QUEENSTOWN LAKES DISTRICT COUNCIL

RESOURCE MANAGEMENT ACT 1991

IN THE MATTER OF The hearing of the Notice of Requirement ('NoR') by Queenstown Airport Corporation Limited to alter Designation 2 (Aerodrome Purposes) of the Queenstown Lakes District Plan,

AND

IN THE MATTER OF The hearing of privately proposed Plan Change 35 ('PC35') to the Queenstown Lakes District Plan by Queenstown Airport Corporation Limited

Held in Queenstown, 14th – 22nd June and 21st – 23rd September 2010

REPORT AND RECOMMENDATIONS OF THE HEARING PANEL
COMMISSIONERS: Dr. S. G. CHILES, Mr. D. CLARKE,
Mr. R. W. BATTY (Chair).

APPEARENCES:

For the Queenstown Airport Corporation Limited ('QAC') - Ms. A. Dewar, counsel; Ms. A. Noble, environmental planner; Mr. G. Akehurst, economist; Mr. S. Sanderson, CEO, QAC; Mr. C. Read, GM Aeronautical, QAC; Mr. I. Munro, airport business consultant; Mr T. Everitt, tourism consultant; Mr. D. Park, aviation consultant; Mr. R. Kennedy, air traffic controller; Mr C. Day, acoustician; Mr. D. Millar, consultant planner (written evidence); Dr. D. Black, medical specialist; Mr. J. Kyle, consultant planner.

Submitters:

Mr. M. Gillick; ***5M No2 Limited*** and **Queenstown Gateway Limited -** Mr. I. Gordon, counsel, and Mr J. Edmonds, planning consultant; **Ms. J. Smith; Public Health South -** Ms. S. Auty and Mr. V. Goodwin, acoustician; **Dr. L. Alfeld; Mr. D. Wallace; Jacks Point Limited, Totally Tourism Limited, Over the Top Limited** and **Good Group Limited -** Mr. W. Goldsmith, counsel and Mr. R. Hanson, company director**; Air New Zealand Limited -** Ms. L. Hardacre, counsel, Mr. E. Morgan, infrastructure manager, Dr. R. Bullen, acoustician; **Wakatipu Residents Against Aircraft Noise ('WRAAN')**; **Mr. S. Freeman; Mr. B. Giddens; Mr. D. Mander** and **Ms. C. Kowalski; Remakables Park Limited** and **Shotover Park Limited -** Mr. J. Young, counsel, Mr. M. Hunt, acoustician, and Mr. M. Foster, planning consultant; **Mr. M. Lewis.**

Section 42a Reporting officer: Ms. K. Page. (Acoustics peer-review: Mr. N. Hegley).

Abbreviations

AANC	Annual Airport Noise Contour
ANB	Air Noise Boundary
ANZL	Air New Zealand Ltd
ASAN	Activity Sensitive to Aircraft Noise
CAA	Civil Aviation Authority
dB	decibels
FFSZ	Frankton Flats Special Zone
GA	General Aviation
GDP	Gross Domestic Product
INM	Integrated Noise Model
Ldn	Day/night level
NNB	Night-time Noise Boundary
NMC	Noise Mitigation Contour
NMP	Noise Management Plan
NoR	Notice of Requirement
NZS	New Zealand Standard
OCB	Outer Control Boundary
PC35	Plan Change 35
QAC	Queenstown Airport Corporation
QALC	Queenstown Airport Liaison Committee
QLDC	Queenstown Lakes District Council
RESA	Runway End Safety Area
RMA	Resource Management Act
RNP(AR)	Required Navigation Performance (Authorisation Required)
RPL	Remarkables Park Ltd
RPSZ	Remarkables Park Special Zone
SEL	Sound Exposure Level
SIB	Sound Insulation Boundary
SPL	Shotover Park Ltd
WRAAN	Wakatipu Residents Against Aircraft Noise
VOR	VHF Omni-directional Range

Executive Summary

Background

1. *Queenstown Airport was established by the Civil Aviation Authority as an aerodrome at its current location in 1935. Since then it has expanded its operations to their current level which caters for some 50,000 aircraft movements and over 810,000 scheduled and non-scheduled passengers per year. In 1995, an "Alternative Sites Study" was carried out in the light of the potential for future conflicts between urban expansion of Queenstown at Frankton and continued demand for growth of the Airport's domestic and international air-traffic capacity. Having examined a range of potential alternative locations, that study concluded that the present location was the only practical site for the Airport from a variety of physical, operational and commercial considerations.*

2. *At about the same time the Council carried out a separate study of the future potential for further development at Frankton, concluding in the "Frankton Development Strategy" which provided for future urban growth (including residential development) around the Airport. Current District Plan provisions were notified in 1995 and contain airport noise boundaries around the Airport, forecast at that time to cater for Airport growth up to 2025. These include a 65 dB Ldn 'Air Noise Boundary' ('ANB') and a 55 dB Ldn 'Outer Control Boundary' ('OCB'), produced in accordance with New Zealand Standard NZS 6805:1992 "Airport noise management and land use planning". These boundaries are shown in the District Plan on Planning Maps 30, 31 and 31a.*

3. *There are 3 QAC 'Designations' referred to in Appendix 1, section 2, Schedule of Designations, in the District Plan numbered 2, 3 & 4. In Appendix 1, section D the conditions for these designations come under the headings D.1, D.2 and D.3 respectively. In this report we refer to the designation numbers from the schedule in section 2. Designation 2 specifies Aerodrome Purposes and lists the range of activities provided for or restricted including a specific provision preventing the Airport's use by scheduled passenger services during the hours of darkness (10pm – 6am). Designation 3 sets out Air Noise Boundary controls and Designation 4 sets out Airport Approach and Land Use Controls.*

4. *A Review of the rate of growth at Queenstown Airport was carried out in 2008 by Airbiz Aviation Strategies Limited ('Airbiz'). Resultant increased passenger demand forecasts were then used to review the extent of the previously projected airport noise contours. The revised assessment indicated that current aircraft operations at the Airport were nearing the noise 'limit' set by the OCB. Other limitations on the Airport's operations occur during hours of darkness (particularly during winter) primarily due to the absence of runway and surrounding terrain lighting. QAC has confirmed that both runway width (taxi-way) extensions together with night lighting provisions are likely to be in place within the next 12 months or so. Once these improvements have been provided, passenger arrivals are forecast by the Airport Master Plan to grow to 2.3 million per annum by 2037, if the number of movements is not constrained by the existing noise boundaries.*

Proposed Plan Change 35 and the Notice of Requirement

5. *In Proposed Plan Change 35 ('PC35'), QAC seeks to amend objectives, policies and rules in the District Plan dealing with the management of growth in both urban and rural areas adjoining the Airport predicted to be affected by airport noise. In addition it proposes to extend the ANB*

and the OCB as now forecast by the revised airport noise projection up to 2037. Two additional noise boundaries are also proposed, a Sound Insulation Boundary ('SIB') of 58 dB Ldn, and a Night-time Noise Boundary ('NNB') of 95 dB SEL, this latter showing the area considered by QAC to be significantly affected by the proposal to accommodate 11 aircraft landings per week between the hours of 10.00pm and 12.00midnight.

