

Before using this booklet,
please read the following
instructions

This document contains a number
of flight path and noise information
charts. By selecting the 'layers' icon*
in the Acrobat Reader toolbar you
are able to overlay a map of Brisbane
suburbs onto each of the charts.

To turn off the layer, simply select
the layers icon again.

The layers icon looks like this:



* This feature is available on Adobe Acrobat
Reader 6 and upwards. Note this functionality
is not available when viewed within a browser.

FLIGHT PATH AND AIRCRAFT NOISE INFORMATION BOOKLET



AN ARTIST'S IMPRESSION OF BRISBANE AIRPORT IN 2020



Overlay

The perforated clear overlay located opposite and showing Brisbane suburban boundaries can be removed and used to place over the Flight Path and Noise Charts in this document.

IMPORTANT NOTICE

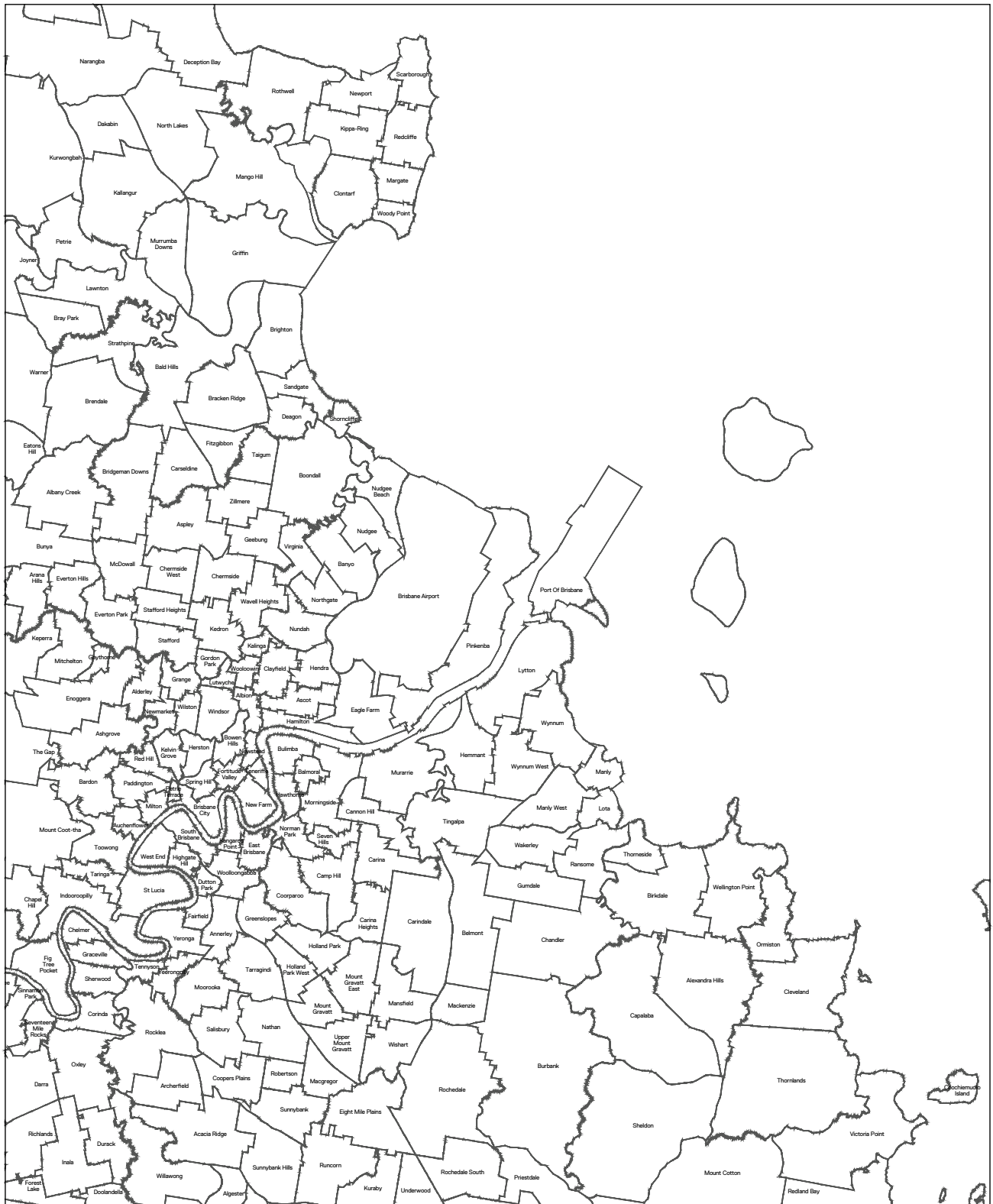
THIS INFORMATION HAS BEEN PREPARED BY, OR ON BEHALF OF BRISBANE AIRPORT CORPORATION PTY LIMITED (ABN 54076870650) (BAC). WHILE CARE HAS BEEN TAKEN TO ENSURE THAT THE INFORMATION IS ACCURATE, IT IS PROVIDED FOR INFORMATION PURPOSES ONLY AND IS BASED ON BAC'S KNOWLEDGE AT THE DATE OF PREPARING THE INFORMATION. YOU SHOULD BE AWARE THAT SOME OF THE INFORMATION (A) IS ILLUSTRATIVE OR CONCEPTUAL ONLY; (B) INCLUDES STATEMENTS AS TO FUTURE MATTERS; AND (C) HAS BEEN BASED ON INFORMED OPINIONS AND ASSUMPTIONS. BAC MAKES NO REPRESENTATION OR WARRANTY AS TO THE ACCURACY OF THIS INFORMATION, OR AS TO THE LIKELIHOOD OF ANY FUTURE MATTER. YOU SHOULD NOT RELY ON THIS INFORMATION TO MAKE ANY DECISION, AND, TO THE EXTENT PERMITTED BY LAW, YOU EXCLUDE BAC FROM ALL LIABILITY (INCLUDING NEGLIGENCE) FOR ANY USE OF, OR RELIANCE ON, THIS INFORMATION BY ANY PARTY.

COPYRIGHT

COPYRIGHT OF THIS DOCUMENT VESTS IN BAC. NO PERSON SHALL REPRODUCE THIS DOCUMENT OR ANY PART OF IT IN ANY FORM OR BY ANY MEANS WHETHER ELECTRONIC, MECHANICAL, MICROCOPYING, PHOTOCOPYING, RECORDING OR OTHERWISE, NOR PRODUCE OR TRANSMIT THIS DOCUMENT OR ANY PART OF IT, IN EITHER CASE, WITHOUT THE PRIOR WRITTEN CONSENT OF BAC. ANY ENQUIRIES REGARDING THIS MATTER SHOULD BE ADDRESSED TO BAC.

THE INFORMATION PRESENTED IN THIS BOOKLET IS CURRENT AS OF NOVEMBER 2018.





ALIGN THE BORDER OF THIS OVERLAY MAP WITH THE BORDER OF EACH CHART IN THIS DOCUMENT



CONTENTS

FLIGHT PATH AND AIRCRAFT NOISE INFORMATION BOOKLET

.....	
About this booklet	2
.....	
Contact information	3
.....	
Understanding aircraft noise	4
.....	
How Brisbane Airport runways will operate	6
.....	
About flight paths	12
.....	
Building the flight path and noise charts shown in this booklet	17
.....	
Understanding the flight path and noise charts	18
.....	
About the range of flight path and noise charts	21
.....	
Flight path and noise charts	22
.....	
Aircraft descriptions	60
.....	
Notes and explanations	69
.....	
Abbreviations	
.....	



ABOUT THIS BOOKLET

WHY THIS BOOKLET HAS BEEN PREPARED

This booklet has been prepared for the community by Brisbane Airport Corporation (BAC) as an update to two previous versions. The first version was presented as part of information included in the Environmental Impact Statement and Major Development Plan for the New Parallel Runway Project. This was approved by the Federal Government in 2007. The second was presented as part of the 2014 Brisbane Airport Master Plan.

Based on discussions with community members spanning many years, BAC understands the most sought after information relates to:

- » Flight paths
- » Noise levels likely to be experienced as a result of aircraft using the flight paths

- » Frequency of overflights
- » How high aircraft will be flying.

These topics, and more, are covered in this booklet.

THE PURPOSE OF THE BOOKLET

The purpose of this booklet is to provide the community with useful information on aircraft operations at Brisbane Airport between now and 2035.

It is designed primarily to illustrate, through a series of drawings known as N70s, flight paths and related aircraft noise effects in a format that allows the reader to understand when and how often aircraft might fly in the vicinity of their home, combined with the likely volume of noise that could be experienced as a result of those flights.

In addition, it is designed to provide information on how the airport runway system operates today and how it will operate when Brisbane's new runway is operational.

It provides readers with a greater level of understanding about why aircraft take off and land in certain directions, the different ways the runways can operate, Airservices Australia's (Airservices) role in managing aircraft traffic, and the factors that will influence runway choice when Brisbane's new runway is in use.

Responding to guidelines issued by the National Airports Safeguarding Advisory Group (NASAG), BAC has included in this booklet charts and tables, which provide other ways to view and understand flight paths and associated noise impacts.

NEW FLIGHT PATH APPROVAL PROCESS

Before any proposed flight path procedure and/or modes of operation can be finalised and implemented for Brisbane's new runway, Safety Case and Environmental assessments were completed by the airspace and navigation service provider, Airservices. In October 2018, these assessments were approved by the Office of Airspace Regulation (OAR) within the Civil Aviation Safety Authority (CASA).

CONTACT INFORMATION

Managing aircraft noise at Brisbane Airport is a responsibility shared by a number of organisations and bodies. Together, these groups actively research, plan and implement initiatives to achieve the optimal balance between the safe operation of the airport and minimising noise impacts on the community.

These groups include International Civil Aviation Organisation (ICAO), Airservices, the Aircraft Noise Ombudsman (ANO), the Commonwealth Department of Infrastructure, Regional Development and Cities, CASA, individual airlines and BAC.

Other sources of information about aviation operations, flight paths and noise assessment include:

Airservices Australia:
www.airservicesaustralia.com

International Civil Aviation Organization:
www.icao.int

Civil Aviation Safety Authority:
www.casa.gov.au

Brisbane Airport: www.bne.com.au

Commonwealth Department of Infrastructure, Regional Development and Cities:
www.infrastructure.gov.au

Aircraft Noise Ombudsman:
www.ano.gov.au

BODIES RESPONSIBLE FOR MANAGING AND RESPONDING TO QUERIES OR CONCERNS ABOUT AIRCRAFT NOISE

The community has access to a number of organisations in the event they have queries or concerns about aircraft noise or aircraft operations generally, including:

AIRSERVICES AUSTRALIA

Airservices manages complaints and enquiries about aircraft noise and operations through their dedicated Noise Complaints and Information Service (NCIS).

You can lodge a complaint or make an enquiry:

- » Directly via WebTrak

WebTrak displays a map of surrounding suburbs within 55 km of Brisbane Airport. You can view information about arriving and departing aircraft, from three months earlier up to 40 minutes ago. After selecting the aircraft of concern, you can make a complaint about that flight. Visit

<http://www.airservicesaustralia.com/aircraftnoise/webtrak>

- » Alternatively, go to <https://complaints.bksv.com/asa>

AIRCRAFT NOISE OMBUDSMAN

The ANO is independent of Airservices Australia executive management structures, reporting directly to the Airservices Board on performance in regards to aircraft noise management matters.

The ANO has been established to conduct independent administrative reviews of Airservices and how it handles aircraft noise-related activities, such as the management of complaints / enquiries, community consultation processes, and the presentation and distribution of aircraft noise-related information.

Complaints should be first lodged through Airservices NCIS, referred to earlier in this document. If you are not satisfied with the way your complaint was handled, your complaint can be lodged with the ANO:

- » Using the online form – www.ano.gov.au/complaints
- » By telephone 1800 266 040 (toll free)
- » By emailing ano@ano.gov.au
- » By mail, Aircraft Noise Ombudsman, GPO Box 1985, Canberra City ACT 2601

This service is free and available to anyone.

BRISBANE AIRPORT CORPORATION

Complaints about ground-running aircraft noise can be directed to BAC on (07) 3406 3000 or via the feedback form at bne.com.au/feedback

UNDERSTANDING AIRCRAFT NOISE

AIRCRAFT NOISE

The level of noise you hear from an aircraft during take-off, landing and during flight can vary. Aircraft noise is influenced by a number of different factors, including:

- » The weather, including season, wind and cloud cover
- » The height of an aircraft
- » Changes in engine thrust
- » Type of aircraft

People react differently to noise and what you hear can be influenced by many different factors including your surroundings and other activities happening in the background.

HOW IS AIRCRAFT NOISE MEASURED?

Sound is measured in decibels (dB). The sound level of typical daytime activities can vary between 40 dB and 85 dB. Typical aircraft noise levels are between 65 dB and 95 dB. Very close to a runway, an aircraft could be as loud as 130 dB.

HOW DOES WEATHER IMPACT NOISE?

Weather impacts such as wind, clouds and rain all impact where aircraft fly and the level of noise experienced.

At Brisbane Airport the wind speed affects how often aircraft can fly over the bay. Generally speaking, during the warmer months there are increased periods of northerly and easterly winds at Brisbane Airport, which means flights are more likely to arrive over the city and take-off over the bay.

During cooler months, there are increased periods of southerly and westerly winds, so aircraft will often arrive over the bay and take-off over the city.

It is common for people to say that aircraft are noisier when it is cloudy. Cloud cover acts like a blanket and can “trap” noise, amplifying it downward.

If it is raining or has recently rained, aircraft must land into the wind if the runway surface is wet or damp.

Reduced visibility from rain may require pilots to use specific flight paths to safely land and depart.

TYPICAL SOUND LEVELS



Emergency Siren
140+ dB(A)



Roadways
80 dB(A)



Construction Site
90 dB(A)



Passenger car
(60km/h at 7m distance)
70 dB(A)



Modern twin-engine jet
(at 1km from the end of the runway)
82 dB(A)



Cafes
50-70 dB(A)



Libraries
30-40 dB(A)

AIRCRAFT OPERATIONS AND WIND DIRECTION

When the wind blows from the south or west, aircraft land over the bay and take-off over the city.

Southerly and Westerly winds occur predominantly in the cooler months in Brisbane.



When the wind blows from the north or east, aircraft land over the city and take-off over the bay.

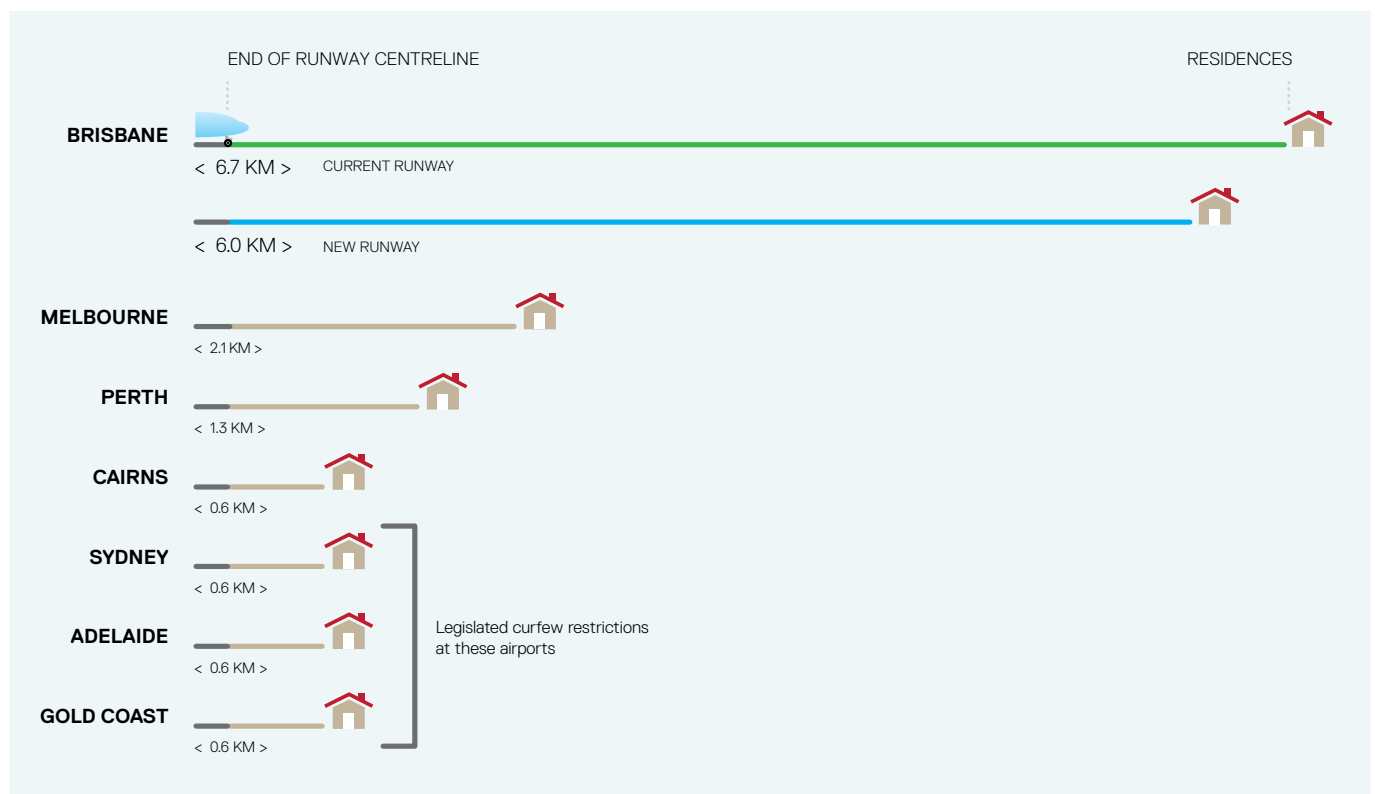
Northerly and Easterly winds occur predominantly in the warmer months in Brisbane.



CLOSEST RESIDENTIAL AREAS TO RUNWAY CENTERLINE

Since the early 1970s, Brisbane Airport has been designed to minimise aircraft noise impacts on residential homes as much as possible. A key component of this is the buffer zone, which has prevented homes being built too close to both the current runway and new runway.

Brisbane Airport has the largest noise buffer zone of any capital city airport in Australia. Drawing a straight line from the end of the current runway, the nearest residence is around 6.7 km away. Using the same straight line approach, the distance from the end of Brisbane's new runway to the nearest residence is around 6 km.





HOW BRISBANE AIRPORT RUNWAYS WILL OPERATE

The safe and efficient movement of aircraft in and out of Brisbane Airport are fundamental objectives of airport and airspace operations. The operating modes for the airport runway system play an integral part in achieving these objectives. A number of factors influence the choice of runway for arriving and departing aircraft, with the principal factors being wind direction and wind speed. As a general rule, aircraft must take-off and land into wind. Other weather factors also play a role in determining runway choice, as well as the amount of air traffic in the vicinity of Brisbane Airport.

This section explains how Brisbane Airport’s runway system will operate (referred to as modes of operation) when the new runway is operational.

FACT: THE RUNWAY NUMBERING SYSTEM

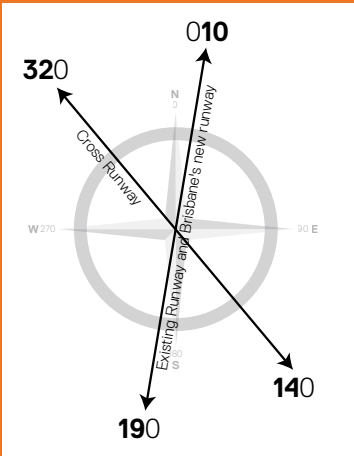
With the construction of Brisbane’s new runway well advanced, it is now time to start preparing pilots and the air traffic controllers for parallel operations at Brisbane Airport.

One of the first steps has been the renaming of the existing main runway. From November 2018, directional initials were added and the runway is now called Runway 01R/19L.

Why the rename? From the sky, Brisbane’s new runway is becoming increasingly obvious. To aid pilots and the air traffic controllers, the directional initials will ensure the continued safe operations at Brisbane Airport.

Why is the runway called Runway 01R/19L? The current runway is known as Runway 01 when used in a northerly direction (towards the bay) and Runway 19 when used in a southerly direction (towards the city). Runway numbering reflects the runways’ orientation and relates with the degrees on a compass. Runway 19 is 190 degrees. The ‘R’ means right and the ‘L’ means left – and this is a very simple way of telling the parallel runways apart.

The renaming of the current runway is to ensure that when the new runway is operational, there is no confusion around which of the parallel runways air traffic control and pilots are referring to when they communicate with each other. This change will not impact passengers.





Flight paths into and out of Brisbane, as well as the management of airspace around the airport, will change when Brisbane's new runway opens. Consequently, aircraft noise exposure around Brisbane will also change. (Refer to the Flight Path and Noise Charts in this document for information on aircraft movements and noise impacts.)

Brisbane's new runway provides the opportunity to use a number of new operating modes that will provide benefits to the community by increasing the number of aircraft movements that can occur over Moreton Bay, particularly at night.

The design of the airspace around Brisbane, including flight paths and modes of operation for Brisbane's new runway, were fully investigated and documented in 2006, at the time the Environmental Impact Statement and Major Development Plan (EIS/MDP) was prepared. This was then approved in 2007, after an extensive public consultation period.

FUTURE RUNWAY CONFIGURATION

Brisbane's new runway will be 3,300m long, 60m wide and located two kilometers west of the existing RWY 01/19. There is a provision to extend the runway length to 3,600m should that be necessary. Brisbane Airport's cross RWY 14/32 will permanently close in May 2020 ahead of Brisbane's new runway opening.

The runway designations for Brisbane's new runway are shown in Figures 3 and 4. In summary:

- » RWY 19L and 19R: arrivals from the north over the bay and departures to the south over the city
- » RWY 01L and 01R: arrivals from the south over the city and departures to the north over the bay.

FIGURE 3: BRISBANE'S NEW RUNWAY RUNWAY DESIGNATIONS

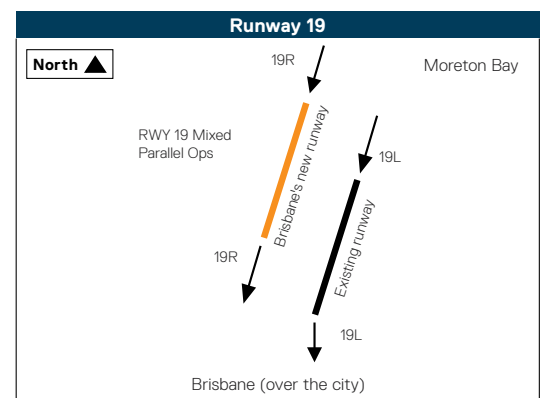
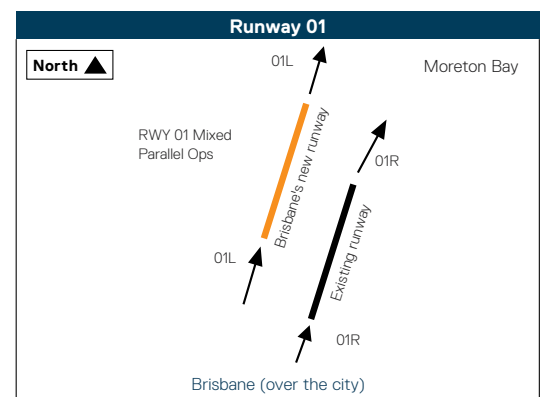


FIGURE 4: BRISBANE'S NEW RUNWAY RUNWAY DESIGNATIONS



MODES OF OPERATION FOR BRISBANE'S NEW RUNWAY

There are several possible modes of operation for Brisbane's new runway, with mode selection being influenced by:

- » Existing air routes to and from the airport
- » Optimisation of runway capacity
- » Preferred runway allocation rules and Noise Abatement Procedures (NAPs) in operation at the airport
- » Origin and destination of flights
- » Options under varying wind conditions
- » Simplicity of airspace design and flight paths to maximise safety and efficiency
- » Amalgamation of existing procedures with new procedural requirements for parallel operations
- » Options to minimise flights over residential areas.

About the Modes of Operation

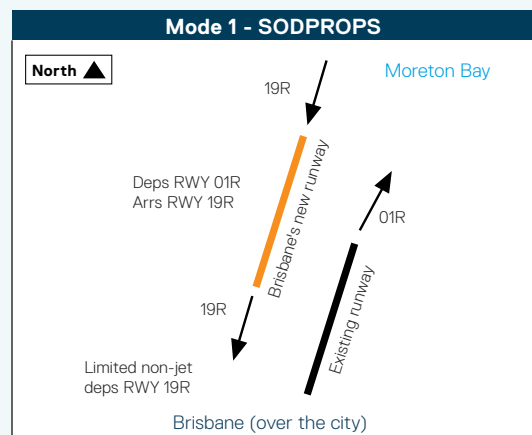
The six main modes of operation for Brisbane's new runway are:

MODE 1: SIMULTANEOUS OPPOSITE DIRECTION PARALLEL RUNWAY OPERATIONS (SODPROPS)

This is a low to medium capacity mode with operations over Moreton Bay and allowing some non-jet departures from RWY 19R (5am to 10pm).

This is BAC's preferred operating mode for noise mitigation when traffic volume and weather conditions permit.

The mode can only be used when there is no more than a five knot downwind and a dry runway, or no downwind and a wet runway. It will most often be used at night (10pm to 6am) when demand is reduced.

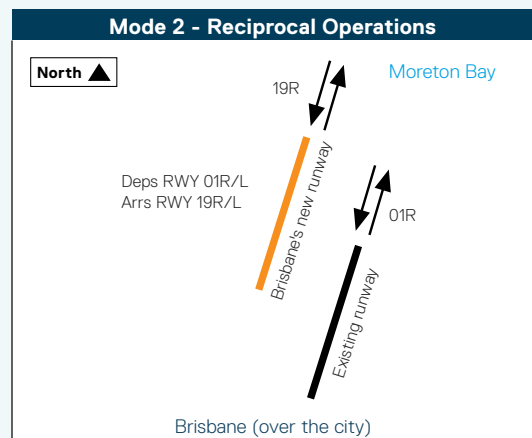


MODE 2: RECIPROCAL OPERATIONS

This is a low capacity night time mode (10pm to 6am) with all jets departing or landing over Moreton Bay.

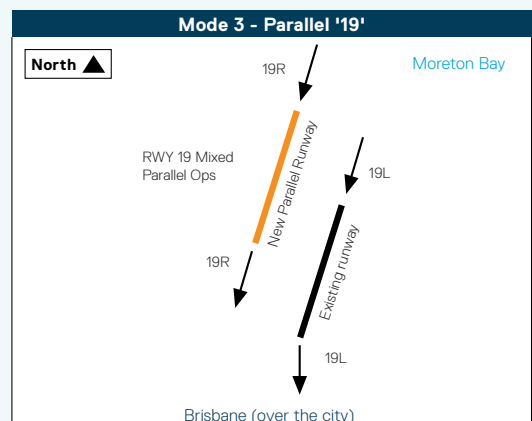
The mode can only be used at night with up to a five knot downwind and dry runway. This mode can be used when SODPROPS can't be used due to low cloud or when visibility is less than 8km.

While Airservices is not able to nominate a runway direction if tailwind was to exceed 5 knots, pilots can choose to operate to a downwind runway above 5 knots to achieve noise abatement outcomes and operational efficiencies such as reduced taxiing distances.



MODE 3: MIXED PARALLEL OPERATIONS ON RWYS 19L AND 19R

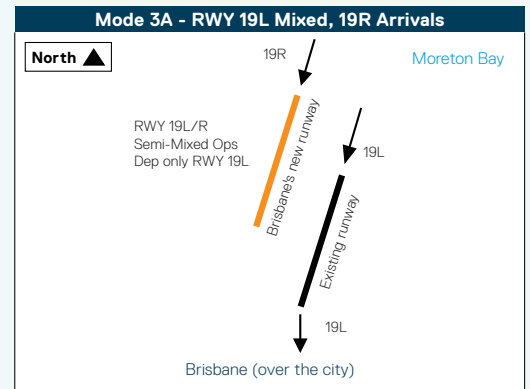
This is the most efficient mode for air traffic management for normal airport operations when weather conditions promote a southerly air traffic flow. Because arrival tracks are generally more concentrated than departure tracks, for noise abatement purposes arrivals over Moreton Bay are preferred if weather permits.



MODES OF OPERATION FOR BRISBANE'S NEW RUNWAY

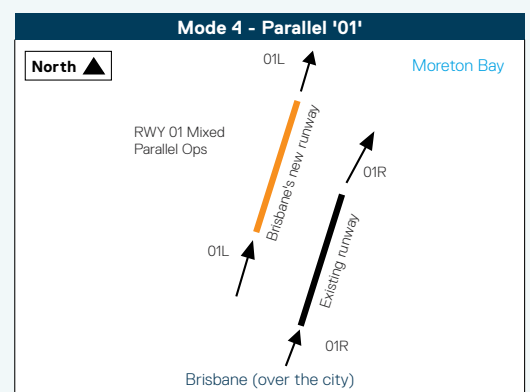
MODE 3A: RWY 19R ARRIVALS AND 19L MIXED MODE OPERATIONS (MORE ARRIVALS)

Mode 3A is a variation on Mode 3. It can be used in dry conditions with up to five knots downwind, and in wet weather with no downwind. This mode is an option that may be considered during non-peak and shoulder periods with high arrival rates. This mode offers operational efficiency through reduced taxiing times from aprons.



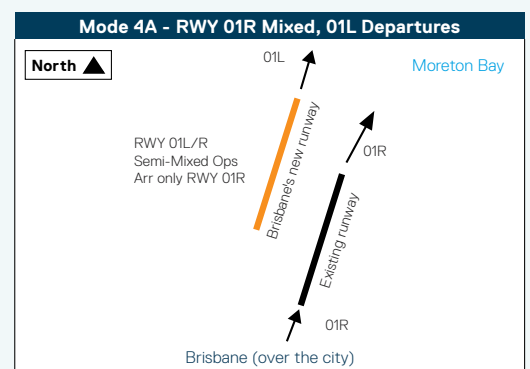
MODE 4: MIXED PARALLEL OPERATIONS ON RWYs 01L AND 01R

Mode 4 is the primary mode of operation for arrivals and departures on RWY 01L and 01R. It is the most efficient mode for air traffic management for normal airport operations when weather conditions promote a northerly air traffic flow.



MODE 4A: RWY 01L DEPARTURES AND 01R MIXED MODE OPERATIONS (MORE DEPARTURES)

Mode 4A is a variation on Mode 4. It can be used in dry conditions with up to five knots downwind, and in wet weather with no downwind. This mode is an option that may be considered during non-peak and shoulder periods with high departure rates. This mode offers operational efficiency through reduced taxiing times from aprons.



Once the new runway opens in 2020, Brisbane Airport will move to parallel runway operations. Generally, aircraft departing to or arriving from the west or the north will land and depart on the new runway, whilst aircraft departing to or arriving from the south or east will land and depart on the current runway.

THE PARALLEL RUNWAY OPERATING PLAN

BAC has prepared an operating plan (refer Table 2) to be implemented when Brisbane's new runway is open. It outlines the preferred modes of operation for weekdays and weekends to optimise noise abatement where possible.

During the day the decision to change modes will be 'passive'. This means that a mode change will only be implemented if the current mode becomes unavailable, or will clearly become unavailable in a short time, generally driven by weather changes.

For instance, if Mode 3 is being used and the wind changes allowing Mode 1 to be available and Mode 3 is still suitable no change to the operation be made.

In the evening and early mornings on weekends mode changes will be made on an 'active' basis. For instance, if Mode 3 or 4 is being used and conditions change that mean Mode 1 becomes available, then a change to Mode 1 is required as soon as possible.

At night, a change to Mode 1 must be implemented on an 'active' basis if weather conditions permit.



