

Before the Queenstown Lakes District Council

In the Matter of **the Resource Management Act**

And

In the Matter of **Chapters 15 and 17 of the Proposed Queenstown
Lakes District Plan**

Statement of Evidence of
Christopher William Day
for Queenstown Airport Corporation
Limited (Submitter Number 433 and
Further Submitter 1340)

Dated: 18 November 2016

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INTRODUCTION

Qualifications and Experience

1. My full name is Christopher William Day. I am a founding partner and Director of Marshall Day Acoustics Limited.
2. I have the qualification of Bachelor of Engineering (Mechanical) from Monash University in Melbourne, Australia. For the past 40 years I have worked in the field of acoustics, noise measurement and control in England, Australia and New Zealand, specialising in transportation noise and acoustics for the performing arts. My work over the last 35 years has included noise control engineering and town planning work for various major corporations and City Councils within New Zealand, and I have been engaged on numerous occasions as an expert witness before the Environment Court.
3. I have been significantly involved with airport noise at all the three major airports in New Zealand as well as many of the smaller regional airports, including Queenstown Rotorua, Whangarei, Dunedin, Invercargill, Wanaka, Ardmore, Hamilton, Tauranga, Nelson, Omaka, Paraparaumu, Gisborne, Masterton, and Taupo.
4. At Auckland Airport my firm has been engaged by the Manukau City Council and the Airport Company, at Wellington by the Board of Airline Representatives of New Zealand (**BARNZ**) and Wellington International Airport Limited (**WIAL**), and at Christchurch by Christchurch International Airport Limited (**CIAL**). Our work has involved noise predictions, computer modelling, noise boundary development and automated noise monitoring.
5. I have been engaged by Queenstown Airport Corporation (**QAC**) since 1992 to advise on various noise issues including the preparation of the original noise contours to form the basis of the airport noise provisions in the District Plan in the 1990s. MDA has carried out periodic noise monitoring at Queenstown Airport over the last five years, and carried out the recalculation of the noise contours for PC35, which involved a remodelling of future operations and subsequent noise contour modelling.

Code of Conduct

6. 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 part 7 of the Environment Court Practice Note 2014. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

Earlier Hearings – September 2016

7. Earlier this year I presented evidence¹ before the Panel in which I discussed:
- (a) NZS 6805 and related land use planning controls;
 - (b) Queenstown Airport related mechanical ventilation provisions;
 - (c) Queenstown Airport related sound insulation provisions;
 - (d) Made some general comments on the noise rules in Chapter 36.

Current Hearing – November 2016

8. For this hearing I have been asked to review various noise related matters arising in relation to Chapters 15 and 17 of the Proposed District Plan (**PDP**). Accordingly, my evidence deals with the following:
- (a) Provision for visitor accommodation within the Airport Mixed Use Zone (**AMUZ**) for Queenstown Airport;
 - (b) Noise rules for activities within the AMUZ; and
 - (c) Mechanical ventilation requirements within the Local Centre Shopping Zone (**LSCZ**).

¹ Dated 2 September 2016.

EXECUTIVE SUMMARY

9. Short term visitor accommodation associated with airport activities (airport hotels) should not be regarded as an ASAN and could be allowed in the AMUZ under the following conditions;
 - (a) The length of stay should be limited to two nights;
 - (b) No outdoor amenity areas to be allowed;
 - (c) Indoor design sound level of 40 dB L_{dn} to be achieved in all critical listening environments.
10. The noise limits for activities in the AMUZ received in surrounding zones should be consistent with the noise rule recommended by the section 42A reporting officer (Ruth Evans) for Chapter 36 (Noise), specifically Rule 36.5.15, as per her reply evidence on behalf of QLDC, dated 22 September 2016.
11. The rules for the LSCZ should be consistent with the rules for other zones surrounding the Airport in respect of the mitigation of aircraft noise, and should contain the revised provisions for mechanical ventilation, as per QAC's evidence for Chapter 36 of the PDP..

