

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

Summary of Evidence of Sebastian Hawken (Airport
Safeguarding)

Dated: 21 February 2024

REFERENCE: JM Appleyard (jo.appleyard@chapmantripp.com)
AM Lee (annabelle.lee@chapmantripp.com)

chapmantripp.com
T +64 3 353 4130
F +64 3 365 4587

PO Box 2510
Christchurch 8140
New Zealand

Auckland
Wellington
Christchurch



SUMMARY OF EVIDENCE OF SEBASTIAN HAWKEN

INTRODUCTION

- 1 My name is Sebastian Tate Hawken and I am New Zealand/Pacific Manager for Airbiz Aviation Strategies Ltd. I have undertaken over 200 projects and studies for airports worldwide, including a number of projects in relation to Christchurch International Airport.
- 2 I prepared a brief of evidence addressing the relief sought by Christchurch International Airport Limited (*CIAL*) on the proposed Waimakariri District Plan and the Variation. This statement provides a summary of key points and responds to certain points raised in the evidence of Mr Fraser Colegrave and Mr J P Clarke on behalf of Momentum Land Limited and Mike Greer Homes NZ Limited.

SUMMARY OF EVIDENCE

- 3 Christchurch Airport is a key enabler of air connectivity for passengers and freight into and out of the South Island.
- 4 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.
- 5 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

- 6 Appropriate land use planning is well recognised as a critical tool for addressing 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.
- 7 Consistent with international and national planning standards, Christchurch Airport's air noise contours are implemented in local authority planning rules.
- 8 In 2021, at Environment Canterbury's' (*ECan*) request, *CIAL* undertook a technical remodelling of the air noise contours. The remodelled 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*'.

- 9 The final remodelled noise contours are therefore the best current technical information identifying where aircraft noise effects are likely to be felt in the future, and consequently where land use planning should apply the standards set out in the New Zealand Standard NZS6805.
- 10 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 ICAO¹ 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.
- 11 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 which can restrict airport operating efficiency, such as preferential runway regimes, flight tracks and night-time curfews.
- 12 In my opinion, implementing effective land use planning that directs noise sensitive activities away from areas of higher aircraft noise should be of primary concern. This will ensure future residential populations are not exposed to the adverse effect of aircraft noise and risks to the future operations of Christchurch Airport are avoided.

Bird Strike

- 13 Effective safeguarding of aircraft on arrival and departure is critical to ensuring safety and minimising risks of an incident and potential loss of life.
- 14 As with noise, there are various international and national regulatory bodies that provide requirements, guidance and information relating to airports managing bird strike.
- 15 Guidelines and regulations require airports to have effective environmental management programmes² and suggests airport operators work with local authorities to mitigate risks from development³.

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

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

- 16 Further international guidelines discuss establishing monitoring programs within a 13km radius of the airport ⁴.
- 17 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.

RESPONSE TO EVIDENCE OF MR FRASER COLEGRAVE

- 18 I have reviewed certain relevant parts of the evidence of Mr Fraser Colegrave on behalf of Momentum Land Limited and Mike Greer Homes NZ Limited.
- 19 Mr Colegrave has reviewed the Airbiz Report "*Air Noise Contours: Outer Control Boundary and Airport Safeguarding at Christchurch International Airport, 14 June 2022*" and made various statements around the technical merits and applicability of this report. My response aims to clarify some of the points raised.
- 20 The purpose of the Airbiz report was to document different approaches to airport safeguarding globally, present well understood international safeguarding principles and guidelines and to show that reverse-sensitivity is a real issue faced by many airports, often resulting in actual or the threat of constraints to airport operations.
- 21 As well as this, the Airbiz report details some of the risks to airport operations that can occur from the relaxation of land-use planning controls, such as those advocated for in Mr Colegrave's evidence.
- 22 At paragraph 128 Mr Colegrave notes that "*the Airbiz report reveals that CIAL's current and proposed OCBs both reflect noise metrics that are no longer deemed best practice globally to measure annoyance*". This is incorrect and a misleading misrepresentation of the paragraph in the Airbiz report referred to (para 42) by Mr Colegrave which states (emphasis added) that "**Other noise metrics are used around the world for transparent communication with the community, and complement cumulative noise exposure contours which are generally adopted to support land-use planning compatibility tables.**"
- 23 The noise metrics referred to have been developed "*to inform individuals in environmental studies*" (i.e. for communication purposes). The current processes and contours prepared by CIAL, and endorsed by ECan's experts, are concerned with land use planning, and are based on the New Zealand Standard NZS6805. The use of a cumulative energy metric (such as the Ldn on which

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 OCB is based) reflects current international practice and annoyance at the aggregated community level aligning noise exposure to compatible land use zoning in the vicinity of an airport.