TABLE 2: PARALLEL RUNWAY OPERATING PLAN

WEEKDAY OPERATIONS – MONDAY TO FRIDAY¹

Time	Number of Available Modes	Preferred Sequence of Application
Day Mode (6am to 8pm)	3	Mode 1: SODPROPS (Visual conditions and downwind up to 5kts) – 'passive' i.e. at Airservices Australia's discretion to be used if air traffic is low for an extended period Mode 3: RWY 19 Mixed Parallel Mode 4: RWY 01 Mixed Parallel
Evening Mode (8pm to 10pm)	3	Mode 1: SODPROPS (Visual conditions and downwind up to 5kts) – 'active' to be used if available Mode 3: RWY 19 Mixed Parallel Mode 4: RWY 01 Mixed Parallel
Night Mode (10pm to 6am)	6	Mode 1: SODPROPS (Visual conditions and downwind up to 5kts) – 'active' to be used if available Mode 2: Reciprocal Operations (downwind up to 5kts, lower cloud base and/or visibility) – 'active' to be used if available Mode 3A: RWY 19 Semi-mixed Parallel – departures RWY 19L only Mode 4A: RWY 01 Semi-mixed Parallel – arrivals RWY 01R only Mode 3: RWY 19 Mixed Parallels Mode 4: RWY 01 Mixed Parallels

WEEKEND OPERATIONS – SATURDAY AND SUNDAY¹

Time	Number of Available Modes	Preferred Sequence of Application
Day Mode (8am to 8pm)	3	Mode 1: SODPROPS (Visual conditions and downwind up to 5kts) – 'passive' i.e. at Airservices Australia's discretion to be used if air traffic is low for an extended period Mode 3: RWY 19 Mixed Parallel Mode 4: RWY 01 Mixed Parallel
Evening Mode (8pm to 10pm)	3	Mode 1: SODPROPS (Visual conditions and downwind up to 5kts) – 'active' to be used if available Mode 3: RWY 19 Mixed Parallel Mode 4: RWY 01 Mixed Parallels
Night Mode (10pm to 6am)	6	Mode 1: SODPROPS (Visual conditions and downwind up to 5kts) – 'active' to be used if available Mode 2: Reciprocal operations (downwind up to 5kts, lower cloud base and/or visibility) – 'active' to be used if available Mode 3A: RWY 19 Semi-mixed Parallel – departures RWY 19L only Mode 4A: RWY 01 Semi-mixed Parallel – arrivals RWY 01R only Mode 3: RWY 19 Mixed Parallels Mode 4: RWY 01 Mixed Parallels
Early Morning (6am – 8am)	3	Mode 1: SODPROPS (Visual conditions and downwind up to 5kts) – 'active' to be used if available Mode 3: RWY 19 Mixed Parallel Mode 4: RWY 01 Mixed Parallel

¹ Mode allocation is both weather and demand dependent and Modes 1 and 2 will be actively allocated within agreed demand rates and downwind criteria.



ABOUT FLIGHT PATHS

DEFINING FLIGHT PATHS

Flight paths are highways in the sky. They define three-dimensional routes that aircraft use to arrive at or depart from an airport.

Flight paths are developed in accordance with standards established by organisations including ICAO and CASA and are carefully designed to ensure the safe and efficient operation of aircraft.

Flight paths are the means through which air traffic is controlled and are based on Standard Arrival Routes, known as STARs, and Standard Instrument Departures, known as SIDs. Together, STARs and SIDs form the basis for the flight paths that are used by pilots and airlines operating in controlled airspace.

These flight paths are used by pilots to move into and out of Brisbane Airport, under the direction of Airservices Australia Air Traffic Controllers.

By using a number of navigational tools that are established for each flight path, pilots can fly safely and confidently into and out of Brisbane Airport in adverse weather conditions, even if they have never flown to Brisbane before.

Flight paths are integral to the noise modelling process.

Flight paths at Brisbane Airport will change upon opening of Brisbane's new runway in mid-2020.

Information about how flight paths are approved for use is contained on pages 69 and 70 of this booklet. Because flight paths differ for arrivals and departures and for various aircraft types, the flight paths shown over the following pages include:

- » Arrival Flight Paths 2020 before Brisbane's new runway opens
- » Departure Flight Paths 2020 before Brisbane's new runway opens
- » Arrival Flight Paths in 2035 with Brisbane's new runway in operation
- » Departure Flight Paths in 2035 with Brisbane's new runway in operation

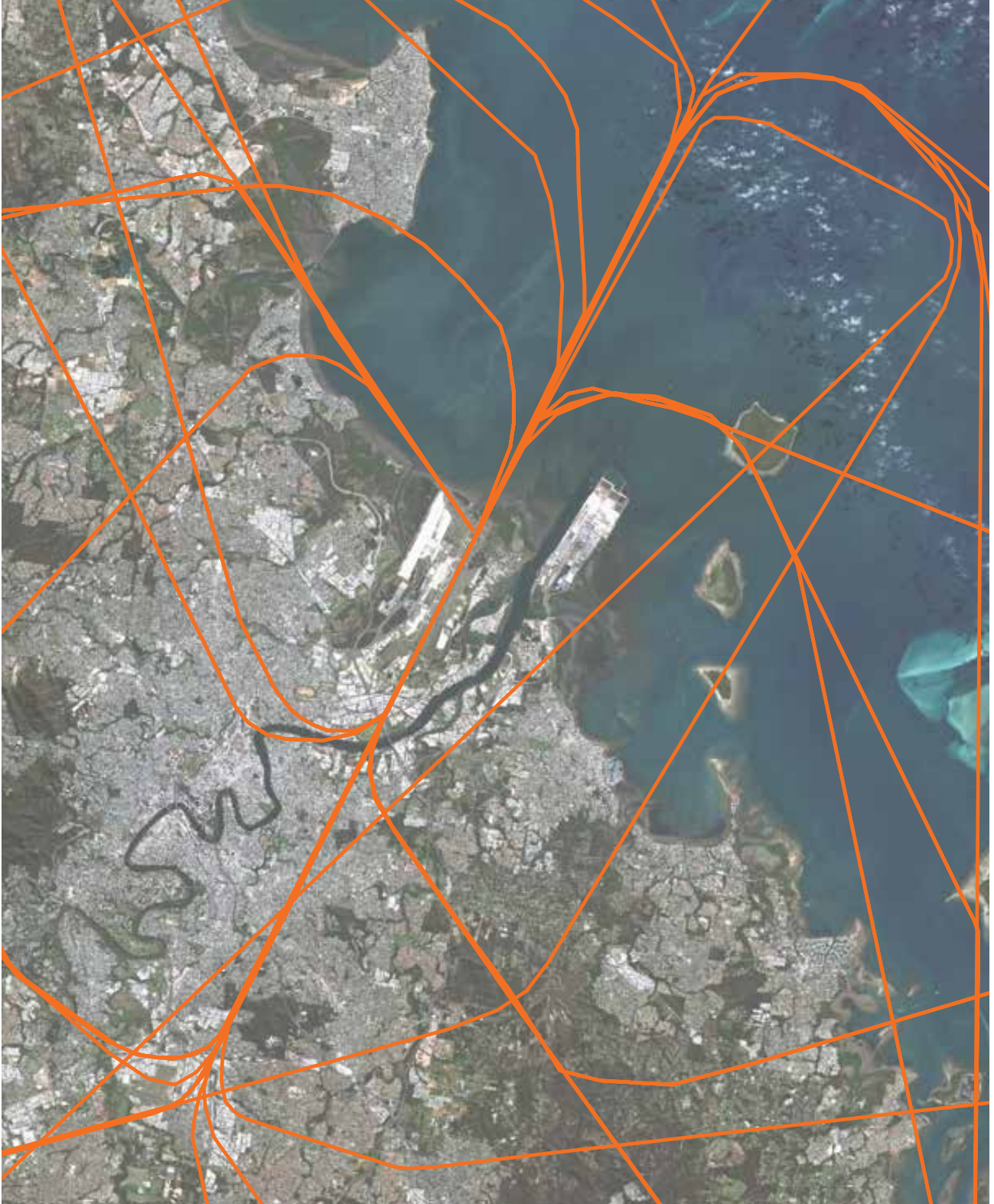
ABOUT FLIGHT PATHS

Flight paths can be depicted as single lines on a map, however, it is not always possible for aircraft to track precisely along the single line depicted. This is why flight paths are depicted as 'swathes'.

In practice, flight paths can vary up to several kilometres or more. This occurs for a range of reasons such as weather conditions, requirements for aircraft separation or variations in aircraft performance.

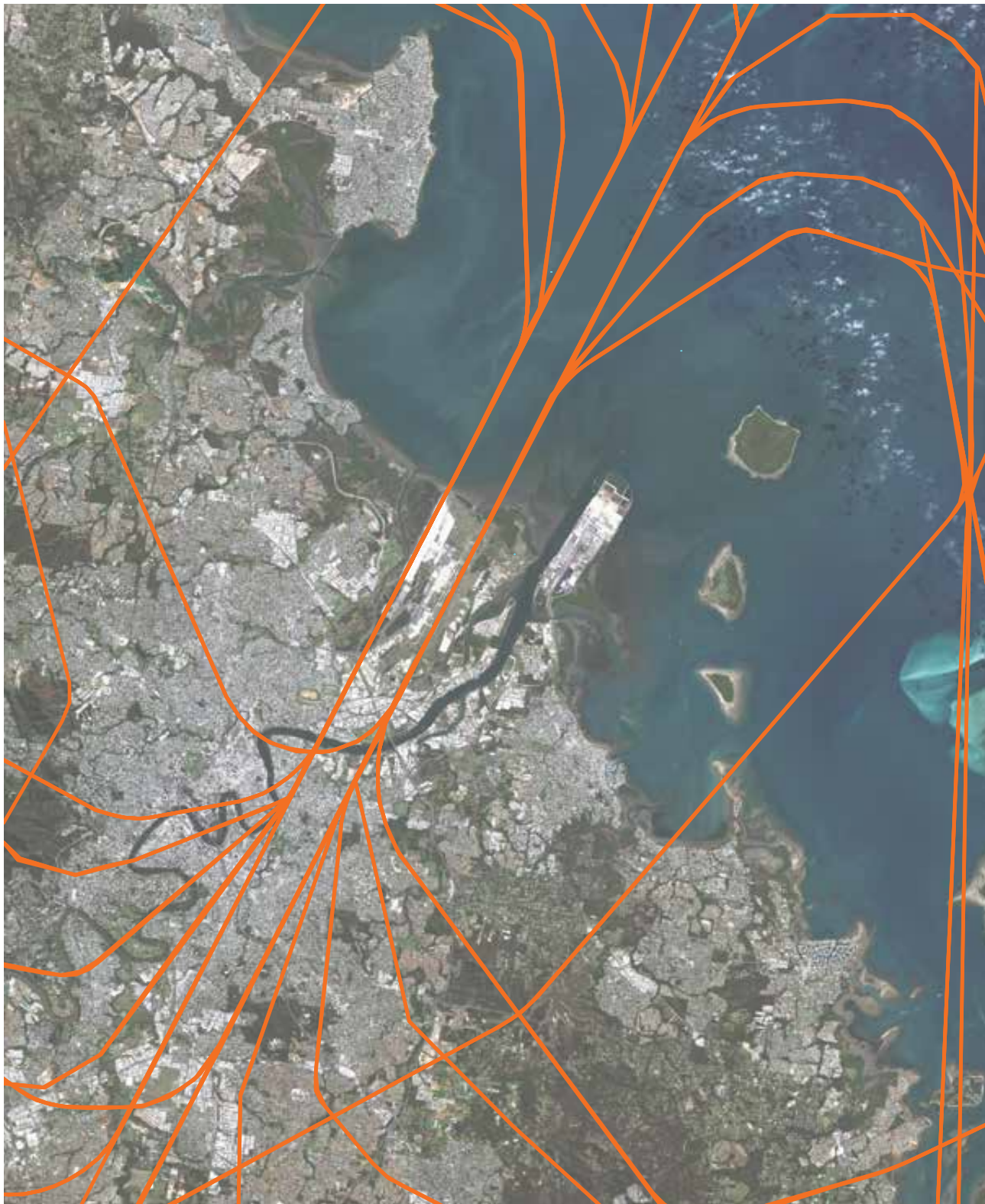
The flight paths shown are depicted as a band or swathe and are based on a nominal spread around a centreline path. The modelling used in developing the noise metrics assumes the majority of aircraft will be on the centreline path with a decreasing proportion of aircraft flying on the outer edge of the band or swathe.

ARRIVAL CENTRE LINE TRACKS 2020 BEFORE BNR OPENS (INCLUDING TURBO-PROPS)



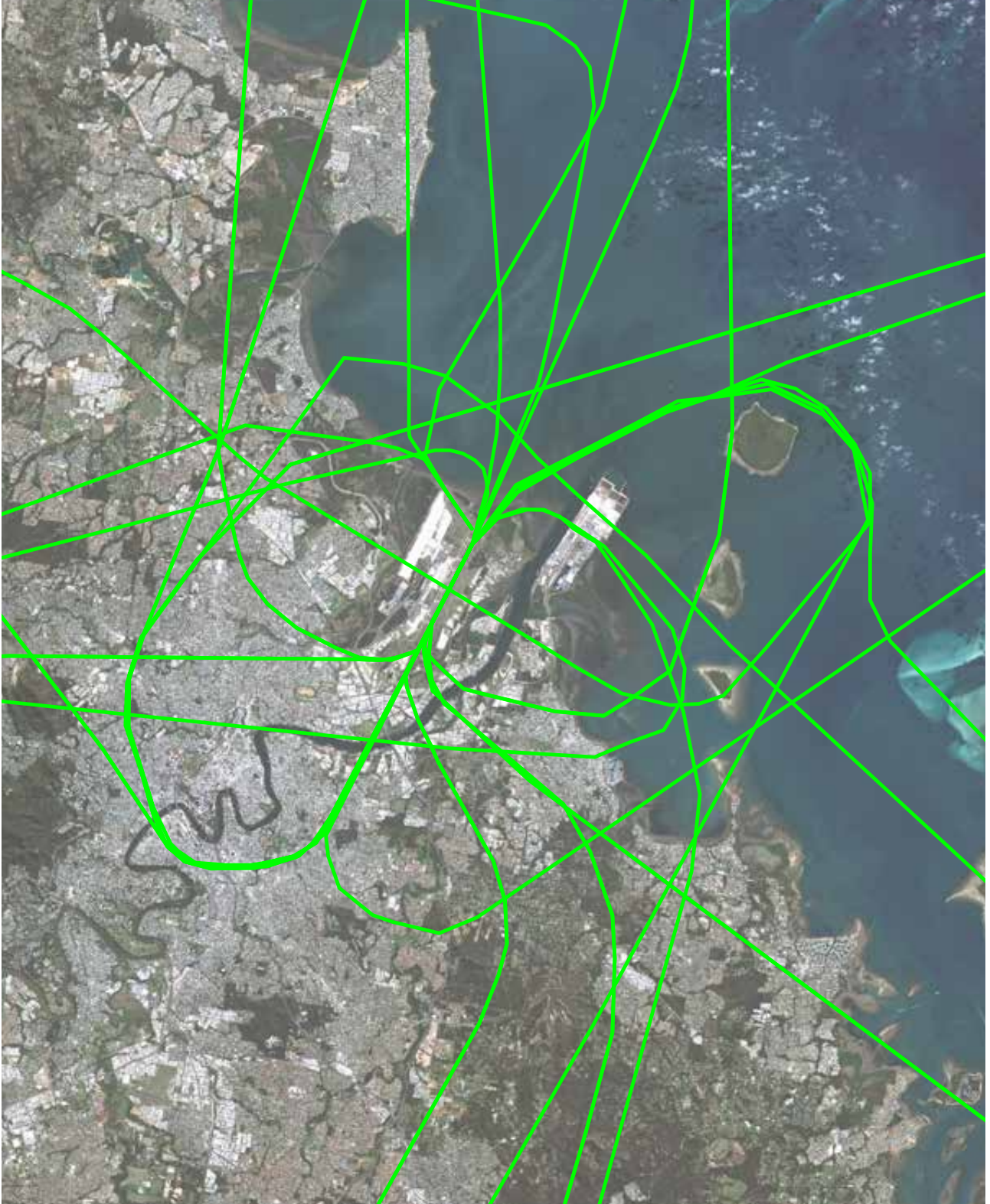
PLACE THE CLEAR OVERLAY PROVIDED AT THE FRONT OF THIS BOOK OVER THIS CHART TO SEE THE RELATIONSHIP BETWEEN THE FLIGHT PATHS AND BRISBANE SUBURBS.

ARRIVAL CENTRE LINE TRACKS 2020 AND 2035 WITH BNR OPEN (INCLUDING TURBO-PROPS)

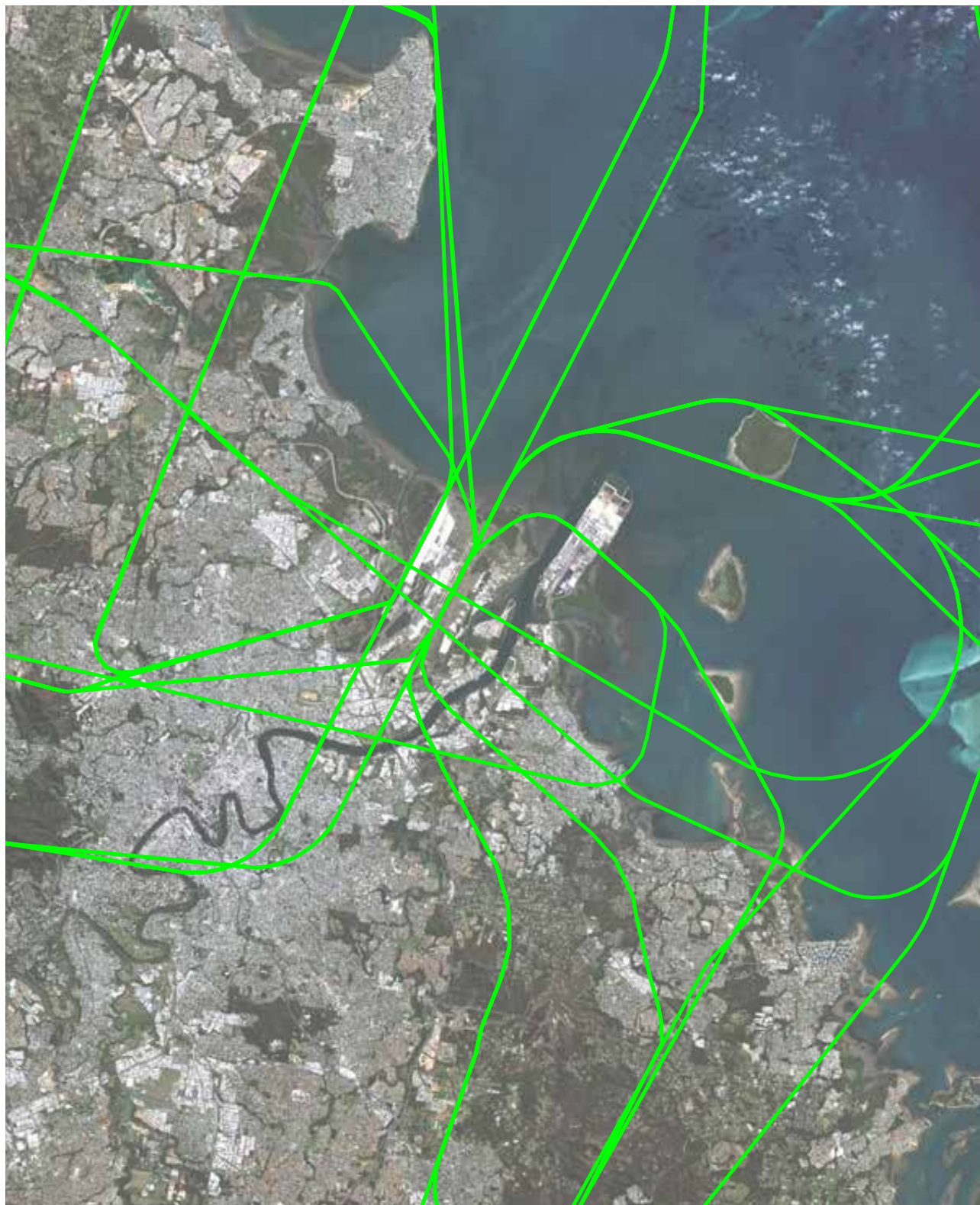


PLACE THE CLEAR OVERLAY PROVIDED AT THE FRONT OF THIS BOOK OVER THIS CHART TO SEE THE RELATIONSHIP BETWEEN THE FLIGHT PATHS AND BRISBANE SUBURBS.

DEPARTURE CENTRE LINE TRACKS 2020 BEFORE BNR OPENS (INCLUDING TURBO-PROPS)



PLACE THE CLEAR OVERLAY PROVIDED AT THE FRONT OF THIS BOOK OVER THIS CHART TO SEE THE RELATIONSHIP BETWEEN THE FLIGHT PATHS AND BRISBANE SUBURBS.



PLACE THE CLEAR OVERLAY PROVIDED AT THE FRONT OF THIS BOOK OVER THIS CHART TO SEE THE RELATIONSHIP BETWEEN THE FLIGHT PATHS AND BRISBANE SUBURBS.

BUILDING THE FLIGHT PATH AND NOISE CHARTS SHOWN IN THIS BOOKLET

In the next section of this booklet BAC has provided a number of Flight Path and Noise Charts for the years:

- » 2020 (prior to Brisbane's new runway opening)
- » 2020 (on opening of Brisbane's new runway)
- » 2035

In addition to showing flight paths, the Flight Path and Noise Charts include useful information about how the flight paths will be used by aircraft, as well as the likely noise effects, shown through the use of contour lines overlaid on each map.

While all information is overlaid on a map of Brisbane, the perforated clear page showing the boundaries of Brisbane suburbs can be removed from the front of this booklet and held over each Flight Path and Noise Chart so you can clearly see where a suburb is located in relation to the flight paths.

In this section we explain how flight paths are developed, the primary flight tracks used and how this information has been used to develop the flight paths shown in this booklet.

We also provide a guide to understanding the information and range of the Flight Path and Noise Charts.

ABOUT PRIMARY FLIGHT TRACKS

While primary flight tracks can be depicted as single lines on a map (refer Example 1 below), they allow for variance, because it is not always possible for aircraft to follow a track precisely along the single line of a flight path.

In practice, individual flight tracks can vary from the primary flight track by up to several kilometres or more (refer Example 2 below). This occurs for a range of reasons such as weather conditions, requirements for aircraft separation, variations in aircraft performance, or through the use of approved visual approaches, typically used when weather conditions are clear.

ABOUT THE SWATHE-STYLE FLIGHT PATHS IN THIS BOOKLET

Therefore, to better illustrate the potential area within which aircraft may fly into and out of Brisbane, information

on the primary flight tracks is usually combined with the information on flight tracks flown, to create the swathe-style of flight paths shown in this booklet (refer Example 3 below).

It should be noted that in many cases aircraft will fly close to the centre line of these swathes and this concentration of aircraft positioning closely to the centreline track will increase in coming years as technologies such as Required Navigation Performance (RNP) are adopted across the industry.

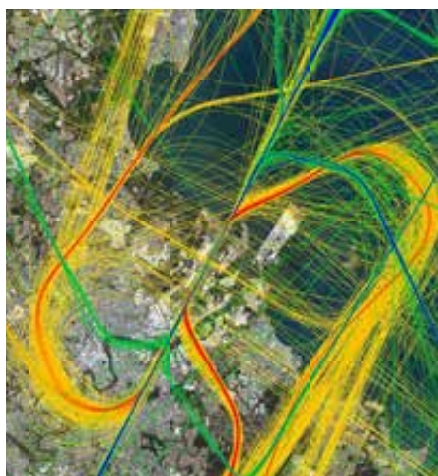
The images below illustrate how the flight paths have been developed for this booklet, incorporating:

- » Primary flight paths for the primary jet aircraft arrivals and departures into Brisbane
- » The actual spread of jet aircraft arrival and departure flight paths sourced from Airservices Australia
- » The integration of primary flight paths and actual flight paths to form the swathe-style flight path drawings shown in this booklet.

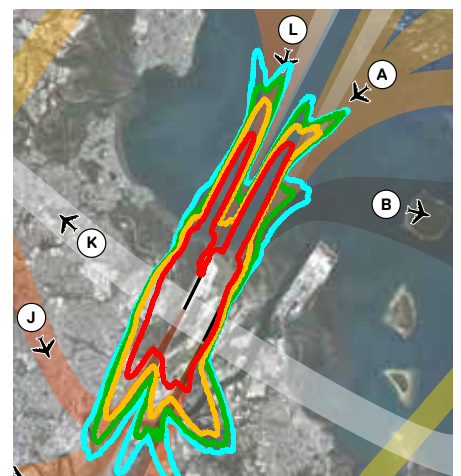
EXAMPLE 1: CENTRE LINE FLIGHT TRACKS



EXAMPLE 2: ACTUAL FLIGHT TRACKS FLOWN



EXAMPLE 3: SWATHE-STYLE FLIGHT PATH IMAGES USED IN THIS BOOK



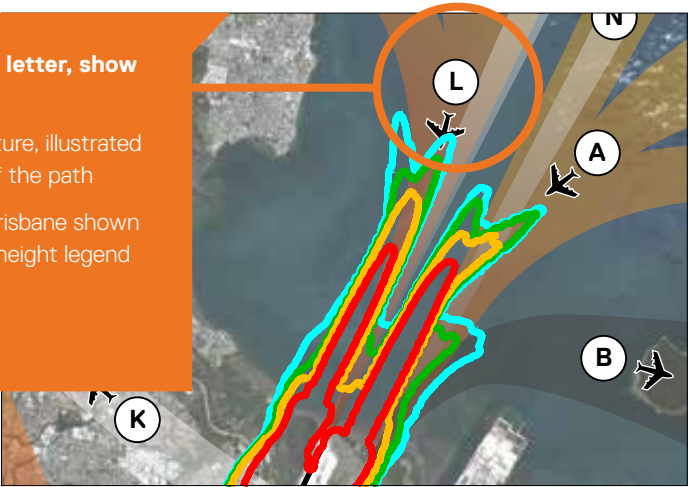
UNDERSTANDING THE FLIGHT PATH AND NOISE CHARTS

1

Flight paths – appearing as coloured swathes overlaid on a map of Brisbane

The flight paths in this booklet, each denoted by a capital letter, show three important pieces of information:

- » Whether aircraft are using the flight path for arrival or departure, illustrated by the direction of the aircraft icon and the colour scheme of the path
- » The approximate height of aircraft as they arrive or depart Brisbane shown through a colour gradient that can be interpreted by using a height legend on the chart
- » The potential width of the flight path.

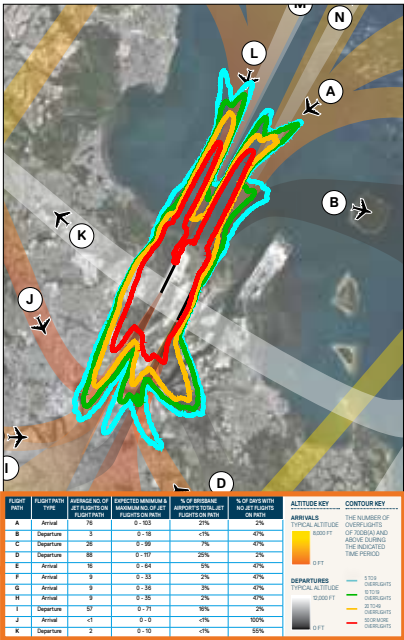


2

Data tables – appearing at the bottom of each Flight Path and Noise Chart

At the bottom of each Flight Path and Noise Chart you will find specific details about how the flight paths will be used by aircraft, including:

- » The average number of times per day that an aircraft is likely to use the flight path
- » The expected minimum and maximum number of flights that are likely to use the flight path
- » The percentage of all jet aircraft flights that this path is likely to carry during the period of time being reported on
- » The number of days within the period of time being reported when the flight path is likely to experience no flights.



3

N70 noise contours – appearing as contour lines overlaid on the flight paths

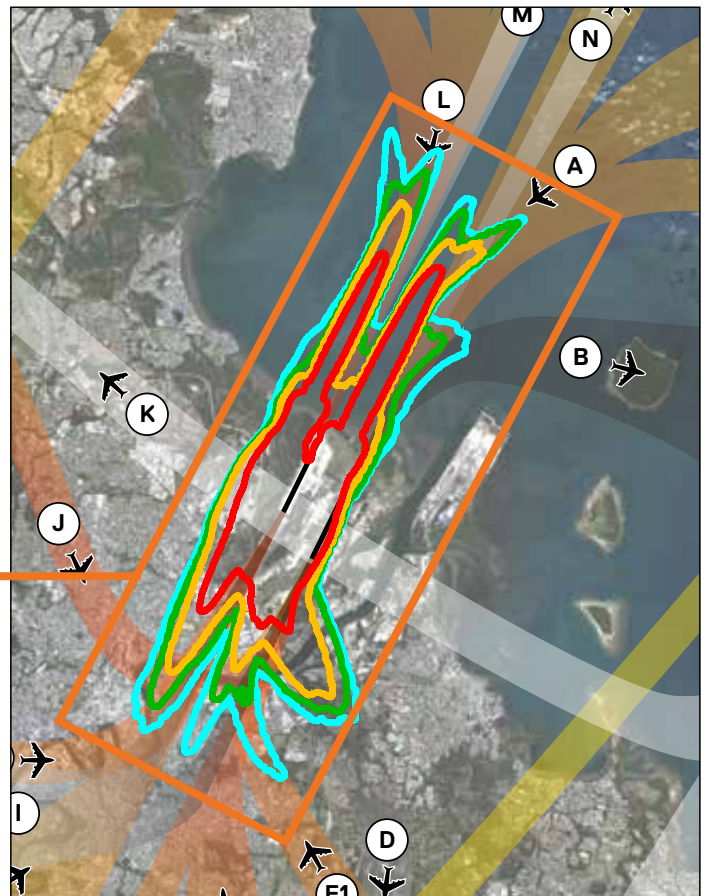
The N70 contour lines will show you:

- » Where overflights generating noise of 70 decibels or more are likely to occur
- » The predicted number of such overflights that are likely to occur
- » The time period (day, evening or night) when these overflights are likely to occur.

The colour of the contour line relates directly to the number of flights generating noise of 70 decibels or more that are likely to occur within its boundaries. As you get closer to Brisbane Airport, more events of 70 decibels or greater are experienced.

An aircraft noise event of 70 decibels or above is one that may disturb conversation, television viewing or using the telephone inside a house with open windows.

They describe the number of noise events (N) exceeding an outdoor maximum noise level of 70 decibels. The 70 decibel outdoor level was chosen because it corresponds to the Australian standard for the onset of indoor speech interference of 60 decibels. 10 decibels is allowed for the insulation that a typical house would provide (with open windows), therefore 70 decibels is used to represent the impact.

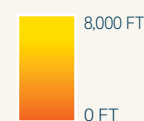




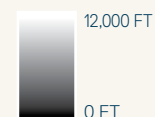
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	76	0 - 103	21%	2%
B	Departure	3	0 - 18	<1%	47%
C	Departure	26	0 - 99	7%	47%
D	Departure	88	0 - 117	25%	2%
E	Arrival	16	0 - 64	5%	47%
F	Arrival	9	0 - 33	2%	47%
G	Arrival	9	0 - 36	3%	47%
H	Arrival	9	0 - 35	2%	47%
I	Departure	57	0 - 71	16%	2%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	2	0 - 10	<1%	55%
L	Arrival	48	0 - 63	13%	2%
M	Departure	12	0 - 60	3%	47%
N	Departure	<1	0 - 1	<1%	78%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



DEPARTURES TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



ABOUT THE RANGE OF FLIGHT PATH AND NOISE CHARTS

Flight paths and associated noise impacts vary according to the season, the day of the week and the time of day. Therefore this booklet provides Flight Path and Noise Charts for ‘typical busy days’ for the following scenarios.