Extended airport noise boundaries

6. *Acoustics witnesses examined the necessity for and extent of the revised (and additional) airport noise contours proposed by QAC and the methods used to derive and monitor their accuracy over the proposed 27 year time frame. In section 3 of this report we set out our understanding of the various acoustics terms used in these assessments. There was general acceptance that the Integrated Noise Model ('INM') was appropriate to produce projected airport noise contours, recognising that this software is itself subject to on-going modification. Noise contour maps were also provided by QAC comparing the likely extent of noise effects 'with and without' the proposed 11 weekly night landings. These show little significant difference in the resultant areas that would be within the respective OCB and ANB. We consider this to indicate that the presence or absence of the proposed additional night landings is unlikely to have any significant restraint upon the strategic growth rate or capacity of the Queenstown Airport up to and including 2037.*

7. *During the hearing and in response to matters raised by submitters, QAC proposed withdrawal of the SIB as a method for defining that area within which mechanical ventilation would be appropriate in order to mitigate the effect of airport noise. A similar function can instead be achieved through the provision by QAC to QLDC of 2037 noise contours shown at 1 dB intervals so that the Council or individual property owners may then assess whether mechanical ventilation for ASAN is required. Having considered the submissions and evidence on the need for and significance of the proposed 11 night landings, for the reasons set out more fully below we have concluded that these cannot be supported and that the NNB should therefore also be deleted.*

8. *Subject to the deletion of the above provisions we are otherwise satisfied that it is appropriate to include the revised and expanded OCB and ANB in the District Plan in line with current forecast of air passenger growth at the Airport to 2037. We therefore recommend that the objectives, policies and rules in PC35 be incorporated in the District Plan subject to their modification deleting all reference to extended hours of operation/night landings, the proposed NNB and SIB and subject to other recommendations discussed below and set out in Appendix A.*

11 Night flight (landings) / hours of operation

9. *The majority of the airport noise criteria and controls proposed by QAC are directly as recommended by NZS 6805:1992. However, while the Standard mentions the need for specific consideration of night-time operations in some cases, it does not provide a recommended method for doing so.*

10. *In evidence for QAC Mr Day equated the 95 dB SEL contour with the onset of significant sleep disturbance, with 'low' sleep disturbance effects below 85 dB SEL. The NNB is therefore only aimed at preventing <u>significant</u> sleep disturbance and <u>not all</u> sleep disturbance. It was pointed out that due to prevailing meteorological conditions, the proposed eleven night flights would mostly arrive from the Shotover River*

end of the main runway, with only 26% of those night flights passing over the more sensitive Frankton end, on average around 3 night landings a week. In support of Ms Page's s42A report, Mr Hegley noted that as the ANB and NNB are essentially in the same location in this case there is no need for the NNB, other than with regards to timing of implementing mitigation. Mr Hegley also provided analysis showing that 95 dB SEL proposed for the NNB could be expected to relate to 3% average awakenings. In summary, all of the acoustics experts acknowledged that there would be a degree of sleep disturbance due to night flights. However, the acoustics experts hold different views as to what is the appropriate mitigation, and what percentage of awakenings or degree of disturbance is reasonable.

11. *The majority of the 11 night-time flight arrivals are anticipated to be trans-Tasman originated. Expert acoustics evidence indicates that there would be a significant environmental effect of such arrivals, particularly on properties within the revised ANB (and proposed NNB) and to a lesser degree beyond those to about the 60 dB Ldn contour, however, views differed on the extent to which that effect could be mitigated. QAC stressed the potential of this element to enable the Airport to attract and secure a developing trans-Tasman demand for 'short-break' holidays particularly during the winter months and ski-season. The economic benefits of such a facility, not only to airline operators (optimal utilisation of aircraft) but also to the tourism and hospitality based sectors in Queenstown was also emphasised by both Mr Akehurst and Mr Munro for QAC as well as by Mr Goldsmith and Mr Hanson for submitters Jacks Point Limited, Totally Tourism Limited, Over the Top Limited and Good Group Limited.*

12. *However, no direct evidence of likely commercial demand/take up of such later flight arrival times was presented by QAC, although reference was made to interest expressed by Jetstar in considering that opportunity if/when it became available. In contrast to the above, the only airline operator to present evidence (Air New Zealand) indicated that while not opposing the extended hours it could not efficiently utilise those, suggesting that a 12.30am or 1am curfew would be more practical.*

13 *We accept that given the regime of noise insulation proposed by QAC together with the likelihood that only a small proportion of the 11 night landing total would affect the 'old' Frankton area, potential adverse health effects from those would possibly be no more than minor. However, we remain significantly concerned that the existing amenity currently enjoyed in the surrounding Wakatipu Basin would be adversely affected by the introduction of such late night operations. Effects of the night-time flights on amenity were raised by several of the residents and by Mr Hunt in particular, with reference to the wider area, although there was limited explicit discussion of effects on amenity by other acoustics experts.*

14. *We consider this element of the proposal to represent a significant 'threshold' in the on-going growth of the Airport particularly as it relates to the introduction of the effects of late night flights on adjoining and surrounding areas identified by QLDC for future urban growth, including some ASAN. We accept that the Airport should not be restricted as to its reasonable future development and utilisation as a significant element of regional and national infrastructure. However the presence or absence of the 11 night landings sought does not on the evidence presented to us appear to prejudice that 'growth' outcome. If late night landings are enabled, we consider it likely that there would be further*

pressure for similar commercial possibilities to be pursued, potentially increasing the number of flights and hours of operation over the 27 years envisaged. While any such additional 'growth' would necessarily require further change to the Designation (and also possibly to the District Plan), a significant environmental threshold would by then have been crossed.

15. *We do not consider that the achievement of QAC's stated objectives (other than in the general context of enabling "…sustainable future use of the Airport…") to have any specific relevance to the 11 night landings. Conversely the potential adverse amenity effects of that proposal are in our view inconsistent with objectives:*

    "(c) To manage the effects of aircraft noise on the community; and
    (d) To provide the community with certainty as to the noise limits and effects on all surrounding land uses."

    Having duly considered the need for and strategic significance to QAC of the proposed 11 night landings, we therefore conclude that the NNB should be deleted from both the NoR and PC35, and the existing hours of operation allowed for in Designation 2 be retained.

16. *Existing Designation 2 only restricts the hours of operation for 'scheduled passenger services' at night. However QAC accepted that (subject to acceptance of the two hour extension) the restriction should apply to all flights other than emergencies. We see no reason for such a qualification and recommend simplifying the wording in Designation 2 accordingly. We consider the terms 'scheduled' and 'unscheduled' should be avoided (they are not otherwise defined and could cause ambiguity), and we consider an exemption for 'emergency' operations would encompass search and rescue flights.*

Notice of Requirement and noise mitigation measures

17. *The NoR seeks that Designation 2 be amended to enable limited additional night-time operations. It also proposes introduction of provisions for aircraft and engine testing noise controls and noise monitoring. Airport noise management requirements are proposed together with noise mitigation for properties within the new ANB and NNB areas. A new 'Noise Management Plan' ('NMP') is to be finalised by QAC within 12 months of confirmation of the amended NoR.*

18. *In recognition of the modification and expansion of the OCB and ANB in the District Plan QAC proposes the provision and funding of noise mitigation for ASAN within the revised ANB to achieve 40 dB Ldn inside such buildings. Beyond that boundary and extending to the 60 dB Ldn AANC, QAC proposes to offer to part-fund such mitigation (essentially limited to mechanical ventilation). Within the OCB, for new and altered buildings containing ASAN, it is proposed that the District Plan should require the building owner to provide mitigation to achieve 40 dB Ldn inside. This is a refinement of an existing control already in the District Plan, although as the OCB is now larger it will affect more properties. We generally endorse and recommend that those mitigation and funding measures proceed.*

19. *Although we do not recommend that scheduled passenger services at the airport be extended beyond the current 10pm limit sought by the NoR, neither do we consider the extended hours of operation to be critically related to the airport noise mitigation and funding packages otherwise proposed by QAC. The planned $8m to be spent over the next 5 years constructing RESAs together with the $40m programme for the provision of runway and apron lighting, a new heavy duty taxi-way, new*

terminal expansion and related facilities will all enable the Airport's current operational hours allowing for flights up to 10pm to be utilised. As we understand the evidence it is those facilities and operating hours that will effectively enable the passenger growth rate forecast to 2037. That growth can be achieved with a relatively insignificant reduction in the extent of the projected OCB and ANB by the removal of the '11 night landings' component.

Effects on areas surrounding the Airport

20. *Land use controls proposed by PC35 include the prohibition of new ASAN within the OCB in some zones surrounding the Airport. That is consistent with the generality of the guideline in Table 2 of NZS 6805:1992, except that it is further qualified as follows:*
"… unless a district plan permits such uses, subject to a requirement to incorporate appropriate acoustic insulation to ensure a satisfactory internal noise environment."
There was considerable debate at the hearing as to whether such 'prohibition' should apply to the Frankton Flats Special Zone (yet to be developed).

