Before an Independent Hearings Panel
appointed by Christchurch City Council

under: the Resource Management Act 1991

in the matter of: the hearing of submissions on Plan Change 14 (Housing and Business Choice) to the Christchurch District Plan

and: **Christchurch International Airport Limited**
Submitter 852

Statement of Evidence of Sebastian Hawken (aviation)

Dated: 20 September 2023

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STATEMENT OF EVIDENCE OF SEBASTIAN HAWKEN

1 My full name is Sebastian Tate Hawken.

2 I am an aviation and airport planning advisor with 15+ years' experience specialising in airport master planning and strategy. I am the 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.

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

4 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 Gokcen 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.

5 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 and Dargaville. 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.

6 Relevant project experience in airport planning studies include:

6.1 Auckland Airport Master Plan;

6.2 Auckland Airport Runway End Protection Area Review;

6.3 Auckland Airport Strategic Terminal Development Plan;

6.4 Wellington Airport Master Plan;

6.5 Wellington Airport Southern Apron Development Plan;

6.6 Wellington Airport Terminal Expansion Programme;

6.7 Invercargill Airport Master Plan;

6.8 Dunedin Airport Master Plan;

6.9 Blenheim Strategic Development Plan;

6.10 Samoa Airport Master Plans for Faleolo and Asau;

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

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

6.13 Rarotonga Airport Master Plan.

7 I have made presentations to conferences at the New Zealand Airports Association and Airport Council International Pacific.

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

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

8.2 Airport Master Plan;

8.3 Terminal Planning;

8.4 Provision of expert evidence before an Independent Hearings Panel at Rolleston as Submitter DPR-0371;

8.5 Airport Noise Compliance Processes Review;

8.6 Assisting Christchurch International Airport Limited (*CIAL*) with noise complaints;

8.7 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*) 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 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 Expert Panel during the peer review.

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

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

CODE OF CONDUCT

5 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 give evidence are within my area of expertise, except where I rely 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

6 I have been asked to comment on the relief sought by CIAL in relation to the proposed Plan Change 14 (Housing and Business Choice) to the Christchurch District Plan (*PC14*).

7 I note that Airbiz has provided evidence for CIAL in a number of recent processes including the Selwyn District Plan and Waimakariri District Plan reviews. Myself or my colleague, Mr Geoff Page, have authored the evidence on behalf of Airbiz. This brief of evidence replicates some previous evidence provided by Airbiz, including by Mr Page, where relevant to PC14.

8 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.

9 My evidence will address:

9.1 The importance of Christchurch Airport as a passenger and freight hub and in disaster response and recovery.

9.2 Airport safeguarding, including international and national guidance related to land use planning for aircraft noise.

9.3 Christchurch Airport's noise contours and associated land use planning.

9.4 The future of aviation in relation to:

(a) Recovery of passenger demand from shocks such as COVID-19.

(b) The journey to Net Zero.

9.5 Christchurch Airport's noise contour remodelling process which produced the 2023 remodelled air noise contours (*Remodelled Contours*).

9.6 Relevance of the Remodelled Contours to PC14 and recommended land use controls.

9.7 The potential types and impacts of operational constraints that could be imposed on Christchurch Airport, due to reverse sensitivity issues, if existing land use controls were loosened.

SUMMARY AND CONCLUSIONS

Importance of Christchurch Airport

10 Christchurch Airport:

10.1 Is a vital component of New Zealand's modern transport infrastructure network. An airport system includes the physical infrastructure directly and indirectly supporting aircraft operations, passenger and freight services.

10.2 Is a key enabler of air connectivity for passengers and freight, and inter-modal connectivity of transfers for passengers, freight and mail.

10.3 Is importantly available 24 hours a day, seven days a week. Christchurch Airport's 24/7 availability is a significant operational advantage for its users and the communities it serves.

10.4 Is a key enabler of business connectivity, enabling same day business connections to main domestic and regional ports and providing connectivity for international business travel to Australia and the Pacific.

10.5 Is a key enabler of social connectivity, providing critical air links for families, friends and relatives who may be geographically separated.

10.6 Provides critical air connectivity for the movement of domestic air freight within New Zealand and international air freight into and out of the South Island and New Zealand.

10.7 Is a critical link 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.

11 It is vital that planning authorities maintain appropriate land use controls around Christchurch Airport so as not to compromise its' vital role described above.

Airport Safeguarding

12 'Airport safeguarding' is a term that has been adopted internationally and encompasses the measures that support the safe and efficient operation of aircraft while taking-off or landing, or 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.

13 The aviation industry recognises the potential for aircraft operations to negatively affect people through aircraft noise. The most effective mitigation available is through sound land use planning that directs the more sensitive land uses, such as residential, away from areas exposed to higher levels of aircraft noise.

14 CIAL subscribes to the following international and national policies and regulatory frameworks in relation to aircraft noise impact mitigation:

14.1 International Civil Aviation Organisation *Balanced Approach to Aircraft Noise Management* which promotes finding practical solutions to aircraft noise related issues, including guidance on ensuring land use compatibility.

14.2 New Zealand Standard NZS6805:1992 Airport Noise Management and Land Use Planning (*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.*"

Noise Contours and Land Use Planning

15 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.

