Before an Independent Hearings Panel
appointed by the Waimakariri District Council

*under:* the Resource Management Act 1991

*in the matter of:* Submissions and further submissions in relation to the proposed Waimakariri District Plan, Variation 1 and Variation 2

*and:* Hearing Stream 10A: Future Development Areas, Airport Noise Contour, Bird Strike and Growth policies

*and:* **Christchurch International Airport Limited**
Submitter 254

# Statement of evidence of Sebastian Hawken (Airport Safeguarding)

Dated: 2 February 2024

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**STATEMENT OF EVIDENCE OF SEBASTIAN HAWKEN**

**INTRODUCTION**

1 My full name is Sebastian Tate Hawken. I am an aviation and airport planning advisor with over 15 years' experience specialising in airport master planning and strategy. I am New Zealand/Pacific Manager for the international specialist aviation and airport planning consultancy Airbiz Aviation Strategies Ltd (*Airbiz*). I am based in Auckland, and have carried out projects in New Zealand, the Pacific, Australia, North America and Europe. I previously worked for Arup in an airport planning role whilst living in the United Kingdom.

2 I have a Bachelor of Business Degree from Massey University.

3 I have undertaken over 200+ projects and studies for airports ranging in size from rural airfields, regional and domestic airports and large international airports such as Auckland, Christchurch and Wellington, Melbourne, Sydney and Brisbane, Sabiha Gocken Airport (Turkey), Barcelona (Spain), Calgary (Canada), Oliver R. Tambo (South Africa), Gatwick and Manchester (England). My responsibilities have ranged from Project Director to specialist technical consultant across a range of technical areas.

4 In New Zealand, since my return from the United Kingdom in 2012, I have undertaken studies at the following airports – Auckland, Christchurch, Wellington, Queenstown, Dunedin, Invercargill, Kapiti, Hamilton, Tauranga, Blenheim, Rangiora, Mercer, Thames. Overseas I have undertaken projects at Melbourne, Brisbane, Sydney, Gold Coast, Port Hedland (Western Australia), Tonga, Kiribati, Federated States of Micronesia, Fiji, Samoa, Vanuatu, the Solomon Islands, the Cook Islands and Tuvalu.

5 My relevant project experience in airport planning studies includes:

5.1 Auckland Airport Master Plan;

5.2 Auckland Airport Runway End Protection Area Review;

5.3 Auckland Airport Strategic Terminal Development Plan;

5.4 Wellington Airport Master Plan;

5.5 Wellington Airport Southern Apron Development Plan;

5.6 Wellington Airport Terminal Expansion Programme;

5.7 Invercargill Airport Master Plan;

5.8 Dunedin Airport Master Plan;

5.9 Blenheim Strategic Development Plan;

5.10 Nelson Airport Airfield Planning;

5.11 Samoa Airport Master Plans for Faleolo and Asau;

5.12 Vanuatu Airport Master Plans for Port Vila, Santo-Pekoa and Whitegrass;

5.13 Solomon Island Airport Master Plans for Honiara and Munda; and

5.14 Rarotonga Airport Master Plan.

6 I have made presentations to conferences at the New Zealand Airports Association (*NZ Airports*) and Airport Council International Pacific.

7 In relation to Christchurch International Airport (*Christchurch Airport*), I have been involved with the following projects:

7.1 Airfield Development Planning for the airfield and areas adjacent the airfield;

7.2 Airport Master Plan;

7.3 Terminal Planning;

7.4 Provision of expert evidence before an Independent Hearings Panel at Rolleston in relation to the Proposed Selwyn District Plan where Christchurch International Airport Limited (*CIAL*) was Submitter DPR-0371;

7.5 Airport Noise Compliance Process Review;

7.6 Assisting CIAL with noise complaints; and

7.7 The recent update of the Christchurch Airport noise contours:

(a) For this project my role was as a CIAL Expert Team project manager primarily during the Environment Canterbury (*ECan*) Independent Expert Panel peer review process.

(b) In my role I undertook the following tasks:

(i) Managed the supply of information between the CIAL Expert Team and the ECan Independent Expert Panel during the peer review.

(ii) Set up, ran, recorded minutes and contributed to all meetings and correspondence between the CIAL Expert Team and the ECan Independent Expert Panel during the peer review.

(iii) Managed and co-ordinated the CIAL Expert Team's technical responses to the ECan Independent Expert Panel.

(iv) Managed and co-ordinated any changes to the technical assumptions or inputs that were agreed through the peer review process to produce remodelled contours for Christchurch Airport. I also provided support to technical experts within Airbiz relating to those changes.

**CODE OF CONDUCT**

8 Although this is not an Environment Court hearing, I note that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. I have complied with it in preparing my evidence on technical matters. I confirm that the technical matters on which I gave evidence are within my area of expertise, except where relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from my opinions expressed.

**SCOPE OF EVIDENCE**

9 I have been asked to comment on the relief sought by CIAL in relation to the Proposed Waimakariri District Plan (*Proposed Plan*).

10 This brief of evidence addresses:

10.1 The importance of airports to the cities and regions they serve, and in particular the importance of Christchurch Airport;

10.2 The importance of careful and deliberate planning as an airport safeguarding technique, both in terms of air noise contours and bird strike;

10.3 The future of aviation;

10.4 The remodelling of the Christchurch Airport air noise contours;

10.5 The relief sought by CIAL on matters considered as part of this Hearing Stream 10A; and

10.6 The Council's Section 42A report for airport noise and bird strike dated 9 January 2024 (*Section 42A report*).

11 I have reviewed the Section 42A report and address relevant parts throughout my evidence. .

12 I note that Airbiz has provided evidence for CIAL in a number of recent planning processes including in an earlier Proposed Plan hearing stream, the Proposed Selwyn District Plan (as noted above) and Plan Change 14 to the Christchurch District Plan. Myself or my colleague, Mr Geoffrey Page, have provided the evidence on behalf of Airbiz.

13 For Hearing Stream 1 of the Proposed Plan my colleague, Mr Geoffrey Page, prepared a brief of evidence for CIAL in relation to airport safeguarding. For completeness, I confirm that I agree with and adopt **Mr Page's** earlier evidence for the purposes of this Hearing Stream 10A. Where relevant in my evidence below, I have referenced and summarised relevant parts of **Mr Page's** evidence for efficiency and for the benefit of the Hearings Panel and submitters in this hearing stream who were not involved in Hearing Stream 1.

14 The Airbiz New Zealand office is located in Auckland. Both myself and **Mr Page** work in this office and collaborate closely on a range of projects.

## SUMMARY AND CONCLUSIONS

15 Christchurch Airport is a key enabler of air connectivity for passengers and freight into and out of the South Island.