21. *The "Frankton Development Strategy" provides for future mixed use urban growth (including ASAN) around the Airport, and Plan Change 19 has specified what it considers to be "…appropriate acoustic insulation to ensure a satisfactory internal noise environment" for such activities. The Council has previously examined alternative locations for both future urban growth in Queenstown and the location of the Airport. It has concluded that both should be accommodated at Frankton. Given that a process of noise mitigation was accepted by QAC in relation to areas within the proposed NNB, ANB and SIB, we do not consider that a different approach (prohibition) to mitigating noise effects on new ASAN within the OCB can be justified at Frankton Flats.*

Flight Paths/ safety issues

22. *Concerns raised by submitters included safety issues related to use of the Airport after dark. Accepting that the current designation enables passenger operations between 6am and 10pm, the evidence we received concerning the use of Required Navigation Performance (Authorisation Required) ('RNP(AR)') approach and departure procedures, satisfied us that night-time operations – both approach and departure at Queenstown Airport would be safe and reliable utilising this technology and that it would be a significant improvement on the ground-based navigation aids such as VOR (VHF Omni-directional Range) currently installed at the Airport. An additional 'by-product' of such control would be minimisation of noise effects due to adherence to precise flight paths and ability to use continuous descent approaches.*

Engine testing

23. *In addition to alterations to airport noise boundaries, QAC has proposed in the NoR in respect to the Aerodrome Designation (2) that the wording of 'Aerodrome purposes' be amended so as to provide for planned engine testing to be carried out subject to specified noise limits not being exceeded at the boundary of any land zoned Residential, Frankton Flats or Remarkables Park and at the notional boundary of any dwelling in the Rural zone. Similar provision for essential unplanned engine testing is also proposed in the NoR, limited to not more than 18 occasions in any 12 month period. The proposal also expressly allows for such testing at night. Currently there are no noise limits for these activities in the designation. The number of engine tests now requested to be allowed and their noise limits have been copied from other airports elsewhere in*

New Zealand. No analysis was provided for the justification of those limits in Queenstown.

24. *Supplementary evidence from QAC showed engine testing scenarios could, with careful location and screening, allow light aircraft and helicopter engine testing to comply with the normal District Plan noise limits in surrounding zones. We do not consider that there are fundamental constraints for implementing mitigation of noise from planned engine testing and therefore recommend that it should comply with the standard District Plan noise limits for the neighbouring zones as should all other noise sources within the airport designation.*

25. *The noise effect of unplanned testing can be minimised by careful location of the aircraft and also by avoiding testing in the middle of the night where possible. We consider that such management controls are best addressed in the NMP and monitored by the Queenstown Airport Liaison Committee ('QALC'), rather than relying on pre-specified noise limits. We therefore recommend that there should be an exclusion from the noise limits for unplanned engine testing of large aircraft, but that the designation conditions should require that a procedure for such testing be provided in the NMP, and all testing should be reported to the QALC with reasons for any deviations from the procedures provided.*

Noise Management Plan

26. *A Noise Management Plan is required as a condition of the proposed designation and is to be finalised by QAC following confirmation of the NoR. The primary purpose of that plan is to set out details for management rules and mitigation of adverse noise effects from operations at the Airport. The NMP also provides for the establishment of a 'Queenstown Airport Liaison Committee' ('QALC') which will serve as the principal interface between QAC and the surrounding community to resolve any on-going noise issues. Many submitters considered that the NMP should therefore be contained as a provision of the District Plan so as to be more accessible to community oversight processes. The Environment Court has ruled elsewhere that a noise management plan would not be appropriately located within a district plan because it could then only be amended by way of a Plan Change or Variation. As an adaptive management tool and so as to provide a framework for on-going community involvement, the Court endorsed a non-regulatory approach to resolving on-going noise issues in that case.*

27. *Concern was expressed by submitters that the constitution and functioning of the QALC should be representative of the wider community and in particular be chaired by someone independent of QAC or QLDC. As Requiring Authority, QAC will determine the final form and content of the NMP, however we consider that there are a number of matters that should be addressed by that Plan and these are set out in Appendix C to this report.*

1.0 Procedural matters.

1.1 As a matter of record we note that prior to the commencement of the hearing, compliance with the notified time limit for receipt of submissions on these matters was waived by the Council's Chief Executive Officer pursuant to the Council's discretion under s37(1)(b) of the Act for a total of 20 late submissions and 1 late further submission. We have accordingly considered all submissions received.

1.2 Although not raised as an 'issue' by any submitter we also note that by its resolution dated 16th December 2009, the Council adopted PC35 in part (as though it had been promulgated by the Council) with the exclusion of those provisions relating to "night-time flights". We have therefore taken the latter exclusion to apply to those provisions in PC35 relating to flight operations between 10.00pm and 12.00midnight.

1.3 Hearing of the above commenced on Monday 14th June and continued up to and including Tuesday 22nd June. At the request of Ms A. Dewar, counsel for QAC, it was adjourned pending the production of a range of further information (formally requested by us in our Memorandum Number 1 dated 29th June) and the completion of QAC's case, including the presentation of further acoustics evidence by Mr Day, concluding planning evidence by Mr Kyle (both of which included 'rebuttal' of earlier submitters' evidence) and closing submissions by Ms Dewar. The hearing was re-convened on 21st September to receive that information and deal with those matters. The transcript of Ms Dewar's closing submissions was received by us on 11th October 2010.

1.4 By letter from Mr Duncan Field dated 30th July we were advised that the submission on PC35 by Imajine Property Group Ltd and referenced 35/54/1 has now been formally withdrawn.

1.5 A procedural issue raised during the hearing by submitters appearing on behalf of WRAAN concerned an alleged inadequacy in the level of detail of QAC's proposed Noise Management Plan ('NMP') made available for public consideration and comment at the time of public notification of the NoR. That 'Plan' is yet to be finalised by QAC – although an outline of the broad range of matters to be covered was included with the information lodged as part of the NoR. The primary purpose of such a plan is the management and mitigation of adverse noise effects from activities at the airport. Following the initial hearing and at our request, a further 'Draft' of this Plan was made available by QAC on 10th August 2010. This was then placed on the QLDC web-site for PC35 and the attention of all submitters was drawn to its availability. As a 'work in progress' we do not consider that it was necessary for QAC to have indicated other than such a plan is intended and what its general content might include. While we accept that submitters may well wish to express views on the eventual form and potential content of such a plan we do not consider that failure to have it in either

completed form or advanced draft was necessary at the original public notification of this NoR.

2.0 Proposed Plan Change 35 and the Notice of Requirement

2.1 Privately Proposed Plan Change 35 ('PC35') as requested by Queenstown Airport Corporation Limited ('QAC') is intended to introduce new projected airport noise boundaries and new objectives, policies and land use control provisions to manage the effects of increased airport noise resulting from increased passenger movements up to 2037 as forecast in the 2008 review of the Airport's Master Plan.

2.2 In addition to the above, a Notice of Requirement ('NoR') has been served upon the Council by QAC to alter existing Designation 2 in the District Plan. This is to extend the hours of operation of the Airport to enable 11 scheduled passenger service landings at the Airport per week between the hours of 10.00pm and 12.00midnight. The NoR also intends the introduction of provisions for aircraft noise controls, noise monitoring, engine testing, and noise management and mitigation requirements for properties within a new Air Noise Boundary ('ANB') and a new Night-time Noise Boundary ('NNB'), as well as the production of a 'Noise Management Plan' by QAC within 12 months following formal confirmation of the NoR.

Section 32 and section 168A assessments.

2.3 The QLDC's duties under these two sections of the Act vary slightly. The RMA requires in evaluating PC35, to consider whether having regard to their efficiency and effectiveness, the objectives, policies, rules or other methods intended are the most appropriate for achieving the purposes of the Act. This evaluation is to be of the benefits and costs as well as the risks of acting or not acting on uncertain information (emphasis added).

2.4 For the NoR, it is required subject to Part 2 of the Act, to consider the effects on the environment of allowing the requirement, having particular regard to national, regional and district statutory statements and plans together with;

- whether adequate consideration has been given to alternative sites, or methods;
- whether the requiring authority does not have an interest in the particular land concerned (or part thereof?)
- where the work proposed is likely to result in significant adverse effects on the environment;
- whether the requirement is reasonably necessary to achieve the objectives of the requiring authority.

(our emphasis).