Summer (October – March)	Weekday (Monday to Friday)	Day (6am to 6pm)
		Evening (6pm to 10pm)
		Night (10pm to 6am)
	Weekend (Saturday to Sunday)	Day (6am to 6pm)
		Evening (6pm to 10pm)
		Night (10pm to 6am)
Winter (April – September)	Weekday (Monday to Friday)	Day (6am to 6pm)
		Evening (6pm to 10pm)
		Night (10pm to 6am)
	Weekend (Saturday to Sunday)	Day (6am to 6pm)
		Evening (6pm to 10pm)
		Night (10pm to 6am)

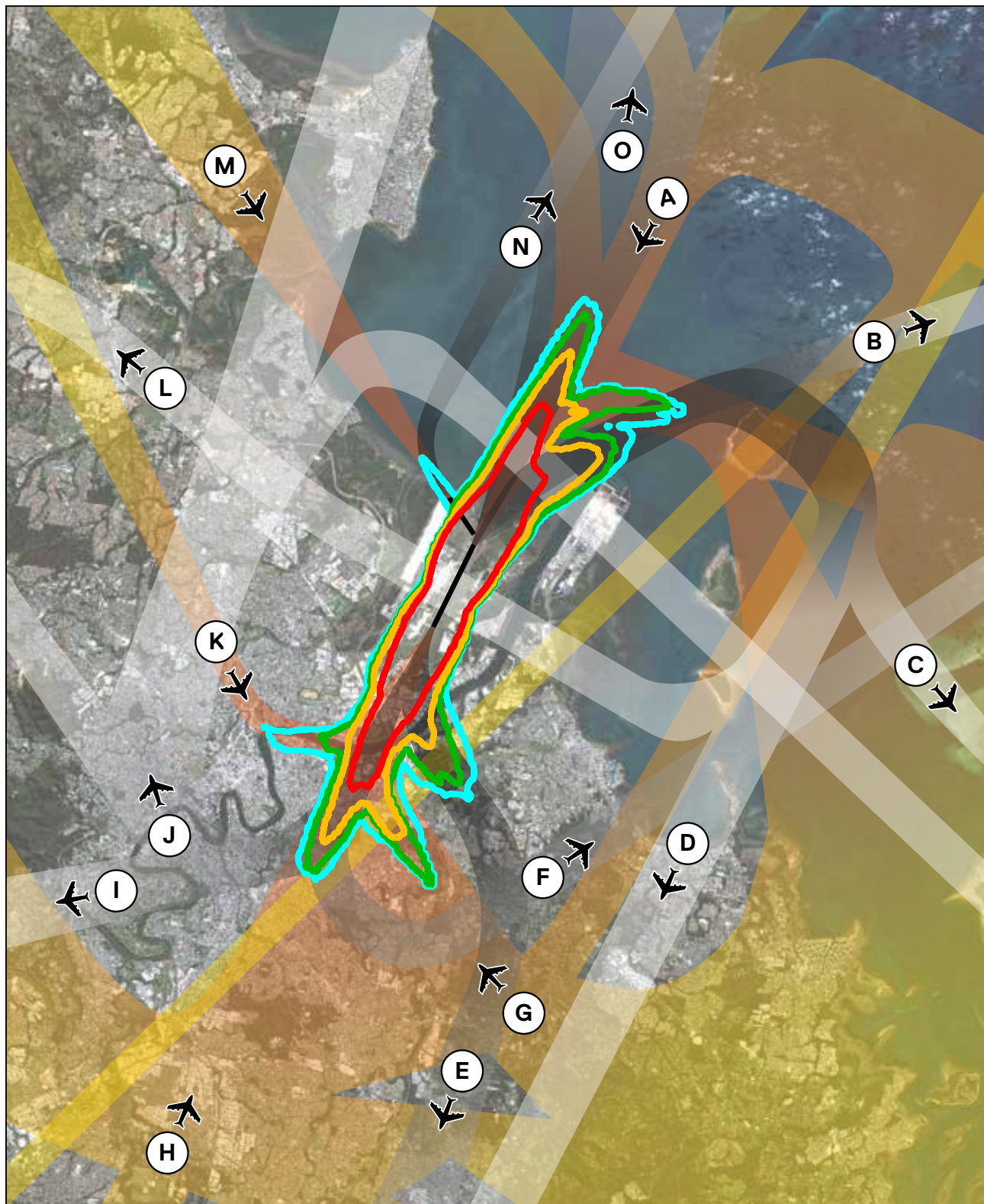
In total, there are 36 different Flight Path and Noise Charts in this booklet.

FLIGHT PATH AND NOISE CHARTS

» 2020 – Before Brisbane's new runway opens	24 – 35
» 2020 – On opening of Brisbane's new runway	36 – 47
» 2035 – Operations with parallel runways	48 – 59



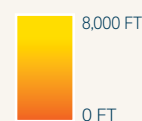




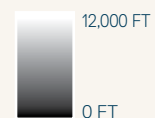
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	71	0 - 177	19%	40%
B	Departure	4	0 - 7	<1%	25%
C	Departure	6	0 - 11	2%	23%
D	Departure	60	0 - 101	16%	22%
E	Departure	40	0 - 100	11%	40%
F	Departure	<1	0 - 1	<1%	58%
G	Arrival	47	0 - 79	13%	22%
H	Arrival	42	0 - 72	11%	22%
I	Departure	10	0 - 23	3%	40%
J	Departure	28	0 - 67	8%	40%
K	Arrival	16	0 - 27	4%	24%
L	Departure	6	0 - 12	2%	23%
M	Arrival	1	0 - 25	<1%	90%
N	Departure	<1	0 - 19	<1%	84%
O	Departure	34	0 - 60	9%	22%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



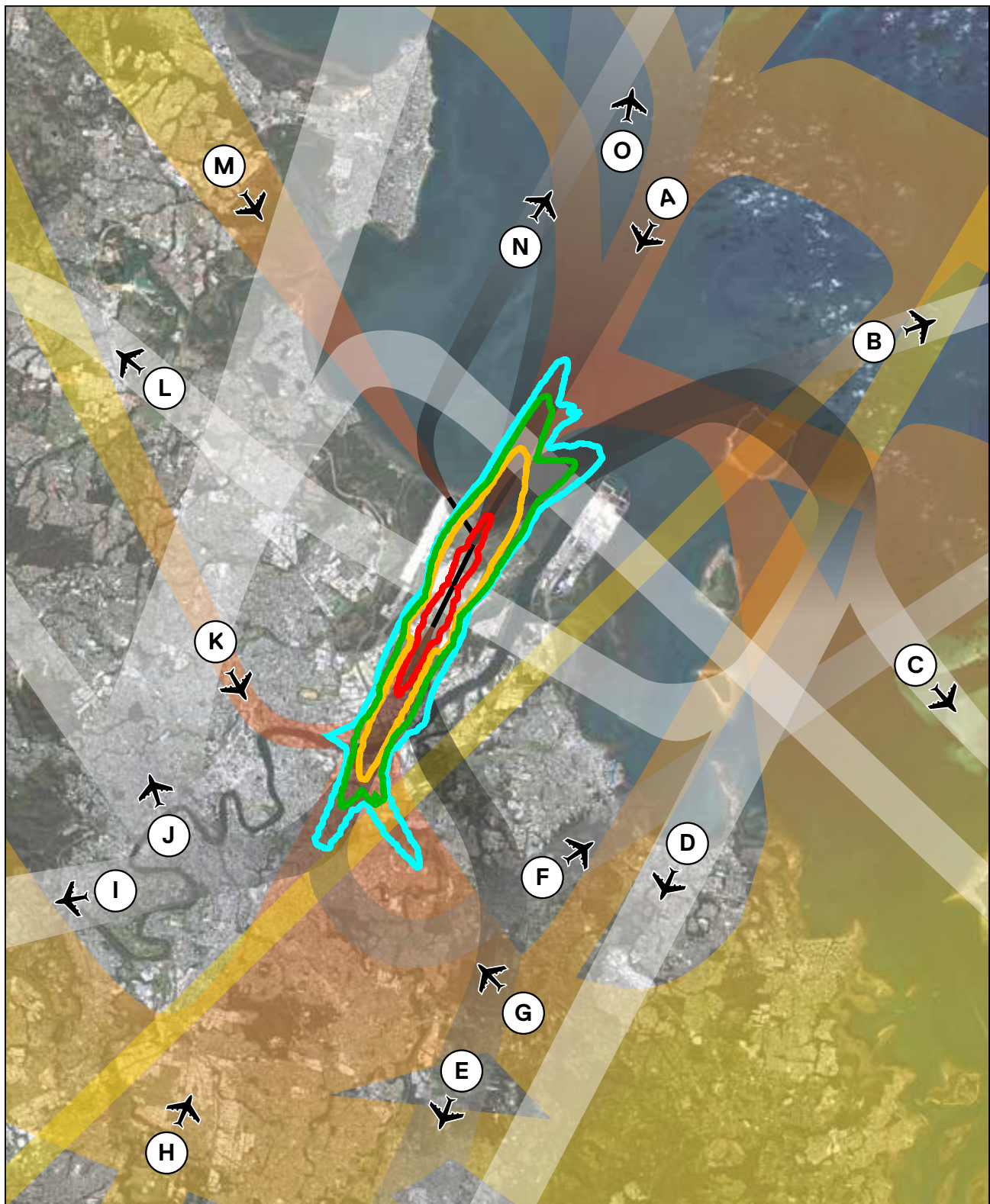
DEPARTURES TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



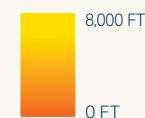


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	16	0 - 52	17%	66%
B	Departure	<1	0 - 1	<1%	31%
C	Departure	1	0 - 2	1%	29%
D	Departure	19	0 - 27	20%	28%
E	Departure	8	0 - 27	9%	66%
F	Departure	<1	0 - 0	<1%	100%
G	Arrival	17	0 - 24	17%	28%
H	Arrival	13	0 - 20	14%	28%
I	Departure	1	0 - 5	2%	66%
J	Departure	4	0 - 12	4%	66%
K	Arrival	5	0 - 9	6%	28%
L	Departure	1	0 - 2	1%	29%
M	Arrival	<1	0 - 7	<1%	92%
N	Departure	<1	0 - 1	<1%	98%
O	Departure	8	0 - 12	8%	28%

ALTITUDE KEY

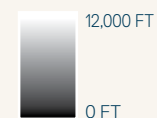
ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

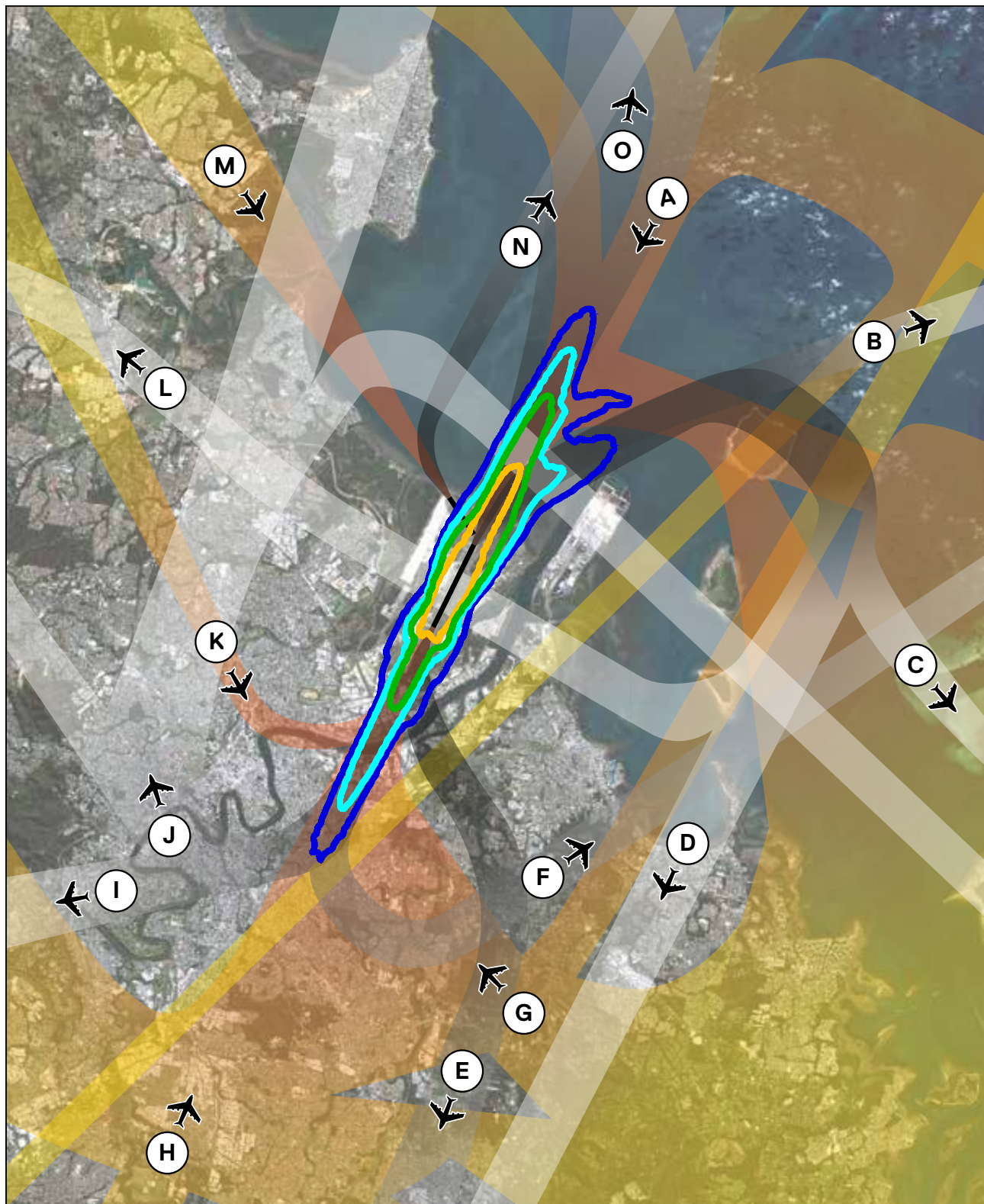
TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD

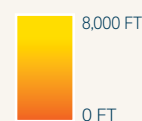




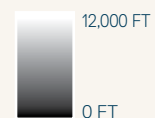
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	10	0 - 20	27%	9%
B	Departure	<1	0 - 1	2%	22%
C	Departure	<1	0 - 0	<1%	100%
D	Departure	5	0 - 8	14%	9%
E	Departure	3	0 - 8	8%	47%
F	Departure	<1	0 - 1	<1%	78%
G	Arrival	3	0 - 7	9%	16%
H	Arrival	6	0 - 13	16%	11%
I	Departure	2	0 - 6	5%	45%
J	Departure	<1	0 - 4	2%	50%
K	Arrival	<1	0 - 2	2%	12%
L	Departure	2	0 - 3	5%	9%
M	Arrival	<1	0 - 0	<1%	100%
N	Departure	<1	0 - 0	<1%	100%
O	Departure	4	0 - 6	10%	7%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



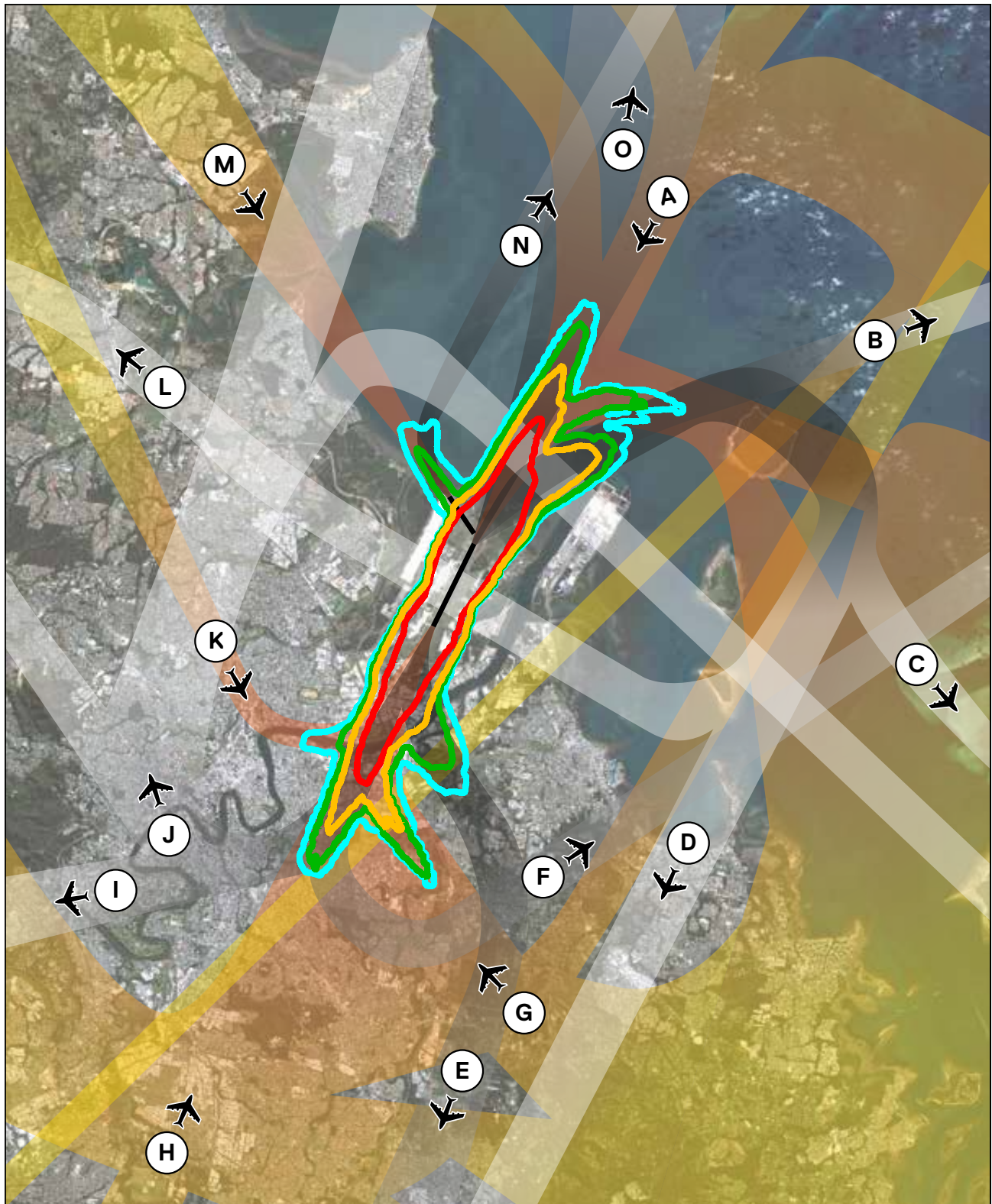
DEPARTURES TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



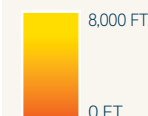


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	54	0 - 144	18%	40%
B	Departure	2	0 - 4	<1%	38%
C	Departure	7	0 - 12	2%	25%
D	Departure	54	0 - 87	17%	22%
E	Departure	33	0 - 86	11%	40%
F	Departure	<1	0 - 1	<1%	61%
G	Arrival	42	0 - 67	14%	22%
H	Arrival	34	0 - 59	11%	22%
I	Departure	8	0 - 20	3%	42%
J	Departure	24	0 - 59	8%	40%
K	Arrival	11	0 - 19	3%	24%
L	Departure	5	0 - 10	2%	25%
M	Arrival	3	0 - 30	<1%	83%
N	Departure	5	0 - 41	2%	80%
O	Departure	27	0 - 52	9%	22%

ALTITUDE KEY

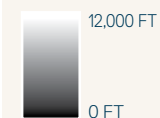
ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

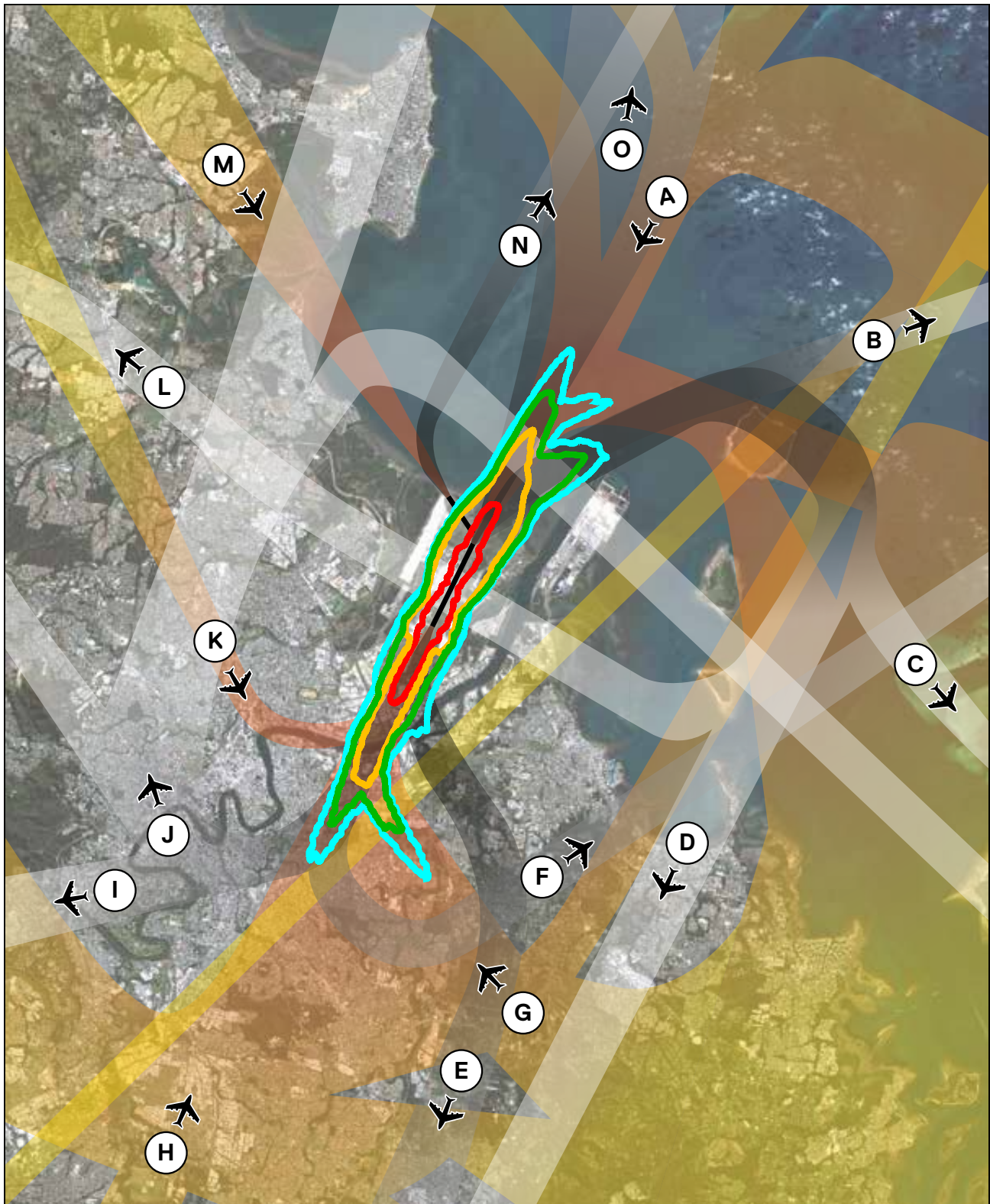
TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD





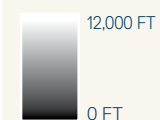
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	20	0 - 65	18%	66%
B	Departure	<1	0 - 2	<1%	31%
C	Departure	3	0 - 4	3%	29%
D	Departure	20	0 - 29	18%	28%
E	Departure	9	0 - 29	8%	66%
F	Departure	<1	0 - 0	<1%	100%
G	Arrival	22	0 - 33	20%	28%
H	Arrival	17	0 - 26	15%	28%
I	Departure	1	0 - 4	<1%	68%
J	Departure	4	0 - 14	4%	68%
K	Arrival	5	0 - 8	4%	28%
L	Departure	<1	0 - 2	<1%	29%
M	Arrival	<1	0 - 6	<1%	86%
N	Departure	<1	0 - 3	<1%	84%
O	Departure	7	0 - 11	6%	29%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



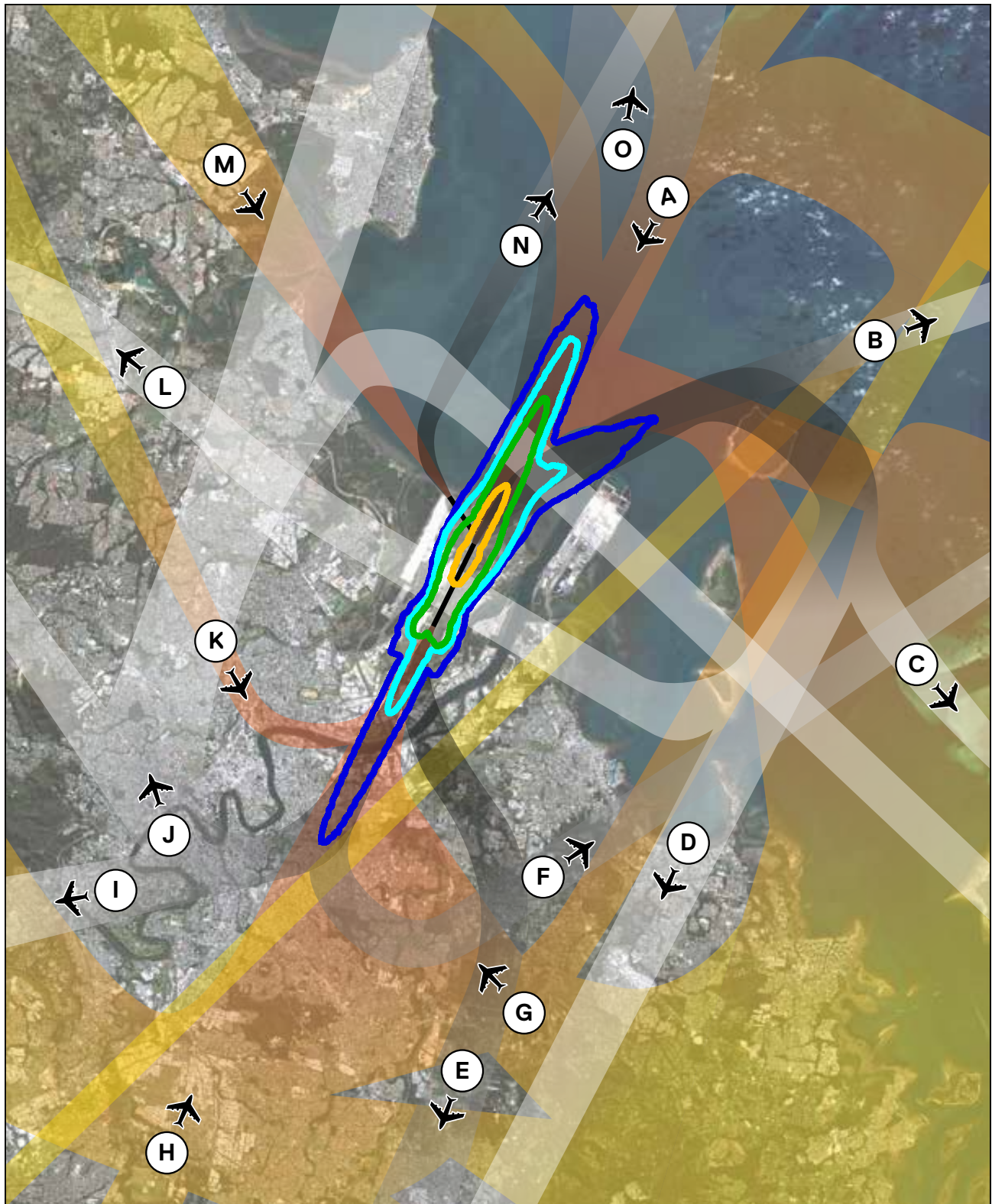
DEPARTURES TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD





FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	7	0 - 14	28%	8%
B	Departure	2	0 - 3	8%	10%
C	Departure	<1	0 - 0	<1%	100%
D	Departure	2	0 - 3	8%	11%
E	Departure	<1	0 - 3	3%	48%
F	Departure	<1	0 - 1	<1%	81%
G	Arrival	1	0 - 2	5%	19%
H	Arrival	4	0 - 10	14%	14%
I	Departure	1	0 - 6	5%	59%
J	Departure	<1	0 - 5	3%	62%
K	Arrival	1	0 - 4	5%	14%
L	Departure	2	0 - 3	6%	9%
M	Arrival	<1	0 - 0	<1%	100%
N	Departure	<1	0 - 0	<1%	100%
O	Departure	4	0 - 6	15%	8%

ALTITUDE KEY

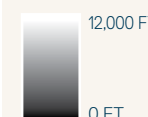
ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

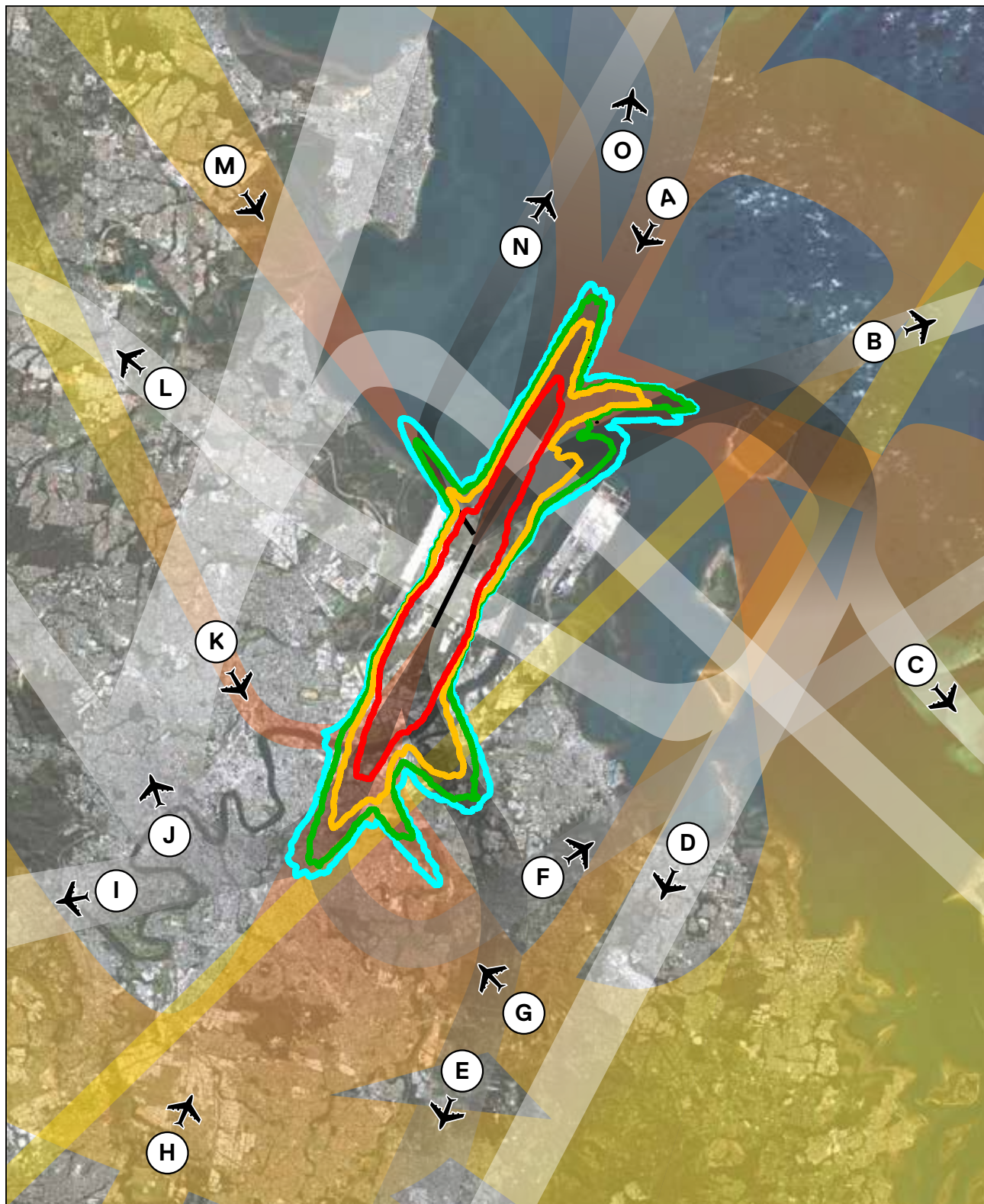
TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD

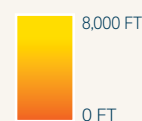




FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	113	0 - 166	32%	10%
B	Departure	1	0 - 7	<1%	68%
C	Departure	3	0 - 11	<1%	40%
D	Departure	33	0 - 99	9%	40%
E	Departure	65	0 - 98	19%	10%
F	Departure	<1	0 - 1	<1%	17%
G	Arrival	23	0 - 72	7%	40%
H	Arrival	20	0 - 69	6%	40%
I	Departure	17	0 - 22	5%	10%
J	Departure	49	0 - 68	14%	10%
K	Arrival	7	0 - 26	2%	42%
L	Departure	2	0 - 11	<1%	44%
M	Arrival	3	0 - 20	<1%	78%
N	Departure	3	0 - 36	<1%	80%
O	Departure	14	0 - 61	4%	40%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