16 It is critically important to safeguard Christchurch Airport for the short-, medium- and long-term through effective land use planning controls, to ensure its essential role connecting Christchurch, Canterbury, the South Island and New Zealand can be maintained and enhanced.

17 The main safeguarding topics relevant to the Waimakariri District and its specific location and proximity to Christchurch Airport are aircraft noise and bird strike.

### Noise

18 Consistent with international and national planning standards, Christchurch Airport's Air Noise Contours (the contours) are implemented in local district and municipal planning rules.

19 In 2021, at Environment Canterbury's' (*ECan*) request, CIAL undertook a technical remodelling of the air noise contours. The Updated Noise Contours have been endorsed by an independent peer review panel of experts appointed by *ECan* as set out in the ECan report 'Christchurch Airport Remodelled Contour Independent Expert Panel Report'.

20 The final Updated Noise Contours are therefore the best current technical information identifying where aircraft noise effects are likely to be felt, and consequently where land use planning should apply the standards set out in the New Zealand standard NZS6805.

21 While there is a clear need for territorial authorities to find areas for further development of noise sensitive activities such as new residential, schools, hospitals etc., the clear objective as set out by ICAO[1] is "Limiting or reducing the number of people affected by significant aircraft noise", in my opinion locating development outside of those areas subject to higher levels of aircraft noise is an effective means of achieving this.

22 In the event that reverse sensitivity issues put sufficient pressure on planning authorities and/or CIAL to enact Noise Abatement Procedures and/or Operating Restrictions, a range of consequences can result such as curfews.

[1] https://www.icao.int/environmental-protection/pages/noise.aspx#:~:text=The%20Balanced%20Approach%20consists%20of,elements%2C%20described%20in%20Figure%201.

**Bird Strike**

23 Effective safeguarding of aircraft on arrival and departure is critical to ensuring safety and minimising risks of an incident and potential loss of life.

24 As with noise, there are various international and national regulatory bodies that provide requirements, guidance and information relating to airports managing bird strike.

25 Guidelines and regulations require airports to have effective environmental management programmes[2] and suggests airport operators work with local authorities to mitigate risks from development[3].

26 Further international guidelines discuss establishing monitoring programs within a 13km radius of the airport [4].

27 Therefore bird strike is a clear area of concern and town planning around airports needs to have mechanisms for identifying and evaluating risk from developments that could pose a threat to the safety of aircraft operations.

[2] *Civil Aviation Rules, Part 139 Aerodromes – Certification, Operation and Use*

[3] Chapter 17 Wildlife Hazard Management of the Australian Manual of Standards (MoS) Part 139

[4] *The ICAO Airport Services Manual states that a 13km circle centred on the aerodrome reference point is recognised as where land use should be assessed with regard to wildlife hazard management*

## THE IMPORTANCE OF AIRPORTS TO THE CITIES AND REGIONS THEY SERVE

### Airport connectivity

28 This matter is addressed in detail in the Hearing Stream 1 evidence prepared by **Mr Page** for CIAL at paragraphs 20-34.

29 In summary:

29.1 Airports are vital components of a modern transport infrastructure network.

29.2 Airports are key enablers of air connectivity for passengers and freight, and inter-modal connectivity of transfers for passengers, freight and mail, usually between road and air, and sometimes including rail and/or marine transport nodes.

29.3 It is increasingly important for communities to recognise that their airport is a strategic asset and to engage with airport operators to effectively safeguard airport operations and activities for the short-, medium- and long-term to enhance connectivity and drive regional competitiveness and success.

29.4 Christchurch Airport is a key enabler of business connectivity, through its central location and proximity to the Christchurch Central Business District. It enables quick international and often same day domestic business connections to main domestic and regional ports.

29.5 Christchurch Airport is also a key enabler of social connectivity, providing critical air links for families, friends and relatives who may be geographically separated.

29.6 Christchurch Airport provides critical air connectivity for the movement of international air freight into and out of the South Island and New Zealand, linking into international freight hubs in Australia, Singapore, China, and the United States.

29.7 It is critically important to safeguard Christchurch Airport for the short-, medium- and long-term through effective land use planning controls, to ensure its essential role connecting Christchurch, Canterbury, the South Island and New Zealand can be maintained and enhanced.

**Airport resilience**

30 This matter is addressed in detail in the Hearing Stream 1 evidence prepared by **Mr Page** for CIAL at paragraphs 35-39.[5]

31 In summary:

31.1 Airports are critical links in disaster response and recovery, providing critical staging areas for disaster management, enabling fast medical evacuations and transport and providing important resilience to the overall transport network when roads, rail and maritime transport are compromised.

31.2 Christchurch Airport is a designated 'Lifeline Utility' in the New Zealand Civil Defence Emergency Management Act 2016. Section 60 of that Act notes that Lifeline Utilities must:

> *… ensure that it is able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency and participate in the development of the national civil defence emergency management strategy and civil defence emergency management plans."*

32 **Mr Page's** evidence provides numerous examples where Christchurch Airport has provided these critical links in disaster recovery, as well as other international airport examples in the same role.

33 Hence Christchurch Airport plays a key role in local, regional and national disaster management. This places a range of requirements on Christchurch Airport and confirms its importance as a key asset for Canterbury and the wider South Island following any large-scale incident.

**AIRPORT SAFEGUARDING**

**Safeguarding**

34 This matter is addressed in the Hearing Stream 1 evidence prepared by **Mr Page** for CIAL at paragraphs 40-42.

35 In summary:

35.1 Airport safeguarding has been adopted internationally as a term encompassing the measures that support the safe and efficient operation of aircraft, while taking-off or landing, or

[5] I note that paragraph 36 in Mr Page's evidence refers to Christchurch Airport being a designated 'Lifeline Utility' in the Civil Defence Emergency Management Act 2016. This Act is proposed to be replaced by the Emergency Management Bill. All 'Lifeline Utilities' under the Act are proposed to be initially deemed 'Critical Infrastructure Entities' under the new Bill. The Bill is proposed to contain similar duties in relation to emergencies.

flying in the vicinity of an airport. In particular, it refers to land use planning controls implemented in the vicinity of an airport by national or local territorial authorities.

35.2 The main safeguarding topics relevant to the Waimakariri District, and its specific location and proximity to Christchurch Airport, are noise and bird strike.

36 Below I provide additional detail in relation to airport safeguarding for the purposes of Hearing Stream 10A.

37 New Zealand and international aviation regulatory and advocacy bodies have and continue to develop a range of useful materials to inform and advise town planning professionals and authorities on the topic of airport safeguarding.