3.0 Management of Airport Noise – acoustics terminology

3.1 The primary focus of both PC35 and the NoR is the future management of noise from operations of the Queenstown Airport. Guidelines are set out in New Zealand Standard NZS 6805:1992 "Airport noise management and land use planning". These recommend the identification of an ANB within which noise levels greater than 65 dB Ldn would be experienced, and an OCB within which noise levels greater than 55 dB Ldn would be experienced. The guidelines also contain recommendations for controlling the establishment within those boundaries of new activity sensitive to aircraft noise. Once identified, these boundaries are also intended to represent a limit to the noise that may be generated by Airport operations.

3.2 We received a considerable amount of evidence and submissions containing acoustics terms and expressions in various forms. In order to establish a consistent base of understanding of definitions and meanings for those terms, in the following analysis of that evidence we refer to airport noise levels measured or predicted in decibels (dB) and expressed in terms of the Ldn or SEL parameters (both being A-frequency-weighted) defined as follows:

Ldn Day/Night Level. The average noise level over a 24-hour period, but with sound levels during the night penalised by 10 decibels. This is the main parameter proposed at Queenstown for airport noise and mitigation controls.

SEL Sound Exposure Level. The total energy from a single noise event, such as an aircraft take off or landing, condensed into a hypothetical single burst of sound one-second long. This is an additional parameter proposed at Queenstown for night-time aircraft noise and mitigation controls.

Different acoustics parameters are also used for other noise sources such as ground engine running.

3.3 A number of different noise contours and boundaries were discussed during the hearing. While the duplication of contour types introduces significant complexity, there are important differences in the definitions. The following is a summary of the different noise contours discussed all of which relate to aircraft sound levels outdoors. We note that the largest physical contour on a map is the one furthest from the airport which also has the lowest decibel value (i.e. 55 dB Ldn).

Day/night average (Ldn) contours

AANCs Annual Airport Noise Contours (in some places incorrectly called annual aircraft noise contours). These contours join the positions predicted to be exposed to airport noise levels of 55, 60 and

65 dB Ldn respectively, based on the average number of movements over the busiest three months of the preceding year. These are proposed to be used to assess compliance by QAC with the airport noise boundaries.

NMCs — Noise Mitigation Contours. These contours join the positions predicted to be exposed to airport noise levels of 60 and 65 dB Ldn respectively, based on the AANCs, but adjusted for the estimated growth in aircraft movements over the following year and any inaccuracies in predictions identified from field measurements. The NMCs are proposed to be used to determine when QAC is required to offer mitigation or part fund mitigation for ASAN.

2037 contours — These join the positions predicted to be exposed to airport noise levels in 1 dB intervals from 70 dB to 55 dB Ldn as at year 2037. These contours are proposed to be used by people constructing new buildings containing ASAN or altering existing buildings to determine the degree of mitigation required (if not using standard constructions). These are also the basis for most of the control boundaries discussed below.

SEL contour

95 dB SEL — This joins the positions predicted to be exposed to 95 dB SEL when an aircraft lands on the main runway. Predictions are made separately for a landing in each direction on the main runway and the contour is defined as the outer extents of the two predictions. This contour is to be based on the noisiest aircraft type landing after 10pm.

Additional variants to some of these contours were discussed at the hearing and are mentioned later in our report.

3.4 Based on the noise contours described above, the following administrative control 'boundaries' are then defined. All of these boundaries are adjusted outwards from the contour they are based on, to the nearest cadastral/site boundaries in urban zones.

ANB — Air Noise Boundary. Based on the 65 dB Ldn, 2037 contour.

SIB — Sound Insulation Boundary. Based on the 58 dB Ldn, 2037 contour.

OCB — Outer Control Boundary. Based on the 55 dB Ldn, 2037 contour.

NNB Night-time Noise Boundary. Based on the outer extents of the 95 dB SEL contours for a Boeing B737-800 and an Airbus A320.

3.5 'Noise mitigation' of buildings containing activity sensitive to aircraft noise refers both to the specification of the building fabric to provide 'sound insulation', and also to the provision of 'mechanical ventilation' so that windows can remain closed. In some evidence 'acoustic insulation' was used in place of 'sound insulation'.

4.0 Summary of the hearing presentations

4.1 The hearing extended over a period of nine days with submissions and evidence being presented by counsel and twelve technical witnesses on behalf of QAC together with some twenty-one submitters (including counsel and technical witnesses). An independent assessment report pursuant to s42A of the Act was presented by Ms Page, with input from Mr Hegley. The following paragraphs briefly outline the principal views expressed in the above presentations.

Queenstown Airport Corporation

4.2 Ms Dewar submitted that both designation and plan change procedures were necessary and appropriate in this case. As an element of transport infrastructure that is both nationally and regionally significant continued growth of the Airport could only continue if the amended noise boundaries generated by the latest predicted aircraft movements replace those in the operative District Plan. In her submission it was appropriate that future noise management and mitigation measures proposed (largely to be funded by QAC) should be contained within a variation of existing Designation 2 so as to achieve the objectives of QAC in this case, which she stated are:

"*(a) to maintain and enhance the operating capacity at the Airport;*

(b) To enable sustainable future use of the Airport particularly to accommodate the ongoing growth in general aviation activities;

(c) To manage the effects of aircraft noise on the community;

(d) To provide the community with certainty as to the noise limits and effects on all surrounding land uses."

4.3 Ms Noble outlined the details of PC35 and the NoR. Currently Designation 2 limits the range of activities and hours of operation of the Airport and Designation 3 requires the Airport to be managed so that noise does not exceed a day/night level (Ldn) of 65 dB Ldn outside the ANB and 55 dB Ldn outside the OCB. The proposed NoR relating to the variation of Designation 2 provides for an increase in the current 6am to 10pm hours of operation of the Airport to become 6am to 12midnight to enable a maximum of 11 aircraft landings per week between 10pm and 12midnight on the main runway only. The variation also provides for planned

engine testing to be carried out within specified noise limits, and unplanned engine testing to be carried out within higher noise limits but on not more than 18 occasions per year.

4.4 PC35 includes amendments to both the ANB and OCB as currently shown on District Planning Maps 30, 31, and 31a, together with the introduction of an additional 'Night-time Noise Boundary' ('NNB') and 'Sound Insulation Boundary' ('SIB'), also to be shown on those planning maps. Additional 'District wide' statements of objectives and policies relating to the Airport and related land use controls over activity sensitive to aircraft noise ('ASAN') in the urban and rural zones around the Airport are also proposed. Ms Noble confirmed that QAC had undertaken some consultation with surrounding residents in November 2008 to May 2009 and that the primary concerns expressed were related to costs of noise mitigation and the safety of operations during hours of darkness.

4.5 Mr Akehurst referred to economic studies that he had undertaken in 2008 and 2009 of the impact and significance, to both the regional and national economies, of the Airport likely to result from its forecast growth up to 2037. He concluded that while domestic flights dominate movements at the Airport, the strongest recent growth in flight movements was from international flights. He believed that enabling the arrival of night-time flights into Queenstown between 10pm and midnight could result in economic benefit to the Otago Region of $39.4m of total GDP and an increase in National GDP of $54m.

4.6 As CEO of QAC, Mr Sanderson confirmed that some $8m is being spent over the next 5 years constructing runway end safety areas ('RESAs') and that a further $40m programme exists for the provision of runway and apron lighting, a new heavy duty taxi-way, new terminal expansion and related facilities. The Airport's current operational hours allow for flights up to 10pm and that is why it is investing to facilitate operations beyond daylight hours.

4.7 Mr Sanderson assessed that Airport operations generate gross output to the Regional economy of about $167m sustaining the equivalent of 2,590 full-time workers annually. The scheduled aircraft movements and passenger numbers now forecast to 2037 would increase that gross output regionally to $522m or the equivalent of 8,100 full time jobs. Capping the number of flights at its current level would in his view seriously affect the local economy. While the airport needs to extend the existing noise boundaries to show the areas likely to be affected by its future operations, in his view strategically it also needs to be able to extend its operating hours so as to have the potential to capture elements of the Australian international flight market. If the potential for 11 night landings was approved, it would be some time before actual numbers could be confirmed sufficient to justify the proposed noise mitigation package to proceed.