16 For PC14, the ANB is not relevant. The OCB, which is the 50dB Ldn contour in Canterbury, is relevant.

17 In reference to the OCB, NZS6805 recommends:

> "*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*."

18 Where possible future urban growth should be directed away from the OCB. Furthermore, future urban encroachment or intensification within the OCB should also be avoided. This will minimise noise nuisance to people on the ground and the potential "reverse sensitivity" effects on the airport.

19 Urban encroachment into airport safeguarding areas such as the OCB is a "lose-lose" situation (for the airport and community it serves) and is likely irreversible. 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. A consistent and conservative long-term approach is therefore justified and essential.

20 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:

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

20.2 Annual aircraft movement quotas or caps;

20.3 Daily or hourly aircraft movement caps restricting the number of arrivals or departures;

20.4 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;

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

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

21 Most of the world's major airports and many significant airports in this region (Australasia) suffer from urban encroachment and

reverse sensitivity effects. This results in constraints on airport operations, capacity and development.

22 Should any of the above examples be imposed at Christchurch Airport they will reduce operating efficiency and impose restrictions on existing and future operations.

Airport Air Noise Contour Remodelling

23 CIAL has undertaken a remodelling process to update the Christchurch Airport Air Noise Contours which are used to assess aircraft noise impacts and manage land use for the protection of community health and amenity.

24 The technical modelling methodology and assumptions for the Remodelled Contours have been endorsed by an independent peer review panel of experts appointed by ECan.

Relevance of Remodelled Contours to PC14

25 Intensification of noise sensitive activities, such as residential, in areas within the OCB (i.e. the Remodelled Contour), will certainly expose more people to aircraft noise and put Christchurch Airport further at risk of reverse-sensitivity issues.

26 The Remodelled Contours are the best current detailed technical evidence of areas with existing and future high levels of aircraft noise exposure around Christchurch Airport. They show where new residential development or intensification should be prohibited.

27 Parts of the 50dB Ldn Remodelled Contours (i.e. the OCB) extend across land that is subject to PC14. From an airport safeguarding perspective, it is important that PC14 does not enable further intensification of noise sensitive activities within the Remodelled 50dB Ldn Contour.

THE IMPORTANCE OF CHRISTCHURCH AIRPORT

Airport connectivity

28 Airports are vital components of a modern transport infrastructure network. The airport system includes the physical infrastructure that directly and indirectly supports aircraft operations, passenger and freight services.

29 Just as important is the associated airspace in the immediate vicinity of an airport which facilitates the safe and efficient navigation of aircraft along flight paths, connecting into the wider local, regional, domestic trunk and international airspace network.

30 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.

31 It is increasingly important for communities to recognise that their airport is a strategic asset and to engage with airport operators to successfully safeguard airport operations and activities for the short-, medium- and long-term. This is necessary to enhance connectivity and drive regional competitiveness and success. Once an airport becomes compromised by urban encroachment or intensification of incompatible land use in its immediate vicinity, there are no viable remedies. Alternative sites for relocating an airport within a district, if at all possible, come at an unacceptable financial, economic and social cost.

32 Christchurch Airport connects the Canterbury region to other parts of the South Island, and the South Island to the rest of New Zealand, the Pacific region and beyond. Air travel is essential for island nations and is the preferred mode of travel where efficient and rapid connections are required.

Passenger Hub

33 Christchurch Airport is a key enabler of business connectivity. It enables same day domestic business connections to main domestic and regional ports and good connectivity for international business travel to Australia and the Pacific. As well as this it is located close to the Christchurch Central Business District (*CBD*) enabling quick surface-access connections between Christchurch Airport and the CBD.

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

35 As the gateway to the South Island, Christchurch Airport serves as a regional hub, dispersing international and domestic passengers and freight across the South Island.

36 Christchurch Airport supports the valuable export industries of inbound tourism and international education by providing infrastructure to facilitate inbound air services that deliver these travellers to the South Island. International education initiatives by the University of Canterbury, Lincoln University and the University of Otago attract international students to these South Island Universities. Christchurch Airport plays an important role providing infrastructure and an operating environment that enables airlines to bring these students to the South Island, often from long-haul

destinations such as China[1]. New Zealand Education notes that "*In 2019, international education's direct financial contribution to New Zealand's GDP was $3.7 billion*"[2]. Christchurch Airport plays an important role in this. Further, the opportunities provided by an array of options in outbound travel at Christchurch Airport is a benefit to residents of the district and wider region.

37 Prior to the COVID-19 pandemic there were services to ten international destinations: Sydney, Melbourne, Brisbane, Perth, Gold Coast, Singapore, Guangzhou, Hong Kong, Rarotonga, and Nadi, operated by nine international airlines. Scheduled traffic in the financial year 2019 comprised 92,345 domestic and 11,593 international aircraft movements carrying 6.3 million annual passengers and making it the second busiest airport in New Zealand. In 2019 Christchurch Airport had 105,000 domestic to international transferring passengers and 245,000 domestic-to-domestic transferring passengers, demonstrating its well developed key role in regional connectivity for the lower South Island.

38 The well-developed airfield infrastructure at Christchurch Airport, such as the runways, taxiways and aprons, facilitate reliable and efficient air connections domestically and internationally. This infrastructure supports air services by new generation aircraft such as the Airbus A350 and Boeing 787, and the world's largest passenger aircraft, the Airbus A380.