38 The New Zealand National Airspace Policy 2012 notes:

> *"To avoid or mitigate incompatible land uses or activities and potential obstacles or hazards that will impact, or have the potential to impact on the safe and efficient operation of aircraft, regional and district plans should have regard to applicable Civil Aviation Rules. Airport authorities and local authorities should work together in a strategic, cooperative and integrated way to ensure that planning documents (including those under the Resource Management Act) appropriately reflect the required noise contours and/or controls and approach and departure paths that take account of current and projected traffic flows.*
>
> *Resource Management Act planning tools (including plan rules and designations) should as far as practicable seek to avoid the establishment of land uses or activities and potential obstacles or hazards that are incompatible with aerodrome operations or create adverse effects."*

39 NZ Airports) is the industry association for New Zealand's airports. It represents the national network of 42 airports. In its 14 February 2020 submission on the Urban Development Bill NZ Airports notes:

> *"Most airports in New Zealand rely heavily on district planning controls around airports to avoid or manage adverse effects on their operations due to incompatible (e.g. sensitive) activities locating in proximity to airports…… It is critical that the effects on areas surrounding many of New Zealand's airports are well understood and maintained and their effectiveness is not undermined through inappropriate development. The location of urban development within airports' effects areas without due consideration to the potential effects of such development on airports, and vice*

*versa, has the potential to undermine the protections these areas provide for ongoing airport operations."*

40 In February 2017, NZ Airports issued its Airport Master Planning Good Practice Guide (*NZ Airports Good Practice Guide*), which sets out good practice guidelines for development of airport master plans. This was developed in conjunction with the Australian Airports Association (*AAA*).

41 The AAA is a parallel organisation to NZ Airports. It represents the interests of more than 340 airports and aerodromes around Australia. As well as advocacy for its members it provides resources for professional development and training material for airport staff. Recognising the importance of engagement with the town planning professionals and the government agencies to implement town planning policy, rules and regulations, AAA provides resources and publications on its website on many aspects of airport safeguarding.

42 The NZ Airports Good Practice Guide uses the Australian National Airports Safeguarding Framework (*Australian Airports Safeguarding Framework*) (discussed in paragraphs 44 to 46 below) to inform it. Section 3.2 - Off Airport Planning Objectives, notes that:

*"Off-airport planning is often an area overlooked or inadequately addressed by airport Master Plans. Nevertheless this is a critical issue for the long term safeguarding of any airport and it should be addressed.*

*In relation to off-airport planning a Master Plan generally aims to minimise the potential encroachment of incompatible activities and development in the vicinity of the airport, particularly in terms of:*

- *Aircraft noise impacts*
- *Intrusions into the protected operational airspace of the airport*
- *Distractions to pilots from lighting in the vicinity of the airport*
- *Attraction of wildlife leading to the risk of strikes*
- *Building-generated wind-shear and turbulence from nearby development*
- *Public safety — particularly off the ends of runways Impacts on navigational aids*
- *Impacts of infrastructure on airport-based air traffic control services (e.g. Tower visibility).*

- *An airport Master Plan may also address other off-airport planning issues such as ground transport arrangements serving the airport.*

*District Plans administered by local authorities under the Resource Management Act 1991 will be critical to the success of the airport Master Plan. The Master Plan needs to both take into account the provisions of the District Plan(s) affecting the airport environs, and be a tool to inform the land use planning processes involved in District Plans.*

*It is important that on and off airport planning and development are linked and coordinated, and a comprehensive airport Master Plan can certainly assist in achieving this aim."*

43 It goes on to note:

*"Outside the airport site, appropriate planning controls should be in place to protect the ongoing operation of the airport. If such controls are not already in place the Master Plan should recommend that the relevant Local Government authorities introduce such controls.*

*Local Government is not necessarily aware of the importance to the air transport network (and consequently national and regional economies) of safeguarding airports to enable them to meet current and future capacity requirements. It is therefore imperative that airports work with Local Government to provide the basis for safeguarding the ongoing capacity of the airport."*

44 In Australia, a National Airports Safeguarding Advisory Group, comprising of Commonwealth, State and Territory Government planning and transport officials, the Australian Government Department of Defence, the Civil Aviation Safety Authority, Airservices Australia and the Australian Local Government Association, has developed the (Australian) National Airports Safeguarding Framework. As noted above, the NZ Airports Good Practice Guide is based on this framework. The National Airports Safeguarding Framework is:

*"a national land use planning framework that aims to:*

- *improve community amenity by minimising aircraft noise-sensitive developments near airports; and*

- *improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning*

*decisions through guidelines being adopted by jurisdictions on various safety-related issues."*

*"….. The Framework has implications for anyone working in town planning, residential or commercial development, building construction or related industries. It consists of a set of guiding principles with nine guidelines relating to aircraft noise, windshear and turbulence, wildlife strikes, wind turbines, lighting distractions, protected airspace, communication equipment, helicopter landing sites and public safety areas at the end of runways.*

*It is the responsibility of each jurisdiction to implement the Framework into their respective planning systems. Each state and territory will align their respective planning processes with the Framework principles and guidelines, as appropriate."*

45 AAA has also issued guidance in relation to safeguarding; of particular relevance is:

Airport Practice Note 5: Airport Safeguarding, November 2014:

*"Airports are complex facilities and experience has shown that the town planning issues associated with protecting their ongoing operation are often not well understood by planning practitioners. The purpose of this practice note is to raise awareness of airport safeguarding issues within the planning profession and assist town planners and planning authorities in understanding airports and how to safeguard their ongoing operation."*

46 Useful factsheets as well as the nine guidelines within the National Airports Safeguarding Framework are available for download at:

- *https://www.infrastructure.gov.au/sites/default/files/migrated/aviation/environmental/airport_safeguarding/nasf/files/Contents.pdf*
- *https://www.infrastructure.gov.au/sites/default/files/documents/0.3.1-NASF-Principles.pdf*

47 Whilst the physical infrastructure of Christchurch Airport is not located in Waimakariri District, critical aircraft arrival and departure procedures occur over parts of the District.

48 The main safeguarding topics relevant to the Waimakariri District and its specific location and proximity to Christchurch Airport are aircraft noise and bird strike. The remainder of this section will focus on these two elements.

**Aircraft noise**

49 This matter is addressed in detail in the Hearing Stream 1 evidence prepared by **Mr Page** for CIAL at paragraphs 44-52.

50 In summary:

50.1 Appropriate land use planning is well recognised as the most effective means of mitigation of the impacts of aircraft noise in the vicinity of an airport. Although this obviously has the potential to place restrictions on land use, it does not rule out land development per se, just that it should be of a nature and location that is compatible with certain levels of noise from aircraft operations. In the areas with highest noise exposure, land should remain rural or be developed for industrial uses rather than residential or other sensitive uses such as schools.