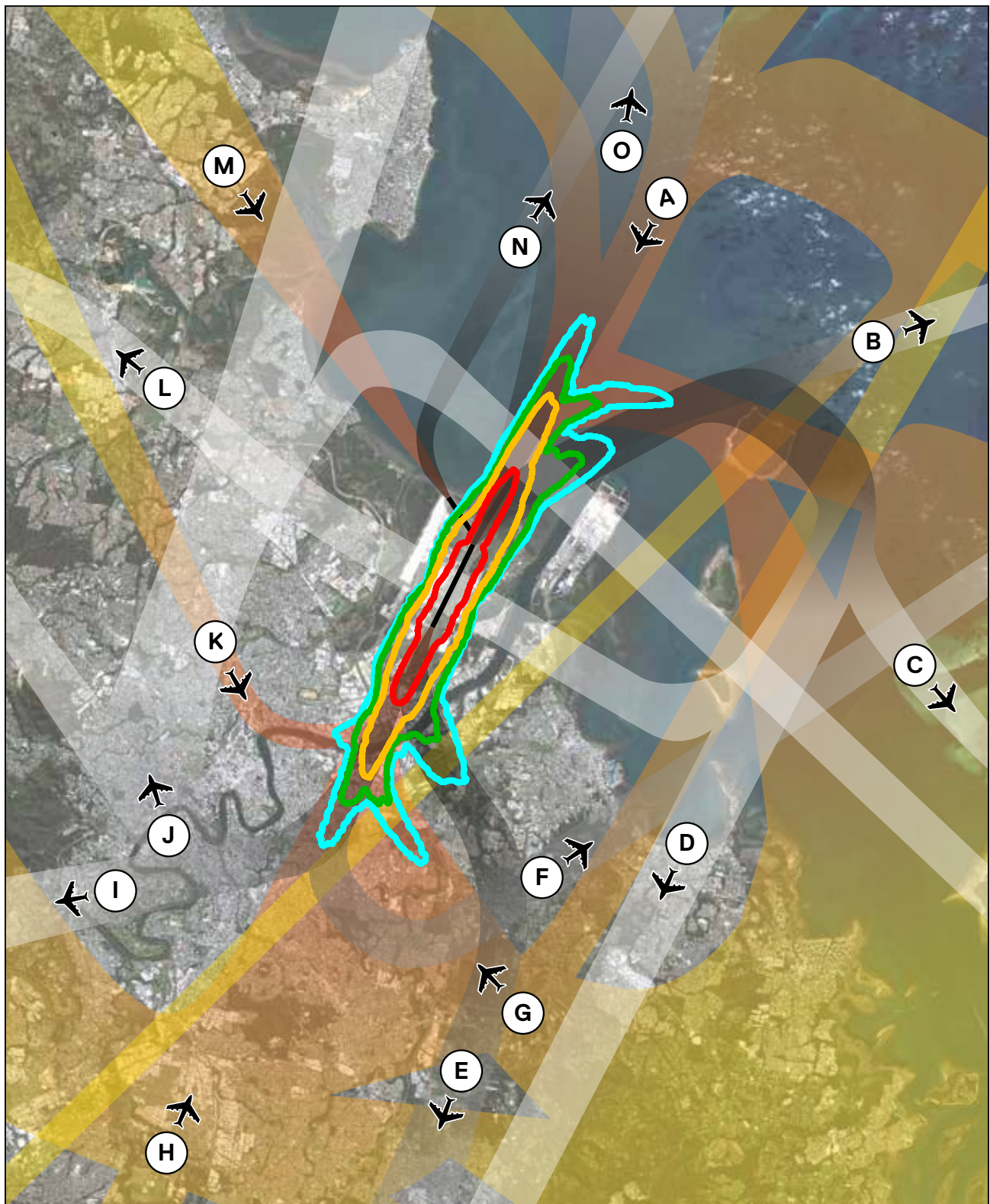
DEPARTURES TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD





FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	35	0 - 67	29%	46%
B	Departure	<1	0 - 1	<1%	52%
C	Departure	2	0 - 4	2%	50%
D	Departure	17	0 - 36	14%	50%
E	Departure	18	0 - 36	15%	46%
F	Departure	<1	0 - 0	<1%	100%
G	Arrival	15	0 - 33	13%	50%
H	Arrival	11	0 - 24	9%	50%
I	Departure	2	0 - 4	1%	46%
J	Departure	8	0 - 15	6%	47%
K	Arrival	5	0 - 11	4%	50%
L	Departure	<1	0 - 2	<1%	51%
M	Arrival	<1	0 - 0	<1%	100%
N	Departure	<1	0 - 0	<1%	100%
O	Departure	6	0 - 12	5%	50%

ALTITUDE KEY

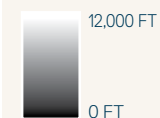
ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

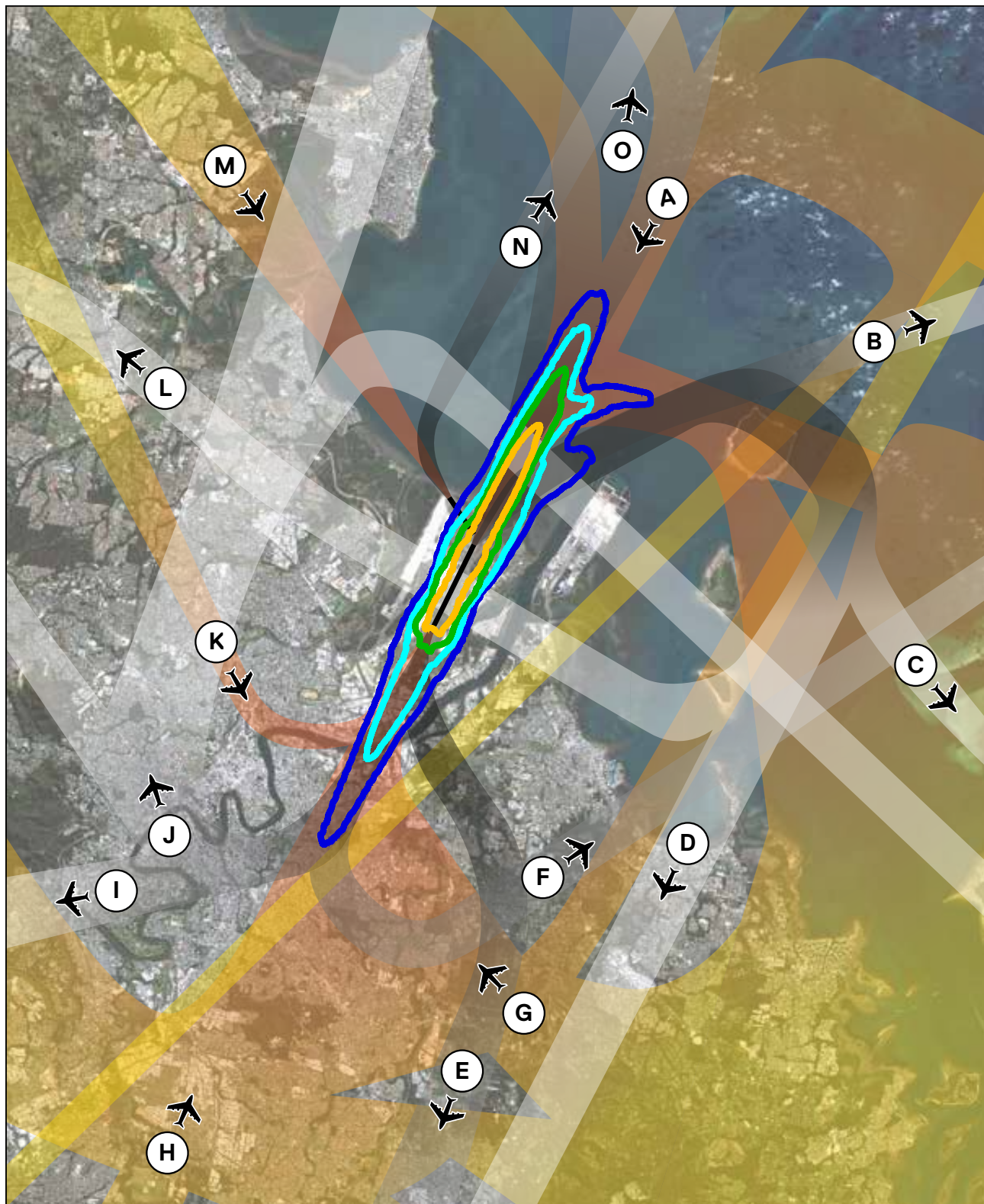
TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD

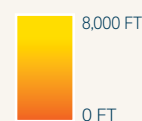




FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	17	0 - 22	47%	1%
B	Departure	<1	0 - 0	<1%	100%
C	Departure	<1	0 - 0	<1%	100%
D	Departure	2	0 - 4	6%	19%
E	Departure	2	0 - 4	5%	40%
F	Departure	<1	0 - 0	<1%	100%
G	Arrival	2	0 - 9	6%	31%
H	Arrival	3	0 - 13	7%	25%
I	Departure	4	0 - 8	11%	18%
J	Departure	1	0 - 3	3%	21%
K	Arrival	<1	0 - 2	1%	67%
L	Departure	2	0 - 4	5%	22%
M	Arrival	<1	0 - 0	<1%	100%
N	Departure	<1	0 - 0	<1%	100%
O	Departure	3	0 - 7	8%	18%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



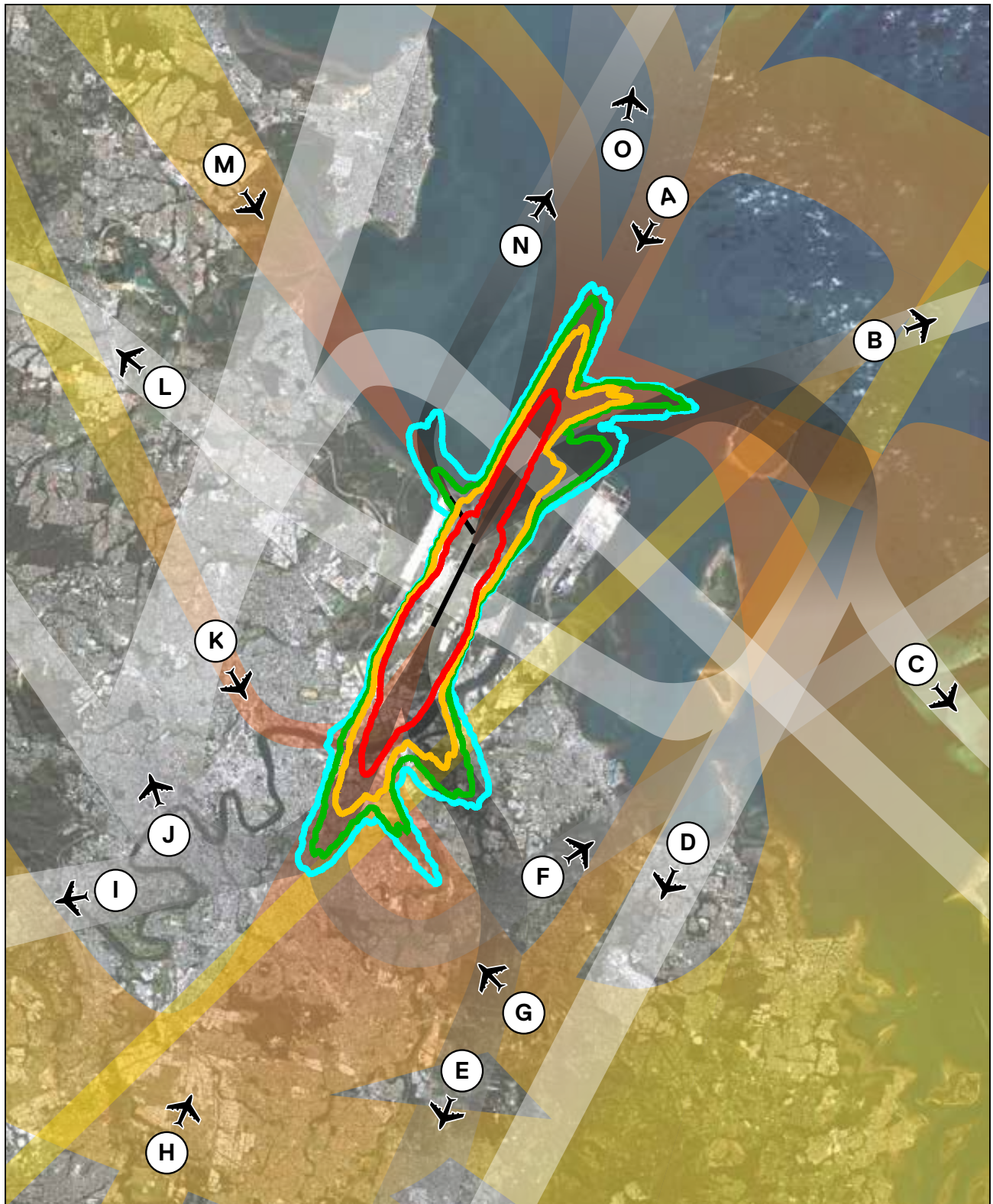
DEPARTURES TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD





FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	93	0 - 142	31%	10%
B	Departure	<1	0 - 4	<1%	73%
C	Departure	3	0 - 10	<1%	40%
D	Departure	28	0 - 84	9%	40%
E	Departure	55	0 - 83	18%	10%
F	Departure	<1	0 - 1	<1%	18%
G	Arrival	22	0 - 64	7%	42%
H	Arrival	19	0 - 59	6%	40%
I	Departure	14	0 - 20	5%	11%
J	Departure	40	0 - 57	13%	10%
K	Arrival	7	0 - 20	2%	42%
L	Departure	2	0 - 10	<1%	43%
M	Arrival	1	0 - 23	<1%	89%
N	Departure	5	0 - 37	2%	69%
O	Departure	11	0 - 52	4%	40%

ALTITUDE KEY

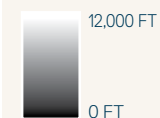
ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

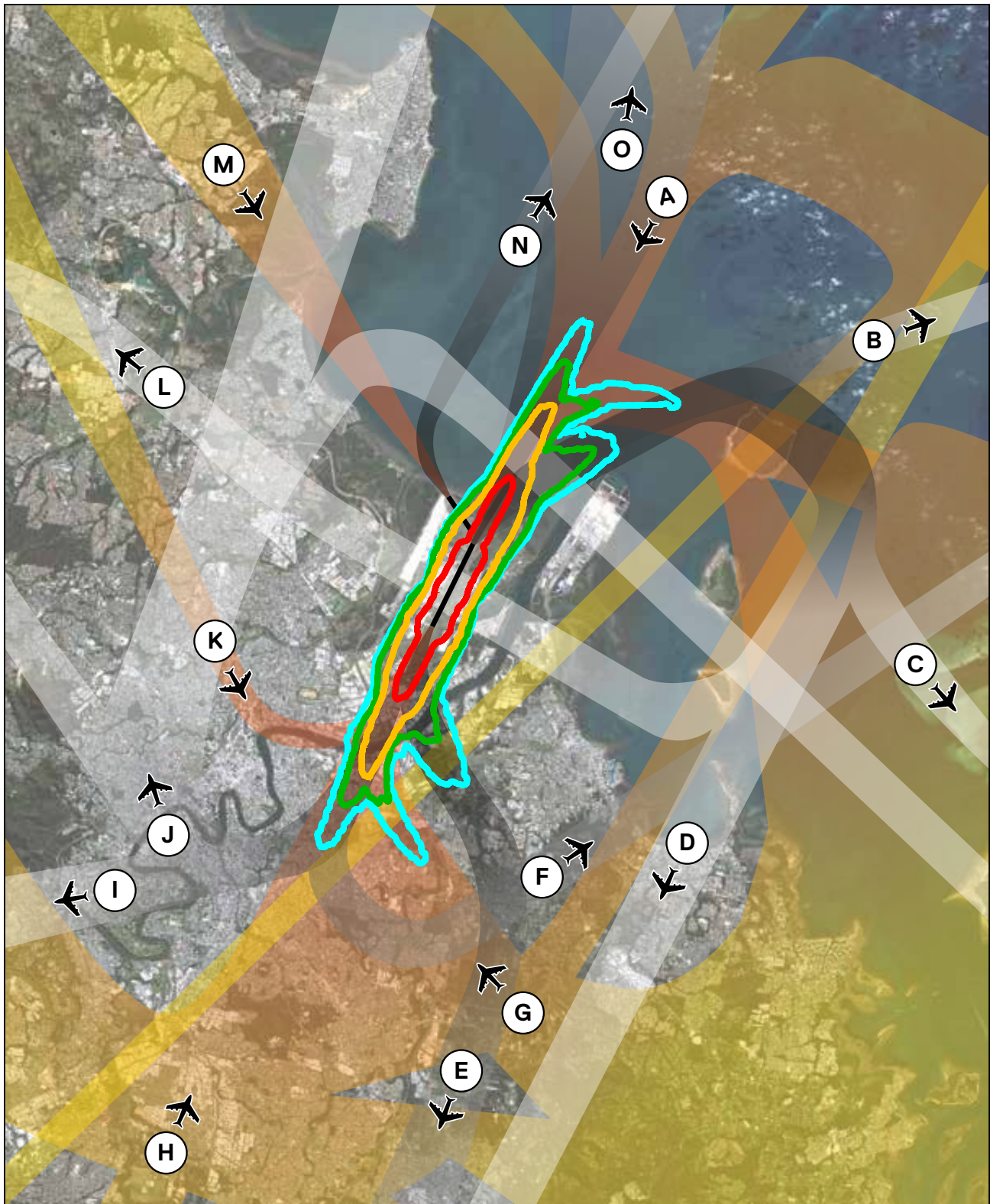
TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD





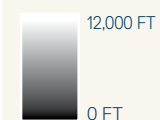
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	33	0 - 63	27%	46%
B	Departure	2	0 - 4	1%	50%
C	Departure	2	0 - 5	2%	50%
D	Departure	17	0 - 36	15%	50%
E	Departure	18	0 - 36	15%	46%
F	Departure	<1	0 - 1	<1%	46%
G	Arrival	15	0 - 31	12%	50%
H	Arrival	11	0 - 24	10%	50%
I	Departure	1	0 - 3	1%	46%
J	Departure	9	0 - 18	8%	46%
K	Arrival	4	0 - 9	4%	50%
L	Departure	<1	0 - 1	<1%	51%
M	Arrival	<1	0 - 0	<1%	100%
N	Departure	<1	0 - 0	<1%	100%
O	Departure	5	0 - 11	4%	50%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



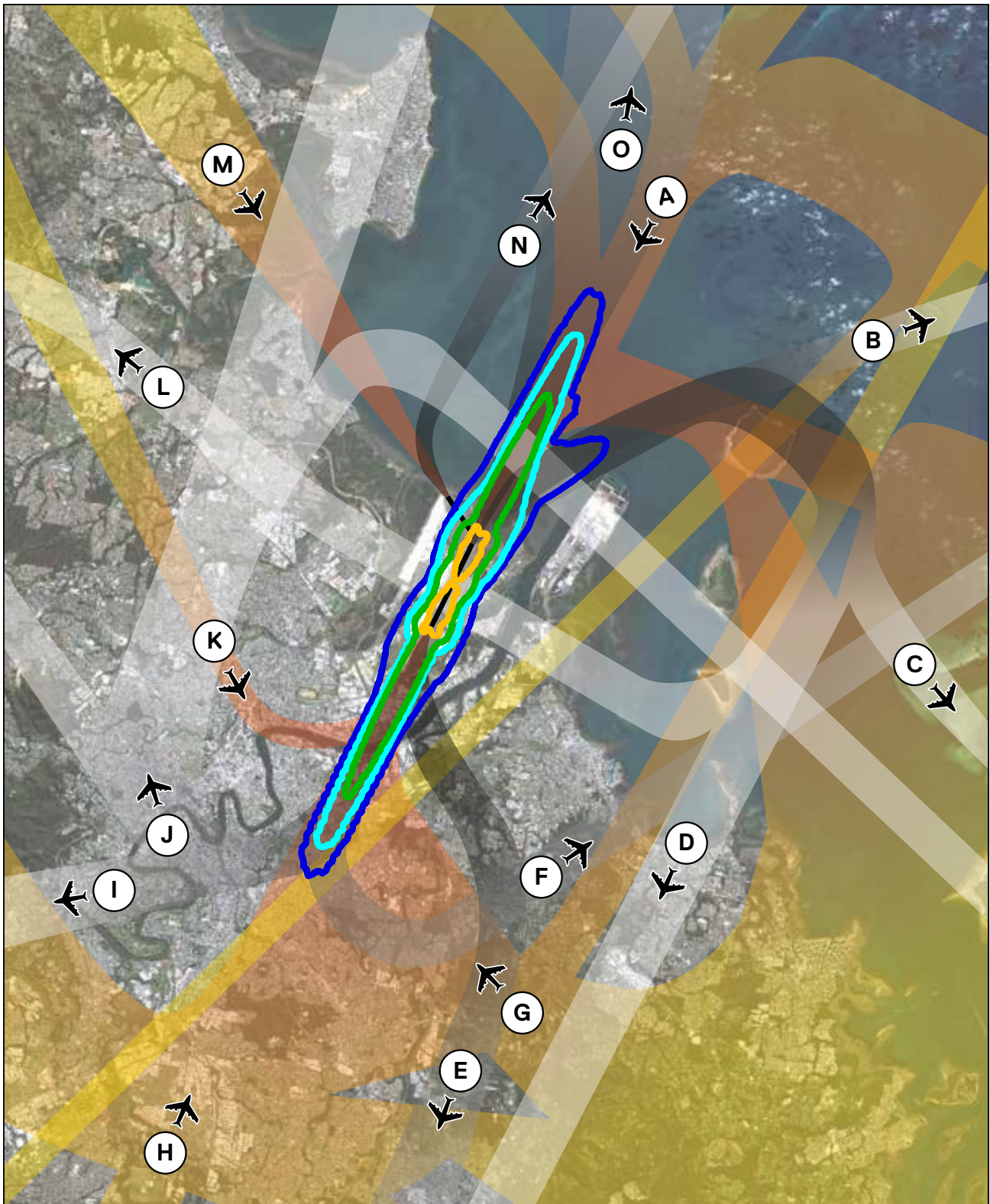
DEPARTURES TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD





FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	11	0 - 22	33%	1%
B	Departure	<1	0 - 2	2%	37%
C	Departure	<1	0 - 1	<1%	67%
D	Departure	1	0 - 2	4%	31%
E	Departure	<1	0 - 2	2%	60%
F	Departure	<1	0 - 0	<1%	100%
G	Arrival	5	0 - 9	16%	31%
H	Arrival	4	0 - 12	13%	29%
I	Departure	2	0 - 6	7%	31%
J	Departure	2	0 - 5	6%	19%
K	Arrival	<1	0 - 3	2%	30%
L	Departure	1	0 - 3	4%	24%
M	Arrival	<1	0 - 0	<1%	100%
N	Departure	<1	0 - 0	<1%	100%
O	Departure	3	0 - 6	10%	17%

ALTITUDE KEY

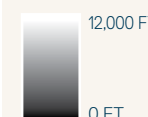
ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

TYPICAL ALTITUDE

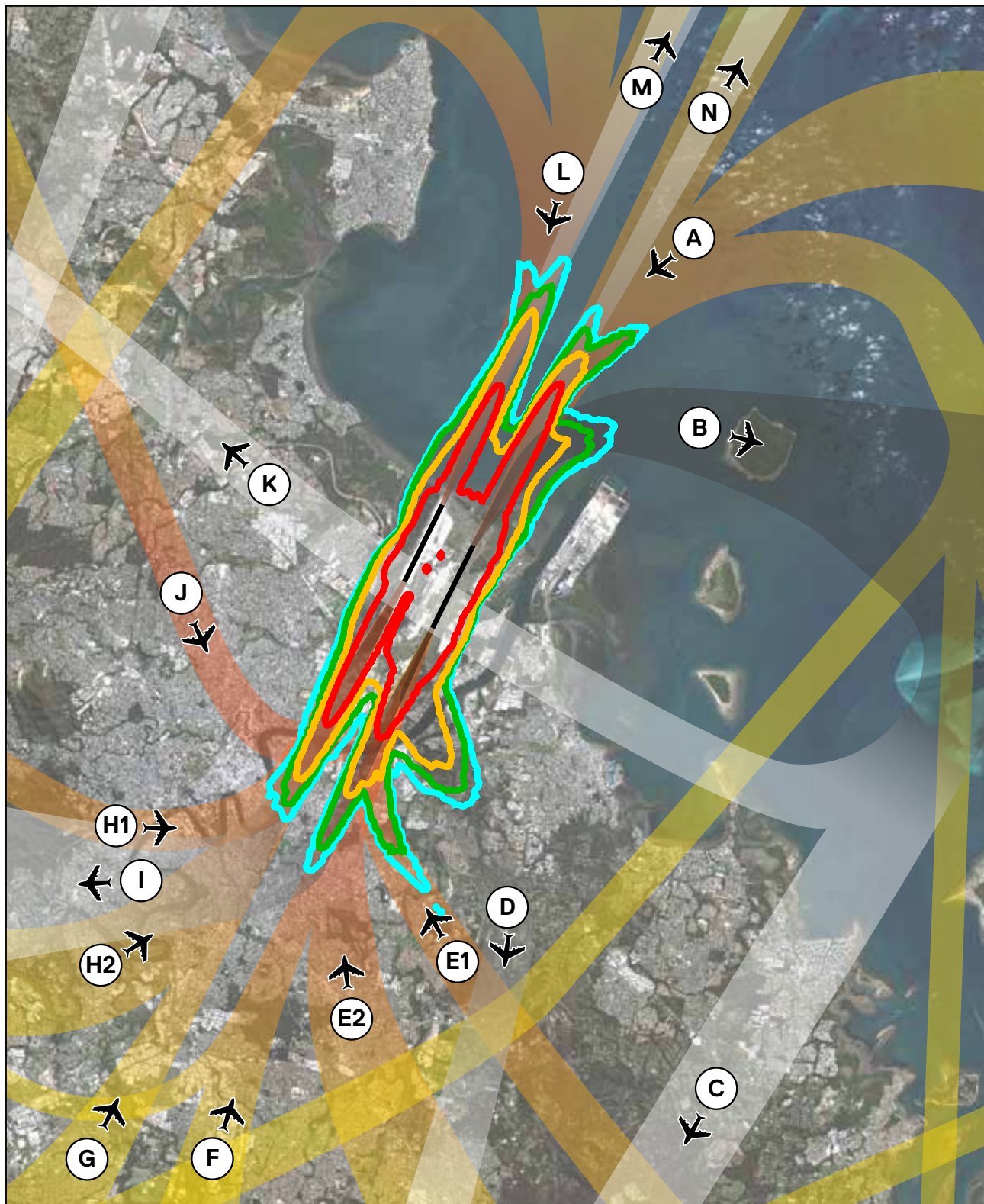


CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



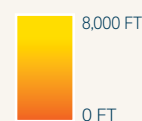
2020 SUMMER WEEKDAY DAY ON OPENING OF BNR – MONDAY TO FRIDAY 6AM – 6PM



FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	57	0 - 111	16%	12%
B	Departure	8	0 - 18	2%	28%
C	Departure	48	0 - 101	13%	27%
D	Departure	63	0 - 119	17%	12%
E1	Arrival	26	0 - 58	7%	27%
E2	Arrival	4	0 - 9	<1%	27%
F	Arrival	20	0 - 39	5%	27%
G	Arrival	19	0 - 37	5%	27%
H1	Arrival	14	0 - 30	4%	27%
H2	Arrival	3	0 - 7	<1%	27%
I*	Departure	39	0 - 71	11%	12%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	5	0 - 9	1%	31%
L	Arrival	34	0 - 66	9%	12%
M	Departure	27	0 - 61	7%	27%
N	Departure	<1	0 - 1	<1%	51%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



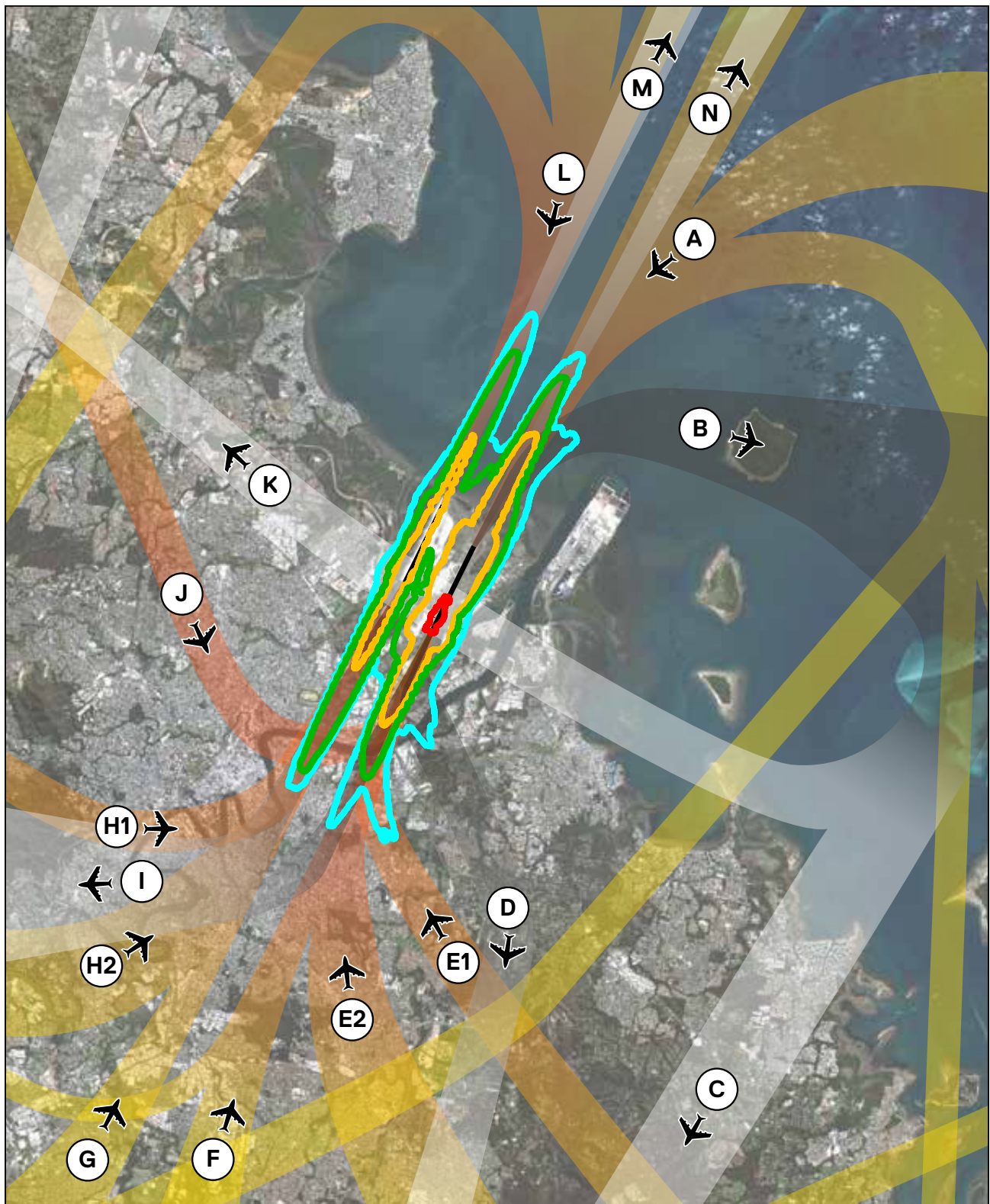
DEPARTURES TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD

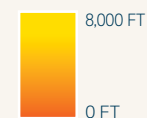




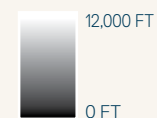
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	14	0 - 35	14%	42%
B	Departure	2	0 - 3	2%	31%
C	Departure	16	0 - 27	17%	30%
D	Departure	12	0 - 30	12%	42%
E1	Arrival	11	0 - 19	12%	30%
E2	Arrival	2	0 - 3	2%	30%
F	Arrival	6	0 - 12	7%	30%
G	Arrival	7	0 - 11	7%	30%
H1	Arrival	5	0 - 8	5%	30%
H2	Arrival	1	0 - 2	1%	30%
I*	Departure	6	0 - 14	6%	42%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	2	0 - 3	2%	31%
L	Arrival	7	0 - 17	7%	42%
M	Departure	6	0 - 11	6%	30%
N	Departure	<1	0 - 1	<1%	53%