39 Christchurch Airport is fortunate in not having any significant operational restrictions and it is available 24 hours a day, seven days a week. Its 24/7 availability is a significant operational advantage for the users and communities it serves.

Freight Hub

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

41 Christchurch Airport is an air freight hub due to its geographic location centrally within the South Island, connectivity to road networks and importantly being available 24 hours a day, seven days a week. For example, the New Zealand domestic air parcel network operates between Auckland, Palmerston North, and Christchurch airports with multiple flights between 10pm and 6am

[1] https://www.educationcounts.govt.nz/statistics/tertiary-participation#:~:text=International%20student%20numbers%20decreased%20this,pandemic%20and%20subsequent%20border%20closures.

[2] https://www.enz.govt.nz/news-and-research/ed-news/report-concludes-international-education-can-recover-and-grow/

most days for timely distribution of goods for the benefit of local business and consumers.

42 Statistics New Zealand data shows that Christchurch Airport is the second largest airport for air freight imports and exports in New Zealand (after Auckland), accounting for $2.67 billion New Zealand dollars' worth of air freight in the year ending June 2022 . While air freight was only about 0.3% of total New Zealand trade by volume, in terms of dollar value this was about 14% of our exports and 23% of our imports[3]. Christchurch Airport plays a key role in this value trade.

AIRPORT RESILIENCE

43 Airports are critical links in disaster response and recovery, providing important 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.

44 Christchurch Airport facilitates access to medical care through the air ambulance and rescue services operating at the Airport through LifeFlight, NZ Flying Doctor Service and Garden City Helicopters.

45 CIAL is a designated 'Lifeline Utility' in the New Zealand Civil Defence Emergency Management Act 2002. 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."[4]

46 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.

47 Examples of the important role that Christchurch Airport has played in recent disasters include:

47.1 2011 Christchurch Earthquakes – Christchurch Airport was the main arrival and departure point for a wide range of local

[3] Airbiz summary of Statistics New Zealand Infoshare data portal (https://infoshare.stats.govt.nz/)

[4] All 'Lifeline Utilities' are initially deemed to be 'Critical Infrastructure Entities' for the purposes of the Emergency Management Bill which is proposed to replace the Act. The Bill is proposed to contain similar duties in relation to emergencies.

and international rescue teams. Emergency supplies were airlifted into Christchurch and many of the critically injured were evacuated out. Christchurch Airport was credited with contributing to the saving of dozens of lives due to its ability to reopen so quickly and remain open 24/7. In the seven days following the initial earthquake, more than 45,000 passengers were moved out of Christchurch utilising a 'shuttle service' to Auckland.

47.2 2016 Kaikōura Earthquake – Due to Kaikōura being essentially cut off from all other towns by road and rail, air transport into and out of Kaikōura was vital. Christchurch Airport was the initial staging point for military and private air response. Large aircraft with supplies would arrive into Christchurch from around New Zealand and would then be helicoptered out to Kaikōura. People evacuated from Kaikōura would often be airlifted back to Christchurch.

47.3 2017 Port Hills Fires – Christchurch Airport quickly became the staging point for all fixed wing and many helicopter aerial assault aircraft fighting the Port Hills fires. Christchurch Airport hosted the various aircraft and crews on site, making sure they had water available to refill aircraft as well as resting facilities for crews. In addition to this, over a period of 10 days, Christchurch Airport provided over 20 skilled staff to assist in the Emergency Operations Centre in Rolleston to support the response effort.

47.4 2019 Rangitata Floods – This affected many international tourists and there were many general aviation fixed wing and helicopter operators ferrying passengers between Timaru and Christchurch to enable them to continue their journey or to catch international flights which would otherwise have not occurred due to road and rail outages.

47.5 2020 COVID-19 Repatriation Evacuations – In April and May 2020, thousands of stranded tourists visiting the South Island were evacuated to their home countries through Christchurch Airport. Visitors from Germany, the Netherlands, the UK, France and a range of other European countries all boarded repatriation flights at Christchurch Airport in a desperate attempt to get home as international borders shut. At the same time, hundreds of Kiwis were repatriated back to NZ on charter flights due to the disruption to commercial flights and border restrictions.

47.6 2023 Auckland Floods – On the nights of 27 January and 14 February 2023, Auckland Airport suffered two separate extreme weather events that caused either partial or full closure of the airport and suspension of aircraft operations.

> Across these two nights, over 20 wide and narrow body aircraft were forced to divert to Christchurch Airport resulting in over 2,000 displaced passengers being accommodated at short notice. Many of these passengers slept and were catered for within Christchurch Airport's terminal facility for up to three days due to a lack of local accommodation before being able to return to Auckland.

AIRPORT SAFEGUARDING

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

49 The aviation industry recognises the potential for aircraft operations to negatively affect people as a result of aircraft noise. The most effective mitigation available is through appropriate land use planning that directs the more sensitive land uses, such as residential, away from areas exposed to higher levels of aircraft noise.

50 It is recognised locally and internationally that airport operators have the primary interest and expertise in identifying and mitigating potential hazards to aircraft operations in the vicinity of an airport, but it is other parties (government agencies and local government) that actually develop and implement planning policy, regulations and procedures.