VISTOR ACCOMMODATION IN THE AMUZ AT QUEENSTOWN AIRPORT

12. Most significant airports around the world have hotels located in close proximity to the terminal buildings to allow transiting travellers to stay overnight in walking distance to the airport. In New Zealand, Auckland Airport has the Novotel immediately adjacent and the Ibis 15 minutes walk away. Wellington and Christchurch Airports have on-site hotels under design at the moment.
13. These hotels generally accommodate travellers who, for example, either arrive late in the day or wish to depart early in the morning and want to stay as close as possible to the airport. The length of stay is short term and generally one or two nights. Travellers in transit and overnight aircrew are frequent users of this type of accommodation.

14. The purpose of the stay is 'airport related' as the sole reason for choosing the hotel is to enable easy access to the airport.
15. I understand that, with the introduction of runway lighting systems, Queenstown now has jet flights arriving in the evenings with the aircraft 'over-nighting' and flying out in the morning. As is the case at other airports, aircrew arriving at or departing from Queenstown Airport could take advantage of 'on-field' hotel accommodation, if it were available. Similarly, people returning campervans to the airport drop-off could take advantage of the full day hire and arrive late at night, drop off the van, walk to the hotel and fly out first thing in the morning, for example.
16. I understand that activities sensitive to aircraft noise (**ASAN**), including visitor accommodation, are prohibited within the AMUZ under the Operative District Plan zoning, because the zone is located within the Airport's noise boundaries. This is a result of Plan Change 35 (**PC35**), which, on the basis of NZS6805, generally seeks to avoid exposing ASAN to aircraft noise.
17. Visitor accommodation is currently included within the definition of ASAN in the PDP. In my opinion, while it is appropriate to include long term visitor accommodation within the definition of ASAN, short stay visitor accommodation (i.e. up to 2 nights), such as an airport hotel, should not be considered an ASAN for the reasons outlined below.
18. Long term visitor accommodation includes apartments and hotels that are occupied by guests who wish to stay at the accommodation for several days or more to enjoy the local activities on offer. This type of accommodation facility would normally provide outdoor areas such as balconies, decks and/or patios for example where guests could enjoy the outdoor amenity of the area. Often guests come to such accommodation with the objective to holiday and enjoy the surroundings and if this is disrupted by aircraft noise for several days in a row, they may be disturbed by and potentially complain about airport noise. The Millbrook Resort is a good example of visitor accommodation that would not be appropriately located adjacent to an airport.
19. For these reasons longer term visitor accommodation should be regarded as an activity sensitive to aircraft noise, in my opinion.

20. In contrast, users of an airport hotel generally choose to stay at the facility because of its close proximity to the airport and/or because it suits their travel itineraries, as opposed to 'holidaying' at the hotel. Guests of airport hotels therefore generally expect to experience aircraft noise, and their sensitivity to such noise is thus reduced.
21. Secondly, airport hotel guests generally stay for a single night or possibly two and are thus less likely to be annoyed by aircraft noise, as the tolerance for such noise over a short period is generally greater than for longer stays.
22. Thirdly, airport hotels do not generally (and should not in my view) provide outdoor amenity areas where people are directly exposed to the noise from aircraft related activities. This reflects the fact that people generally do not choose to stay at the hotel to holiday or relax, but rather choose to stay because of the convenient location. The Novotel Hotel in Auckland is a good example of where there are no outdoor amenity areas and the building has been designed to minimise aircraft noise intrusion.
23. Noting the above, the risk of airport hotel guests being annoyed by and complaining about aircraft noise is significantly less than for longer stay accommodation and other ASAN.
24. For these reasons, it is my opinion that airport hotels should not be regarded as ASAN.
25. To ensure that the issues I have outlined are adequately addressed, such that visitor accommodation can be considered appropriate within the AMUZ at Queenstown Airport, I consider that the following matters should be addressed through the AMUZ rules (or similar):
 - (a) The maximum length of stay for visitors/guests should be limited to two nights;
 - (b) The accommodation shall provide no outdoor amenity areas for guests;
 - (c) The accommodation shall be designed to achieve an indoor design sound level of 40 dB L_{dn} in all critical listening environments based on measured and projected aircraft noise levels.