ALTITUDE KEY**ARRIVALS**

TYPICAL ALTITUDE

**DEPARTURES**

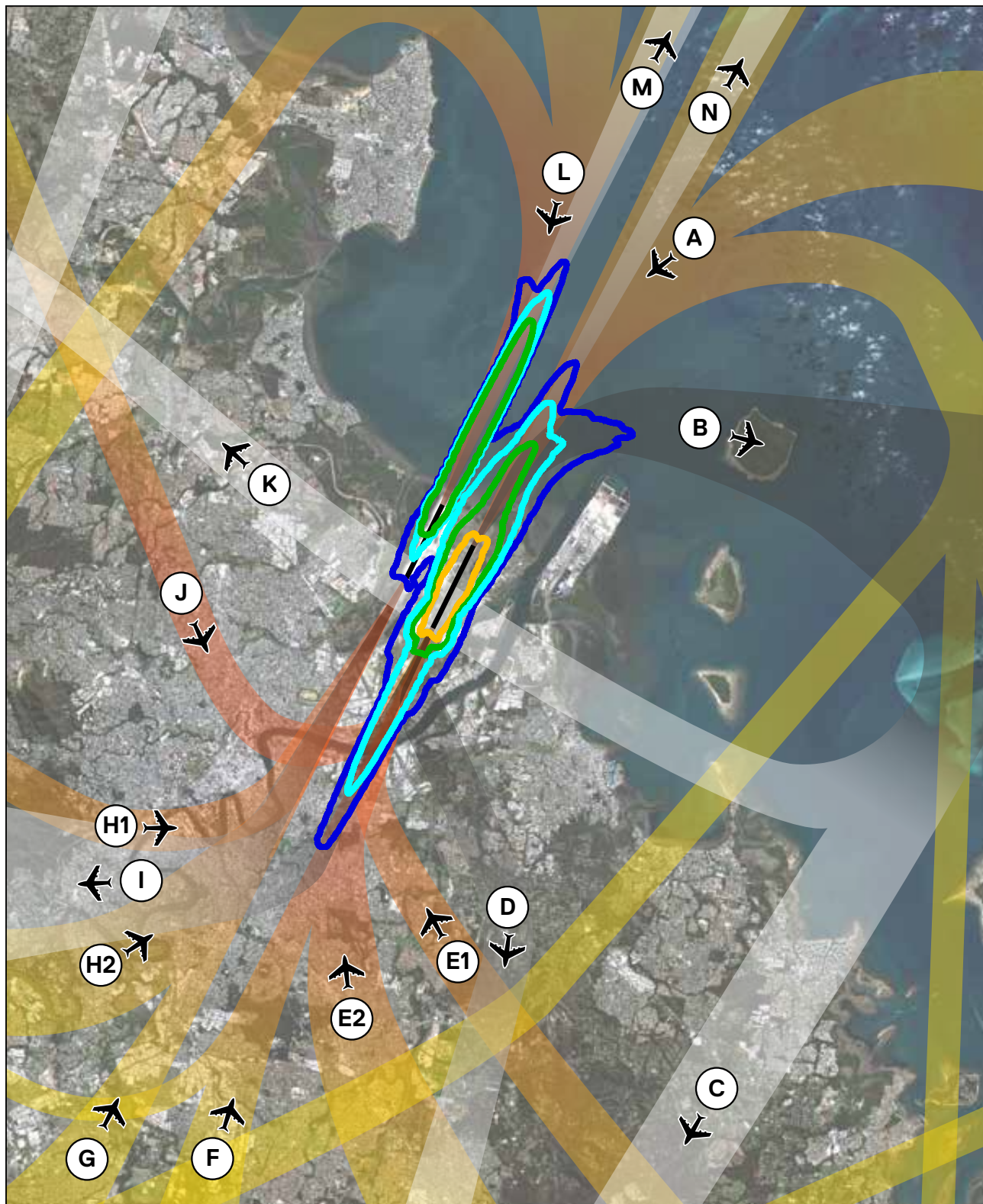
TYPICAL ALTITUDE

**CONTOUR KEY**

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



* majority of flights will depart from Brisbane's new runway.
Brisbane Airport Corporation

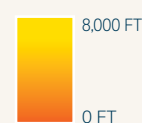


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	3	0 - 13	9%	45%
B	Departure	1	0 - 3	4%	9%
C	Departure	6	0 - 9	15%	9%
D	Departure	3	0 - 9	8%	47%
E1	Arrival	1	0 - 5	4%	54%
E2	Arrival	<1	0 - 1	<1%	54%
F	Arrival	3	0 - 10	8%	47%
G	Arrival	<1	0 - 0	<1%	100%
H1	Arrival	<1	0 - 0	<1%	100%
H2	Arrival	<1	0 - 0	<1%	100%
I	Departure	2	0 - 8	6%	44%
J	Arrival	1	0 - 6	3%	48%
K	Departure	3	0 - 4	7%	11%
L	Arrival	11	0 - 20	30%	7%
M	Departure	1	0 - 5	3%	49%
N	Departure	<1	0 - 2	2%	20%

ALTITUDE KEY

ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

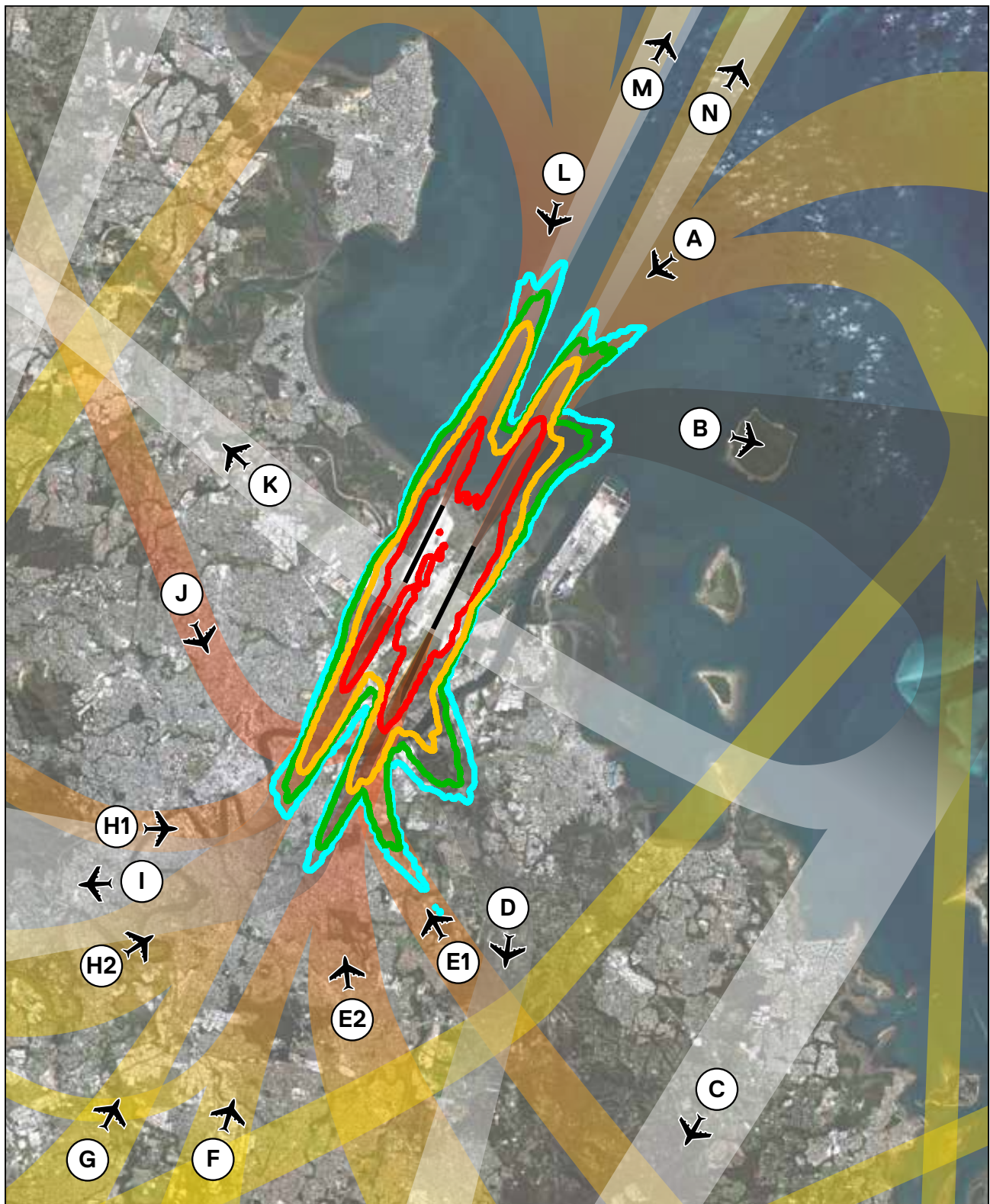
TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



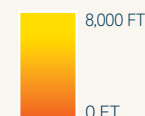


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	42	0 - 93	14%	12%
B	Departure	7	0 - 17	2%	28%
C	Departure	47	0 - 87	15%	27%
D	Departure	49	0 - 103	16%	12%
E1	Arrival	24	0 - 46	8%	27%
E2	Arrival	3	0 - 7	1%	27%
F	Arrival	20	0 - 36	6%	27%
G	Arrival	15	0 - 29	5%	27%
H1	Arrival	12	0 - 23	4%	27%
H2	Arrival	3	0 - 6	<1%	27%
I*	Departure	29	0 - 61	9%	12%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	4	0 - 8	1%	30%
L	Arrival	25	0 - 51	8%	12%
M	Departure	26	0 - 52	9%	27%
N	Departure	<1	0 - 1	<1%	44%

ALTITUDE KEY

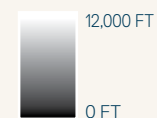
ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

TYPICAL ALTITUDE

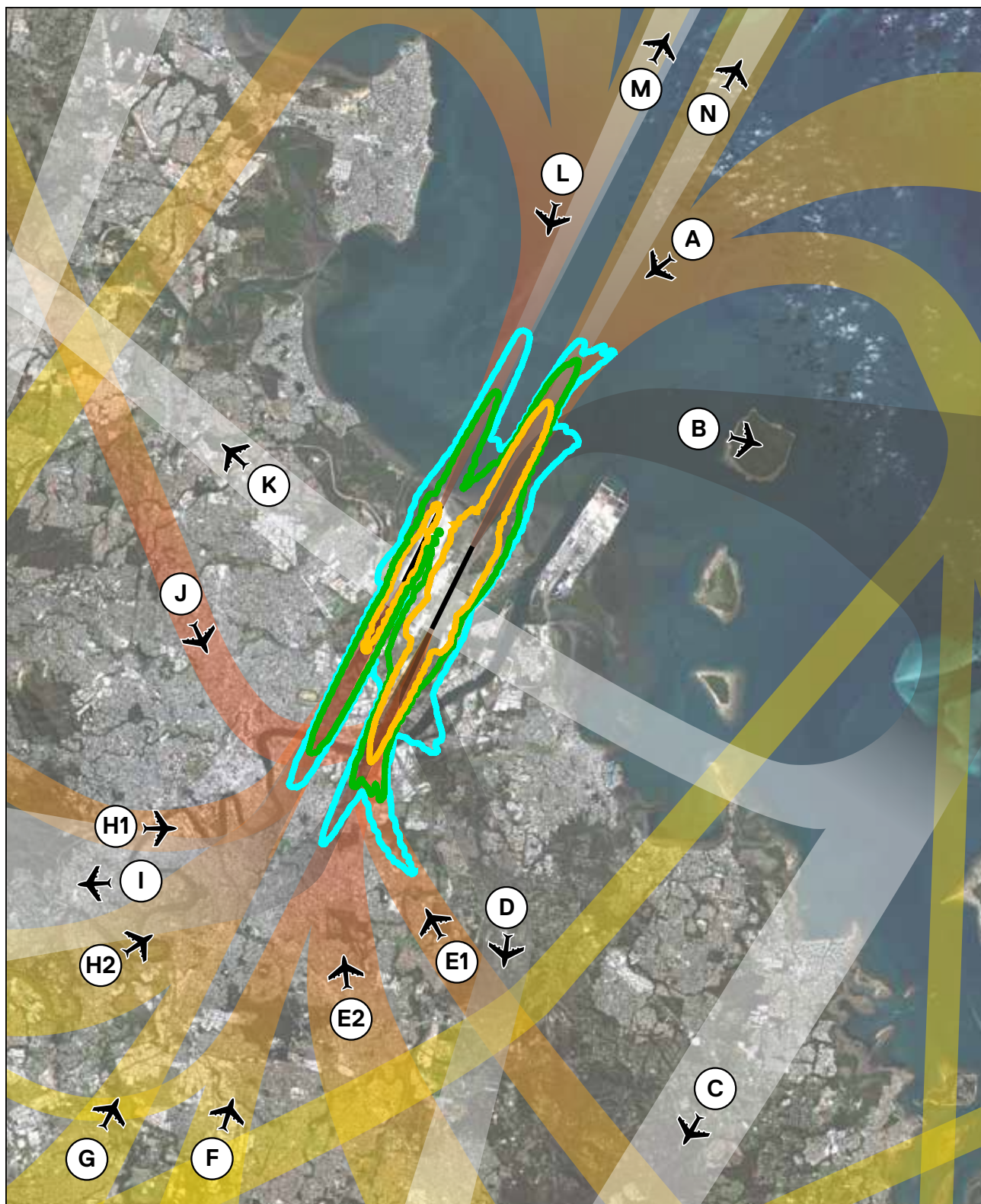


CONTOUR KEY

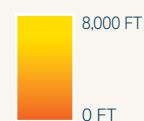
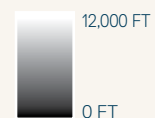
THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



* majority of flights will depart from Brisbane's new runway.
Brisbane Airport Corporation



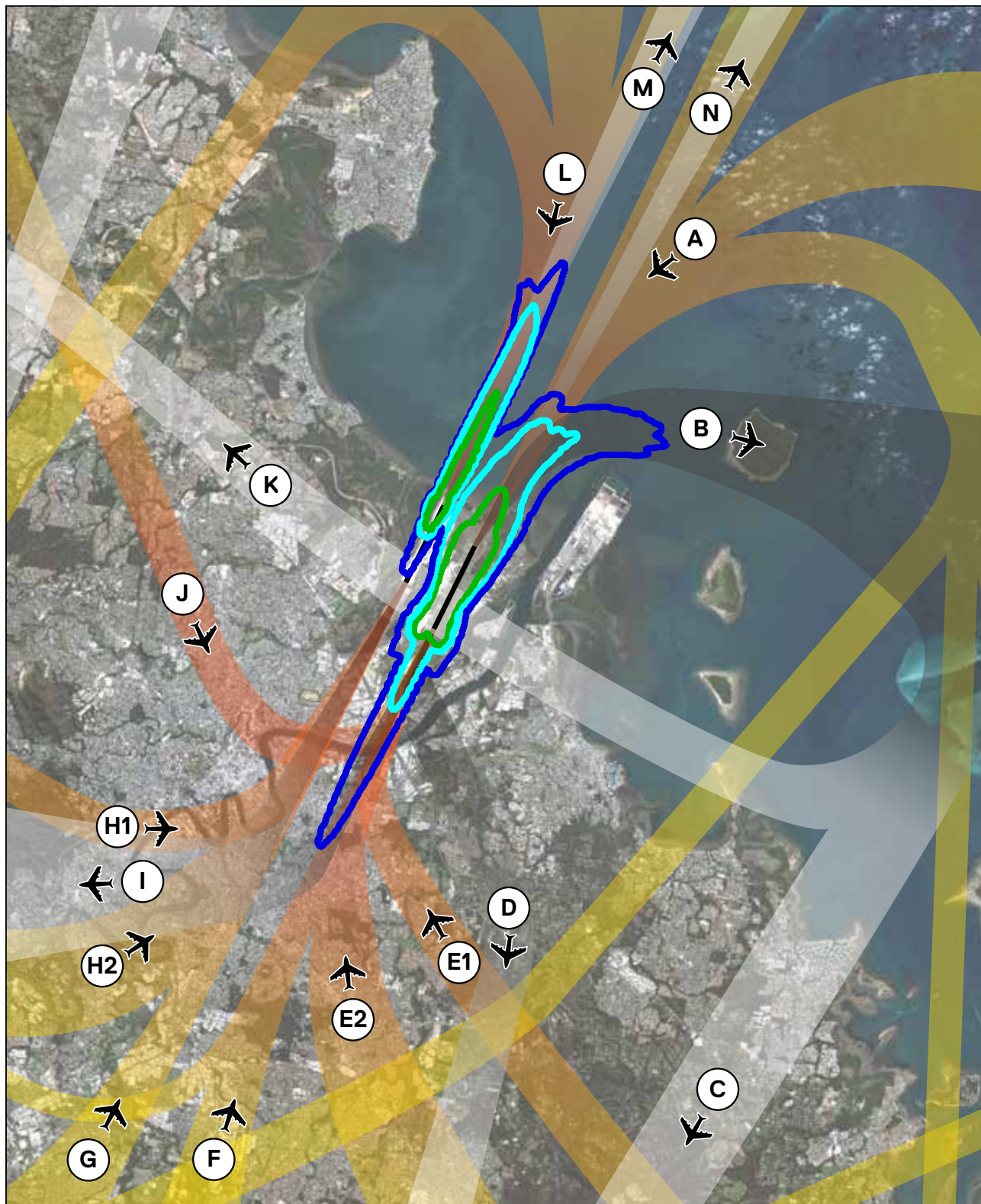
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	21	0 - 48	19%	42%
B	Departure	3	0 - 6	3%	31%
C	Departure	18	0 - 29	16%	30%
D	Departure	13	0 - 35	12%	42%
E1	Arrival	16	0 - 27	14%	30%
E2	Arrival	2	0 - 4	2%	30%
F	Arrival	7	0 - 14	7%	30%
G	Arrival	7	0 - 13	7%	30%
H1	Arrival	5	0 - 8	4%	30%
H2	Arrival	1	0 - 2	<1%	30%
I*	Departure	5	0 - 12	4%	46%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	1	0 - 2	1%	31%
L	Arrival	7	0 - 17	6%	42%
M	Departure	5	0 - 10	5%	31%
N	Departure	<1	0 - 1	<1%	53%

ALTITUDE KEY**ARRIVALS**
TYPICAL ALTITUDE**DEPARTURES**
TYPICAL ALTITUDE**CONTOUR KEY**

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



* majority of flights will depart from Brisbane's new runway.

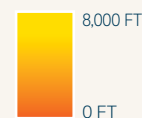


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	<1	0 - 4	4%	51%
B	Departure	3	0 - 5	11%	8%
C	Departure	2	0 - 3	8%	10%
D	Departure	1	0 - 6	5%	46%
E1	Arrival	<1	0 - 1	1%	63%
E2	Arrival	<1	0 - 1	<1%	63%
F	Arrival	2	0 - 6	6%	47%
G	Arrival	<1	0 - 0	<1%	100%
H1	Arrival	<1	0 - 0	<1%	100%
H2	Arrival	<1	0 - 0	<1%	100%
I	Departure	2	0 - 7	6%	59%
J	Arrival	2	0 - 7	8%	47%
K	Departure	3	0 - 4	12%	12%
L	Arrival	8	0 - 13	31%	7%
M	Departure	1	0 - 4	4%	48%
N	Departure	<1	0 - 2	3%	10%

ALTITUDE KEY

ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

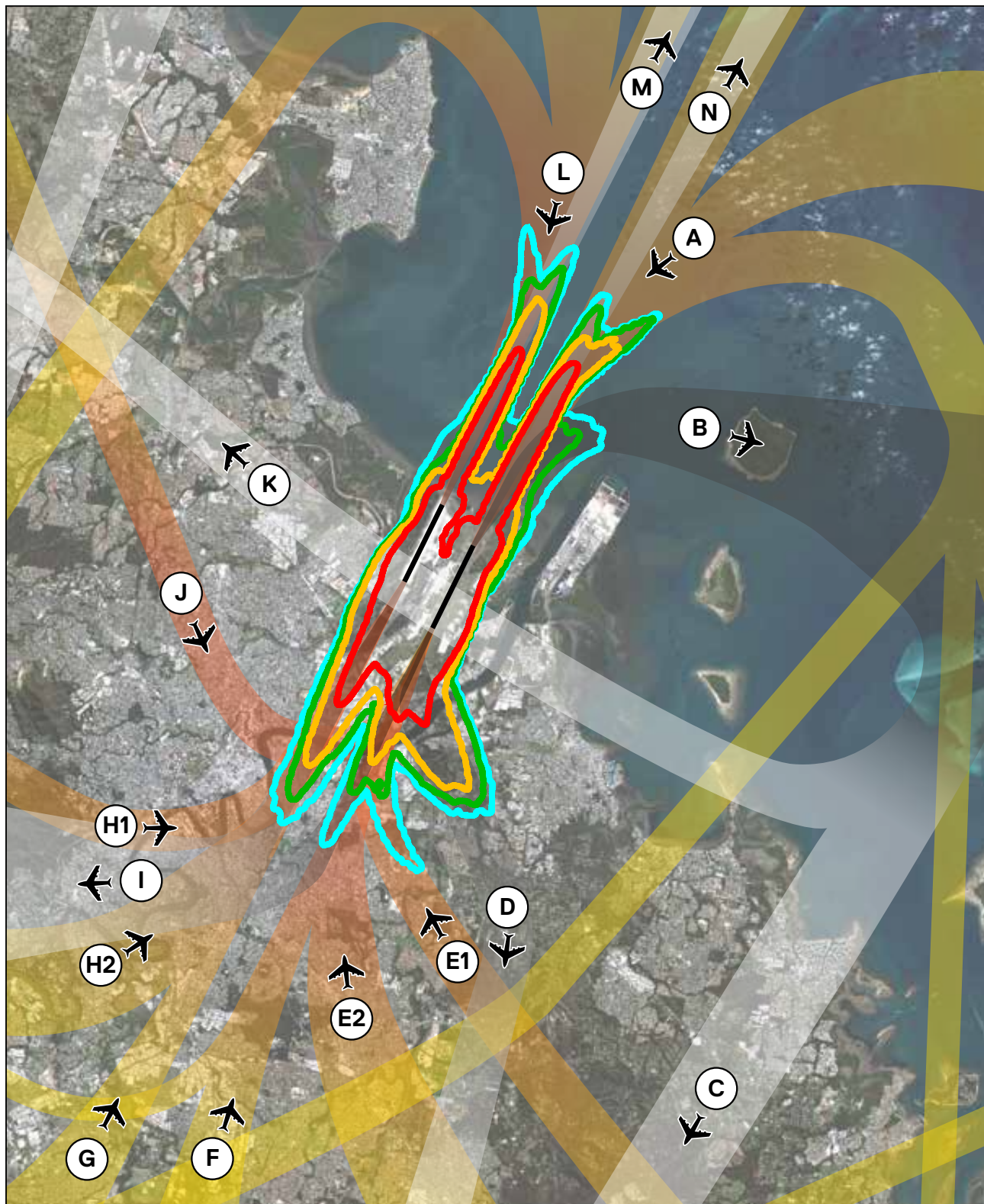
TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD

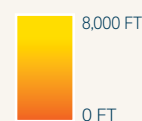




FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	76	0 - 103	21%	2%
B	Departure	3	0 - 18	<1%	47%
C	Departure	26	0 - 99	7%	47%
D	Departure	88	0 - 117	25%	2%
E1	Arrival	14	0 - 56	4%	47%
E2	Arrival	2	0 - 8	<1%	47%
F	Arrival	9	0 - 33	2%	47%
G	Arrival	9	0 - 36	3%	47%
H1	Arrival	7	0 - 29	2%	47%
H2	Arrival	2	0 - 7	<1%	47%
I*	Departure	57	0 - 71	16%	2%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	2	0 - 10	<1%	55%
L	Arrival	48	0 - 63	13%	2%
M	Departure	12	0 - 60	3%	47%
N	Departure	<1	0 - 1	<1%	78%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



DEPARTURES TYPICAL ALTITUDE

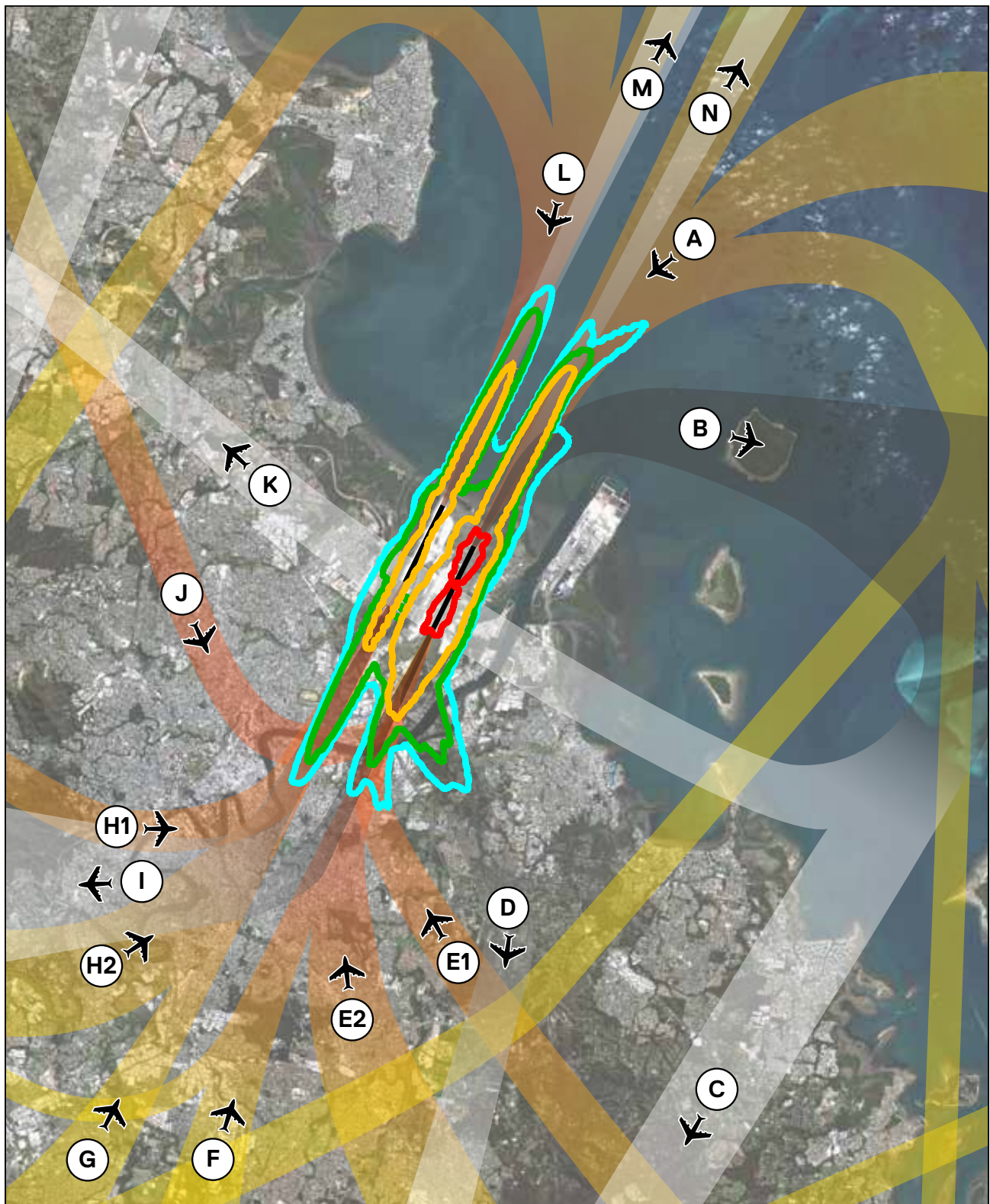


CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



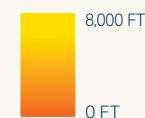
* majority of flights will depart from Brisbane's new runway.



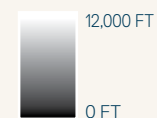
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	29	0 - 44	24%	16%
B	Departure	2	0 - 5	2%	50%
C	Departure	12	0 - 36	10%	50%
D	Departure	26	0 - 41	22%	16%
E1	Arrival	8	0 - 24	7%	50%
E2	Arrival	1	0 - 4	<1%	50%
F	Arrival	5	0 - 15	4%	50%
G	Arrival	5	0 - 14	4%	50%
H1	Arrival	4	0 - 11	3%	50%
H2	Arrival	<1	0 - 3	<1%	50%
I*	Departure	9	0 - 14	7%	16%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	<1	0 - 1	<1%	82%
L	Arrival	14	0 - 23	12%	16%
M	Departure	4	0 - 13	3%	50%
N	Departure	<1	0 - 1	<1%	78%

ALTITUDE KEY**ARRIVALS**

TYPICAL ALTITUDE

**DEPARTURES**

TYPICAL ALTITUDE

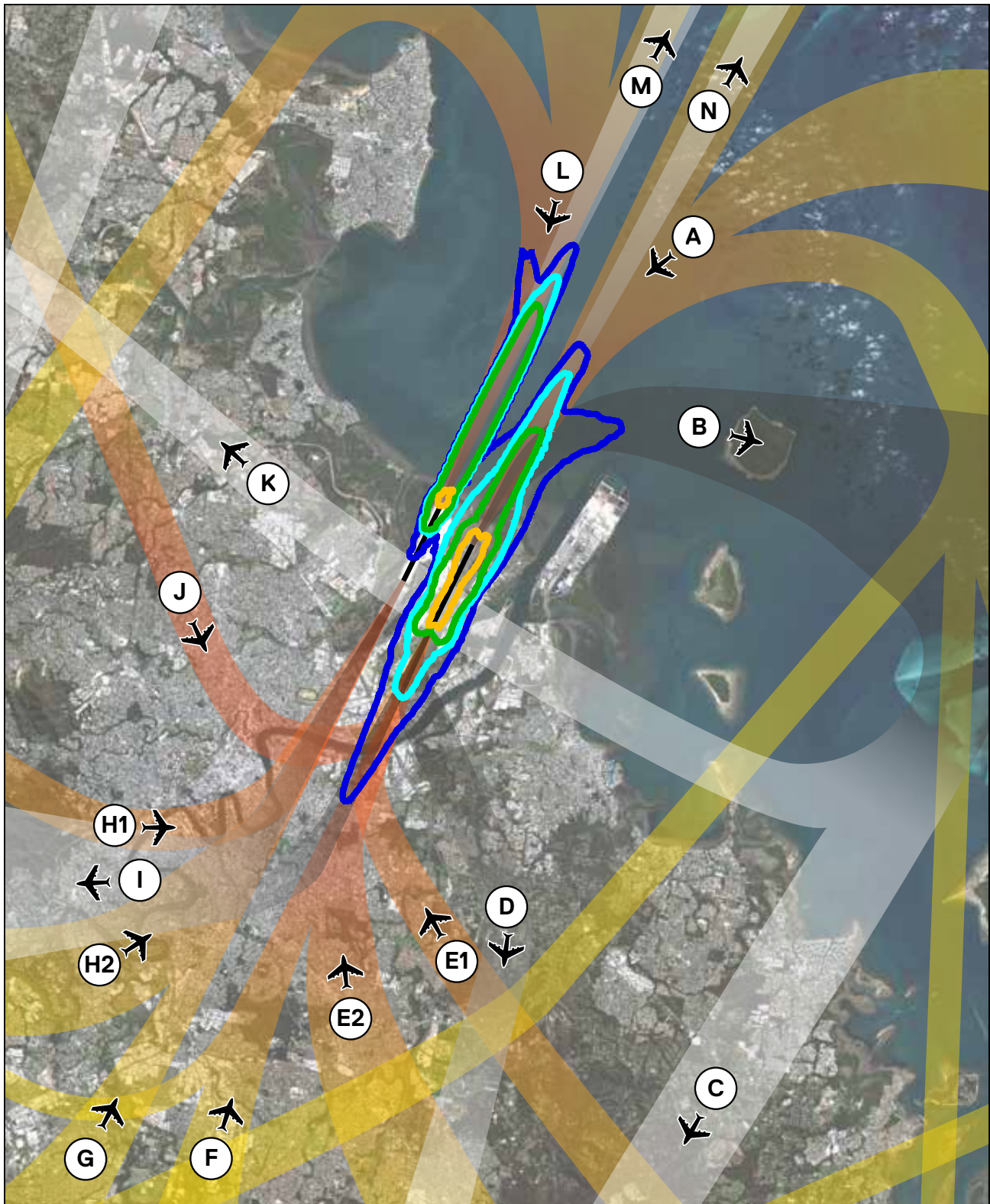
**CONTOUR KEY**

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



* majority of flights will depart from Brisbane's new runway.
Brisbane Airport Corporation

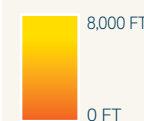
2020 WINTER WEEKDAY NIGHT ON OPENING OF BNR – MONDAY TO FRIDAY 10PM – 6AM



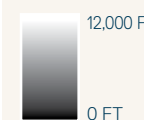
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	9	2 - 16	24%	0%
B	Departure	<1	0 - 1	1%	25%
C	Departure	1	0 - 3	4%	15%
D	Departure	3	2 - 4	7%	0%
E1	Arrival	<1	0 - 5	1%	82%
E2	Arrival	<1	0 - 1	<1%	82%
F	Arrival	<1	0 - 11	2%	81%
G	Arrival	<1	0 - 0	<1%	100%
H1	Arrival	<1	0 - 0	<1%	100%
H2	Arrival	<1	0 - 0	<1%	100%
I	Departure	6	2 - 10	17%	0%
J	Arrival	<1	0 - 5	<1%	82%
K	Departure	3	0 - 6	7%	30%
L	Arrival	12	0 - 20	33%	1%
M	Departure	<1	0 - 5	<1%	85%
N	Departure	<1	0 - 1	1%	25%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