51 Urban development encroachment into areas required for airport safeguarding is a "lose-lose" situation (for the airport and community it serves) and is effectively irreversible. A consistent and appropriately conservative long-term approach is justified. While some building standards consider the application of acoustic insulation in urban areas impacted by aircraft noise as a mitigator, I believe this should be considered a last resort for existing developments. Access to fresh air and use of outdoor areas adjacent to a dwelling is integral to the New Zealand lifestyle and insulation of indoor spaces does not provide this amenity.

52 I understand that the main safeguarding topic relevant to PC14 is protection from the impacts of aircraft noise. I provide an overview of appropriate land use planning guidance relevant to aircraft noise mitigation below.

Aircraft Noise and Land Use Planning

53 CIAL subscribes to the following international and national policies and regulatory frameworks which are relevant to aircraft noise impact mitigation:

53.1 International Civil Aviation Organisation (*ICAO*) *Balanced Approach to Aircraft Noise Management* which promotes finding practical solutions to aircraft noise related issues, including guidance on ensuring land use compatibility.

53.2 Section 5.4.1 of ICAO Document 9829 "*Guidance on the Balanced Approach to Aircraft Noise Management*" (2nd edition 2008) notes that land use management can include differing levels of urbanisation controls the farther away an area is from the airport, and it provides examples of various zoning restrictions that follow this principle. In the areas of highest noise exposure all housing may be forbidden; "*new housing is forbidden – no additional housing is allowed in this area*". This would logically include intensification of existing areas.

(a) Paragraph 5.4.3 notes that any increase in the severity of restrictions governing the building of new housing "*contributes to reducing the number of people affected by noise…*".

(b) Section 5.5 discusses the problem of urban encroachment and suggests evaluation of the effectiveness of local policies, including an analysis over a reasonable timeframe of "*the percentage change in population within the airport noise-regulated areas* ..". Intensification such as that potentially enabled by PC14 would immediately allow for a significant increase in populations in noise affected areas.

(c) The Introduction to Appendix 1 to Part 1 notes that "*the concept of the balanced approach is based in particular on the need to preserve the benefits gained from aircraft related measures that may be lost if the population subsequently grows on land near airports that has been relieved. Further development of that land if not coordinated with the expansion plans of an airport can affect noise exposure at given traffic levels and lead to additional costs both to the community and to aviation.*" While this paragraph is referring to benefits gained from things like phase out of noisy aircraft, the same logic of preserving benefits of appropriate zoning and not permitting further intensification can be applied.

53.3 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.*"

Christchurch Airport's Noise Contours

54 Consistent with the guidelines and standards outlined above, Christchurch Airport's Air Noise Contours are implemented in local district and municipal planning rules. The purpose of noise contours is to provide:

54.1 The community with a reasonable degree of certainty of where flight activity and noise effects are most likely to occur in the near- and long-term futures; and

54.2 Territorial authorities with guidance as to where land use controls are needed both to ensure the community is protected (now and in the future) from noise impacts as a result of flight operations and to protect Christchurch Airport from consequential reverse sensitivity effects.

55 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.

56 NZS6805 provides specific recommendations for an ANB and the OCB to be prepared as part of airport noise contours. These two control zones defined in NZS6805 are:

56.1 **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.*"

56.2 **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.*"

57 For PC14, the ANB is not relevant. The OCB, which is the 50dB Ldn contour, is relevant and it defines an area where existing and appropriate land use controls should be maintained. The recent updating of the OCB by CIAL, which is based on the latest prevailing aviation outlook, is discussed later in this evidence.

Christchurch Airport's noise contours and land use planning

58 Appropriate land use planning is well recognised as the most effective means of mitigating the impacts of aircraft noise in the vicinity of an airport. Although this necessitates some restrictions on land use in specific areas, it does not rule out land development per se, just that it should be compatible. In the areas with highest noise exposure (i.e. within the contours), land should remain rural or be developed for industrial uses rather than residential or for other sensitive uses such as schools.

59 As explained above, in New Zealand the governing standard related to aircraft noise is NZS 6805. This provides a national expression of the international position that appropriate land use planning is the primary and most effective means of mitigating the impacts of aircraft noise in the vicinity of an airport.

60 Where possible future urban growth should be directed away from the OCB. Furthermore, future urban intensification within the OCB should also be avoided. This will minimise noise nuisance to people on the ground and the potential "reverse sensitivity" effects on Christchurch Airport.

61 Christchurch Airport, through sound land use planning implemented by local authorities, 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 also low when compared to these and other similar airports overseas.

62 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. For example:

62.1 Melbourne Airport was originally developed as a new "greenfield" airport but protective land use controls were not introduced for some years. By the time appropriate safeguards were introduced, significant urban encroachment had already occurred through rezoning and development of land. This encroachment has resulted in pressures for operational restrictions.

62.2 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. Prior to its development airport master planning was adjusted 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 of Brisbane Airport. It could negate any gains from the substantial investment in the new parallel runway at substantial financial and economic cost to the region.

63 To protect Christchurch Airport's role as a vital economic and community asset and to preserve the amenity of the current and future residents of Canterbury, it is essential that long-term land use planning for intensification of noise sensitive land uses, such as residential, is directed into areas that are not affected by higher levels of aircraft noise so as not to compromise Christchurch Airport or the community. Any loosening or gap in airport safeguarding through deficiencies in land use controls will likely be irreversible.