- 24 At paragraph 129, Mr Colegrave notes that "*... the Airbiz report continues to advocate for an unusually conservative 50db OCB based on the 3 worst months per year, not the current annual average approach.*" This is incorrect. The proposed OCB is based on both an annual average approach and a 3-month approach, both approaches are consistent with the New Zealand Standard NZS6805. I refer to the discussion of control boundaries at 1.4.1.2 of NZS6805, which states that an "*...average shall be established over a period of 3 months or such other period as agreed between the operator and local authority.*" This also referenced in 1.4.3.5 of NZS6805, which states that "*... the sound exposure predictions should be based on an average day calculated from all operations during the busiest three months of the year.*"
- 25 Mr Colegrave then states that the Airbiz case studies are not highly relevant. As stated in my evidence at paragraphs 104 and 105 introducing the case studies, the purpose of these case studies is to illustrate that reverse-sensitivity effects are real and can potentially have significant impacts on airport operations. They are therefore considered directly relevant to the issue at hand, where a potential relaxation of existing land use controls could enable noise sensitive activities to be established with associated risks of reverse-sensitivity effects and constraints to airport operations.
- 26 At paragraph 142, in reference to the ICAO Balanced Approach Noise Management hierarchy, which advocates for Land-Use Planning and Management as the 2nd step in noise management, with operating restrictions being the last, Mr Colegrave states that "*I see no justification for the Airbiz report to ignore the hierarchy and focus on operating restrictions without also discussing the preceding steps/options in it.*" In fact, the very purpose of this report and my statements today are to focus on Land-Use Planning and Management as a critical tool in noise management.

RESPONSE TO EVIDENCE OF MR J P CLARKE

- 27 I have reviewed certain relevant parts of the evidence of Mr J P Clarke on behalf of Momentum Land Limited and Mike Greer Homes NZ Limited. **Ms Smith's** summary for CIAL responds to other parts of Mr Clarke's evidence.
- 28 In relation to the use of 'Ultimate (Practical) Capacity' as the basis for the (future) noise contours, Mr Clarke states that "*I do not believe that this practical capacity will be utilized based on the historical trends in traffic growth at CIAL and other airports at extreme geographical locations relative to population centroids, and*

the fact that air traffic control efficiency in the US is typically greater than in other countries.”

- 29 In response, I comment firstly that NZS6805 (section 1.4.3.1) recommends a minimum of a 10 year period for projecting contours, which suggests that a longer period is appropriate. The operative contours (with remodelling completed in 2008) are based on the runway system at capacity. This approach was approved by a panel of experts in 2008. The updated contours are consistent with this and are also based on Ultimate (Practical) Capacity. The use of Ultimate Capacity has not been disputed in previous and recent technical peer review processes.
- 30 The use of Ultimate Capacity is consistent with recommended practice in the Australian Government’s National Airports Safeguarding Framework (NASF) Guideline A, where it notes *“Airport lease holders under the Airports Act have the responsibility of publishing as part of the five-yearly Master Plans, endorsed Aircraft Noise Exposure Forecast (ANEF) information. These ANEFs may be standard (up to 20 years) long range (20 year +) or ultimate capacity. **The preference for land use planning purposes is to use ultimate capacity or long range forecasts.**”*
- 31 Ultimate Capacity is an accepted basis for noise modelling and is used at a range of airports in the region, for example:
- 31.1 Brisbane Airport;
 - 31.2 Adelaide Airport;
 - 31.3 Melbourne Airport; and
 - 31.4 Perth Airport.
- 32 The technical modelling, methodology and assumptions for the remodelled 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’, which I explain in my evidence. This includes the derivation of Ultimate Capacity.
- 33 At paragraph 78, in reference to the technical modelling, Mr Clarke also notes that *“Of further concern is the lack of any consideration of increasing aircraft seating capacity.”* This is not correct. As part of a comprehensive and granular forecasting methodology at the route level, the average seats per movement increases through the timeframe of the air traffic forecast by approximately 40%. This is a key input in the technical modelling and is documented on page 93 and 126-127 (PDF) of the ‘2023 Updated Christchurch International Airport Noise Contours’ report. Again, the technical modelling has been reviewed and accepted by an Independent Expert Panel.

- 34 The relevance of Mr Clarke's assertion at paragraph 77 that "...air traffic control efficiency in the US is typically greater than in other countries" is unclear. The technical reports supporting the development of the contours clearly outline the methodologies used to derive the runway capacity projections. They are based on local air traffic practices and benchmarking, which is appropriate in this context.
- 35 At paragraph 79 and onwards Mr Clarke deals with the validity of modelling assumptions for the duration of the forecast period. Mr Clarke seems to suggest that the contours should be based on speculative assumptions on future noise signatures of aircraft which are not even designed yet, let alone in production or operation. It is accepted practice in the jurisdictions that I am familiar with, that even when considering long term forecasts, the assumptions are "evidence based" and hence the selection of aircraft characteristics are those types currently in service globally, even if not in the local New Zealand fleet. It is acknowledged that this leads to an element of conservatism when the long term trends may be to quieter aircraft. This is inevitable when using an evidence based approach rather than speculation.

Dated: 21 February 2024

Sebastian Hawken