runway 01 and Runway 19

As part of continuous improvement to the RNP AR (Smart Tracking) rollout across Australian airports, Airservices is replacing Multi Variant Design Procedures (MVD) which are proprietary and only usable by a few operators with International Civil Aviation Organisation (ICAO) procedures which are public procedures and available to all operators with appropriate approval.

Airservices will replace MVD procedures with ICAO procedures, replacing existing flight paths. While there is expected to be limited use of the new flight paths due to safety requirements for Air Traffic Controllers using the Instrument Landing System (ILS), there is a potential for noise respite for residents under the Runway 01 ILS flight path.

The change to RNP flight path was implemented on Runway 01 in September 2015 and the change to Runway 19 will be implemented in May 2016.

Runway 19 Southern Departure

Moving the departure flight path a short distance to the south-west provides an improved noise outcome for Pinkenba residents. Airservices consulted with the Brisbane Airport Community Aviation Consultation Group about this change in July and October, with implementation occurring in December 2014.

A review of the change has been undertaken and a [report](#) is available. Airservices considers the change has been a success as a noise improvement. More information is available at <http://www.airservicesaustralia.com/projects/flight-path-changes/modified-brisbane-departure-flight-path/>.

Appendix 2 Noise Improvement Investigations

Brisbane Noise Improvement Investigations

<p>BRISBANE: Should the current preferred runways be reviewed?</p>	<p>2016</p>	<p>Airservices' investigation found that whilst it may provide some relief for residents under the RWY 01 ILS flight path which is the issue that is the subject of most complaints in the Brisbane area, the recent increase in use of the RNP AR (smart tracking) procedures already provides some reduction in impact for these residents. On balance, the negative impacts of the proposal to change preferred runways on those living under existing departure flight paths would outweigh the benefits to those on the ILS arrival flight paths.</p>
<p>BRISBANE: Can greater use be made of the Runway 01 RNP (Smart tracking) to reduce the use of the ILS flight path?</p>	<p>2016</p>	<p>Smart Tracking use has increased on Runway 01 from approximately 5% prior to implementation of ICAO Smart Tracking in September 2015 to approximately 13% in February 2016 providing some relief to residents under the ILS flight path.</p>
<p>BRISBANE: Heavy international departures – can these departures at night turn left vice right off RWY 19 and are there any other options for noise sharing at night.</p>	<p>2015</p>	<p>Airservices has considered whether there could be any noise improvement feasible for heavy international departures at night including what flight paths are used at present and whether there were alternative options. Investigations concluded that any change to departure flight paths would newly expose populations to noise levels above 60 dB(A) at night which would be potentially significant under the EPBC act. Airservices determined that the best noise outcome would be to maximise the use of the over the bay operations at night with information provided to international operators re the intent and compliance to ensure maximum use is made of Runway 01 for departures. Airservices continues to monitor and report to the Community Aviation Consultative Group on use of over the bay operations to ensure maximum participation.</p>
<p>BRISBANE: Can a noise improvement be provided to the Ashgrove community, specifically for departing aircraft</p>	<p>2016</p>	<p>Air traffic control airspace requirements do not allow changes to the departure flight paths over Ashgrove. The airspace design is the most efficient and safe given the current restricted runway capacity. There will be a change in the overall airspace design for the new parallel runway to be commissioned in 2020 and the details of those changes will be discussed with the community when the current work on the airspace design is completed.</p>