50.2 Christchurch Airport, through sound land use planning, is currently in a position where the urban encroachment within areas affected by aircraft noise and those projected to fall in such areas in the future are relatively limited. Compared with the other primary New Zealand airports of Auckland and Wellington, there is very little conflicting land use. The number of people within current and projected noise impacted areas in Christchurch is low when compared to these and other similar airports overseas.

50.3 Ensuring that the Proposed Plan provides appropriate controls on land use in the areas affected by Christchurch Airport's aircraft noise achieves the complementary goals of:

(a) Protecting residents from the negative noise impacts of airport aircraft operations; and

(b) Protecting Christchurch Airport as a community transport and economic asset from noise complaints and pressures to restrict aircraft operations.

50.4 CIAL subscribes to the following international and national policies and regulatory frameworks relating to noise:

(a) International Civil Aviation Organisation proposed Balanced Approach to Aircraft Noise Management which promotes finding practical solutions to aircraft noise related issues, including recommended land use compatibility.

(b) New Zealand Standard NZS6805 with the objective to *"ensure communities living close to the airport are properly protected from the effects of aircraft noise*

*whilst recognizing the need to be able to operate an airport efficiently."*

50.5 Consistent with these standards, Christchurch Airport's Air Noise Contours (*the contours*) are implemented in local district and municipal planning rules. The purpose of noise contours is to provide:

(a) The community a reasonable degree of reliability of where flight activity and noise effects will occur in the near- and long-term futures; and

(b) Territorial authorities with guidance as to where land use controls should be imposed to protect the airport from future reverse sensitivity effects, and thereby protect the community from finding in future that noise sensitive activities have been allowed to develop in areas where noise will occur in the future.

50.6 The contours are a key safeguarding tool for Christchurch Airport and are an appropriate tool to base land use planning provisions.

51 In addition to **Mr Page's** summary above, I add that the New Zealand Standard NZS6805 puts into effect the ICAO recommended Balanced Approach to Aircraft Noise Management. NZS6805 *"is concerned with land use planning and the management of aircraft noise in the vicinity of an airport, or aerodrome, for the protection of community health and amenity values. It is intended to be applicable to all airport … to ensure communities living close to the airport are properly protected from the effects of aircraft noise whilst recognizing the need to be able to operate an airport efficiently."*

52 NZS6805 provides specific recommendations for an Air Noise Boundary (ANB) and the Outer Control Boundary (OCB) to be prepared as part of airport noise contours. These two control zones defined in NZS6805 are:

**ANB** – "*New residential, schools, hospitals or other noise sensitive uses **are prohibited**. Steps shall be taken to provide existing residential properties with appropriate insultation to ensure a satisfactory internal noise environment."*

**OCB** – "*New residential, schools, hospitals or other noise sensitive uses **should be prohibited** unless a district plan permits such uses, subject to a requirement to incorporate appropriate acoustic insultation to ensure a satisfactory internal noise environment."*

53 The contours are an essential element for airport safeguarding and assist in preserving the amenity and wellbeing of communities around Christchurch Airport. They provide local authorities the basis on which to promulgate the necessary land use planning controls.

54 For the Waimakariri District, the ANB is not relevant as it is located outside District boundaries. The OCB, is relevant as it extends into the Waimakariri District.

55 The recent updating of the Christchurch Airport noise contours (including the OCB), which is based on the latest prevailing aviation outlook, is discussed later in this evidence.

**Bird strike**

56 The airspace in the immediate vicinity of an airport is particularly critical from a safety perspective as this is where statistically most accidents and fatalities occur. Boeing (Statistical Summary of Commercial Jet Airplane Accidents Worldwide Operations | 1959 – 2019) notes that:

> *"Cruising at altitude is the safest phase of a flight. Around 7 percent of aviation fatalities occur before an airplane leaves the ground, while 12 percent occur during take-off and initial climb. Over half of all fatalities occur on final approach and landing. Although the actual numbers remain low, most technology improvements over the past few decades have focused on taxiing, climbing, approach, and landing as critical safety factors." (based on 2010-2019 data)*

57 In relation to Christchurch Airport, parts of the Waimakariri District are:

57.1 under arrivals flight paths from the north-east of the airport as aircraft approach to land on the main runway (Runway 20); and

57.2 under departure flight paths as aircraft take-off to the north-east on the main runway (Runway 02) heading to domestic destinations or on international routes.

58 Effective safeguarding of aircraft on arrival and departure is critical to ensuring safety and minimising risks of an incident and potential loss of life.

59 The NZ Airports Good Practice Guide discussed earlier notes that:

> *"The risk to aviation from wildlife in the vicinity of airports needs to be carefully managed — from influencing the use of nearby land to avoid aggravating or attracting a wildlife risk,*

*to day to day actions that can reduce risk. The CAA have published a "Good Aviation Practice" on bird hazards.*

*The Department of Conservation, in conjunction with NZ Airports, has produced guidelines for the management of the risk from birds, including the means to obtain authorisation to disturb or kill protected species at airports where necessary for safety reasons, and this needs to be actioned at a local level to achieve protection for the airport."*

60 The Civil Aviation Authority New Zealand (*CAA*) is the national government agency that establishes, monitors and enforces civil aviation safety and security standards in New Zealand. The CAA Good Aviation Practice on bird hazards notes that:

> *"In the case of aerodromes certificated under Civil Aviation Rules, Part 139 Aerodromes – Certification, Operation and Use, the aerodrome operator is required to have a wildlife management plan to manage the bird hazard. In order to fulfil their responsibilities, they need advice of bird hazards, near misses and strikes. Where possible, aerodrome operators need to work with local authorities to mitigate the risks posed by bird-feeding sites (such as rubbish dumps or landfills) adjacent to the aerodrome."*

61 In addition, the CAA has prepared the document 'Guidance Material for Land Use at or near Aerodromes, 2008' which provides "guidance for those persons proposing land use changes around aerodromes and identifies specific points to be taken into account.". The CAA document notes that:

> *"Under CAR 139.71 an aerodrome operator must establish an environmental management programme to minimise or eliminate any wildlife hazard that presents a hazard to aircraft operations at their aerodrome in areas within their authority. The management of wildlife, especially birds, is critical for aircraft operational safety. Bird strikes put the lives of aircraft crew members and their passengers at risk. In the United States over 7,500 bird and other wildlife strikes were reported for civil aircraft in 2007. Bird and other wildlife strikes to aircraft annually are estimated to cause well over $600 million in damage to civil and military aviation in the United States alone.*
>
> *It is important that land use changes are monitored and reviewed by the aerodrome operator in areas outside their immediate control to ensure that these land use changes do not increase wildlife hazards for the aerodrome."*

Australian Airports has also issued guidance in relation to bird strike management. Of particular relevance are the following:[6]