64 Ensuring that the planning framework, including as proposed in PC14, does not allow intensification of noise sensitive uses within the OCB, achieves the complementary goals of:

64.1 Protecting residents from the negative noise impacts of aircraft operations by directing urban growth and intensification into areas not affected by higher levels of aircraft noise; and

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

FUTURE OF AVIATION

65 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, on the other hand, the importance of air freight has never been more evident.

66 In aviation (and economic) forecasting it is recognised that while long term trends may be indicative of future activity at the macro level, there will be inevitable short-term events of negative growth

(contraction), slower growth or accelerated growth below and above the trend lines. In aviation this has included regional conflicts, spikes in the price of oil, SARS, and of course now the COVID-19 pandemic as the largest shock in aviation history. However, notwithstanding the short-term impacts of these events (impacts lasting less than a year or up to five years), the industry consensus is that over the longer term the demand for air travel will remain strong.

67 After the COVID-19 pandemic, domestic aviation in New Zealand 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 has restarted and is steadily recovering.

68 Growth in air travel could be affected by "flygskam" – flight shaming – discouraging air travel through social activism to reduce the environmental impact of aviation, particularly relating to lowering carbon emissions and reducing climate risk. However 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 is a tangible drive to transition the aviation sector towards the goals of a net zero carbon environment.

69 In December 2021 Air New Zealand released a call for long-term collaboration with aircraft manufacturers to develop more efficient aircraft design and 'radical' new propulsion concepts. Their Zero Emissions Aircraft Product Requirements Document expressed their intent to share data, contribute turboprop aircraft for retrofitting, and support funding to lead to the deployment of zero emissions aircraft in a five-year time period.

70 By early 2023, Air New Zealand had announced nine major international partners for their zero emissions journey to work together on electric, hybrid and green hydrogen aircraft to fulfil and accelerate the goals of Air New Zealand's Mission Next Gen Aircraft.

71 Air New Zealand's two Next Gen goals are:

71.1 Fly the first commercial demonstrator flight from 2026. Air New Zealand released a call for expressions of interest to New Zealand airports who may wish to be the primary base airport or secondary destination airport for the commercial demonstrator. CIAL has submitted an expression of interest to be one of those airports, and

71.2 Begin replacing the Air New Zealand Q300 domestic fleet with a more sustainable aircraft, potentially green hydrogen or battery hybrid systems, from 2030.

72 In addition to aircraft partnerships, Air New Zealand has announced two local partners:

72.1 Hiringa Energy, a hydrogen company that produces both green hydrogen and associated infrastructure; and

72.2 Victoria University of Wellington's Robinson Research Institute to study aircraft propulsion systems.

73 Another critical tool to decarbonise the aviation industry is the use of Sustainable Aviation Fuels (*SAFs*). More than 450,000 scheduled civilian flights worldwide have operated where a percentage of SAFs have been blended into the fuel and over 50 airlines are using SAF. This has implications for aircraft emissions reduction and social responsibility; however it is "simply" a replacement for current jet fuels and would not have a direct impact on the noise generated by any specific aircraft whether using current fuels or SAF.

74 It is my opinion, aligned with many aviation industry professionals, that while the exact pathway and timeframes for the aviation industry to recover from the Covid-19 pandemic and to deliver on climate change requirements is not yet clear, in the longer term it will return to pre-pandemic levels of activity and demand will then continue to build. The main drivers for demand for air services to, from and within New Zealand such as business, tourism and freight will continue. The aviation industry as whole (both nationally and internationally) is committed to a "sustainable recovery", and the various industry players are moving beyond strategy into setting defined goals and pathways to meet them.

CHRISTCHURCH INTERNATIONAL AIRPORT AIR NOISE CONTOUR REMODELLING

75 CIAL has recently undertaken a remodelling process to update the Christchurch Airport Air Noise Contours which are used to assess aircraft noise impacts and manage land use for the protection of community health and amenity.

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

77 The technical modelling methodology and assumptions for both sets of Remodelled Contours have been endorsed by an independent peer review panel of experts appointed by Environment Canterbury as set out in the report '*Christchurch Airport Remodelled Contour Independent Expert Panel Report'*.

Project Overview

78 CIAL began the process of commissioning experts to remodel Christchurch Airport's Noise Contours in 2018. After being interrupted by COVID-19, the project recommenced in 2021 and the 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 (the *Draft Remodelled Contours*).

79 CIAL's expert team undertook the work in four workstreams led by the following organisations:

79.1 Marshall Day Acoustics – noise modelling and measurements for noise calibration.

79.2 Airways – flight track information and flight procedure design.

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

79.1 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 the 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.

79.2 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.

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

80.1 Ultimate runway capacity;

80.2 Air traffic projections;

80.3 Flight track assumptions; and

80.4 Noise modelling.

81 The key dates of the project to update the Christchurch Airport noise contours were:

81.1 August 2018 – The project began.

81.2 Late March 2020 – The project was paused due to the COVID-19 pandemic.

81.3 May 2021 – The project was restarted.

81.4 November 2021 – the CIAL expert team provided Canterbury Regional Council (*ECan*) Draft Remodelled Contours.

81.5 April 2022 – ECan engaged an independent team of experts to review the Draft Remodelled Contours (the *Expert Panel*). The Expert Panel's peer review began in April 2022.