AMUZ NOISE LIMITS

26. From a review of the general noise limits that apply to different zones in the PDP there appears to be some inconsistency. There are different noise limits specified, and different times periods apply in various zones. While it is appropriate that remote residential environments receive lower noise levels than residential environments adjacent to an entertainment zone or a mixed use zone for example, in my opinion there should be greater consistency in the PDP rules.
27. Rule 36.5.15 in the reply evidence of the section 42A reporting officer (Ruth Evans) on behalf of QLDC (dated 22 September 2016) recommends noise limits for the AMUZ as follows:

Activity or Sound Source	Time	Noise Limits
Sound from the Queenstown Airport Mixed Use Zone received in the Residential Zones, Remarkables Park Zone and the Rural Zones, excluding sound from aircraft operations	0700h to 2200hr	55 dB L_{Aeq} (15 min)
	2200h to 0700hr	45 dB L_{Aeq} (15 min) 75 dB L_{AFmax}

28. While these noise limits are less stringent (by 5 dB) than the limits that apply for some other zones, I consider they are appropriate given the nature of the existing noise environment adjacent to a busy airport of national significance.
29. Dr Chiles applies a similar rationale in his evidence, where he addresses noise received in the residential zones adjacent to the Queenstown Town Centre Zone, from activities carried out in the Town Centre Zone. In paragraph 3.3 of his evidence², where Dr Chiles explains his support of the PDP relaxed noise limits for noise received in the residential area surrounding the town centre, he states; *“In my opinion, given the nature of the existing environment (i.e. a busy town centre with significant activity at night), the adverse effects on noise sensitive activities should be acceptable for most people.”*
30. Ms Evans’ proposed limit of 75 dB L_{AFmax} for the AMUZ is consistent with the L_{max} noise limit that applies in the Rural and Low Density Residential

² Evidence of Dr Chiles, dated 2 November 2016.

zones that are adjacent to Queenstown Airport, which I consider appropriate for the same reasons as expressed above.

31. Ms Evans' definition of night-time as 2200h to 0700h for the AMUZ (rather than 2000h to 0800h used in the rural zone, for example) is consistent with the night time period that applies in the Remarkables Park Zone, and with the times of activity associated with the Airport and is therefore appropriate for the AMUZ in my opinion.

Structure of the Noise Rules

32. I agree with Ms Evans' proposed change to the structure of the noise rules. In the PDP as notified the noise rules for the AMUZ are located in both Chapter 17 and Chapter 36. I agree with her proposal to place all the rules in Chapter 36, as it ensures a consistent approach throughout the PDP and avoids unnecessary duplication and potential inconsistencies.

LOCAL SHOPPING CENTRE ZONE

33. It appears that the rules for the Local Shopping Centre Zone (**LSCZ**) do not include the Queenstown Airport related sound insulation and ventilation provisions, as generally introduced via PC35.
34. Dr Chiles has pointed out in paragraph 15.1(a) of his evidence that *"the sound insulation requirements in notified Rule 15.5.3 for other sources are significantly more stringent than sound insulation requirements under PC35 for airport noise"*. I agree, and on this basis, the PC35 sound insulation requirements may not need to be included in the LSCZ rules.
35. However, the mechanical ventilation requirements still need to be applied because the windows need to be shut to achieve the required level of sound insulation. In my opinion this should be the revised ventilation requirements proposed on behalf of QAC during the hearing of submissions on Chapter 36 of the PDP, for the reasons expressed at that hearing.³
36. In paragraph 15.2 Dr Chiles suggests that while it would be preferable to update the mechanical ventilation provisions in the LSCZ, *"there was not scope"* to make the changes. 'Scope' is outside my area of expertise,

³ Refer revised rule 36.6.3, as per Appendix D of Ms O'Sullivan's evidence dated 2 September 2016.

however if the Panel determines there is scope to apply the revised mechanical ventilation requirements to Chapter 15 of the PDP, then it should do so in my opinion, as they are superior and a more practical set of provisions.

Christopher William Day

18 November 2016