4.8 Mr Read's evidence outlined the history of the Airport's development in this location since first being licensed in 1935. He

identified the range of potential alternative locations for an airport that had been the subject of a study conducted for the QLDC in 1995, earlier feasibility studies of a number of sites having been conducted in 1987/88. The 1995 study again confirmed the current location at Frankton as the only practical site having favourable meteorological conditions and operating facilities to support trans-Tasman flights close to Queenstown. The Airport currently caters for five major airlines together with various flight-seeing and helicopter operations along with 30 individual businesses and agencies employing over 200 people. Noting the QLDC's 'Frankton Development Strategy' planned development surrounding the Airport, he confirmed that QAC had never been supportive of such development being for residential or other noise sensitive activities.

4.9 Mr Munro is a Director of 'Airbiz', the specialist firm responsible for producing the Airport's 2007 'Master Plan' that provided forecasts of future activity levels and mix of aircraft, subsequently utilised in the projection of airport noise contours as at 2037. He noted that many of the world's major airports suffer from a lack of adequate protection of surrounding land from the establishment of incompatible land uses. International practice also indicates a critical importance to review and update airport master plans and growth forecasts regularly as aviation is a long-term growth industry, averaging 5% per annum over the past 20 years. At Queenstown, by 2009 the international passenger level had reached that previously forecast to be reached in 2025 and showed little seasonal variability. He therefore considered it appropriate for both land use and noise planning to use forecast passenger levels for 2037, so as to give residents and property-owners clarity of expectation about future noise levels.

4.10 Turning to consider the issue of night flights, Mr Munro indicated the pattern adopted at other airports enabled trans-Tasman operations to achieve two arrivals in New Zealand per day where the last of these occurred between 11pm and midnight. In his opinion, the additional 2 hour time period sought was attractive to airlines in terms of increased efficiency of aircraft utilisation and to QAC by enabling it to promote its availability of access for a 'short-break' tourist package. He was confident that increased capacity benefits would occur from the simplification of airspace procedures and systems that Airways Corporation intended to introduce to Queenstown over the next two years based upon *Required Navigation Performance (Authorisation Required)('RNP (AR)')* technology which strictly governs the safety of flight-paths to and from airports. That technology was later described in some detail by both Mr Park and Mr Kennedy.

4.11 Mr Park's evidence focussed upon the issue of night-time flights between 10pm and midnight. He pointed out that what is now proposed represents a greater restriction on passenger aircraft movements of <u>all</u> types than does the existing designation, which only restricts <u>scheduled passenger</u> flights between 10pm and 6am. He further noted that the cross-runway would not be utilised for

night-time operations. He explained that given time differences between countries, flights from Australia to Queenstown are currently required to depart from their east coast airports no later than 11am so as to be able to arrive in and depart from Queenstown before dark. Civil Aviation Authority ('CAA') rules also currently limit all air transport operations at the Airport to 'daytime'. In the winter this means that operations must cease by 5.30pm to 6pm and are unable to re-commence before about 7.30am to 8am. Both CAA operating approvals and RNP navigation improvements would be required before night-time operations could commence – which then in his opinion would only be likely to be available using the latest jet aircraft types. Only a small percentage of these night landings would approach the Airport from the west over Lake Wakatipu, due to prevailing wind bias. In his view that would provide a very useful additional flexibility for efficient scheduling of international flight arrivals from Australia.

4.12 Mr Park also discussed operational requirements including engine testing and aircraft de-icing. He distinguished between maintenance and testing of aircraft engines on and off the wing, with the latter usually only carried out at specialised hangar-based maintenance facilities elsewhere. To his knowledge, over the past 15 years or so Air New Zealand had been obliged to undertake only one or two ground run engine tests 'on aircraft' while at Queenstown. He did not foresee the establishment of purpose built engine maintenance or testing facilities at the Airport. Given that with the proposed 11 night landings per week aircraft would overnight at the Airport during winter, he advised that while de-icing procedure was well understood in relation to current ATR72 aircraft operations at the Airport, future de-icing arrangement would need to be undertaken in a specific location on the taxi-way where the glycol based fluids used could drain into a separator and any other non-biodegradable material could be extracted for safe disposal.

4.13 Mr Kennedy provided details of RNP (AR) navigation operations which use GPS as the primary means of lateral and vertical flight path guidance allowing precise manoeuvring of aircraft in difficult terrain. He referred to examples of such navigation systems successfully employed at a number of other airports around the world where terrain is a significant safety consideration. He confirmed that night time operations at Queenstown based upon conventional instrument approach and departure procedures would not meet acceptable safety standards but that RNP (AR) technology would enable such operations to be conducted safely. In addition, by strict adherence to flight paths and precisely controlling approach operations, reductions in the noise footprint of aircraft are achieved by management of the engine power settings during approach to the airfield.

4.14 Mr Day supervised the preparation of revised noise contour projections, based upon the Airbiz 2007 review of likely Airport growth earlier referred to by Mr Munro. At our request he also

produced further maps of the extent of the projected contours 'with and without' the inclusion of the proposed 11 weekly night landings as at 2037. He also provided a figure comparing the 'current' extent (2008) of the 55 and 65 dB Ldn contours 'with and without' the inclusion of the proposed 11 weekly night landings (if they were to commence 'immediately'). He concluded that the presence or absence of the proposed night flights do not have a significant effect on the extent of either the 55 or 65 dB Ldn contours.

4.15 In Mr Day's opinion, noise from the proposed 11 night landings would if unmitigated, cause sleep disturbance to approximately 37 existing houses within what was proposed to be a new NNB based on a 95 dB SEL contour. He highlighted the relatively low number of 'night' movements proposed with only around 3 per week landing over Frankton due to prevailing wind bias. He recommended sound insulation and ventilation of those properties in the NNB so as to achieve an internal noise level of 70 dB SEL. That mitigation would be provided at QAC's expense to all properties within the NNB before commencement of any of the proposed 11 night-time landings per week.

4.16 In order to mitigate the effects of aircraft noise on new and altered buildings containing ASAN, a new boundary at 58 dB Ldn between the ANB and the OCB was originally proposed - to be known as the 'Sound Insulation Boundary' ('SIB'). Within that boundary Mr Day considered that new or altered buildings might require minor sound insulation and/or ventilation to mitigate effects of aircraft noise. However, in the light of submissions and on reflection Mr Day accepted that this was the function of the OCB and the proposed SIB should be deleted. While the SIB would have excluded some ASAN in the OCB from requiring assessment, Mr Day considered that those buildings could still be identified by the QLDC without the SIB. The requirement would become that buildings containing ASAN inside the OCB should be fitted with appropriate mitigation to achieve an internal noise level of 40 dB Ldn. Where windows are required to be closed to achieve that level, mechanical ventilation would be required. For new and altered ASAN the mitigation would be at the expense of the owner. For existing ASAN within the 60 and 65 dB Ldn AANCs financial contribution by QAC to the cost of that process would be offered at 75% and 100% respectively. Other than in the Low Density Residential and Remarkables Park zones any further ASAN within the OCB are proposed by PC35 to be 'prohibited activities'.

4.17 On the issue of engine testing, Mr Day accepted such activity was an integral and necessary activity for the viability of aviation businesses at any commercial airport. In the case of Queenstown he acknowledged this activity was largely confined to smaller fixed and rotary wing aircraft, infrequently generating high noise levels for relatively short periods of time. He noted that it was common practice to permit a specified number of relaxations of the noise limits, indicating that for small airports elsewhere in New

Zealand, that figure had commonly been '18' (covering both day and night periods).

4.18 Responding to questions raised by Ms Page's s42A report, Mr Millar's evidence considered whether the changes to Airport noise and operational controls such as hours of operation, engine testing, etc. are best set out within the proposed Designation or the District Plan. Given that the particulars of any designation (including operational conditions) form part of the District Plan, as such he did not consider them to be any less open to public scrutiny than any other aspect of the Plan. He concluded it would be unnecessary for such operating conditions to be 'repeated' elsewhere within the Plan as they would still have no practical 'limiting' effect upon an accepted 'Requirement'.