81.6 July 2022 – the CIAL expert team received the Expert Panel's initial review findings on the Draft Remodelled Contours.

81.7 July 2022 to April 2023 – Continuing adjustments to the noise modelling and dialogue between the Expert Panel and the CIAL expert team to reach agreement on all aspects related to the noise modelling. It is important to note that the preparation of projected aircraft noise contours is a complex process involving selection of robust assumptions for key parameters, informed judgement and rigorous modelling. Inevitably there may be legitimate minor variations in approach between industry experts. All parties were committed to a robust and defensible outcome to ensure confidence and legitimacy of land use planning controls. The peer review by the ECan Expert Panel was therefore totally independent and had questions where the supplied original documentation was not necessarily completely clear or unambiguous. It resulted in a number of recommendations of adjustments to either assumptions or approach. In the interests of the most robust outcome, CIALs experts engaged with the Expert Panel to agree the most appropriate adjustments for a final outcome.

81.8 The Expert Panel peer review covered all aspects of the modelling work including Ultimate Runway Capacity, Air Traffic Projections, Flight Track Assumptions and Noise Modelling. The process involved near weekly communication between the CIAL expert team and the Expert Panel over the review duration noted above.

81.9 After a detailed 12-month review process, a set of remodelled noise contours were agreed between the Expert Panel and CIAL in June 2023.

82 In the context of the noise remodelling, Airbiz was engaged by CIAL to:

82.1 Provide project planning and coordination;

82.2 Make an assessment of the ultimate practical capacity of the Christchurch Airport runway system;

82.3 Support CIAL in preparing an air traffic forecast; and

82.4 Document flight track assumptions based on information provided by Airways.

83 CIAL in consultation with airlines provided information regarding air traffic demand, fleet mix and day night split. Airbiz were involved with finalising the fleet mix assumptions during the peer review process.

84 Marshall Day Acoustics were engaged by CIAL to conduct the noise modelling and measurements for noise calibration which **Ms Laurel Smith's** evidence addresses in more detail.

Review Process

85 ECan selected experts (the Expert Panel) to conduct an independent technical review of the primary inputs (ultimate runway capacity, air traffic forecasts, flight tracks), and the subsequent noise modelling for Christchurch Airport. This process is complete and revised versions of the noise contours have been prepared based on primary inputs.

86 The peer review process was very detailed and included extensive engagement between the Expert Panel and the CIAL expert team. The peer review process was open, professional, and non-adversarial. The common goal of all involved was for the updated noise contours to be based on the best available assumptions and free of any processing inconsistencies.

87 Communication between the Expert Panel and the CIAL expert team were via meetings, emails, phone calls, memos, and reports. Comments and questions provided in writing from or to the Expert Panel were often followed up with a phone call or meeting to provide the opportunity for clarification. The working relationship was generally positive and the "pressure testing" ensured a high level of confidence in the basis and results of the final noise contours.

Relevance of Remodelled Contours to PC14

88 Parts of the 50dB Ldn Remodelled Contours (i.e. the OCB) extend across land that is subject to PC14.

89 The Remodelled Contours are the best current detailed technical evidence of areas with existing and future high levels of aircraft noise exposure around Christchurch Airport. They show where new residential development or intensification should be prohibited.

90 As noted earlier NZS6805 recommends the following land use controls for the OCB:

90.1 "*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*."

91 Intensification of noise sensitive activities in areas subject to aircraft noise, such as those within the OCB, will certainly expose more people to aircraft noise and put Christchurch Airport further at risk of reverse-sensitivity issues.

92 Urban encroachment into airport safeguarding areas is a "lose-lose" situation (for the airport and community it serves) and is irreversible. 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. A consistent conservative long-term approach is therefore justified and essential.

93 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.

94 Carefully considered and appropriate land-use planning is the most effective means to protect the airport and the community against adverse impacts. 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."*

95 The New Zealand Airports Association (*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 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."*

96 NZ Airports has adopted the Airport Master Planning Good Practice Guide February 2017 which sets out good practice guidelines for development of airport master plans. This was developed in conjunction with the Australian Airports Association (*AAA*) and uses the Australian National Airports Safeguarding Framework 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.*

97 It goes on to note:

> *"Outside the airport site, appropriate planning controls should be in place to protect the ongoing operation of the airport. …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."

98 Relaxation of existing airport safeguards, or insufficient safeguarding itself, can lead to 'reverse sensitivities' where affected populations lobby to restrict current or future operations at an airport.

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.

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 that long-term land use planning controls in the vicinity of Christchurch Airport are not compromised. Any loosening or gap 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 Local Government to find areas for further development of noise sensitive activities such as new residential, schools, hospitals etc., the clear preference is to locate development outside of those areas subject to higher levels of aircraft noise.

102 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).

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

POTENTIAL IMPACTS OF CAPACITY CONSTRAINTS TO OPERATIONS

104 Relaxation of land use controls has a very real potential to create pressures from communities near Christchurch Airport for operational constraints. Any resulting restrictions would be detrimental to airport users (the local community), the Canterbury region and the South Island through capacity constraints, degradation of other operational efficiencies or curtailing services, for example:

Commercial Scheduled Passenger Flights Impacts
From a Night-Time Curfew

105 Christchurch Airport's role as a nominated alternative airport [5]would possibly change, due to its unavailability at night time. This would reduce New Zealand's resilience for unexpected disruptions to the aviation network resulting from weather, scheduled disruptions or emergency situations.