61.1 Airport Practice Note 9: Wildlife Hazard Management at Airports, March 2016:

> *"This airport practice note is a nationally applicable, comprehensive guide to creating and maintaining a holistic wildlife hazard management program at Australian airports. The document provides aerodrome operators with an overview of wildlife hazard management principles from operational airfield activities, through to techniques on how to integrate wildlife hazard management into all aspects of the airport business."*

62 Airport Practice Note 6: Managing Bird Strike Risk Species Information Sheets, September 2015:

> *"These new and revised fact sheets provide aerodrome operators with data and other useful information regarding common wildlife species and how best to manage wildlife hazards at their aerodromes."*

63 The Australian Airports Airport Practice Note 9: Wildlife Hazard Management at Airports, March 2016 is a comprehensive 96-page document which deals with topics such as: regulatory environment, wildlife hazard management plan, wildlife hazard assessment, wildlife risk assessment, management, report, communicating wildlife hazards, training, evaluating programs and wildlife hazard management as an integrated approach. It starts by outlining the very real and significant risks and consequences to aircraft operations in the vicinity and on an airport from wildlife hazards. It discusses on-airport strategies and methods to identify and mitigate risks. It discusses off-airport issues:

> *"Wildlife hazards in the vicinity of airport can vary widely, however anything that attracts, or has the potential to attract, wildlife can increase the strike risk. These land uses can include: landfills; sewage treatment works; sports fields; water treatment works; abattoirs; food processing plants; agriculture/farming; water bodies (natural and artificial); parks and gardens; and wildlife breeding grounds/colonies.*
>
> *ICAO and the Australian Government via the National Airports Safeguarding Framework (Section 2) provide guidelines for land-use compatibility in the vicinity of airports, however site specific investigations are necessary to determine the extent of the wildlife hazard and how it contributes to an airport's*

[6] See https://airports.asn.au/airport-practice-notes/ (accessed 14/07/2021).

*strike risk. As such, the establishment of a monitoring program that is commensurate with the level of risk, will help airports to identify location and extent of the hazard.*

*Land-use beyond the airport perimeter fence can contribute significantly to the strike risk. Managing off-airport hazards is complicated by the lack of management and administrative jurisdiction by the airport authority. Wildlife hazards can be proactively identified within the planning framework for new airport developments, however existing airports often have to deal with antiquated land use planning and zoning decisions that may have resulted in the establishment of significant wildlife hazards close by. Monitoring and communication are the key tools available to airports to address off-airport hazardous sites."*

64 Chapter 17 Wildlife Hazard Management of the Australian Manual of Standards (MoS) Part 139 requires:

*"The aerodrome operator, in consultation with the local planning authority, must attempt to monitor sites within 13 km of the aerodrome reference point that attract wildlife."*[7]

65 Guideline C: Managing The Risk Of Wildlife Strikes In The Vicinity Of Airports of the Australian National Airports Safeguarding Framework notes:

*"The ICAO Airport Services Manual states that a 13km circle centred on the aerodrome reference point is recognised as where land use should be assessed with regard to wildlife hazard management."*

It goes on to note:

*"Australia's Civil Aviation Safety Regulations 1998 include provisions to meet Australia's international obligations under the convention. The Part 139 Manual of Standards, established under these regulations, requires airport operators to:*

*a. include in their aerodrome manual, procedures to deal with the hazards to aircraft operations caused by the presence of wildlife on or in the vicinity of the aerodrome, including procedures for monitoring, assessing and mitigating wildlife hazards.*

*b. in consultation with the local planning authority, attempt to monitor sites within 13 kilometres (km) of the aerodrome*

[7] https://www.legislation.gov.au/F2019L01146/latest/text

*reference point that attract wildlife and assess any detected wildlife hazard for its potential risk to aircraft operations.*

*c. where a wildlife hazard management plan is required, specify in the plan the liaison arrangements for local planning authorities within a radius of at least 13km from the aerodrome reference point.*

*This guideline supports actions in line with existing national and international obligations."*[8]

*66* Bird strike is a clear area of concern and town planning around airports needs to have a mechanism for identifying and evaluating risk from developments that could pose a threat to the safety of aircraft operations.

*67* I am qualified to comment on the rationale and necessity for developing an appropriate framework for mitigating bird strike risks in line with international best practice standards, as I have explained above.

*68* However, I do not have the expertise or experience to advise on the technical and operational aspects of an effective bird strike mitigation programme appropriate for Christchurch Airport, and for assessing specific risks at various locations. To this effect, I note that evidence provided by **Dr Leigh Bull** and **Felicity Hayman** discusses the proposed a framework for assessing risks arising from new or revised developments that are within a 13km radius of the Airport.

[8] https://www.infrastructure.gov.au/sites/default/files/documents/guideline-c-attachment-3-national-airports-safeguarding-framework-managing-risk-wildlife-strikes-vicinity-airports-december2023-pdf.pdf

**FUTURE OF AVIATION**

69 This matter was addressed in the Hearing Stream 1 evidence prepared by **Mr Page** for CIAL at paragraphs 53-68.

70 In summary:

70.1 Aviation has historically been a long-term growth industry. However, events over the last three years have created some uncertainty in the short to medium term. The global COVID-19 pandemic has had significant consequences for the aviation industry. On one hand international passenger travel basically ceased, but the importance of air freight, including shipments of vaccines has never been more evident.

70.2 Domestic aviation in New Zealand quickly rebounded as domestic travel restrictions were lifted to be, at times, close to or even in advance of pre-pandemic levels in some areas. International aviation is now recovering well after a slower restart than domestic.

70.3 There are also clear actions being undertaken to ensure a future for aviation as the world decarbonises and responds to climate change. Globally and locally, there are plans and tangible initiatives to transition aviation towards the goals of a net zero carbon environment.

71 In addition Airbiz (**Mr Ken Conway**) has provided evidence for another process (outside of the Canterbury Region) which further explains the global steps taken, key parts are summarised below with the evidence documented in the Appendix:

*71.1 "Recognising that climate change is a global issue, both airlines and airports have been taking decisive steps to enable the aviation industry to grow sustainably and with less carbon.*

*71.2 I also believe the aviation industry is committed to addressing climate change and has made tremendous progress over the past decades to decouple growth from emissions and reduce its operational environmental footprint.*

*71.3 Aviation is already doing its bit with efforts to be further ramped up and for {other subject airport}, sustainability is already embedded into its business DNA and forms a key pillar of its future growth and operational plans."*

72 This summary is directly applicable to Christchurch Airport which is taking significant and tangible steps forward in its decarbonisation

drive, as well as providing international and national leadership in industry efforts to decarbonise.