4.19 Dr Black considered the potential health (particularly sleep disturbance) and public safety aspects of these proposals. He had examined a number of potential medical effects of exposure to noise and discharges from various types of aircraft propulsion systems. He concluded that the proposed additional 11 night-time landings would not cause any significant disturbance problems for local residents, including children and the elderly. In his view potential sleep disturbance would be temporary in most cases and residents would subsequently become accustomed to such noise. In his view, engine discharges from aircraft would be less harmful to air quality than that from road traffic passing through this part of Frankton. Overall he considered the proposed extension of aircraft arrival time to be entirely acceptable from a public health and safety perspective.

4.20 Mr Kyle's planning assessment relied upon and drew conclusions and recommendations from the evidence of the QAC witnesses. He had specifically considered how best to incorporate appropriate aircraft noise provisions within the current QLDC District Plan. He concluded that formal designation conditions as part of the Requirement, coupled with statements of objectives, policies and rules related to the Airport and surrounding land use activities within the 'district wide' section of the District Plan would be the most efficient and effective means of achieving the purposes set out in the Resource Management Act. He accepted that balance was necessary between accommodating the ongoing growth of the Airport and maintenance of environmental and amenity qualities for those people occupying surrounding land. While he accepted that many different urban activities might be enabled within this area, ideally no further ASAN should be permitted within the OCB.

4.21 Mr Kyle noted that the existing ANB extended over land within 'Activity Area 8' of the adjoining Remarkables Park Zone and that the revised ANB, together with a part of the proposed NNB would then extend further into that zone. That land was said to be subject to a covenant restricting future activities to rural or rural recreational only. This land is also QAC's preferred area for

expansion of the Airport and relocation of General Aviation ('GA') activities. Negotiations with the owner of this land (Remarkables Park Limited) are underway with a view to its formal designation for Airport purposes. As to other land surrounding the Airport, while recognising that the QLDC has previously consented to a range of urban developments and ASAN in the area within the OCB, Mr Kyle concluded that notwithstanding existing 'consented' developments, any future opportunity to develop as yet undeveloped land with ASAN should be curtailed as an appropriate precautionary measure. He considered that relatively little weight should be accorded to the QLDC's 'Growth Management Strategy' for Frankton in this context.

4.22 A significant section of Mr Kyle's evidence addressed the contents of the updated Noise Management Plan ('NMP') to be prepared following confirmation of the NoR. An indicative 'Draft' of what that NMP might contain was appended to his evidence as presented on the 21st September. That included provisions relating to the form and composition of an 'Airport Liaison Committee'; Noise Monitoring; Engine Testing Rules; Complaints Procedures (reporting and responding to); Considerate Flying Practices; and lastly, a Noise Mitigation Plan. Finalisation of the NMP would in Mr Kyle's opinion require a collaborative effort between QAC and key community stakeholders.

Mr. M. Gillick

4.23 Speaking in opposition to both PC35 and the NoR, Mr Gillick's concerns primarily focussed upon the potential noise nuisance to local residents and visitors by night-time operations. These in his view represented a significant and adverse change to the current environment, the demand for which had not been substantiated by QAC and from which there would in his view be little public benefit. He was concerned that approval of these proposals would be likely to invite future applications to allow for late night aircraft departures and a subsequent extension of operating hours beyond midnight.

Queenstown Gateway Limited and **5M No2 Limited**

4.24 Mr Gordon presented legal submissions for the proprietors of the above companies who are respectively the owners of land in the Frankton Flats Special Zone ('FFSZ') known as FF A and FF B. Their submissions oppose the provision in PC35 to prohibit ASAN in the FFSZ. FF B is the subject of Plan Change 19 to the District Plan. Approximately 9ha of the FF B land falls within the revised OCB. Plan Change 19 is currently subject to an Appeal to the Environment Court.

4.25 Mr Edmonds presented planning evidence in support of these submissions. The FFSZ provides for a mixed use urban zone including residential and visitor accommodation as 'Restricted Discretionary Activities' outside the ANB and non-complying activities within the ANB. The zone rules include an *Air Noise – Queenstown Airport* Zone Standard that requires acoustic insulation of buildings containing ASAN together with a definition

of the latter term, which Mr Edmonds noted differs from that in PC35. In his view significant resources have already been committed to give effect to existing land use consents and the development of the FF A zoned land, albeit that no buildings are yet in place. He identified what he considered to be internal inconsistencies within proposed Policies 8.1, and 8.2 in PC35 which deal with the management of urban growth in proximity to Queenstown Airport, each of these statements tending to promote different outcomes for dealing with the noise issue. In his view the prohibition of ASAN within the FFSZ could not therefore be justified or reasonably anticipated, as the established provisions for that area effectively constitute its 'existing planning environment'.

Ms. J. Smith

4.26 Ms Smith opposes what she considers to be the substantial increase of proposed flights using the airport over an extended time period. In particular she strongly opposed the provision sought for the 11 night landings per week. In her view the proposed noise mitigation measures were theoretically based and likely to be inadequate to prevent significant adverse noise effects, particularly sleep disturbance. She considered that there had been inadequate and ambiguous information provided by QAC on the nature, timing and costs of noise mitigation packages, and she feared that costs would in fact be likely to be borne by the bulk of residents adversely affected by noise from night flights. In her view QAC's proposals did not avoid, remedy or mitigate such adverse effects, and for that reason were inconsistent with the requirements of Part 2 of the RMA.

Public Health South

4.27 Ms Auty introduced these submissions as being generally in support of PC35 and the NoR. Some refinement of terms and additional monitoring/reporting of the noise environment are requested in order to protect the health of the public and Mr Goodwin was called to present acoustical evidence on those matters. In his opinion environmental noise is a wide public health issue, albeit that in this particular case the Lakes District Hospital is also one of several institutional land use activities such as rest homes that are in close proximity to the Airport. He accepted and endorsed the need to review and update the airport noise contours using the most current version of the INM software and considered PC35 and the NoR timely in relation to the on-going development of the surrounding area of Frankton. While he was able to support the concept of an NNB, he had reservations about its location and limited extent in this case, including whether alternative mitigation measures such as the purchase and removal of particularly affected ASAN had been evaluated.

4.28 Mr Goodwin endorsed the introduction of separate engine testing rules, as NZS 6805 does not include such activity within its scope. He considered that the location of such testing (planned or unplanned) should be such as to maximise separation from ASAN and that there should also be restriction on the time frame within

which both planned and unplanned testing was carried out. He considered that the figure of 18 occasions was not substantiated by any factual evidence of that frequency. He recommended a number of changes to acoustics provisions in these proposals, the most significant being the removal of the averaging provisions for engine testing noise.

Dr. L. Alfeld

4.29 Although appearing as an individual submitter, Dr Alfeld also sought recognition as an expert witness given his separate qualifications in Planning, Architecture, Law and Engineering as well as extensive experience in the practice of those disciplines and time spent as a former elected QLDC councillor involved in growth planning for Queenstown. In brief, he was concerned about the scale and rate of relatively un-managed/un-sustainable growth of Queenstown resulting in what he considered to be social and environmental effects that were in his view adversely affecting the character and economic viability of this community. He questioned as being unsustainable the QAC long term visitor 'growth' forecasts which simply reflect a 'business as usual' approach rather than a managed outcome for the Airport's future. He considered that a more managed (restrained) rate of growth of the Airport as a 'key leverage point' affecting future growth would be of significant benefit to maintaining the attractive character of Queenstown, rather than encouraging its speculative growth-led deterioration.

Mr. D. Wallace

4.30 Speaking to his submission in opposition to both PC35 and the NoR, Mr Wallace was particularly concerned about the adverse noise effects of proposed night landings on the tranquillity of the wider Wakatipu Basin which he considers would be affected. He was critical of QAC's management of Airport growth and noise issues, alleging a lack of an adequate consultative process which had denied residents affected by these proposals an opportunity to effectively state their views. He questioned whether the proposed night landings were in response to surveyed passenger demand or simply viewed by QAC as a marketing opportunity.

Jacks Point Limited, Totally Tourism Limited, Over the Top Limited, and Good Group Limited.