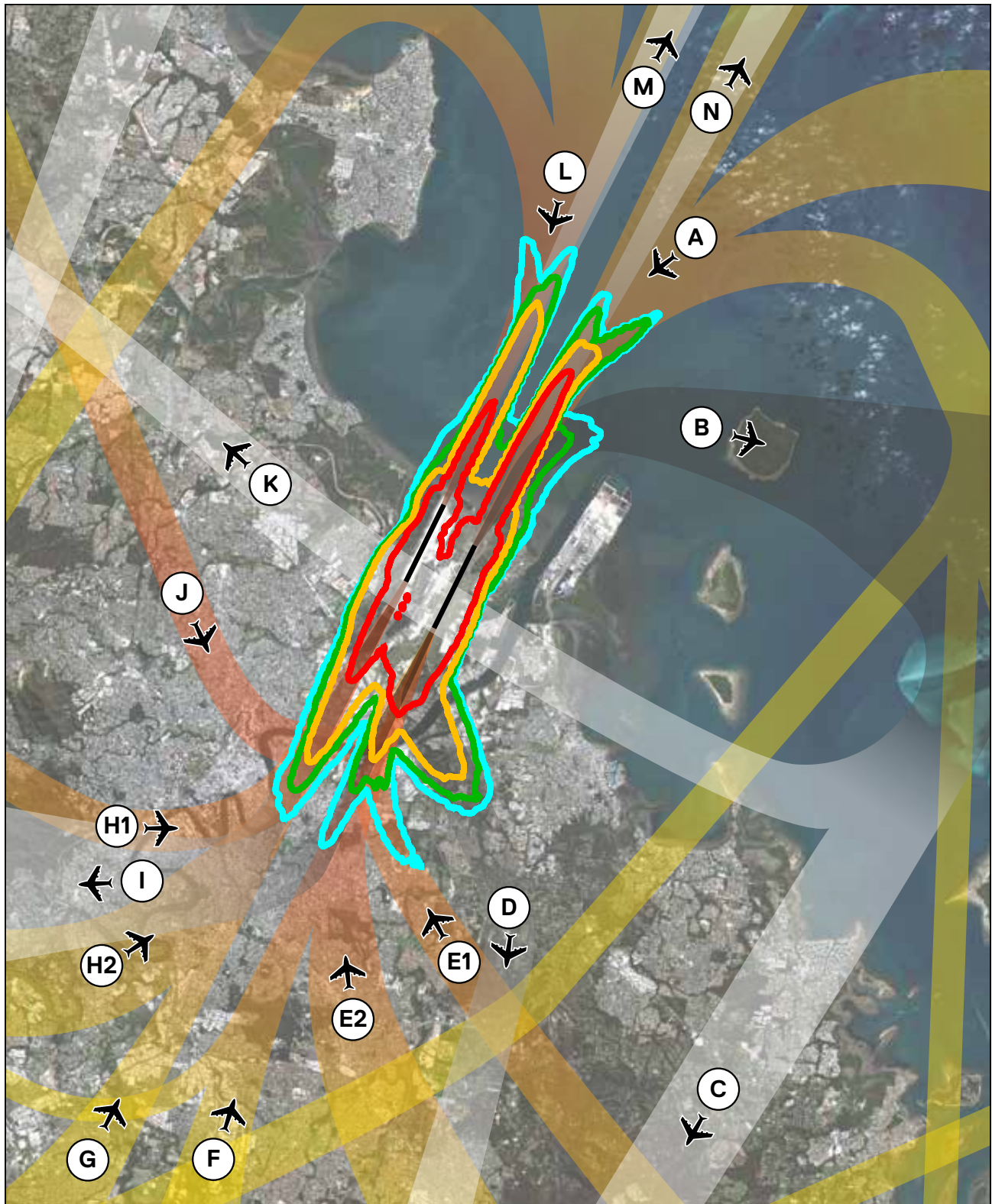
DEPARTURES TYPICAL ALTITUDE



CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



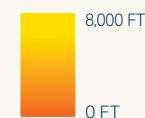


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	63	0 - 91	21%	2%
B	Departure	3	0 - 15	<1%	47%
C	Departure	24	0 - 84	8%	47%
D	Departure	71	0 - 98	24%	2%
E1	Arrival	14	0 - 48	5%	47%
E2	Arrival	2	0 - 7	<1%	47%
F	Arrival	10	0 - 31	3%	47%
G	Arrival	9	0 - 30	3%	47%
H1	Arrival	6	0 - 23	2%	47%
H2	Arrival	1	0 - 6	<1%	47%
I*	Departure	46	0 - 62	15%	2%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	2	0 - 8	<1%	51%
L	Arrival	37	0 - 51	12%	2%
M	Departure	13	0 - 53	4%	47%
N	Departure	<1	0 - 1	<1%	78%

ALTITUDE KEY

ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

TYPICAL ALTITUDE

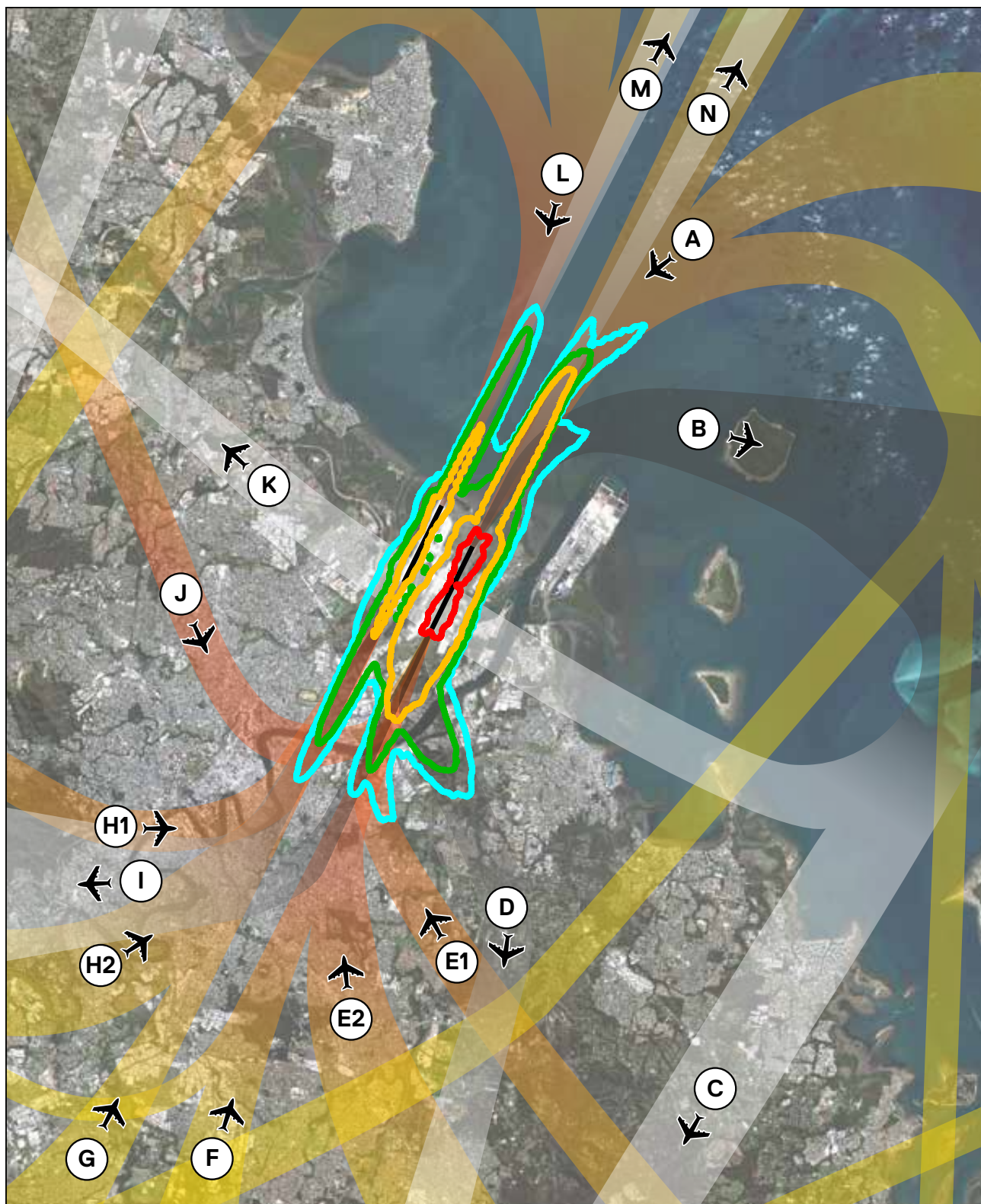


CONTOUR KEY

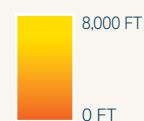
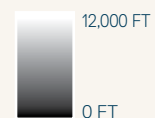
THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



* majority of flights will depart from Brisbane's new runway.
Brisbane Airport Corporation



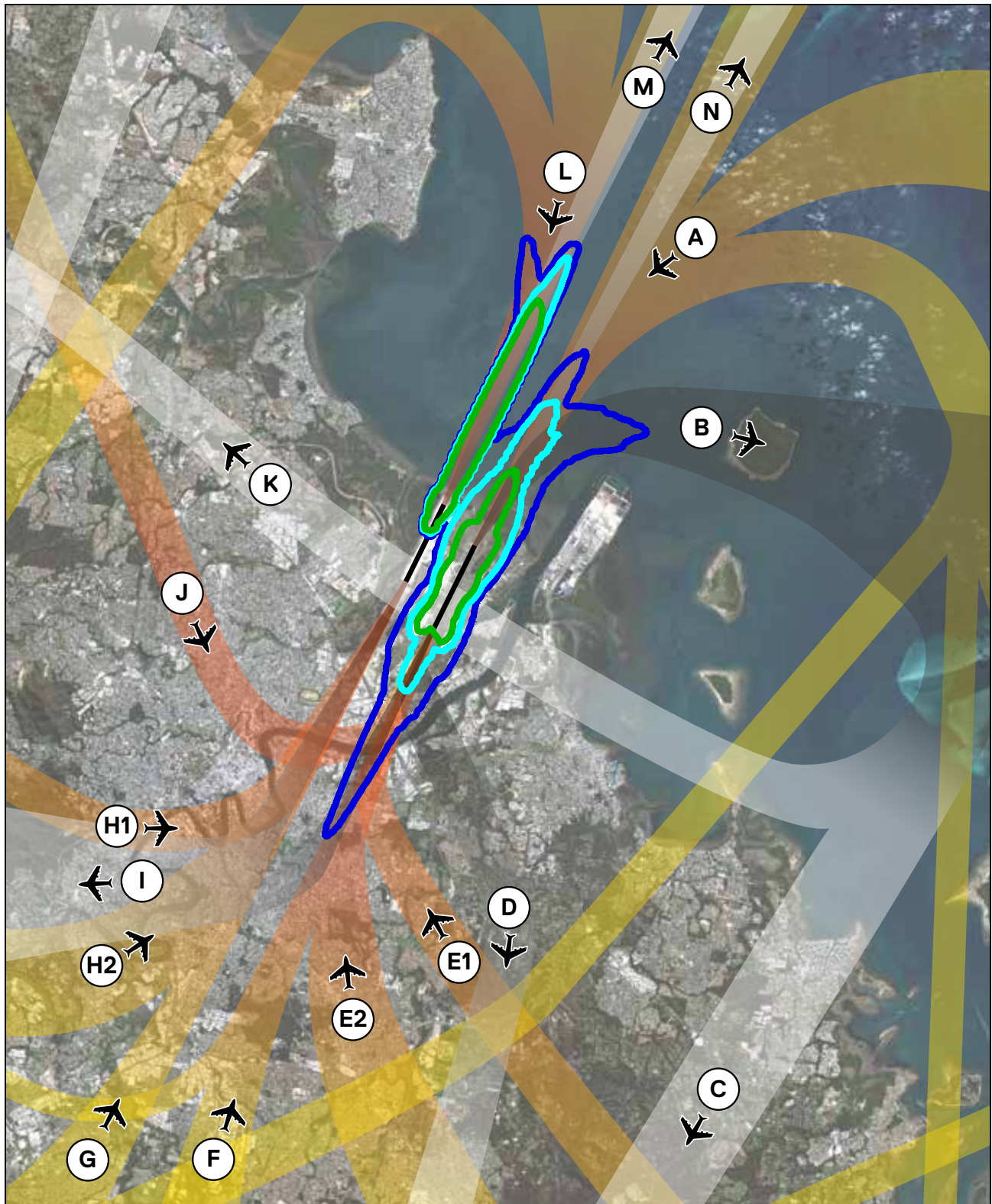
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	28	0 - 44	23%	16%
B	Departure	3	0 - 9	3%	50%
C	Departure	13	0 - 36	11%	50%
D	Departure	28	0 - 45	24%	16%
E1	Arrival	9	0 - 24	8%	50%
E2	Arrival	1	0 - 4	1%	50%
F	Arrival	5	0 - 15	4%	50%
G	Arrival	5	0 - 13	4%	50%
H1	Arrival	3	0 - 9	3%	50%
H2	Arrival	<1	0 - 2	<1%	50%
I*	Departure	8	0 - 12	6%	16%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	<1	0 - 1	<1%	82%
L	Arrival	12	0 - 19	10%	16%
M	Departure	4	0 - 11	3%	50%
N	Departure	<1	0 - 1	<1%	78%

ALTITUDE KEY**ARRIVALS**
TYPICAL ALTITUDE**DEPARTURES**
TYPICAL ALTITUDE**CONTOUR KEY**

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



* majority of flights will depart from Brisbane's new runway.

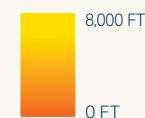


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	5	0 - 14	15%	20%
B	Departure	2	0 - 5	6%	16%
C	Departure	1	0 - 2	4%	29%
D	Departure	2	0 - 5	6%	19%
E1	Arrival	<1	0 - 6	2%	87%
E2	Arrival	<1	0 - 1	<1%	87%
F	Arrival	<1	0 - 10	3%	81%
G	Arrival	<1	0 - 0	<1%	100%
H1	Arrival	<1	0 - 0	<1%	100%
H2	Arrival	<1	0 - 0	<1%	100%
I	Departure	3	0 - 7	8%	30%
J	Arrival	<1	0 - 6	2%	81%
K	Departure	2	0 - 4	7%	27%
L	Arrival	15	0 - 22	43%	1%
M	Departure	<1	0 - 4	1%	82%
N	Departure	<1	0 - 2	3%	18%

ALTITUDE KEY

ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

TYPICAL ALTITUDE



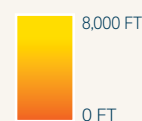
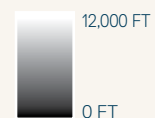
CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



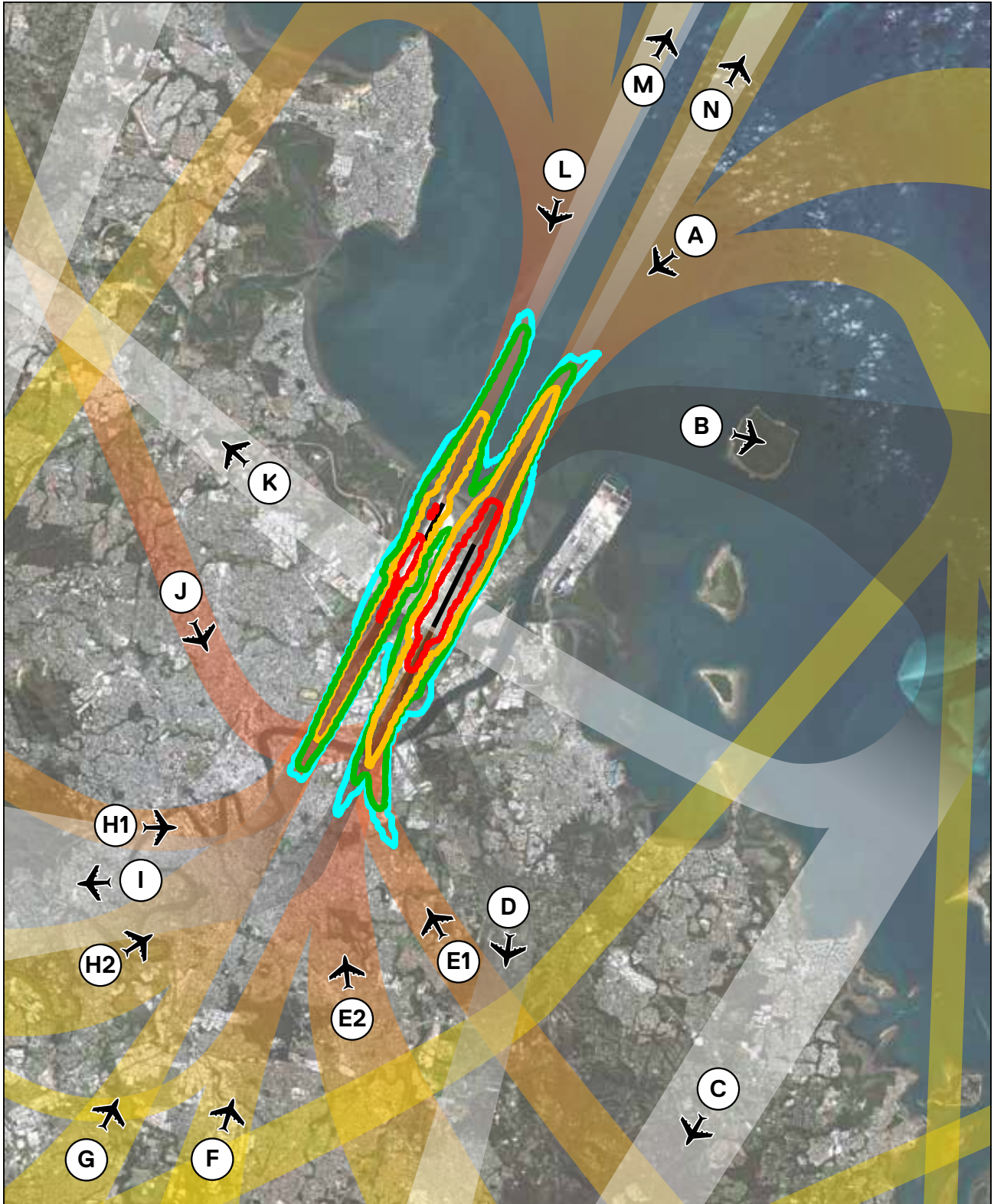


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	86	0 - 170	15%	12%
B	Departure	10	0 - 24	2%	28%
C	Departure	77	0 - 160	13%	27%
D	Departure	96	0 - 183	16%	12%
E1	Arrival	41	0 - 89	7%	27%
E2	Arrival	6	0 - 13	<1%	27%
F	Arrival	31	0 - 59	5%	27%
G	Arrival	30	0 - 61	5%	27%
H1	Arrival	24	0 - 50	4%	27%
H2	Arrival	5	0 - 12	<1%	27%
I*	Departure	66	0 - 123	11%	12%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	8	0 - 17	1%	28%
L	Arrival	59	0 - 111	10%	12%
M	Departure	48	0 - 105	8%	27%
N	Departure	<1	0 - 1	<1%	51%

ALTITUDE KEY**ARRIVALS**
TYPICAL ALTITUDE**DEPARTURES**
TYPICAL ALTITUDE**CONTOUR KEY**

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD

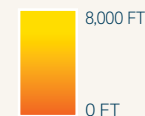




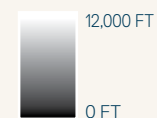
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	23	0 - 58	15%	42%
B	Departure	3	0 - 5	2%	31%
C	Departure	28	0 - 46	17%	30%
D	Departure	20	0 - 51	13%	42%
E1	Arrival	18	0 - 30	11%	30%
E2	Arrival	3	0 - 5	2%	30%
F	Arrival	10	0 - 18	6%	30%
G	Arrival	12	0 - 21	8%	30%
H1	Arrival	8	0 - 14	5%	30%
H2	Arrival	2	0 - 4	1%	30%
I*	Departure	9	0 - 22	6%	42%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	2	0 - 3	<1%	31%
L	Arrival	13	0 - 31	8%	42%
M	Departure	10	0 - 19	6%	30%
N	Departure	<1	0 - 1	<1%	53%

ALTITUDE KEY**ARRIVALS**

TYPICAL ALTITUDE

**DEPARTURES**

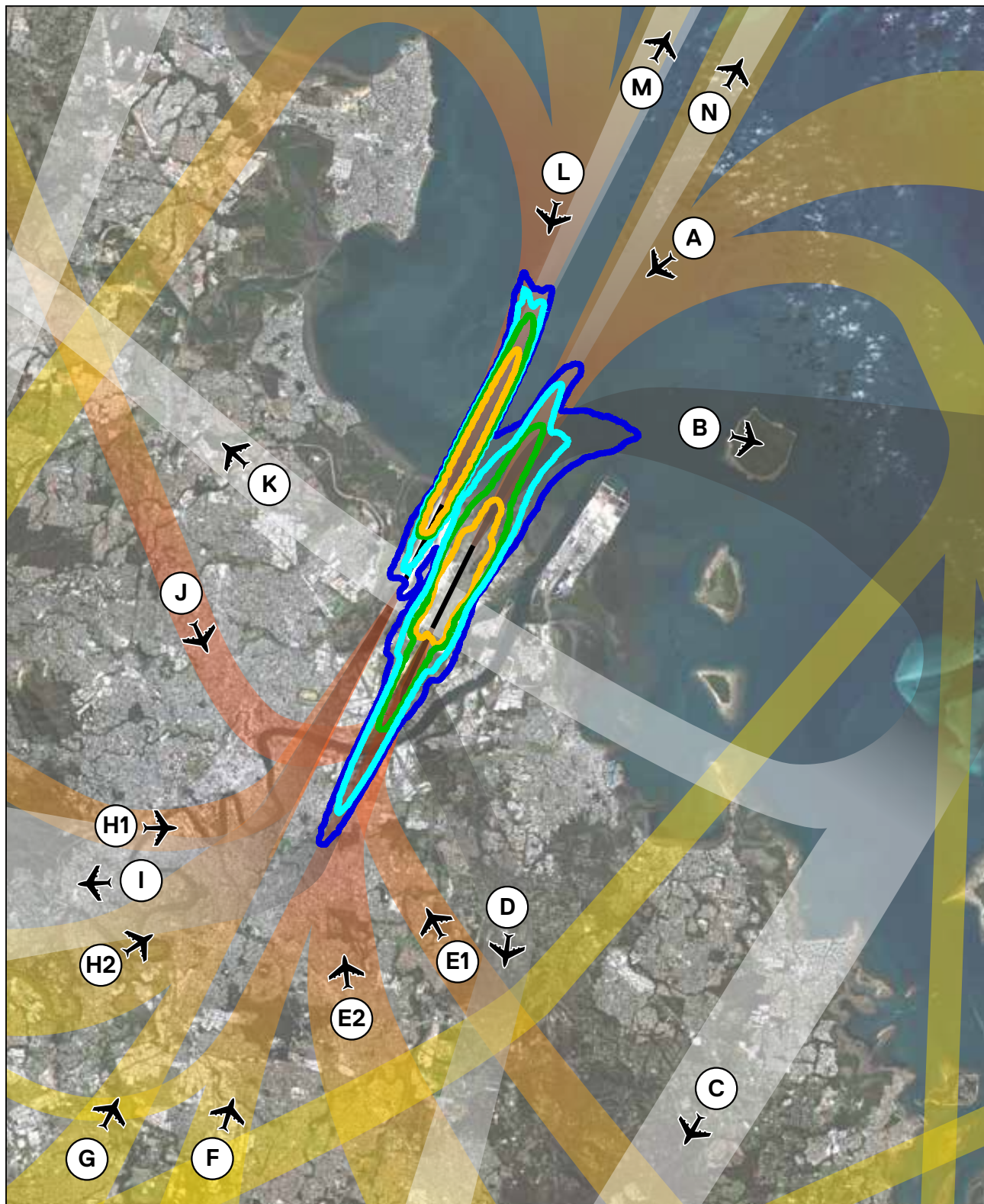
TYPICAL ALTITUDE

**CONTOUR KEY**

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



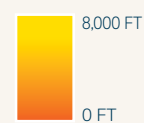
* majority of flights will depart from Brisbane's new runway.
Brisbane Airport Corporation



FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	5	0 - 21	10%	45%
B	Departure	2	0 - 4	4%	7%
C	Departure	7	0 - 12	14%	9%
D	Departure	4	0 - 13	8%	47%
E1	Arrival	2	0 - 7	4%	53%
E2	Arrival	<1	0 - 2	<1%	53%
F	Arrival	4	0 - 16	8%	47%
G	Arrival	<1	0 - 0	<1%	100%
H1	Arrival	<1	0 - 0	<1%	100%
H2	Arrival	<1	0 - 0	<1%	100%
I	Departure	3	0 - 11	6%	44%
J	Arrival	2	0 - 8	3%	48%
K	Departure	4	0 - 7	8%	11%
L	Arrival	17	0 - 31	30%	7%
M	Departure	2	0 - 7	3%	47%
N	Departure	<1	0 - 3	2%	8%

ALTITUDE KEY

ARRIVALS TYPICAL ALTITUDE



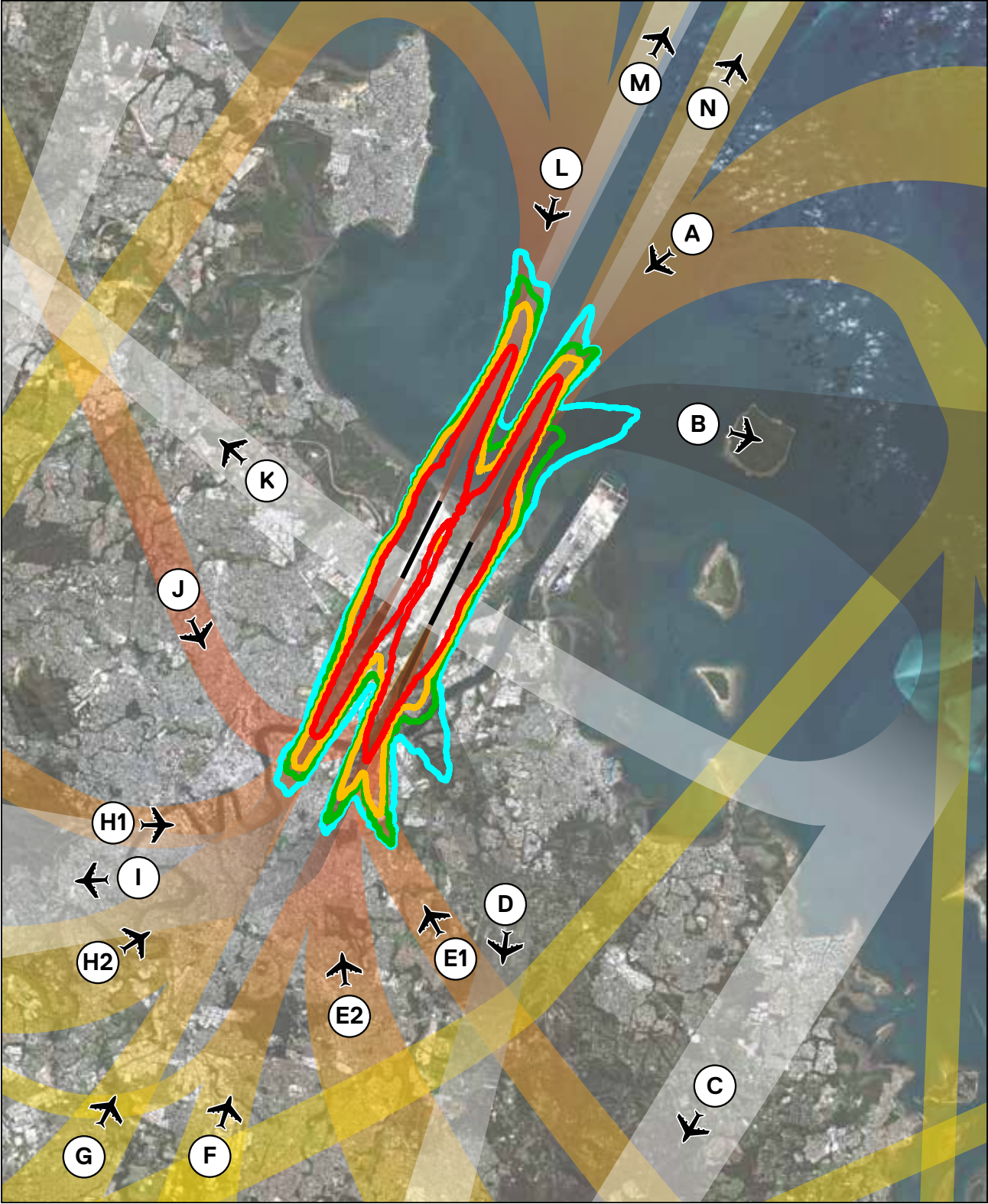
DEPARTURES TYPICAL ALTITUDE



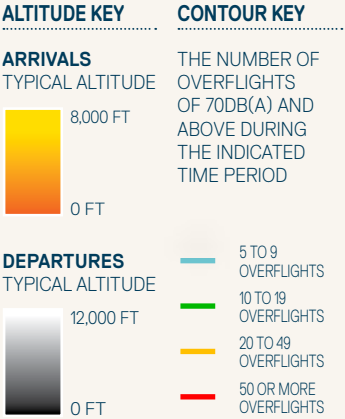
CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD

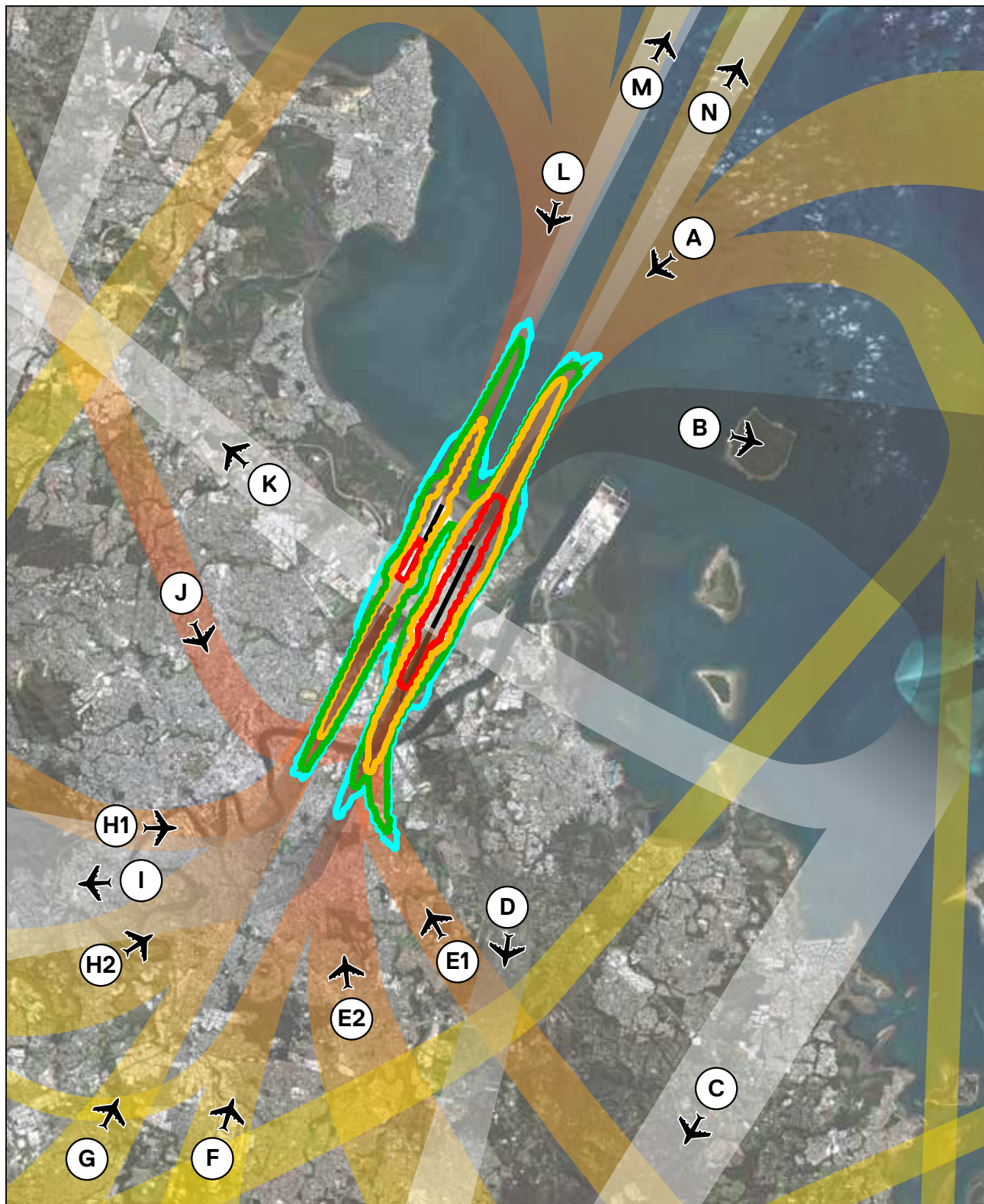




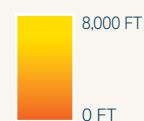
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	69	0 - 148	13%	12%
B	Departure	9	0 - 21	2%	28%
C	Departure	77	0 - 144	15%	27%
D	Departure	79	0 - 165	15%	12%
E1	Arrival	37	0 - 73	7%	27%
E2	Arrival	5	0 - 10	<1%	27%
F	Arrival	29	0 - 54	6%	27%
G	Arrival	29	0 - 55	6%	27%
H1	Arrival	22	0 - 43	4%	27%
H2	Arrival	5	0 - 10	<1%	27%
I*	Departure	56	0 - 114	11%	12%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	9	0 - 17	2%	30%
L	Arrival	46	0 - 95	9%	12%
M	Departure	48	0 - 96	9%	27%
N	Departure	<1	0 - 1	<1%	44%