73 This is evidenced by CIALs;

73.1 Kowhai Park Development which provides "a platform for creating a range of green energies"[9],

73.2 Leadership and role in the H2 consortium which "has come together to lay the groundwork for the effective deployment of green hydrogen powered aviation and to transition New Zealand's airports into hydrogen hubs serving both aviation and non-aviation users"[10],

73.3 Airports Council International (ACI) level 5 carbon accreditation. For which Christchurch Airport was "among the few airports in the World and as first Airport in Asia-Pacific Level 5 in the Airport Carbon Accreditation Programme" [11] Level 5 is the highest level of accreditation by ACI and Christchurch Airport was one of the first 10 to achieve this.

73.4 Development of its' own 'green transition plan', which plots a pathway to NetZero to set the future direction of the sustainability program at Christchurch Airport, integrating sustainability into all decisions, investments, development plans and operations.

73.5 Continued work with industry partners to lead the way on the decarbonisation of its airport activities and its contribution to New Zealand's and the global aviation decarbonisation goal by 2050.

74 This further supports the basis for the noise contours, in that aviation is expected to continue to meet the ongoing demand for air connectivity of residents and visitors to New Zealand, as well as air freight.

75 I support the positions expressed in **Mr Page's** and **Mr Conway's** statements of evidence..

**Remodelling of Christchurch Airport Air Noise Contours**

76 In late 2021 the Canterbury Regional Council (Environment Canterbury) formally requested that CIAL undertake a technical

[9] https://www.christchurchairport.co.nz/about-us/sustainability/kowhai-park/

[10] https://www.h2aviationconsortium.co.nz/

[11] https://www.christchurchairport.co.nz/about-us/who-we-are/media/2023/cop28-christchurch-airport-among-first-ten-in-the-world-to-achieve-new-standard-for-decarbonisation/#:~:text=Today%20Christchurch%20Airport%20confirms%20its,for%20emissions%20under%20its%20control.

remodelling of the air noise contours relating to Christchurch International Airport (Christchurch Airport), as required by the Canterbury Regional Policy Statement (CRPS)**.**

77 As explained above, the noise contours are used to assess aircraft noise impacts and manage land use for the protection of community health and amenity.

78 The noise contours are based on a long term 'future state' of air traffic at Christchurch Airport, when air traffic movements are forecast to be more frequent than today and include the latest known and planned changes in airline fleets as well as assumptions on future fleet upgrades to newer aircraft types.

79 Airbiz was part of the CIAL expert team that prepared the updated Air Noise Contours (*Updated Noise Contours*) which were finalised in June 2023. The inputs, assumptions and methodologies used to produce the Updated Noise Contours are set out in the CIAL report '2023 Updated Christchurch International Airport Noise Contours' (*2023 Remodelled Contours Report*).

80 The contours, including the technical modelling, methodology and assumptions for the Updated Noise Contours have been endorsed by the Independent Expert Panel as set out in the ECan report 'Christchurch Airport Remodelled Contour Independent Expert Panel Report'.

**Project Overview**

81 CIAL began the process of commissioning experts to remodel Christchurch Airport's Air Noise Contours in 2018. After being interrupted by COVID-19, the project recommenced in 2021 and the CIAL report '2021 Christchurch International Airport Expert Update of the Operative Plan Noise Contours: For Review by Environment Canterbury's Independent Expert Panel' was published with a set of remodelled draft noise contours (*Draft Updated Noise Contours*).

82 CIAL's expert team was made up of the following organisations:

82.1 Marshall Day Acoustics – noise modelling and measurements for noise calibration;

82.2 Airways – flight track information and flight procedure design;

82.3 CIAL in consultation with airlines provided information regarding air traffic demand, scheduling of aircraft movements and fleet mix; and

82.4 Airbiz – aviation consultants providing overall coordination, project direction and administration, preparing detailed future projected aircraft movements for modelling from CIAL air

traffic demand; assessment of Christchurch Airport's ultimate runway capacity for noise modelling purposes and documentation of flight paths for modelling based on Airways flight track information and traffic allocations.

83 Senior representatives from each of these organisations formed a multi-disciplinary project steering committee to ensure integrity of the assumptions, process and review the outcomes as being fit for purpose. The steering committee also included senior airport officers and their legal and planning advisors.

84 Preparation of noise contours for this project was structured based on four key workstreams, the outputs of which interact to produce the noise contours:

84.1 Ultimate runway capacity;

84.2 Air traffic projections;

84.3 Flight track assumptions; and

84.4 Noise modelling.

85 In April 2022, ECan engaged the Independent Expert Panel to review the Draft Updated Noise Contours.

86 In July 2022, the CIAL expert team received the Independent Expert Panel's initial peer review findings on the Draft Updated Noise Contours.

87 Between July 2022 and April 2023, there were continuing adjustments to the noise modelling and dialogue between the Independent Expert Panel and the CIAL expert team to reach agreement on all aspects related to the noise modelling.

88 It is important to note that the preparation of air noise contours is a complex process involving selection of robust assumptions for key parameters, informed judgement and diligent modelling. Inevitably there may be legitimate minor variations in approach between industry experts. All parties were committed to a robust outcome for the Updated Noise Contours to ensure confidence and legitimacy of land use planning controls. The peer review by the Independent Expert Panel was therefore entirely independent and rigorous, and included questioning where the original documentation supplied was not completely clear. The peer review resulted in a number of recommendations of adjustments to either assumptions or approach, based on the expertise of the Independent Expert Panel. In the interests of arriving at the most defensible outcome, CIAL's experts engaged with the Independent Expert Panel to agree the

most appropriate adjustments. The Updated Noise Contours therefore reflect the agreed adjustments.

89 The Independent Expert Panel peer review examined, questioned and ultimately endorsed the principles, technical approach and outcomes for all aspects of the modelling work including the four key workstreams set out at paragraph 82 above. The review process was very detailed and involved extensive communication between the CIAL expert team and the Independent Expert Panel over the review duration noted above.

90 The Updated Noise Contours were agreed between the Independent Expert Panel engaged by ECan and CIAL's experts in June 2023.

91 The Updated Noise Contours are therefore the best current technical information identifying where aircraft noise effects are likely to be experienced, and consequently where land use planning should apply the standards set out in the New Zealand Standard NZS6805.

**Relevance of Updated Noise Contours to Proposed Plan**

92 The 50dBA Ldn contour of the Updated Noise Contours extends across land in the Waimakariri District. It is my understanding that the Canterbury Regional Council and therefore the Waimakariri District Council uses the 50dBA Ldn contour as the position for the OCB.