106 Reduced overall runway capacity through reductions in available runway operating times. As a generic example, in a pure capacity sense, assuming a fictional runway could handle 10 aircraft movements (arrivals and departures) per hour across a 24hr operational day, capacity would be approximately 240 movements per day. If this operational day was reduced to 17hrs for example,

[5] In aviation parlance an "alternate" airport is designated by the pilot when planning a flight, and is an airport where the plane could land safely should the aircraft experience an emergency (for example an in-flight engine or other mechanical failure, running out of fuel (strong headwinds en-route increasing flight time) or an onboard medical emergency) or if the runway at the intended airport is unsafe for landing. A landing at the destination airport could be precluded because of physical issues – the runway blocked by a plane stuck on the runway, a pavement failure (slippage or earthquake) or runway lighting failure that cannot be quickly fixed, or meteorological conditions such as extremely strong winds, low visibility or extreme storm activity.

the capacity of the runway would drop to approximately 170 movements per day. In practice demand is not constant across a day, except at large hub airports serving large cities such as Heathrow, Hong Kong or similar. However, reduction in operating hours would still impact those flights normally scheduled in the off-peak hours as explained further below.

107 Restrictions on future opportunities for international services from hub airports seeking to arrive/depart during an imposed curfew.

108 Impacts on the viability of mid- to long-haul routes established prior to COVID-19 if restricted hours of operation were in place, e.g. a flight with a delay may not be able to depart from an overseas hub if its estimated arrival time in Christchurch falls after a curfew starts. In such a case, that air service would either be cancelled or diverted to a curfew-free airport, inconveniencing the passengers and creating complexity for the airline in recovering from the disruption. Over time, the operational risk of a curfew would be noted by airlines and ultimately the competitiveness of Christchurch Airport would be damaged.

109 The scheduled China Southern[6] flight from Christchurch to Guangzhou historically departed at 2230. An airline would be cautious of operating this flight under a curfew scenario (should a curfew commence at 2300). If there was a delay to the departure of greater than 30 minutes, it is likely the flight would be unable to depart due to the curfew. The airline would then face a complex scenario of accommodating the passengers in hotels and checking them in again for departure the next day, plus the loss of a day's operation for the aircraft which would not be able to operate its planned schedule the next day. If a curfew commenced at 2200, this flight would have to be cancelled or retimed, which may not be possible or viable for the airline.

110 It is possible that early morning trans-Tasman departures may need to be reduced, retimed, or cancelled (depending on curfew times), reducing choice for business travellers to arrive in Australia for the start of the working day.

111 It is possible that late night trans-Tasman arrivals may need to be reduced, retimed, or cancelled, reducing choice for business travellers to leave Australia late in the day. For example, with a 2300 curfew in Christchurch, a flight leaving Melbourne would have to depart by 1730 MEL, meaning passengers would need to be at the airport by approximately 1530. This would effectively reduce the

[6] https://newsline.ccc.govt.nz/news/story/christchurch-airport-welcomes-china-southern-airlines-return

business day by nearly half, considering travel time from the Melbourne CBD to Melbourne Airport.

From an Annual Movement Quota

112 The creation of an annual movement quota would detrimentally impact Christchurch Airport, as the Airport's growth approaches the quota number. Airlines are constrained by the volume of frequencies they can fly (i.e. the number of flights an aircraft can be used for over an operational day). For example, for a 3hr sector (assuming a 24hr operational day) the aircraft flying that sector might be able to make approximately 5 frequencies per day (assuming a 1.5hr on-ground time between flights).To accommodate growth in demand, they can only resort to up-gauging aircraft to greater seating density, rather than increasing frequency of services. This is sub-optimal for both the consumer and the airline, particularly domestically, as it is the frequency of service that the consumer market values. For the airline, it requires a more complex fleet with higher seating-density aircraft, which may not be economic to operate on other "thinner" routes in their network.

From a Daily or Hourly Movement Quota

113 During the course of the day, there are peak periods of demand when more air services operate compared to other times. Domestically, these periods are typically morning and evening, book-ending the business day. For the trans-Tasman market, the scheduling is in two distinct waves, creating peak demand and dictated by the practicalities of the time difference and passenger flows. An hourly movement quota, if reached, would adversely impact air services if the airlines were not able to schedule aircraft to meet passenger demand for services.

114 An example of hourly movement quotas overseas is at Sydney Airport, where there is an allocation of 80 hourly movements. Within the quota is an allocation to accommodate regional services, which then restricts the number of services which can operate on interstate and international routes. The airport's growth and competitiveness are constrained by the quota. This has partly led to the need for a new airport in the region, Western Sydney Airport, which is currently being designed and built.

From Preferential Runway Regimes

115 Preferential runway regimes are interventionist measures utilised to distribute air traffic across an airport's runways and associated flight paths in order to "share" the noise burden. While this solution is often seen as equitable to residents, it often results in sub-optimal use of runways and/or airspace capacity, and increased costs of operation on the ground. For example, longer taxiing time for aircraft on the airfield, resulting in increased time and fuel burn. Any impact on operational costs for airlines is significant, however in a port such as Christchurch, which has a higher than average

discretionary passenger mix[7], increased costs negatively impact the economic viability of marginal routes, making the operation less competitive.