* majority of flights will depart from Brisbane's new runway.
Brisbane Airport Corporation



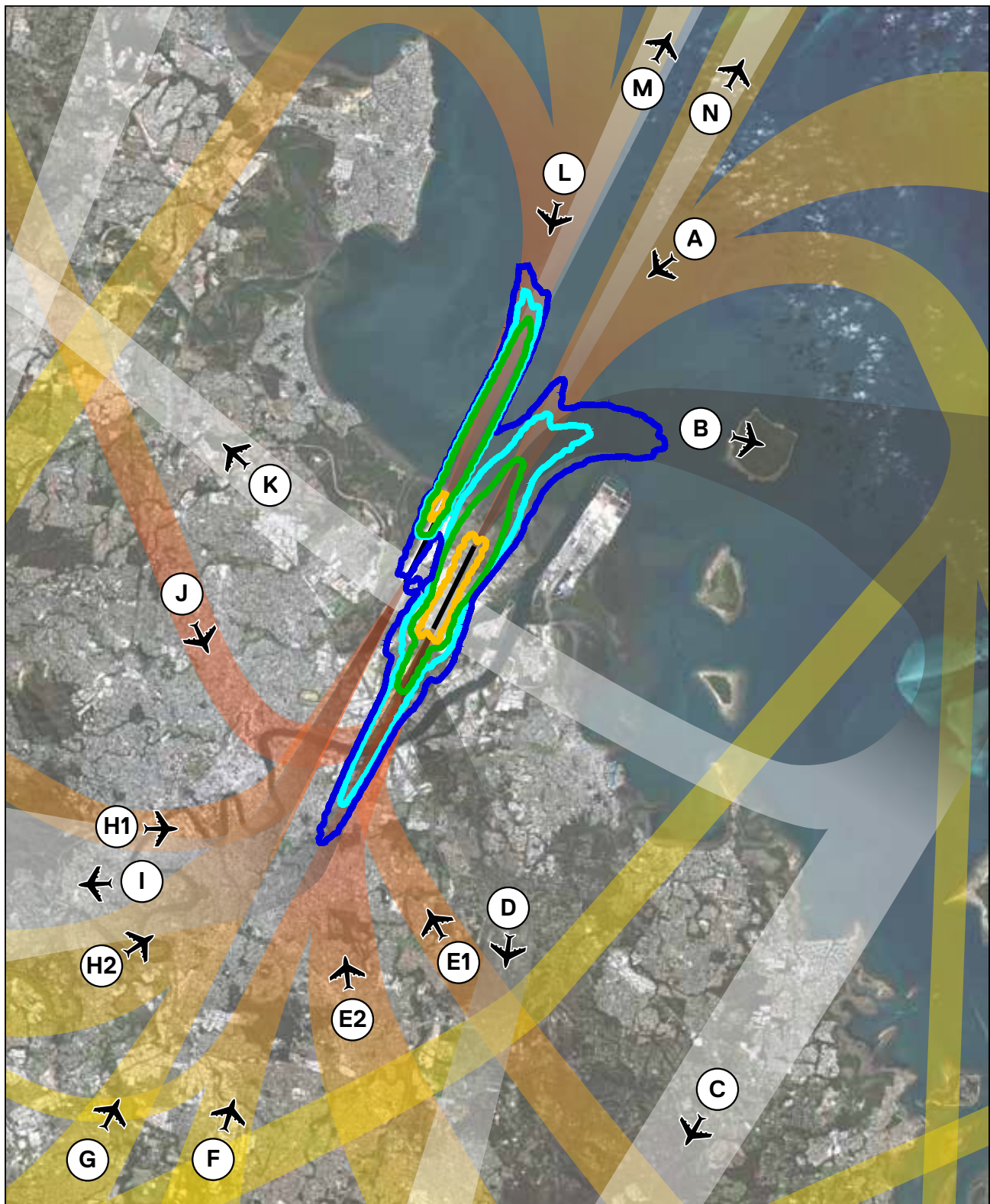
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	30	0 - 71	18%	42%
B	Departure	4	0 - 7	2%	30%
C	Departure	27	0 - 44	16%	30%
D	Departure	19	0 - 50	11%	42%
E1	Arrival	22	0 - 38	13%	30%
E2	Arrival	3	0 - 6	2%	30%
F	Arrival	11	0 - 21	6%	30%
G	Arrival	13	0 - 22	7%	30%
H1	Arrival	8	0 - 14	5%	30%
H2	Arrival	2	0 - 3	1%	30%
I*	Departure	9	0 - 21	5%	42%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	2	0 - 3	<1%	31%
L	Arrival	12	0 - 29	7%	42%
M	Departure	9	0 - 17	5%	30%
N	Departure	<1	0 - 1	<1%	51%

ALTITUDE KEY**ARRIVALS**
TYPICAL ALTITUDE**DEPARTURES**
TYPICAL ALTITUDE**CONTOUR KEY**

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



* majority of flights will depart from Brisbane's new runway.



FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	2	0 - 9	4%	47%
B	Departure	5	0 - 8	12%	8%
C	Departure	3	0 - 5	7%	10%
D	Departure	3	0 - 11	6%	47%
E1	Arrival	2	0 - 5	3%	50%
E2	Arrival	<1	0 - 1	<1%	50%
F	Arrival	3	0 - 9	5%	47%
G	Arrival	<1	0 - 0	<1%	100%
H1	Arrival	<1	0 - 0	<1%	100%
H2	Arrival	<1	0 - 0	<1%	100%
I	Departure	2	0 - 10	5%	59%
J	Arrival	4	0 - 13	8%	47%
K	Departure	5	0 - 6	10%	12%
L	Arrival	16	0 - 26	34%	7%
M	Departure	2	0 - 5	3%	48%
N	Departure	1	0 - 3	2%	9%

ALTITUDE KEY

ARRIVALS

TYPICAL ALTITUDE

8,000 FT

0 FT

DEPARTURES

TYPICAL ALTITUDE

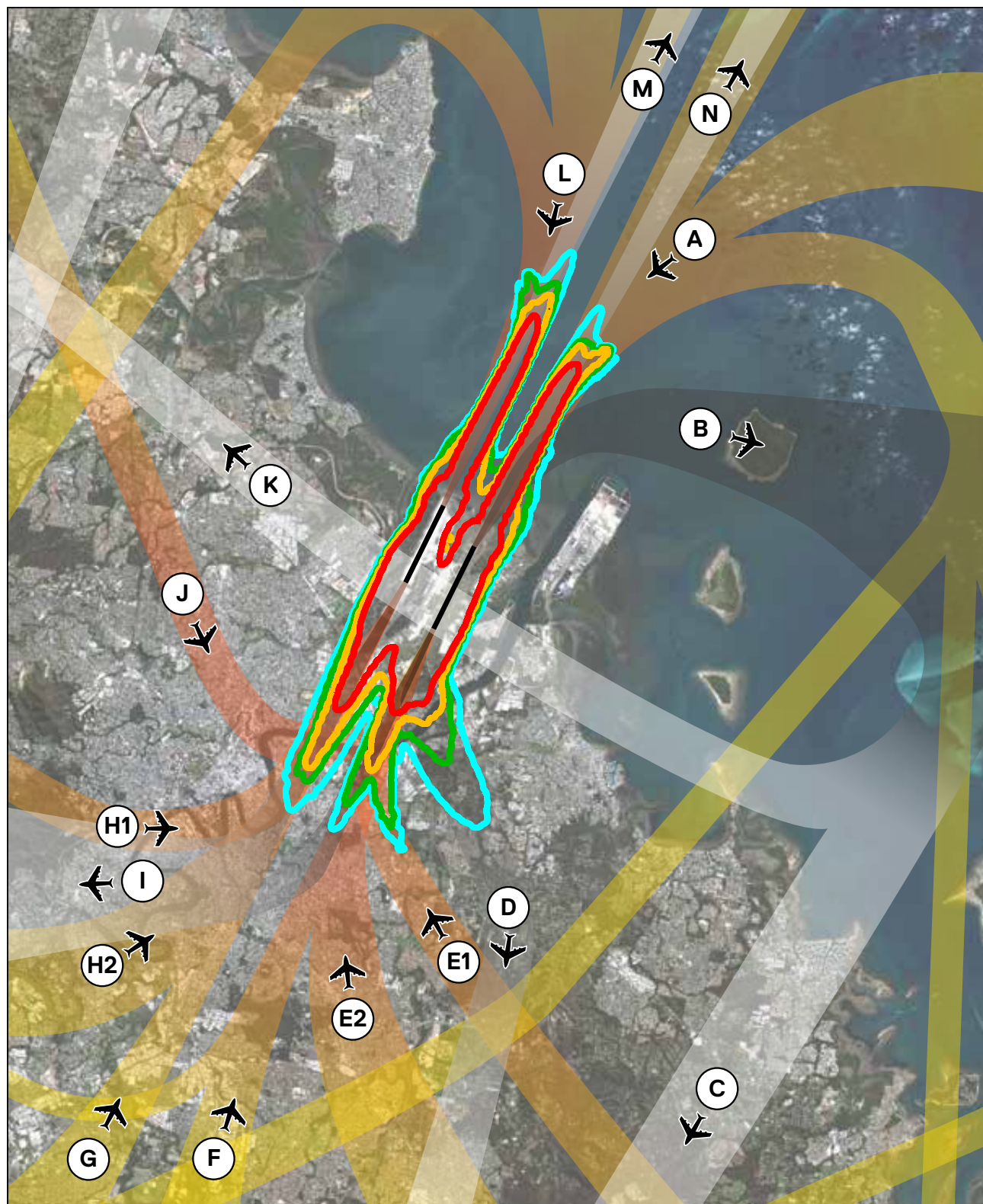
12,000 FT

0 FT

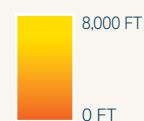
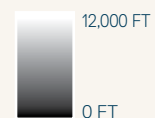
CONTOUR KEY

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD

0 TO 4 OVERFLIGHTS
5 TO 9 OVERFLIGHTS
10 TO 19 OVERFLIGHTS
20 TO 49 OVERFLIGHTS
50 OR MORE OVERFLIGHTS



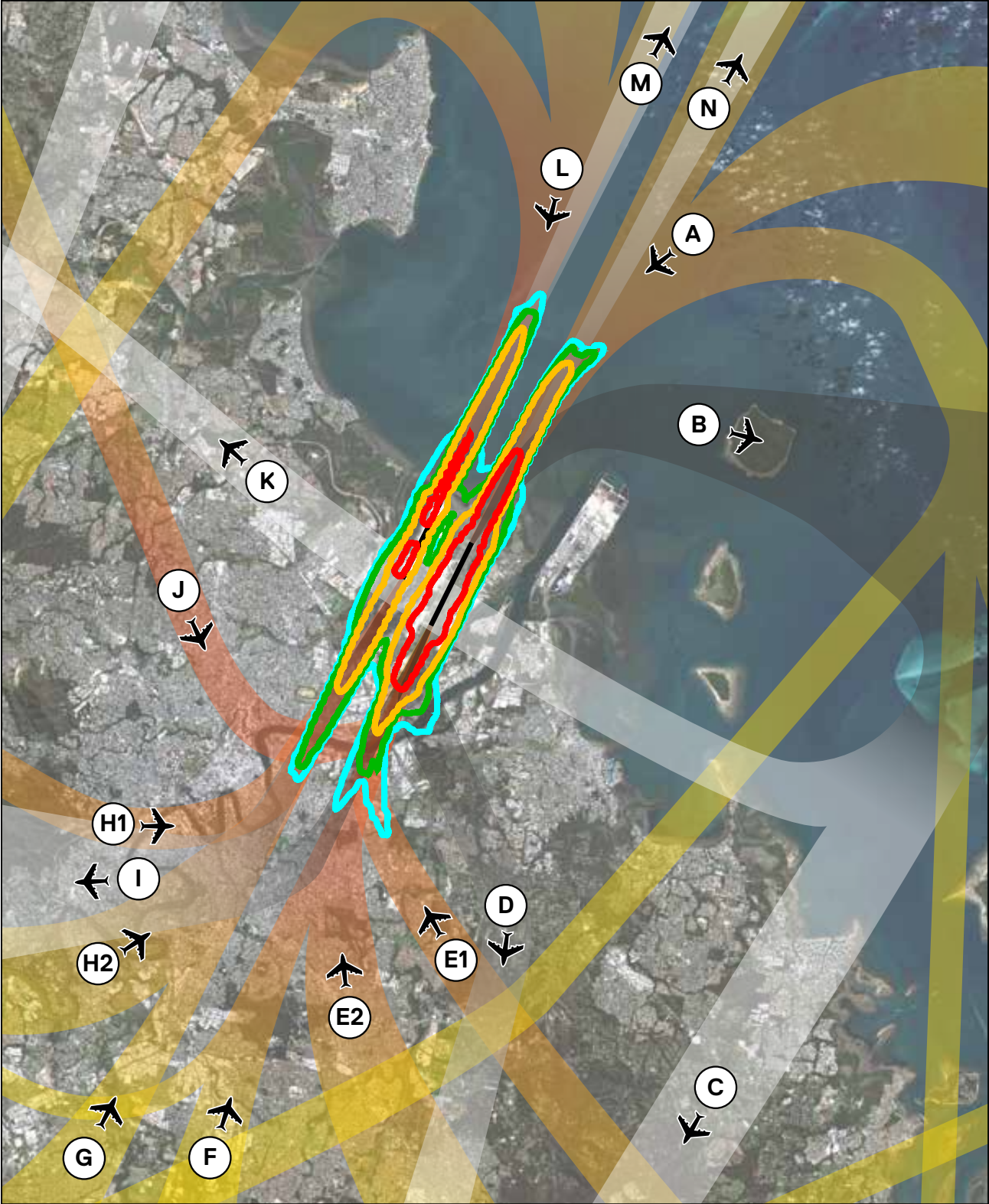
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	113	0 - 152	20%	2%
B	Departure	4	0 - 24	<1%	47%
C	Departure	39	0 - 155	7%	47%
D	Departure	136	0 - 179	24%	2%
E1	Arrival	20	0 - 83	4%	47%
E2	Arrival	3	0 - 12	<1%	47%
F	Arrival	13	0 - 48	2%	47%
G	Arrival	15	0 - 62	3%	47%
H1	Arrival	12	0 - 52	2%	47%
H2	Arrival	3	0 - 12	<1%	47%
I*	Departure	99	0 - 125	17%	2%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	3	0 - 18	<1%	48%
L	Arrival	87	0 - 114	15%	2%
M	Departure	22	0 - 106	4%	47%
N	Departure	<1	0 - 1	<1%	78%

ALTITUDE KEY**ARRIVALS**
TYPICAL ALTITUDE**DEPARTURES**
TYPICAL ALTITUDE**CONTOUR KEY**

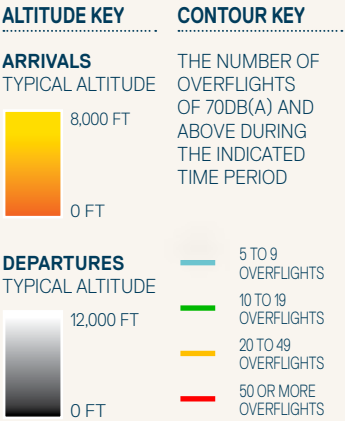
THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



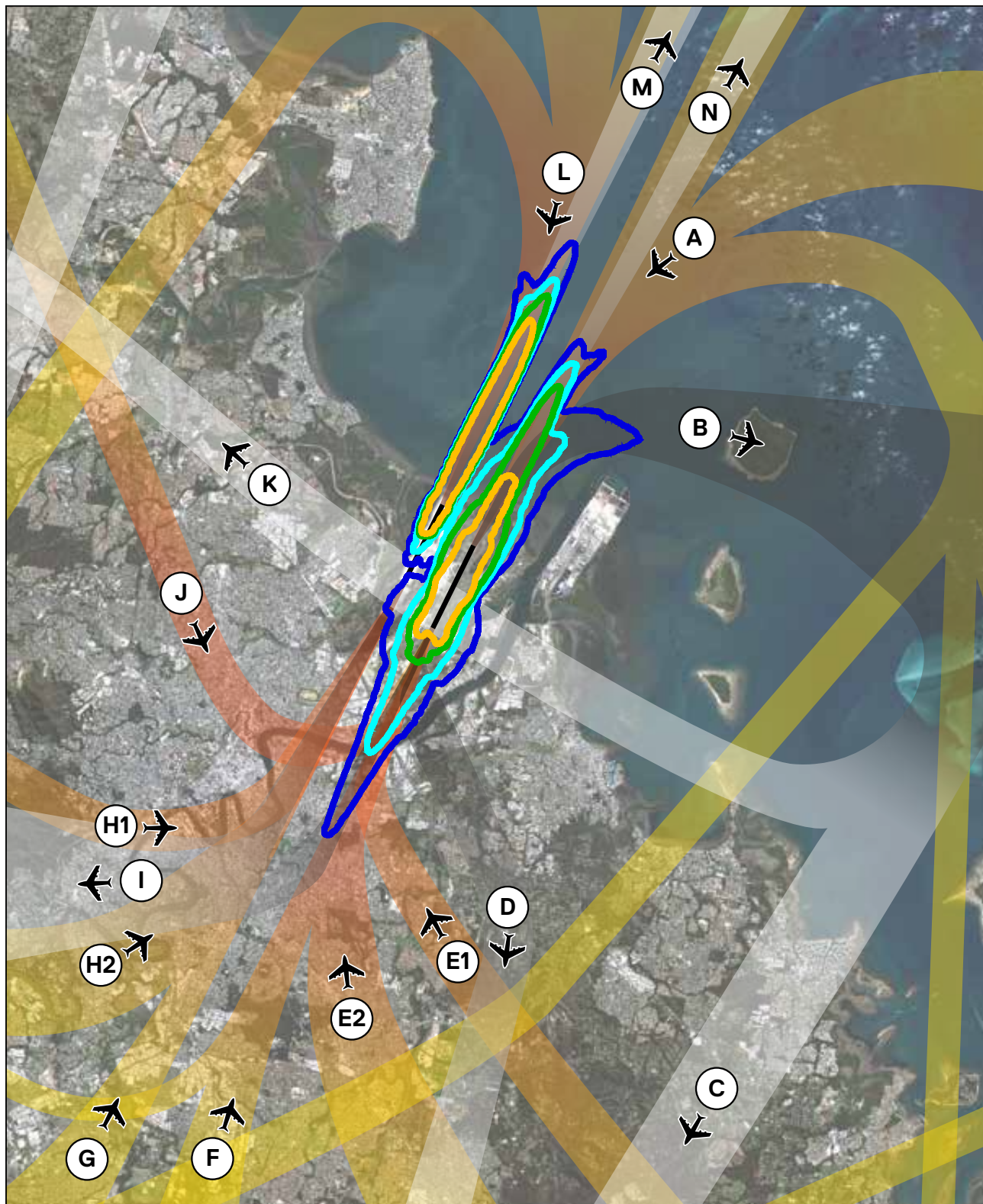
* majority of flights will depart from Brisbane's new runway.



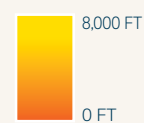
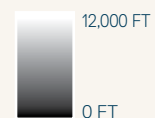
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	46	0 - 70	25%	16%
B	Departure	3	0 - 6	1%	50%
C	Departure	20	0 - 59	11%	50%
D	Departure	42	0 - 65	22%	16%
E1	Arrival	13	0 - 38	7%	50%
E2	Arrival	2	0 - 6	<1%	50%
F	Arrival	6	0 - 21	3%	50%
G	Arrival	8	0 - 22	4%	50%
H1	Arrival	6	0 - 15	3%	50%
H2	Arrival	1	0 - 4	<1%	50%
I*	Departure	13	0 - 21	7%	16%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	<1	0 - 2	<1%	82%
L	Arrival	21	0 - 33	11%	16%
M	Departure	7	0 - 19	4%	50%
N	Departure	<1	0 - 1	<1%	78%



* majority of flights will depart from Brisbane's new runway.
Brisbane Airport Corporation

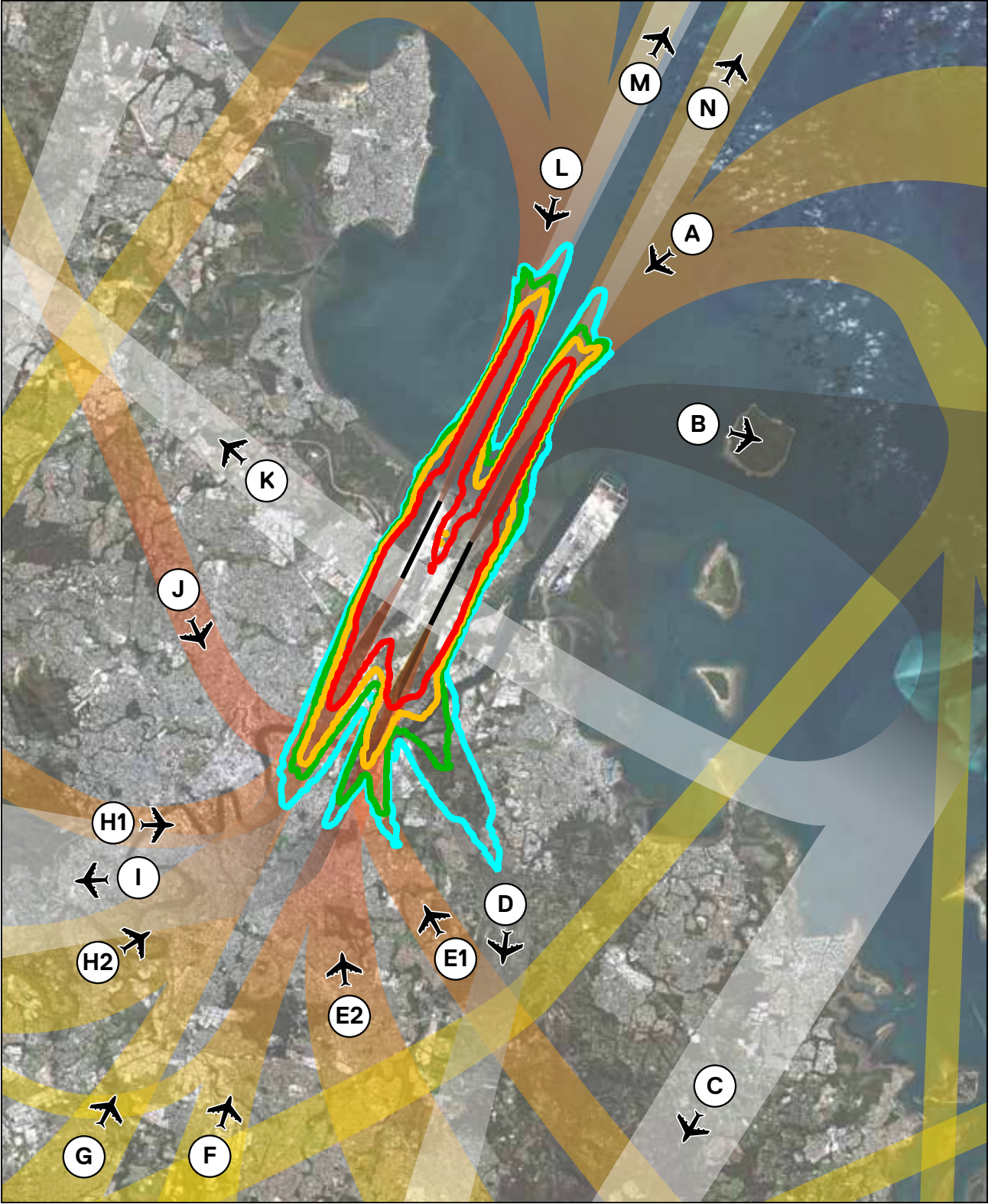


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	15	0 - 31	24%	17%
B	Departure	1	0 - 4	2%	19%
C	Departure	4	0 - 7	6%	15%
D	Departure	4	0 - 8	6%	21%
E1	Arrival	<1	0 - 10	1%	81%
E2	Arrival	<1	0 - 2	<1%	81%
F	Arrival	2	0 - 24	3%	80%
G	Arrival	<1	0 - 0	<1%	100%
H1	Arrival	<1	0 - 0	<1%	100%
H2	Arrival	<1	0 - 0	<1%	100%
I	Departure	6	0 - 13	10%	17%
J	Arrival	<1	0 - 7	<1%	81%
K	Departure	4	0 - 8	6%	24%
L	Arrival	22	0 - 40	37%	0%
M	Departure	<1	0 - 8	<1%	80%
N	Departure	1	0 - 3	2%	19%

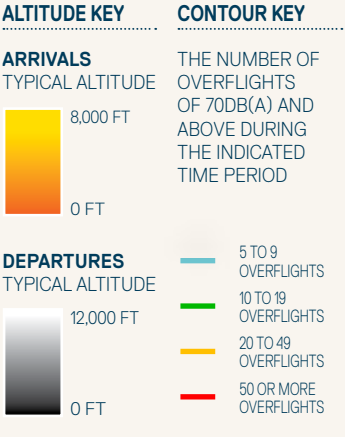
ALTITUDE KEY**ARRIVALS**
TYPICAL ALTITUDE**DEPARTURES**
TYPICAL ALTITUDE**CONTOUR KEY**

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD

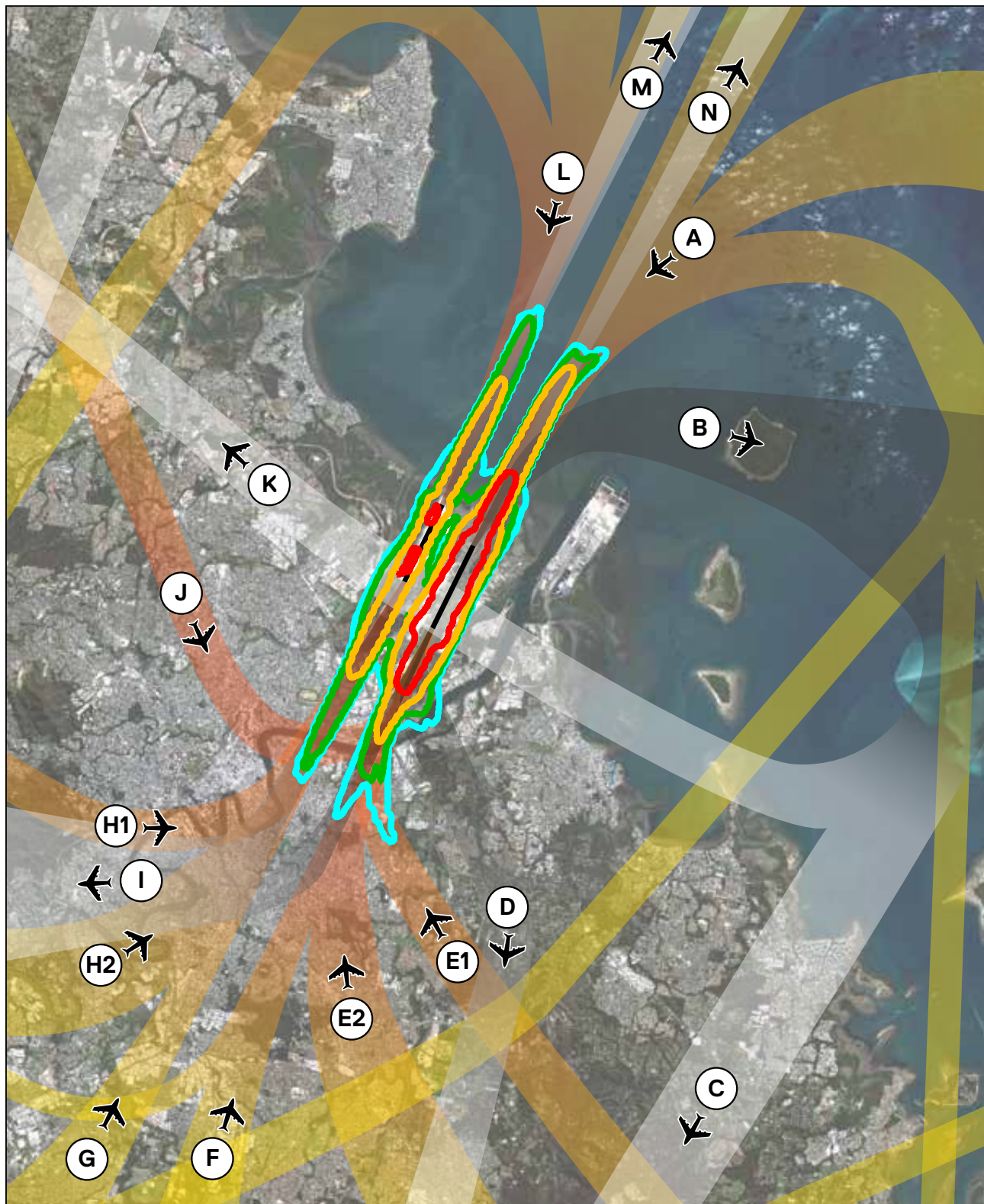




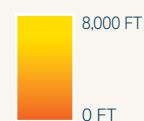
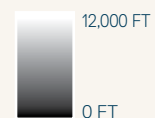
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	104	0 - 148	20%	2%
B	Departure	3	0 - 21	<1%	48%
C	Departure	41	0 - 144	8%	47%
D	Departure	120	0 - 165	23%	2%
E1	Arrival	20	0 - 74	4%	47%
E2	Arrival	3	0 - 10	<1%	47%
F	Arrival	16	0 - 54	3%	47%
G	Arrival	17	0 - 55	3%	47%
H1	Arrival	12	0 - 43	2%	47%
H2	Arrival	3	0 - 10	<1%	47%
I*	Departure	87	0 - 114	17%	2%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	4	0 - 17	<1%	51%
L	Arrival	68	0 - 95	13%	2%
M	Departure	23	0 - 96	4%	47%
N	Departure	<1	0 - 1	<1%	78%



* majority of flights will depart from Brisbane's new runway.
Brisbane Airport Corporation



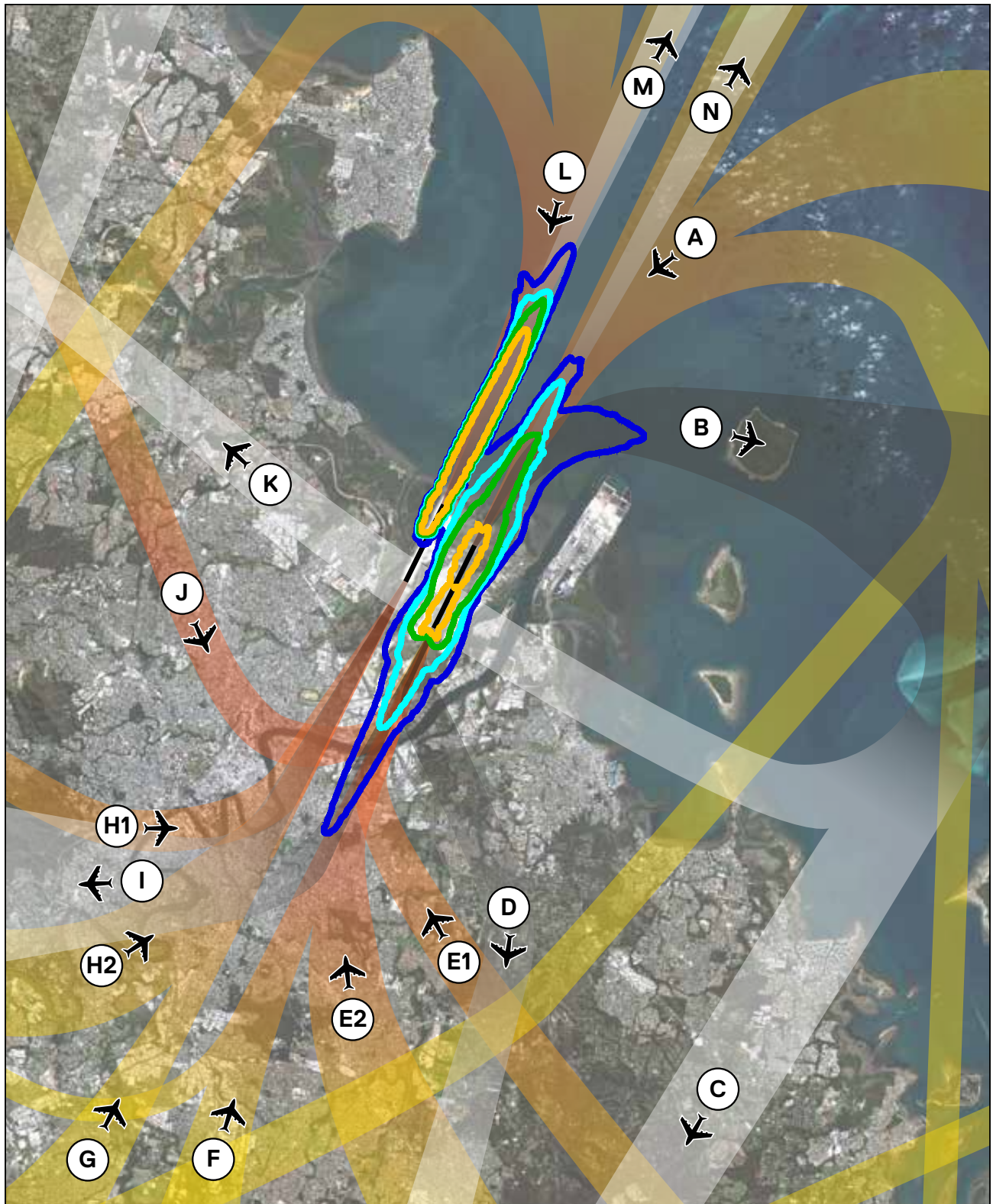
FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	61	50 - 71	36%	0%
B	Departure	1	0 - 3	<1%	51%
C	Departure	8	0 - 16	5%	51%
D	Departure	41	31 - 50	24%	0%
E1	Arrival	14	0 - 36	7%	50%
E2	Arrival	2	0 - 6	<1%	50%
F	Arrival	2	0 - 4	1%	51%
G	Arrival	4	0 - 8	2%	51%
H1	Arrival	6	0 - 15	3%	50%
H2	Arrival	1	0 - 4	<1%	50%
I*	Departure	18	16 - 21	10%	0%
J	Arrival	<1	0 - 0	<1%	100%
K	Departure	<1	0 - 1	<1%	51%
L	Arrival	23	17 - 29	14%	0%
M	Departure	2	0 - 4	1%	51%
N	Departure	<1	0 - 0	<1%	100%

ALTITUDE KEY**ARRIVALS**
TYPICAL ALTITUDE**DEPARTURES**
TYPICAL ALTITUDE**CONTOUR KEY**

THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



* majority of flights will depart from Brisbane's new runway.