93 NZS6805 recommends the following land use controls for the OCB.

93.1 OCB – *"New residential, schools, hospitals or other noise sensitive uses should be prohibited unless a district plan permits such uses, subject to a requirement to incorporate appropriate acoustic insultation to ensure a satisfactory internal noise environment."*

94 On this basis, there are a number of areas in Waimakariri that fall within the Updated Noise Contours and where great care needs to be taken in planning for future urban land use. The evidence of **Ms Smith** expands upon this and addresses the risks that arise from development of new noise sensitive activities or intensification of existing uses in areas subject to higher levels of aircraft noise, and the commensurate risk of reverse sensitivity issues at Christchurch Airport.

95 Inadequate protection of land within areas required for airport safeguarding often leads to reverse sensitivity issues and constraints on air services operations and capacity. This concern has been expressed in numerous reports and planning evidence by experts in relation to many of New Zealand's international and domestic airports. In Australia serious concerns have been expressed by major airports such as Melbourne and Brisbane in

relation to resident action groups applying pressure in social and political forums for operational restrictions, including the imposition of curfews. Curfews would clearly have serious and very significant negative impacts on national and regional economic and transport connectivity, that is currently able to operate curfew free through Christchurch Airport.

96 Relaxation of existing airport safeguards, or insufficient safeguarding itself is contrary to the New Zealand airport noise management regime. It can lead to poor outcomes for the community and 'reverse sensitivities' where affected populations lobby to restrict current or future operations at an airport.

97 In my opinion, urban encroachment into airport safeguarding areas is a "lose-lose" situation for the airport and community it serves. It is extremely disruptive, procedurally complex and very expensive, if not impossible, to recover land for safeguarding purposes once it has been developed for urban purposes. This similarly applies to intensification of residential development in existing areas already identified as being impacted by aircraft noise. In my opinion, a consistent conservative long-term approach is therefore justified and essential.

98 In my opinion, carefully considered and appropriate land-use planning is the most effective means to protect the airport and the community against adverse impacts.

99 Christchurch Airport, through consistent long-term protection by planning authorities, has limited urban encroachment within areas that may be impacted by aircraft noise. Compared with the other primary New Zealand airports of Auckland and Wellington, there is very little conflicting land use. The number of people within current and projected noise impacted areas in Christchurch is low when compared to these and other similar airports overseas. In my opinion this situation should be preserved to protect communities from the adverse effect of aircraft noise and to protect Christchurch Airport and the air travel and air freight it facilitates from potential operating constraints.

100 To ensure that Christchurch Airport's vital role as an important economic and community asset and that the amenity of the residents of Christchurch, Selwyn and Waimakariri is preserved, it is essential in my opinion that long-term land use planning controls in the vicinity of Christchurch Airport are not compromised. Any loosening or gaps in airport safeguarding through deficiencies or relaxation of land-use controls is likely to be irreversible. It would result in higher populations living in areas affected by noise from aircraft operations and the potential pressure for restrictions on airport operations.

101 While there is a clear need for territorial authorities to find areas for further development of noise sensitive activities such as new residential, schools, hospitals etc., the clear objective as set out by ICAO[12] is "Limiting or reducing the number of people affected by significant aircraft noise". In my opinion locating development outside of those areas subject to higher levels of aircraft noise is an effective means of achieving this.

102 Christchurch Airport does not have a high number of noise complaints. In my opinion this is partly a result of the sound land use planning undertaken to-date through various district plan provisions, directing sensitive uses away from areas of high noise.

103 Most of the world's major airports and many significant airports in this region (Australasia) suffer from urban encroachment in close proximity. This has resulted in constraints on operations, capacity and development.

104 In the event that reverse sensitivity issues put sufficient pressure on planning authorities and/or CIAL to enact Noise Abatement Procedures and/or Operating Restrictions the following consequences can result:

(a) At the higher end, night-time curfews to all or specific operations (typically between the hours of 11pm and 6am);

(b) Annual aircraft movement quotas or caps;

(c) Daily or hourly aircraft movement caps restricting the number of arrivals or departures;

(d) Preferential runway regimes (rotating use of runways and associated flight paths to "share" the noise burden) which are often "sub-optimal" in terms of runway or airspace capacity;

(e) Development of additional runways to cater for air traffic growth, to ensure no additional noise burden is placed on current flight paths;

(f) Other noise abatement and mitigation (noise charges, aircraft auxiliary power unit restrictions etc).

105 The above examples, if imposed, would reduce operating efficiency at Christchurch Airport and impose restrictions (several being extremely serious) on the existing and future operations.

[12] https://www.icao.int/environmental-protection/pages/noise.aspx#:~:text=The%20Balanced%20Approach%20consists%20of,elements%2C%20described%20in%20Figure%201.

106 I present summaries of several case studies relevant to this below in the Appendix.

**Appendix 1 - Evidence of Airbiz (Mr Ken Conway)**

1.1 "Recognising that climate change is a global issue, both airlines and airports have been taking decisive steps to enable the aviation industry to grow sustainably and with less carbon. This is reflected through strong advocacy and leadership with governments and industry as well as significant ongoing investment being committed to research and development into new low carbon technologies and sustainable aviation fuels.

1.2 I understand that people are concerned by the impacts of climate change and that more extreme weather is likely to have widespread repercussions for societies around the world. I recognise that climate change is a significant global issue and do believe that decisive action must be taken this decade to reduce carbon emissions and the related threat posed by climate change. Any delay or inaction will lead to more frequent and intense adverse weather impacting the way we live, distorting the natural balance of ecosystems, and for airports potentially damaging infrastructure and disrupting business continuity.

1.3 I also believe the aviation industry is committed to addressing climate change and has made tremendous progress over the past decades to decouple growth from emissions and reduce its operational environmental footprint. In acknowledging aviation's past achievements in tackling climate change, there is still much to be done to drive the necessary global transition to a low carbon future and strengthen the preparedness of airports and airlines in a climate that is changing. Maintaining the status quo is not an option. Through leadership, strong partnerships and cross-industry/sector collaboration, airports and airlines can develop and implement a range of measures leveraging advances in technology, operations and SAFs to cut their emissions. Through the implementation of measures detailed in this Statement and the emergence of others, I am confident that aviation is well-placed to manage growth with less carbon in the decades ahead.

1.4 The pace and extent of decarbonisation will be influenced by many factors but as the global economy and aviation charts a recovery beyond the COVID-19 pandemic, governments, industry and public expect more to be done to reduce the impacts of climate change and the carbon emissions that contribute to global warming. Aviation is already doing its bit with efforts to be further ramped up and for {…..}, sustainability is already embedded into its business DNA and forms a key pillar of its future growth and operational plans.

1.5 As aviation continues to make significant progress on decoupling growth sustainably from carbon emissions through new technology, innovation and transformative shifts to renewable power and fuels, I am also confident that society will continue to be the beneficiary of the many global cultural and economic benefits that aviation can deliver."