Air Freight and Mail Impacts

From a Night-Time Curfew

116 Domestic freight services fly overnight, linking domestic ports nationwide. The entire national air freight network would be impacted if Christchurch was effectively removed. It would not be economically viable nor logistically possible for domestic air freight services to operate during the day, just to service Christchurch.

117 The entire air freight supply chain has been developed and optimised to work overnight, utilising the hub of Christchurch and the intermodal connectivity to road and rail, which facilitates next day delivery. A curfew would be highly detrimental to the freight supply chain. Substitution of air freight services into other South Island airports is unrealistic, particularly given other airports lack Christchurch's geographic advantage and critical mass (and Queenstown is already curfewed).

118 Should a curfew be imposed, a consequence would be slower distribution of freight and mail and possibly reduced overnight collection and delivery services i.e. a package picked up in Auckland during the day may be required to be air freighted to the South Island the following day (not overnight) missing early morning distribution of packages and arriving late in the day or the following day (2 or 3 day delivery not overnight).

119 Domestic just-in-time impacts would arise in multiple industries, e.g. potential impacts on the just-in-time industries such as flowers and seafood if these are not able to be freighted in overnight for early morning distribution to retail outlets across the South Island.

120 The export market for high-value, perishable produce may be impacted if direct export was not available from the South Island to international markets. The value of some produce (e.g. molluscs and crayfish) is directly linked to freshness and the speed of delivery

[7] *The passenger market splits over people travelling for 1. Business 2. Leisure and 3. Visiting family/friends. The latter two categories are generally self-funded and discretionary. As such, travel competes for the consumer's share of wallet with other discretionary expenditure and is significantly more price sensitive than business travel. Airlines offer baskets of air fares to capture different demand segments, having business class seats and higher fares that offer greater flexibility and service levels versus lower fares to attract discretionary travellers with reduced flexibility and service levels. Previous work by Airbiz highlighted that international visitors to the South Island gateway airports differ substantially to other airports in terms of reasons for travel. The vast majority of international visitors arriving at Christchurch have been visiting for leisure. Long-haul visitors will be facing destination competition in their home source markets. If costs rise and fares on trips to Christchurch/the South Island increase, then the destination's appeal may decline in the face of other competing destinations.*

from producer to market is critical in attracting the highest price. Without the ability to export direct from Christchurch, speed to market would be impacted by the necessity to connect over other export gateways.

121 Opportunities for freight and goods entering New Zealand and the South Island during a pandemic may be restricted.

122 Opportunities for new/seasonal Asian freight services in the future, which may wish to arrive during curfew hours, may be constrained.

From an Annual Movement Quota

123 The domestic air freight network is successful because it connects multiple ports, generating multiple movements. An overall cap on annual movements creates pressure between the scheduled passenger airlines and the freight operators as they compete for movement allocations.

124 An element of the international air freight activity at Christchurch International Airport is seasonal, being the export of summer fruit (e.g. cherries and nectarines) on dedicated freighter services from December to February. On an annual basis, the flight volume is small and appears insignificant against year-round scheduled movements, however the economic significance of those flights is high in facilitating direct export of South Island produce. Examples of the implementation of movement caps at other airports globally have been detrimental to such freighter services, because of the small number of movements and the metrics established to allocate movements, meaning freight services have been deemed lower priority and pushed out.

Fixed Base Operation (FBO) and Small Commercial Impacts

From an Annual Movement Quota

125 Businesses such as flying schools and helicopter operations generate high volumes of movements. The addition of an annual movement quota would put pressure on these businesses to be relocated away from Christchurch, as they utilise valuable movements which could otherwise be allocated to scheduled passenger and freight services likely deemed of greater social and economic benefit to the region.

From a Daily or Hourly Movement Quota

126 As with annual caps, FBO and small commercial businesses would be a lower priority in the allocation of daily or hourly movement caps when compared to scheduled passenger and medivac services likely deemed of greater social and economic benefit to the region. The prioritisation of air services at peak hours may have a negative impact on the operation of FBO and small commercial businesses. These flights may be restricted to flying in hours of lower demand, impacting the overall viability of their businesses.

Airline Repositioning and Maintenance Impacts

From a Night-Time Curfew

127 Late night repositioning of aircraft for maintenance or repositioning would be restricted, meaning aircraft may have to be repositioned earlier in the day, potentially removing an aircraft rotation over the day and reducing passenger choice for flights.

Military, Government and Antarctic Impacts

From a Night-Time Curfew

128 Air service activities for military, government and Antarctic purposes are critical and should be factored into any interventionist measures.

129 Overnight and early morning operations would be stopped, reducing flexibility for Antarctic operations, reducing opportunities to operate to avoid unsuitable weather and meaning services could not arrive early in the morning. Assuming a 5hr flight time, an aircraft departing for the Antarctic at 7am would not return until the evening.

Helicopter Impacts

From a Night-Time Curfew

130 Rescue operators might potentially require relocation to another airport to ensure 24/7 capability.

Sebastian Hawken

20 September 2023