		The noise abatement procedures in Brisbane currently are providing maximum benefit to the Ashgrove community. The increased climb requirements, use of runway reciprocal operations at night and Runway 01 as preferred runway during the day all help to minimise the effect of noise on this community to the amount practical.
BRISBANE: Can Reciprocal Runway Operations be used as often as permitted? Can data be kept to show how many times RRO is used before published times?	2015	Over the bay operations (Runway Reciprocal Operations) are consistently monitored and reported to ensure Air Traffic Control and pilots are using them as much as possible.
BRISBANE: Is there technological solutions that provide more opportunity to fly over the bay? Is it possible to provide incentive to operators to use flight paths over the bay in preference to over land? Can over the bay flight paths be prioritised over flights over land?	2015	Over the bay operations cannot be increased through technology and are subject to Air Traffic Control separation requirements. There are minimum distances required between arriving and departing aircraft which determines when these operations can be used.
BRISBANE: Can night movements be restricted to no more than 10 in any 60 minute period until the New Parallel Runway is in operation and then increase?	2015	Night movements between 10pm and 5am are not expected to exceed 10 in any 60 minute period until the New Parallel Runway is in operation. Current schedules indicate the following movements on average during this period: 10-11pm 8, 11-12pm 8, 12-1am 4, 1-2am 8, 2-3am 6, 3-4am 5, 4-5am 10. There may be some variation between 4-5am during daylight savings.
BRISBANE: Can operators use the quietest technology available? Is it possible for the airport to charge for not using this technology?	2015	Operators in Australia are required to comply with noise regulations which are administered by the Department of Infrastructure and Transport.
BRISBANE: Can Heathrow's noise restrictions based on movement caps and noise quotas be trialled in Brisbane?	2015	Movement caps at present would have severe impacts on airline on time performance and the airport's capacity to service business and leisure travelling customers. Australia does not have legislated noise restrictions other than the Sydney Long Term Operating Procedures with associated movement caps and runway modes of use, and Curfews at Essendon, Gold Coast, Sydney and Adelaide. The Department of Infrastructure and Transport is the authority that monitors compliance.
BRISBANE: Can the use of continuous descent arrivals be increased?	2015	Continuous descent arrivals are dependent on Air Traffic Control requirements to separate and sequence aircraft. Until the new parallel runway opens, runway demand in Brisbane generally exceeds capacity limiting the opportunity for continuous descent to the runway as ATC must make late adjustments to some flight paths to ensure that runway capacity is maintained.

		There are times when the traffic levels are lower at the weekend and at night when aircraft do descend continuously to the runway, minimising the use of throttle and changes to engine thrust and associated additional noise. The airspace design for the new parallel runway will provide an improvement in how often continuous descent will occur. Airservices is
BRISBANE: Can incentive be provided for use of the River track by implementing charging for airlines who use other routes when the River track is reasonably available?	2015	With the introduction of ICAO Smart Tracking to Runway 01 in September 2015 the use of the river track has increased from approximately 5% of arrivals to 13% of arrivals providing some relief for residents under the Runway 01 ILS flight path. The ongoing use will be monitored and a report presented at each Technical Noise and Environment Working Group which is an industry group that meets every 3 months and looks for noise improvements for the community
BRISBANE: LARVALE SID Climb Profile increase from 3.3% to 6.5%	2015	Increased climb gradient of southern jet departures but found not feasible due to procedure design requirements. Minimum climb gradients are required for safety reasons and must allow for the worst performing aircraft. Airlines determine maximum climb gradients based on a number of factors including noise.
BRISBANE: LARVALE SID waypoint change	November 2014	Implemented to ensure aircraft turn after Pinkenbah township without impact on other residents.
BRISBANE: Runway 19 Arrivals – can early morning international arrivals track with a lower noise impact?	2014	Despite the restrictions of Noise Abatement Procedures (NAP) which provides Runway 01 as the preferred runway after 6am the airport and ATC have worked to achieve a better noise outcome for the community by extending the use of landings for internationals on RWY 19 further into the morning. Jet international arrivals statistics from 1/3 to 1/7/2014 show that from 5-9am 1334 arrivals to RWY 19 and only 203 arrivals to RWY 01. Further the breakdown during that period of arrivals shows that only 171 of these arrivals are between 5-6 am so ATC are providing an additional noise abatement after 6am when RWY01 is the preferred runway for arrivals according to NAP.
BRISBANE: Investigate implementing 5% climb gradient for all southern departures	2014	Minimum climb gradients are required for safety reasons and must allow for the worst performing aircraft. Airlines determine maximum climb gradients based on a number of factors including noise.
BRISBANE: Moorooka international arrivals - Is it possible for heavy internationals to remain higher over Moorooka. Korean and Emirates in particular are much lower than Qantas and domestic aircraft	2013	Analysis revealed that all aircraft on 3 degree glide path from 11.7 nm without exception - no indication of difference between heavy and medium aircraft.

BRISBANE: Wet surface Runway Reciprocal (over the bay) Operations (RRO) – Can ATC nominate runway 01 with up to 5 knots of downwind on a wet surface for departures during RRO?	2013	This proposal was considered not feasible due to safety issues for airlines and ICAO recommendations that wet runways cannot be nominated in downwind.
BRISBANE: RRO operations – can the use of Reciprocal Runway Operations be extended?	2013	Implemented changes to Noise Abatement Procedures to utilise over the bay operations earlier at weekends.
BRISBANE: Trident model for Runway 19 departures – can a trident type of noise sharing be implemented for northbound departures off runway 19?	2013	Using different departures at different times for aircraft departing Runway 19 to the north considered not feasible due to traffic management requirements, system limitations and unacceptable complexity introduced to ATC and pilots.