## Appendix 2 – Case Studies

### *CASE STUDY 1 SUMMARY: MELBOURNE AIRPORT*

#### Airport Introduction and Context

Melbourne Airport is Australia's second largest airport, serving approximately 37 million annual passengers before the COVID-19 pandemic. The location was selected due to its proximity to the city, whilst still being far enough away from urban development to allow the airport to operate unconstrained.
When the airport was designed and built (1970), noise buffer zones were established in the surrounding area and along proposed flight paths. However, special protective land-use controls on the areas surrounding the airport were not introduced until 1992 (in the form of the Melbourne Airport Environs Area), by which time significant urban encroachment had occurred through rezoning and development of land in the buffer zones. [13]

#### Constraint Imposed

Urban encroachment on Melbourne Airport has become a major factor in shaping and defining the proposed plans for a (new) third runway and its flight tracks. To mitigate noise impacts, Melbourne Airport is having to propose a range of operating controls (operating in segregated modes, SODPROPS (simultaneous opposite direction parallel runway operations) etc.), all limiting airport capacity.

Despite these compromises, the airport still faces calls for a curfew from residents living far outside the current equivalent of an Outer Control Boundary. [14]

#### Key Findings

- Long-term safeguarding through land use controls needs to be in place early and consistently protected. The control buffers must be conservative enough to minimise noise impacts of unforeseen changes outside of the airport and community's control.
- Once controls are relaxed, development will occur and urban encroachment cannot be reversed.
- As a result of tardy implementation of regulated buffers against urban encroachment, the airport now faces calls for a curfew from residents in the vicinity of the airport and its arrival and departure flight paths.

[13] Michael Buxton & Arun Chandu (2016) When growth collides: conflict between urban and airport growth in Melbourne, Australia, Australian Planner, 53:4, 310-320, DOI: 10.1080/07293682.2016.1275718

[14] https://brimbanknorthwest.starweekly.com.au/news/runway-concerns-mount/

### *CASE STUDY 2: Brisbane Airport*

Brisbane Airport, with a long-term vision for a new parallel runway, prior to its development adjusted airport master planning to reduce the impact of future aircraft noise impacts on the community by increasing already substantial buffer zones. Even with this, since the development and operational commissioning of the new parallel runway and associated flight path changes, adverse community reaction has led to a trial of three noise-reducing initiatives, two of which could reduce the long-term runway capacity. These initiatives could negate capacity gains from the substantial investment in the new parallel runway at substantial financial and economic cost to the region.

#### Airport Introduction and Context

Like Melbourne, Brisbane was built as a greenfield airport in 1988 with a main and cross-wind runway, and an Airport Master Plan with associated reservation and protections for a future parallel runway when required. It's Australia's third busiest airport, handling approximately 24 million passengers in 2019. The airport is located 13km from the CBD.
Over the years since its opening, the equivalent of the Outer Control Boundary for Brisbane Airport (the ANEF 20) within which new residential development is only conditionally acceptable (requires noise insulation) has significantly shrunk due to changes in technology (largely between 1983 and 1998) reducing noise of aircraft at the source, despite annual movements increasing.

#### Constraint Imposed

During the years leading up to the runway opening, including meeting requirements for regulatory approvals processes, Brisbane Airport undertook extensive community consultation on the expected noise impacts from the new runway and associated flight path changes in the vicinity of the airport. A number of noise abatement procedures were implemented, including a preference for operations over the bay to the north when safe, and recommended flap settings to reduce airframe noise. However, despite these mitigation efforts and extensive community consultation, Brisbane Airport is now facing substantial political pressure from residents groups for operational restrictions to be imposed due to noise since the runway opened in 2020.

Despite the airport responding to community concern with additional noise mitigation initiatives, in February 2022 the Australian Green Party announced their plan to introduce a new bill to the Australian parliament to impose a curfew from 10pm to 6am and hourly flight caps of 45 movements per hour on the airport.[15] If this bill passes, it will have a very serious impact on the capacity of the airport, effectively rendering the development of the new parallel runway of no value since the airport was operating at around 50 movements per hour before its opening.

[15] https://australianaviation.com.au/2022/02/greens-push-to-introduce-brisbane-airport-curfew/

## Key Findings

- Noise contours shrunk over the years due to changes in technology, allowing some urban development towards the airport.
- Brisbane Airport undertook a number of mitigative measures to reduce the impact of noise on the community including increasing an already substantial buffer zone, shifting the location of the new runway further from residents and implementing several noise abatements procedures.
- Even with a substantial buffer zone community reaction has led to a trial of three noise-reducing initiatives, two of which could significantly reduce runway capacity.

## *CASE STUDY 3 SUMMARY: SCHIPHOL AIRPORT*

### Airport Introduction and Context

Schiphol is the busiest airport in the Netherlands (and one of the busiest in the world) with over 80 million passengers per year before the COVID-19 pandemic. The airport is located 15km from the downtown area of Amsterdam. In the 1970's a new town, Hoofddorp, was built immediately adjacent to Schiphol, and in the 1980's and 90's neighbouring cities like Amsterdam and Amstelveen built new areas expanding towards the airport.[16]

### Constraint Imposed

Although aircraft noise has been an ongoing issue, following commissioning of a new runway, a 'consultation table' was setup by the government to provide advice on the development of Schiphol. This group was tasked with establishing the constraints that now define how the airport can grow and operate. Negotiations produced a new system to control aviation noise with operating constraints imposed based on the number of aircraft movements as well as exposure noise levels. Total numbers of aircraft movements per year and at night are now restricted (movement quota). In the years leading up to the pandemic, Schiphol was consistently operating at or close to the movement quota capacity. These 'environmental constraints' limit runway capacity, potentially requiring slot allocation rules to be developed and pushing some operations to other airports. In 2017, Singapore Airlines relocated half of their freight operations to Brussels Airport due to a significant reduction in freighter slots at Schiphol because of the movement cap.[17]

### Key Findings

- Growing encroachment leads to an increased need for community engagement to maintain buy-in. However, operating restrictions may be required to maintain community support.
- Operating restrictions can result in loss of flights to other airports.

[16] M, Wijk & Brattinga, Kes & Bontje, Marco. (2010). Exploit or Protect Airport Regions from Urbanization? Assessment of Land-use Restrictions in Amsterdam-Schiphol. European Planning Studies. 19. 261-277. 10.1080/09654313.2011.532671.

[17] https://www.lloydsloadinglist.com/freight-directory/news/SQ-to-transfer-half-its-Schiphol-freighter-flights-to-Brussels/70526.htm#.Yo3lx6hByUk

Dated: 2 February 2024

Sebastian Hawken