4.31 Mr Goldsmith presented legal submissions on behalf of the above submitters in support of PC35 and the NoR. While representing diverse interests in the Queenstown economy, all of the above submitters are concerned that continued growth in the economic prosperity of the town is at least partly predicated upon growth in the tourism related activities of the Airport. They therefore consider it essential that both PC35 and the NoR be confirmed, generally as submitted. While supportive of both the revised noise boundaries and the partial extension of Airport operating hours for landings between 10pm and midnight, the submitters do not consider it appropriate for QAC to be required to contribute financially to noise mitigation beyond the revised ANB. Mr Goldsmith referred to the significance of the 2007 '*Queenstown*

Growth Management Strategy' as being the culmination of significant community consideration of future growth management for the town, which he now submitted was 'settled policy'. In his submission, other than in relation to the issue of the proposed 11 night landings, there were relatively few submissions opposing the introduction of the up-dated and expanded noise boundaries.

4.32 Mr Hanson commented on the market capacity of Queenstown and the economic effects of the Airport, based upon his experience as a director of a number of significant tourism and investment companies in the southern Lakes and Queenstown areas. He indicated that the planned development of Jacks Point to its anticipated 6,000 person zoned potential is dependant upon the scale of expansion of aircraft activity foreseen by PC35. Other examples cited by him of similar 'Airport growth' dependant developments were Kawarau Falls Station Hotel Resort, the Cardrona Plan Change and the Frankton Flats Plan Change 19. Discussing Queenstown as the 'heart of the Southern Lakes travel industry', he noted that while the Airport was important all year round, it assumed greater importance in winter due to the lesser proportion of coach-based tourist arrivals in that season. It is in this context that he sees the importance (particularly of the potential at weekends) for night landings to facilitate Australian international short stay visitors.

Air New Zealand Limited ('ANZL')

4.33 Legal submissions were presented by Ms Hardacre, essentially in support of PC35 subject to substantive amendments as to implementation techniques. ANZL supports the expansion of the ANB and OCB together with an appropriately worded 'engine testing' rule and a definition of the term ASAN. ANZL does not support the introduction of either the proposed NNB or SIB noise contours. She outlined the relevant statutory considerations that are to be applied to our evaluation of these proposals, noting in particular whether having regard to s32 requirements the methods proposed are the most appropriate to achieve sustainable management, and in relation to the NoR whether the work and designation are reasonably necessary to achieve the objectives of the Requiring Authority.

4.34 Mr Morgan, Manager of Infrastructure Strategy, explained that ANZL's consideration of proposals such as this necessarily included the economic and practical costs of their implementation as these would ultimately reflect in costs to itself, its customers and in this case the Queenstown region. He noted that night-time operations (including those landings proposed up to midnight) would require installation of runway lighting, terrain obstacle lighting, runway widening and possibly taxi-way and apron expansion. Accepting that Australia is the prime overseas market serving Queenstown, ANZL does not oppose the introduction of the proposed night landings, however it did not see a market opportunity for it to utilise the additional 2 hour operating period sought. For it to operate late night flights ANZL would require

operations to be permitted until at least 1.am or 12.30am at the earliest although he emphasised that ANZL does not seek such an extension in this case.

4.35 Mr Morgan noted that ANZL considers 'over-nighting' aircraft in Queenstown during winter to be problematic in relation to the management and disposal of fluids used for de-icing. He commented that if a greater number of aircraft were involved in future that issue might be significantly larger than at present. In his view, surveys of domestic passengers, and ANZLs previous experience operating late flights, have indicated a preference to arrive at destinations prior to 10pm. Discussing the proposed NNB, Mr Morgan indicated that ANZL considers that there would be high capital and operational costs of introducing night flights and that these would not allow any flexibility to expand such operations without consequent limitation of daytime movements in order to comply with the ANB. ANZL is strongly opposed to the proposed SIB, considering the noise mitigation controls for ASAN in NZS 6805 to be adequate and appropriate both in this case and for other airports elsewhere in New Zealand. In that context he also noted that noise mitigation policies for both Wellington and Auckland airports adopted 45 dB Ldn as appropriate, in contrast to the 40 dB Ldn proposed by the NoR. On the subject of engine testing he confirmed that while ANZL does not undertake any planned testing of engines at Queenstown, unplanned maintenance and engine testing is required and the allowance for 18 such occasions annually is satisfactory to ANZL.

4.36 Dr Bullen discussing the proposed SIB, repeated the view expressed above that the controls should also be applied to ASAN within the OCB. If a SIB was established in this case he considered that it would become the 'effective OCB' thus 'watering down' the policy intentions of that boundary. For those reasons, its deletion was now apparently accepted by Mr Day's evidence (paras. 8.6 / 8.7). Turning to consideration of the proposed NNB, in his opinion the provision of insulation within such a boundary is not the best way to address sleep disturbance impacts resulting from the introduction of night-time operations at Queenstown. In his view the principal alternative method would be to require operations using the main runway after 10pm to approach only from the east, unless absolutely necessary. He considered that immediately after the introduction of operations after 10pm, both actual sleep disturbance and the level of reaction caused would be considerably higher, as they would also be if operations between dusk and 10pm (already permitted at Queenstown but not currently occurring) were to be activated.

Wakatipu Residents Against Aircraft Noise ('WRAAN');
Mr. S. Freeman; Mr. B. Giddens

4.37 Messrs Freeman and Giddens are local residents and also spoke on behalf of WRAAN. These submissions in opposition to both PC35 and the NoR are therefore summarised together for convenience. The concerns expressed in all three submissions are that these proposals reflect a substantial increase in the number of flights

utilising the Airport which will result in significant adverse noise effects on a large number of existing and future people living in residentially zoned or consented land closely adjoining the Airport. The submitters do not consider that adequate information has been provided to demonstrate that the proposed sound insulation and/or mechanical ventilation for some (though not all) of the affected properties in these areas will adequately mitigate such effects (particularly outdoor noise levels). They are also concerned that the majority of surrounding properties likely to be adversely affected by increased noise, particularly from night landings, will be obliged to contribute financially towards the mitigation of those effects or to suffer adverse impact on their living environments. They do not consider the unspecified 'potential' economic benefits to the Airport's business operations of additional night-time operations to be sufficient to outweigh the actual adverse social, amenity and environmental impacts on their residential properties. These submitters also expressed concern that as a procedural issue, the detailed 'Draft' Noise Management proffered by QAC towards the conclusion of the hearing should have formed part of the original material publicly notified with the NoR. We have expressed our view on that matter in section 1.5 of this report.

Ms. C. Kowalski and **Mr. D. Mander**

4.38 These submitters oppose both PC35 and the NoR. Their property is located outside the current ANB but would be between the ANB and SIB as proposed by QAC. They are concerned about a number of issues including the operational safety of night flights, inadequate information on the cost and responsibility of noise mitigation and that these proposals have failed to provide adequate conclusions in regard to alternative locations and methods for the management of noise and related effects from general aviation and helicopter activities. They consider their existing residential environment to be very quiet after 10pm and that the noise from later flight arrivals together with associated ground traffic movements will degrade the quality of that environment. They are critical of the complex noise monitoring regime proposed by QAC (including of engine testing) and that because it is under the direct control of QAC it is unlikely to be readily available to the public or responsive to Council action if/when breaches of noise rules occur.

Mr. M. Lewis

4.39 Mr Lewis is a local resident. He acknowledged the economic benefit of the Airport to Queenstown but opposes the proposed extension to its operating hours beyond 10pm to permit the 11 night landings sought. He considers that existing residential amenity should continue to be protected from the adverse effects of noise beyond that time, and regards QAC's proposal as effectively a 'new business' enterprise rather than an integral or necessary part of the Airport's operations. He also expressed concerns about the extent of engine testing being 'enabled' and the uncertainty as to the costs of noise insulation being required to be borne by residents.

Remakables Park Limited ('RPL') and Shotover Park Limited ('SPL')

4.40 Mr Young presented legal submissions on behalf of the above submitters opposing both PC35 and the NoR. Insofar as it proposes the introduction of proposed night-landings the former is opposed on the grounds that it is not in accordance with the purpose and principles of the RMA and that it does not implement or give effect to settled objectives and policies in the operative District Plan, in particular in relation to Urban Growth, QLDC's Plan Change 30, and the Remarkables Park Special Zone ('RPSZ') as established by consent order in 1999. Some of the land passed by QAC to Remarkables Park as part of that latter process is now being sought by QAC to be re-incorporated into the Airport. He submitted that the QAC's current proposals are based upon uncertain and insufficient evidence and have not taken into account benefits and costs, or the risks of acting in such uncertain circumstances. In addition the NoR is opposed on the grounds that it is not reasonably necessary to achieve the objectives of the QAC. He submitted that the proposed night flights would result in significant adverse noise effects on the amenity of a wide area beyond the contours surrounding the Airport. In this context he submitted that the 27 year planning horizon was too distant and the likely aircraft fleet mix too unreliable and the projected contours therefore potentially unnecessarily inflated. Lastly he was particularly critical of the failure to produce a final Noise Mitigation Plan as part of this process.