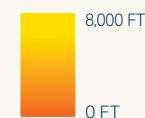


FLIGHT PATH	FLIGHT PATH TYPE	AVERAGE NO. OF JET FLIGHTS ON FLIGHT PATH	EXPECTED MINIMUM & MAXIMUM NO. OF JET FLIGHTS ON PATH	% OF BRISBANE AIRPORT'S TOTAL JET FLIGHTS ON PATH	% OF DAYS WITH NO JET FLIGHTS ON PATH
A	Arrival	8	7 - 9	17%	0%
B	Departure	1	0 - 3	2%	37%
C	Departure	<1	0 - 3	2%	67%
D	Departure	9	6 - 11	19%	0%
E1	Arrival	<1	0 - 9	2%	84%
E2	Arrival	<1	0 - 2	<1%	87%
F	Arrival	<1	0 - 4	<1%	90%
G	Arrival	<1	0 - 0	<1%	100%
H1	Arrival	<1	0 - 0	<1%	100%
H2	Arrival	<1	0 - 0	<1%	100%
I	Departure	8	7 - 10	18%	0%
J	Arrival	<1	0 - 7	<1%	90%
K	Departure	<1	0 - 2	2%	55%
L	Arrival	17	8 - 19	37%	0%
M	Departure	<1	0 - 2	<1%	92%
N	Departure	<1	0 - 1	<1%	37%

ALTITUDE KEY

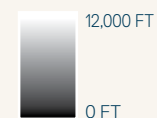
ARRIVALS

TYPICAL ALTITUDE



DEPARTURES

TYPICAL ALTITUDE



CONTOUR KEY







THE NUMBER OF OVERFLIGHTS OF 70DB(A) AND ABOVE DURING THE INDICATED TIME PERIOD



AIRCRAFT DESCRIPTIONS

Over the following pages you will see charts that mention various aircraft types that fly into and out of Brisbane or are expected to in the near future. Below is a profile of the typical aircraft using Brisbane Airport including details of their make, flight range, start of service and passenger numbers.

A380		PASSENGERS – 525	START OF SERVICE – 2006
		RANGE – 15,700 KM	
B747-400		PASSENGERS – 416	START OF SERVICE – 2002
		RANGE – 14,205 KM	
A350-900		PASSENGERS – 325	START OF SERVICE – 2015
		RANGE – 15,000 KM	
B787-800		PASSENGERS – 242	START OF SERVICE – 2011
		RANGE – 14,500 KM	
B777-300		PASSENGERS – 365	START OF SERVICE – 2003
		RANGE – 13,427 KM	
A330-300		PASSENGERS – 277	START OF SERVICE – 1993
		RANGE – 11,750 KM	

A320		PASSENGERS – 150	START OF SERVICE – 1987
		RANGE – 6,100 KM	
A320neo¹		PASSENGERS – 165	START OF SERVICE – 2016
		RANGE – 6,300 KM	
B737-800		PASSENGERS – 162	START OF SERVICE – 1998
		RANGE – 5,436 KM	
B737MAX¹		PASSENGERS – 178	START OF SERVICE – 2017
		RANGE – 6,570 KM	
B717		PASSENGERS – 134	START OF SERVICE – 1998
		RANGE – 3,815 KM	
DASH 8-400		PASSENGERS – 74	START OF SERVICE – 1998
		RANGE – 3,334 KM	

1. Indicative information only and dependent on final design

FLIGHT PATH AND DECIBEL TABLES

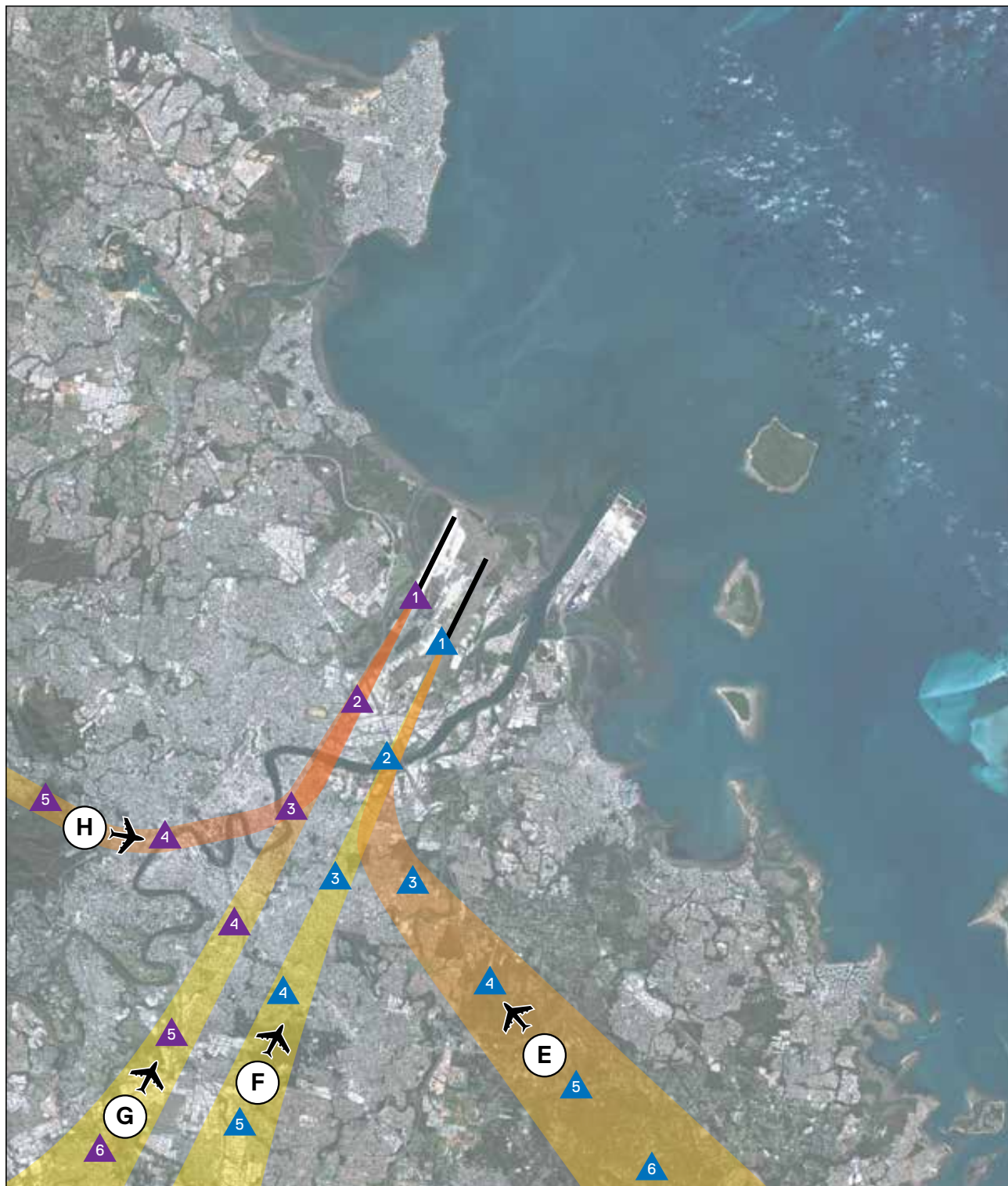
The charts on pages 62 and 64 show the primary arrival and departure flight paths expected to be in use at Brisbane Airport upon opening of Brisbane's new runway. The numbers that appear along the flight paths on the charts correspond to the adjacent tables on pages 63 and 65.

Long haul aircraft will show increased noise levels on departure due to higher fuel loads required on those flights.

Each table provides information on aircraft type, the destination or origin of the flight and the maximum noise level that could be expected at that location from a single aircraft arriving or departing along the specific flight path.


Use the clear overlay at the front of the book to locate your suburb.

ARRIVAL FLIGHT PATHS AND LOCATION WITH BNR



HOW TO READ THIS FLIGHT PATH LOCATION AND DECIBEL TABLE

The chart above and the table opposite enable you to determine the extent of noise in decibels that you might experience at certain locations around Brisbane when a particular type of aircraft is arriving on a flight path into Brisbane Airport.

The numbers shown in triangles on the chart above correspond with the numbers in the table opposite. For instance, if you are located at any of the locations marked with a  you would experience a maximum noise event of approximately 79 decibels if an A380 coming from Singapore was using the flight path, 68 decibels if a B737 MAX coming from Melbourne was using the flight path or 56 decibels if a Dash8 coming from Mackay was using the flight path.

Use the clear overlay at the front of the book to locate your suburb.

All distances are measured from the end of the runways.

ARRIVAL FLIGHT PATHS AND LOCATION TABLE

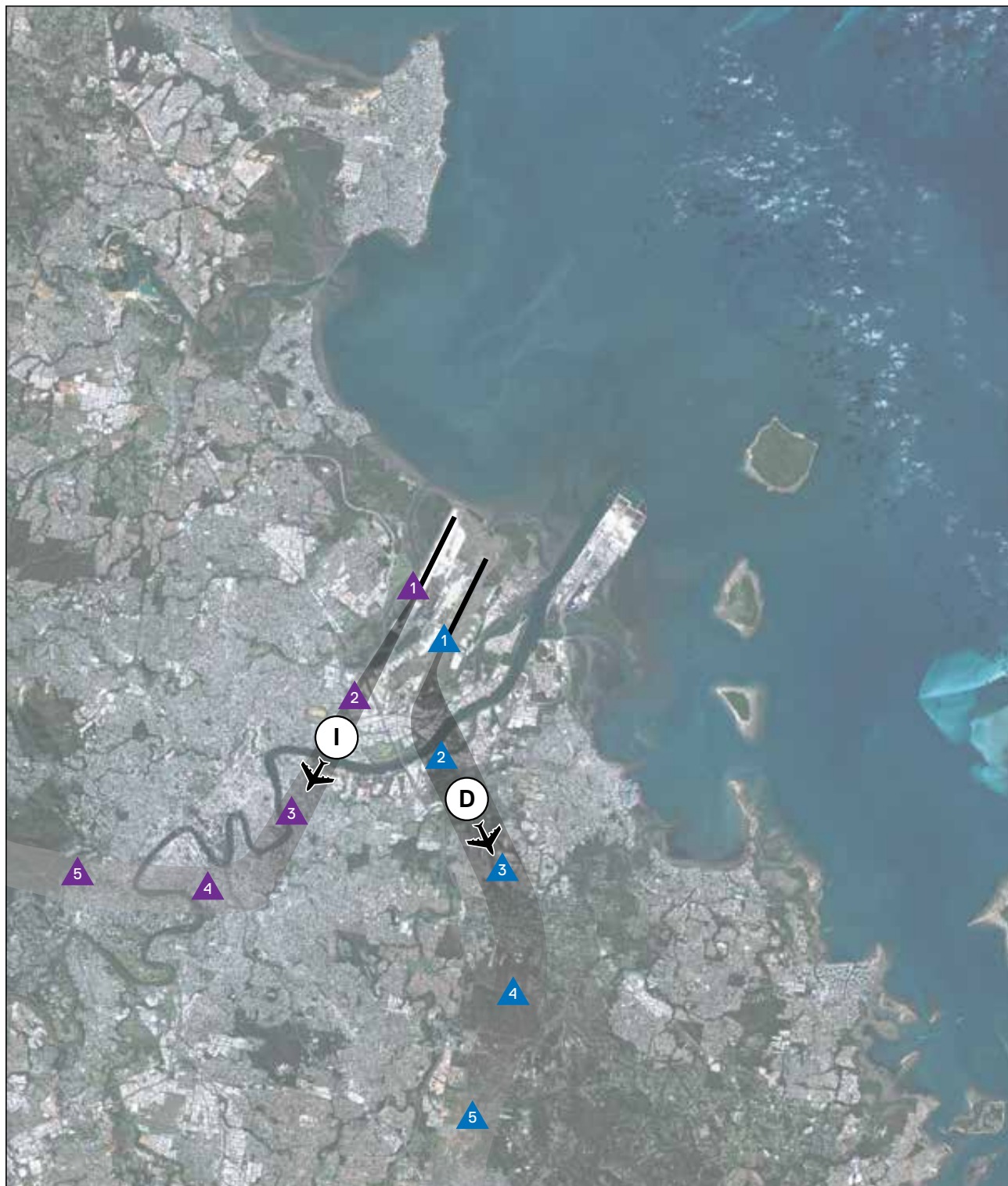
Path	Destination	Aircraft	Location						
			End of the runways	+5km	+10km	+15km	+20km	+25km	+30km
			1	2	3	4	5	6*	7*
Values in decibels									
H	Singapore	A380	109	79	71	67	65	61	59
H	Singapore	A350	111	79	72	66	62	58	56
H	Singapore	B777-300	113	81	74	68	67	63	61
H	Singapore	B787-800	108	77	69	64	62	59	56
H	Singapore	A330	111	79	72	66	64	60	58
H	Darwin	B737 MAX	108	77	70	65	59	55	52
H	Darwin	A320 NEO	106	74	66	61	60	56	54
H	Mackay	B717	105	74	64	59	57	52	49
H	Mackay	Dash8-Q400	98	67	59	54	53	49	47
G	Singapore	A380	109	79	72	67	65	65	64
G	Singapore	A350	111	79	71	66	62	62	61
G	Singapore	B777-300	113	81	74	69	66	66	66
G	Singapore	B787-800	108	77	69	65	62	62	62
G	Singapore	A330	111	79	72	66	64	64	62
G	Darwin	B737 MAX	108	76	69	64	59	59	57
G	Darwin	A320 NEO	106	74	66	61	60	59	56
G	Mackay	B717	105	74	64	59	54	51	49
G	Mackay	Dash8-Q400	98	67	59	54	51	48	47
E	Los Angeles	A380	104	79	71	68	63	61	59
E	Los Angeles	A350	106	79	72	67	61	58	56
E	Los Angeles	B777-300	108	81	74	69	65	63	61
E	Los Angeles	B787-800	104	77	69	65	61	58	56
E	Auckland	A330	106	79	72	67	62	60	58
E	Auckland	B737 MAX	103	77	69	66	57	55	52
E	Auckland	A320 NEO	101	74	66	63	58	56	54
E	Canberra	B717	100	73	64	60	55	52	49
E	Newcastle	Dash8-Q400	93	66	59	56	51	49	47
F	Los Angeles	A380	104	79	72	67	65	65	64
F	Los Angeles	A350	106	79	71	66	62	62	61
F	Los Angeles	B777-300	108	81	74	70	67	66	66
F	Los Angeles	B787-800	104	77	69	65	62	62	62
F	Auckland	A330	106	79	72	66	64	64	62
F	Auckland	B737 MAX	103	76	69	65	59	59	57
F	Auckland	A320 NEO	101	74	66	62	60	59	56
F	Melbourne	A330	106	79	72	66	64	64	62
F	Melbourne	B737 MAX	103	76	69	65	59	59	57
F	Melbourne	A320 NEO	101	74	66	62	60	59	56

Note: The noise levels shown in this table were calculated using the Federal Aviation Administration Integrated Noise Model (7.0d) software.

* Some of this locations are positioned outside of the map viewable area.


For completeness, the table above shows expected decibel levels at locations including 25 or more kilometres (column 6) and at locations of 30 or more kilometres (column 7) from the end of the runways. The data shown here indicates the noise exposure at each distance from Brisbane Airport.

Important Note: Noise is measured on a logarithmic scale with the decibel (dB) as the unit of measure. Measurements of noise usually have a correction factor applied to reflect the sensitivity of the human ear. This factor is referred to as “A-weighting” and environmental noise is usually measured in dB(A) units. The noise level of normal daytime urban-based activities typically varies between 40dB(A) and 85dB(A). On this scale, a change in noise level of 10dB(A) is perceived to be a doubling or halving in loudness. For example, most humans perceive a noise event of 85dB(A) to be about twice as loud as an event of 75dB(A).



HOW TO READ THIS FLIGHT PATH LOCATION AND DECIBEL TABLE

The chart above and the table opposite enable you to determine the extent of noise in decibels that you might experience at certain locations around Brisbane when a particular type of aircraft is departing on a flight path from Brisbane Airport over land. Aircraft departing over Moreton Bay may turn and head over land, although these aircraft will be flying at altitude when this happens.

The numbers shown in triangles on the chart above correspond with the numbers in the table opposite. For instance, if you are located at any of the locations marked with a  you would experience a maximum noise event of approximately 79 decibels if an A380 going to Singapore was using the flight path, 76 decibels if a B737 MAX going to Melbourne was using the flight path or 67 decibels if a Dash8 going to Mackay was using the flight path.

Use the clear overlay at the front of the book to locate your suburb.

All distances are measured from the end of the runways.

DEPARTURE FLIGHT PATHS AND LOCATION TABLE

Path	Destination	Aircraft	Location						
			End of the runways	+5km	+10km	+15km	+20km	+25km	+30km
			1	2	3	4	5	6*	7*
Values in decibels									
I	Singapore	A380	89	79	71	66	62	59	55
I	Singapore	A350	88	75	68	63	60	58	56
I	Singapore	B777-300	94	76	69	64	60	58	53
I	Singapore	B787-800	82	73	65	60	57	54	51
I	Singapore	A330	92	77	72	67	63	61	59
I	Darwin	B737 MAX	86	70	65	61	58	56	54
I	Darwin	A320 NEO	84	69	63	58	55	53	51
I	Mackay	B717	78	67	62	57	54	48	38
I	Mackay	Dash8-Q400	68	56	51	49	47	46	45
D	Los Angeles	A380	101	85	78	73	69	65	63
D	Los Angeles	A350	95	79	72	68	64	61	59
D	Los Angeles	B777-300	101	81	74	69	65	62	59
D	Los Angeles	B787-800	89	76	69	64	61	57	55
D	Auckland	A330	89	74	70	65	61	57	44
D	Auckland	B737 MAX	83	69	64	60	57	52	42
D	Auckland	A320 NEO	82	66	61	57	53	51	43
D	Canberra	B717	77	67	61	57	54	43	35
D	Newcastle	Dash8-Q400	66	55	51	49	47	45	44
D	Melbourne	A330	89	75	69	64	60	54	42
D	Melbourne	B737 MAX	83	68	63	59	56	48	38
D	Melbourne	A320 NEO	81	66	61	56	53	49	38

Note: The noise levels shown in this table were calculated using the Federal Aviation Administration Integrated Noise Model (7.0d) software.

* Some of this locations are positioned outside of the map viewable area.

For completeness, the table above shows expected decibel levels at locations including 25 or more kilometres (column 6) and at locations of 30 or more kilometres (column 7) from the end of the runways. The data shown here indicates the noise exposure at each distance from Brisbane Airport.

Important Note: Noise is measured on a logarithmic scale with the decibel (dB) as the unit of measure. Measurements of noise usually have a correction factor applied to reflect the sensitivity of the human ear. This factor is referred to as “A-weighting” and environmental noise is usually measured in dB(A) units. The noise level of normal daytime urban-based activities typically varies between 40dB(A) and 85dB(A). On this scale, a change in noise level of 10dB(A) is perceived to be a doubling or halving in loudness. For example, most humans perceive a noise event of 85dB(A) to be about twice as loud as an event of 75dB(A).



N60, N65 AND N70 NOISE CONTOUR MAPS

The Australian Government, through the Department of Infrastructure and Regional Development and Cities, is focused on improving community amenity by minimising aircraft noise sensitive developments near airports, including improvements to methods for describing noise.

Through NASAG, which comprises Commonwealth, State and Territory Government planning and transport officials, the National Airports Safeguarding Framework has been developed.

The Framework acknowledges the importance of airports to national, state and local economics, transport networks and social capital. It also provides guidance for strategic land planning, with a particular focus on limiting noise-sensitive development under airport flight paths or within certain distances of an airport.

For instance, the Framework recognises that there is a need to treat future development and existing development differently. Where there is no major existing or approved development, there is scope to plan ahead to take account of potential noise disturbance and in particular to avoid the zoning of noise-exposed land for residential development.

The Framework explains that there may be less scope to avoid noise issues in situations of urban consolidation and infill or redevelopment of brownfield areas, but points out that consideration should be given to the appropriate nature of that development and the balance of public interest.

The Framework also outlines that consideration should be given to measures to manage the implications of aircraft noise where increasing settlement in existing areas exposed to a significant degree of aircraft noise is deemed acceptable, for instance, through appropriate noise attenuation construction techniques.

Adopting the recommendations from the NASAG Framework, this section of the booklet incorporates two additional contour maps.

The following diagrams on pages 67 and 68 represent an average summer day in 2020 and 2035.

Both diagrams show where:

- » 20 or more daily noise events of greater than 70 decibels may occur
- » 50 or more daily noise events of greater than 65 decibels may occur
- » 100 or more daily noise events of greater than 60 decibels may occur
- » 6 or more noise events of greater than 60 decibels may occur between the hours of 10pm and 6am.

Use of a range of 60, 65 and 70 decibel contours allows a balanced view of the impacts residents may experience from aircraft noise. These contours better reflect the higher frequency flight paths around Brisbane Airport.

2020 NOISE CONTOUR MAP – N60, N65 AND N70



- CONTOUR KEY**
- 20 EVENTS N70 CONTOUR
 - 50 EVENT N65 CONTOUR
 - 100 EVENT N60 CONTOUR
 - 6 EVENT N60 CONTOUR BETWEEN 10PM AND 6AM

Use the clear overlay at the front of the book to locate your suburb.

2035 NOISE CONTOUR MAP – N60, N65 AND N70



CONTOUR KEY

- 20 EVENTS N70 CONTOUR
- 50 EVENT N65 CONTOUR
- 100 EVENT N60 CONTOUR
- 6 EVENT N60 CONTOUR BETWEEN 10PM AND 6AM

Use the clear overlay at the front of the book to locate your suburb.

NOTES AND EXPLANATIONS

HOW INFORMATION REGARDING FLIGHT PATHS AND NOISE EFFECTS HAS BEEN PREPARED

Forecasting flight paths and noise information into the future has been carefully modelled. However, there are a number of uncertainties in forecasting that must be taken into account.

WEATHER CONDITIONS

The model used has drawn upon 10 years of Bureau of Meteorology data recorded at Brisbane Airport. This information is used to determine whether a change of runway direction is required based on wind direction and speed and if a runway is wet or dry.

Further details on the criteria for runway selection are provided in the beginning of the booklet in the section describing the operation of Brisbane Airport's current and future runway system. In forecasting forward to 2020 and 2035, historical weather data has been used to predict future runway and flight path usage.

TRAFFIC FORECASTS

The expected growth in air traffic is based on forecast growth in domestic and international passenger numbers. The expected number of flights for 2020 and 2035 is based on the determination of a 'typical busy day' flight schedule. Different schedules were developed for Winter and Summer to capture the differences when daylight saving is operating in southern states.

FLEET MIX

The model used for determining the potential noise effects of aircraft has been based on today's aircraft fleet mix. However, the aircraft flying into and out of Brisbane Airport will change over coming years. Aircraft technology continues to evolve with manufacturers introducing new and improved aircraft.

Aircraft manufacturers strive for improved noise outcomes with new aircraft models and have historically been successful in achieving these improvements over time.

AIRCRAFT NOISE PROFILES

The noise made by aircraft varies from aircraft to aircraft and can be marginally different even for aircraft of the same type, and takes into account the variation in take-off weight and thrust settings depending on the trip distance (short, medium or long haul flights).

The modelling is conservative in that it is based on a busy day. The model assumes an average load factor is 65% of total payload (not passenger load), the trip range is based on 70% of the stage-length interval (e.g. for 1,500-2,500, it is 2,200 nm) and the fuel load assumes some reserves.

FLIGHT PATH ALLOCATION

The modelling has made assumptions in relation to the allocation of flight paths for arriving and departing aircraft. Accurate information is available for the selected base year using the existing runway system. However, the allocation of flight paths for 2020 and beyond is based on the proposed airspace procedures and design, and the runway selection criteria for operations on parallel runways, which is based on the origin and destinations of aircraft.

HOW CHANGES TO FLIGHT PATHS WILL BE APPROVED

The process for adoption and implementation of significant changes to the operation of Australia's airspace – such as changes required for Brisbane's new runway – is complex and rigorous. Based on current legislative requirements, the approval of changes to airspace required for Brisbane's new runway to be operated has been a sequential two-step process, as described below.

STEP 1 – APPROVAL OF THE EIS/MDP

The first step was the approval of Brisbane's New Parallel Runway Project EIS/MDP under the Airports Act and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In the EIS/MDP, a comprehensive environmental assessment of the operational impacts of the project (predominantly concerned with noise and air quality issues) was undertaken.

The assessment was based on a range of possible flight path options, approach and departure procedures and operating modes, which were prepared for BAC. The airspace design work was of an advanced technical level and formed the basis for adoption and implementation of airspace changes outlined in Step 2.

The environmental assessment undertaken and presented in the EIS/MDP provided:

- » The Australian Government Minister for the Environment with sufficient information to decide to approve the EIS for the purposes of the EPBC Act
- » The Minister for the Environment with sufficient information to provide advice to the Australian Government Minister for Transport and Regional Services to approve the EIS/MDP (this is a requirement of the EPBC Act)
- » The Minister for Infrastructure and Regional Development with sufficient information to approve the EIS/MDP for the purposes of the Airports Act
- » Sufficient details for BAC to obtain all State, Local and Australian Government approvals to enable Brisbane's new runway to proceed to construction.

In addition, the EIS/MDP assessment provided the Minister for Environment and Heritage with information to provide advice to Airservices to implement any changes to airspace which are likely to have a significant impact on the environment (again, a requirement of the EPBC Act).

STEP 2 – APPROVAL BY THE OFFICE OF AIRSPACE REGULATION (OAR)

The second step in the process was the approval for the adoption and implementation of the airspace changes by the OAR, currently a division of CASA. The role of OAR is to exercise CASA's authority for airspace and environment responsibilities as defined with prescribed legislation including:

- » *Air Services Act 1995*
- » *Air Services Regulations 1995*
- » *EPBC Act*
- » *Air Navigation (Aircraft Noise) Regulation 1984.*

As 2020 nears, the airspace design has been evaluated by BAC, as the airport operator, and Airservices Australia, the organisation responsible for designing and managing airspace across Australia. The evaluation was undertaken in relation to new aviation procedures, technologies or policies that have been introduced since the EIS/MDP approval in 2007.

In order for CASA, the government organisation responsible for regulating Australian aviation safety, to approve the airspace volume changes associated with the new runway, Airservices Australia compiled an Airspace Change Proposal (ACP) which outlined the airspace design and accompanying safety and environmental assessments for review.

The core component of the ACP are changes to airspace volumes required for the safe operation of Brisbane's new runway. Airspace volumes are the sections of airspace which are managed by air traffic control and are established to ensure that aircraft arriving to and departing from Brisbane Airport continue to operate within that airspace.

The airspace volume changes included in the ACP were consistent with the information presented in the EIS/MDP.

In October 2018, CASA concluded its review process and approved the ACP. The airspace volume changes presented in the ACP will be implemented in May 2020, prior to runway operations commencing.

The OAR assessment is based on a number of criteria, including:

- » Safety
- » Protection of the environment
- » Efficient use of airspace
- » Equitable access
- » National security
- » Current and future needs of the Australian aviation industry
- » Advances in technology
- » International best practice as may be adapted to benefit Australia's aviation environment
- » ICAO standards and recommended practices

PROCEDURES FOR DEFINING FLIGHT PATHS

The flight paths developed for Brisbane Airport both now and with Brisbane's new runway were developed in accordance with standards established by organisations including ICAO, CASA and Airservices.

The following parameters are considered in the development of the flight paths:

Priority 1 – Safety

Priority 2 – Air Traffic Management Requirements

Priority 3 – Environment

Where all three areas conflict, the solution is based on the stated order of priority.

However, for the purposes of noise abatement at sensitive times, such as night time, Priority 3 may have precedence over Priority 2.

The procedures that were followed in developing the proposed flight path options and modes of operation for Brisbane's new runway were:

1. Safety is always paramount.
2. The flight paths must be fit for purpose to enable traffic demand to be processed in a safe, orderly and expeditious manner.
3. Existing flight path corridors will be maintained where possible.
4. Maintain consistency, to the greatest extent practical, with the airspace design presented in the EIS/MDP.

5. New flight paths or existing flight path changes are to occur over water where possible, especially where aircraft are below 5,000 ft.
6. Where it is not possible for new flight paths to be over water, flight paths to be concentrated over non-noise sensitive areas and establishments where possible.
7. To the extent that it is practicable, residential areas overflown on a departure track by departing aircraft should not also be overflown by arriving aircraft on an arrival track.
8. Current and future, short-term and long-term noise exposure shall be taken into account in deciding between options.
9. Consideration shall be given as to whether concentration or noise sharing is more appropriate at the location.
10. When comparing options, operations that are conducted at night or on weekends should be treated as being more sensitive than those that occur during the daytime or weekdays.
11. Options that allow for a gradual change from the current to planned procedures should be given preference.
12. Operations to target respite rather than reduced frequency.
13. No suburb, group or individual can demand or expect to be exempt from aircraft noise exposure.

ABBREVIATIONS

Abbreviation	Meaning
01 / 19	Indicates the direction of the runway (01 = arrivals over the city and departures over the bay / 19 = arrivals over the bay and departures over the city)
01L	The new runway (arrivals over the city)
01R	The current runway (arrivals over the city)
19L	The current runway (arrivals over the bay)
19R	The new runway (arrivals over the bay)
ACP	Airspace Change Proposal
Airports Act	Airports Act 1996
Airservices	Airservices Australia
ANO	Aircraft Noise Ombudsman
BAC	Brisbane Airport Corporation Pty Ltd
BNR	Brisbane's new runway
CASA	Civil Aviation Safety Authority
dB	Decibels
EIS/MDP	2007 Environmental Impact Study and Major Development Plan for the New Parallel Runway
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ICAO	International Civil Aviation Organisation
Km	Kilometre
N60	Contour lines over a map showing areas within which a stated number of flights generating noise (N) of 60 decibels (60) or more occur in a specified period of time
N65	Contour lines over a map showing areas within which a stated number of flights generating noise (N) of 65 decibels (65) or more occur in a specified period of time
N70	Contour lines over a map showing areas within which a stated number of flights generating noise (N) of 70 decibels (70) or more occur in a specified period of time
NAP	Noise Abatement Procedures
NASAG	National Airports Safeguarding Advisory Group
NCIS	Noise Complaints and Information Service
nm	Nautical Mile
OAR	Office of Airspace Regulation
RNP	Required Navigation Performance
RWY	Runway
SID	Standard Instrument Departure
SODPROPS	Simultaneous Opposite Direction Parallel Runway Operations
STAR	Standard Terminal Arrival Route

CONTACT

Phone: (07) 3406 3000

Postal: Brisbane Airport Corporation Pty Ltd
PO Box 61, Hamilton Central,
Queensland, 4007

Web: www.bne.com.au