4.41 Mr Hunt presented acoustics evidence in support of the RPL and SPL submissions. He considered current monitoring to indicate that the existing noise contours (specifically at the ANB) provide for reasonable future growth and protection of Airport activity from 'reverse sensitivity' risk without a need for further outward adjustment. He did not consider the 'projected' minor non-compliance at the OCB to be of significance in that regard as no specific monitoring of that had been undertaken to support such findings. He concluded that the reason for these QAC proposals was simply to enable additional night-time scheduled air traffic movements. In his opinion, the SEL effects of the proposed 11 additional night landings in particular had been significantly underestimated and would result in sleep disturbance and detraction from amenity over a wide area surrounding the Airport. He considered aspects of PC35 and the NoR (notably the proposed NNB, engine testing and noise mitigation rules) to be inadequate, unworkable or inconsistent with best acoustic practice.

4.42 Mr Foster's planning experience included both an examination of potential alternative airport sites in the Wakatipu basin and the preparation of the currently operative designations for the Queenstown Airport. He was supportive of the use of airport noise boundaries to control the extent to which ASAN might adversely affect the future growth of the Airport. In principle he also supported both the concept of the NNB and SIB, however he considered the current proposals to be flawed given that they

were not supported by any assessment of the balance between the growth requirements of the Airport and adverse amenity effects on surrounding and developing neighbourhoods containing either zoned or consented ASAN. Relying upon Mr Hunt's acoustics assessment and given that PC35 does not contain any acoustics rules to provide certainty for the occupiers of such land as to the manner in which those effects are to be addressed, he considered that PC35 should be withdrawn and re-drafted, or alternatively declined. He doubted whether appropriate changes to enable the change to proceed could be incorporated within the scope of submissions lodged and in the absence of opportunity for affected parties to consider such.

Section 42A report and response

4.43 Ms Page's report was taken as read. She noted that a significant amount of the information lacking when she had prepared her report had subsequently been provided by QAC's witnesses during the course of the hearing. She identified four primary issues that in her opinion still require resolution. She considered that the proposed night landings would have a significant adverse effect on the environment and although the potential benefits to QAC and the Queenstown economy in general had been covered by witnesses, no substantive evidence of a specific demand for 11 flights as such had been presented. That figure was therefore speculative in her view and she questioned whether a lesser number (with potentially less environmental impact) might be equally 'acceptable' to QAC. Having heard the evidence in relation to the practice of noise management at other airports elsewhere in New Zealand, Ms Page retained a preference for such provisions to be within a district plan a document readily seen to be 'owned' by the community.

4.44 Ms Page maintained her conclusion that proposed prohibition of ASAN in that part of the Frankton Flats (A) zone affected by the extended OCB and proposed SIB, would be inconsistent with the Council's previous determination of its intentions for that zoned land. Finally in relation to QAC's proposed Noise Management Plan, she acknowledged that this is currently an 'evolving' document, to be finalised following current decision making processes. For that reason she considered it desirable that as much of the potentially critical contents in that Plan should be specified by designation conditions. These include (for example) confirmation of an independent Chairperson for the Queenstown Airport Liaison Committee ('QALC') and that QAC would contribute 75% of the cost of ventilation of affected residential properties within the 60 dB Ldn contour.

QAC - Right of Reply

4.45 Ms Dewar handed up an amended copy of the Draft Noise Management Plan incorporating additional changes that had arisen in response to issues raised by the hearing panel and submitters during the hearing. Some of these are acceptance by QAC of:

- An independent Chairperson for the QALC;

- A quorum of the QALC to be 4 representative members;
- The provision by QAC of 1dB projected contour information to aid monitoring and compliance with noise mitigation methods;
- Correction of the 'unplanned' engine testing standard (10pm – 7am) to 55 dB Leq(9hours);
- Provision for considerate flying practices for general aviation activity;
- The use of an eastern approach (when operationally practicable) by the proposed 11 night landings;

4.46 Ms Dewar stated that significant interest in taking up the opportunity for night landings had been expressed by Jetstar and publicly reported. She questioned whether ANZL's original submission had scope to comment on such matters which also involved trade competition issues. In that context she also questioned the scope of Queenstown Gateway's further submission. She rejected WRAAN's jurisdictional contention that the Noise Management Plan should necessarily have originally been notified with the NoR, as it was clearly referred to as to be completed after confirmation of this process. In her submission it would be contrary to community interest to restrain Airport growth as a means of control of urban growth in Queenstown. She further noted what she referred to as 'a disconnect' between the current OCB rule in the District Plan and Designation provisions in that Plan which only refers to the ANB. This would be solved in her view if PC35 proceeds. The submissions for Five Mile No 2 Ltd only referred to the Frankton Flats A land and in her view its opposition to the extended OCB as it affected that land were not supported by evidence.

4.47 In Ms Dewar's opinion it had been difficult to identify the specific concerns of Remarkables Park Ltd in relation to its own land. The proposed NNB does not include any of that land which in her view is able to be developed for ASAN. We understand her position to be that while more noise mitigation will be required for ASAN within parts of the RPL land, PC35 would not prevent the development of such, other than in 'Area 5', where the extension of the OCB would prohibit short stay accommodation in some areas which are already developed.

Other submissions and further submissions

4.48 In addition to the above evidence and submissions presented at the hearing, we have also read and considered all other written submissions and further submissions on both PC35 and the NoR. We are satisfied that the primary issues to be determined in this instance are whether or not the revised (extended) forecast airport noise contours as at 2037 should formally replace those in the existing District Plan and whether or not limited hours of operation of the airport should be extended to enable 11 landings per week between the hours of 10pm and 12midnight. Other related issues including arrangements for mitigation of airport noise effects and the opportunity for on-going community involvement in that process have also been fully considered.

5.0 Assessment - Resource Management Issues

Extended airport noise boundaries and night-time landings.

5.1 QAC proposes that in addition to a revision of the ANB and OCB to cover airport operations up to 2037, two additional airport noise boundaries should be added to the Planning Maps in the District Plan. These are:

(i) a 'Night-time Noise Boundary' ('NNB') which indicates an area within which a sound exposure level ('SEL') of between 95 dB and 101 dB would be experienced outdoors, and

(ii) a 'Sound Insulation Boundary' (SIB') within which area an outside noise level above 58 dB Ldn would be experienced, based on the 2037 predictions.

5.2 If the boundaries as shown in PC35 are confirmed they will be included as District Plan provisions and also within Designation 2, with Designation 3 then to be formally withdrawn by QAC. It should be noted that there is currently no existing restriction on any other type of general aviation ('GA') aircraft operation between 10pm and 6am, including movements by helicopters, light aircraft or for flight training either in the District Plan or the airport Designations (although in practice CAA regulations may prevent some types of aircraft movements at night).

5.3 The significance of the two additional noise boundaries is firstly, that within the NNB, QAC has stated its intention immediately prior to the commencement of night-time operations (limited to passenger aircraft arrivals between 10.00pm and 12midnight) to fully fund the installation of appropriate sound insulation and ventilation to reduce aircraft noise to 70 dB SEL or below inside those buildings containing ASAN.

5.4 Secondly, within the SIB in order to achieve an internal noise level of 40 dB Ldn for ASAN, some form of mechanical ventilation would need to be provided. For new and altered buildings, QAC is of the view that the cost of any such ventilation should be wholly borne by the property owners concerned. However, as discussed further below, for reasons that emerged during the hearing QAC subsequently agreed to withdraw the proposed SIB. A similar function is instead intended be achieved through the provision of information on the 2037 noise contours by QAC to the QLDC for Council and public use when considering whether noise mitigation is required for buildings containing ASAN between the ANB and OCB.

5.5 There was considerable discussion by the many acoustics witnesses at the hearing of the necessity for and extent of the revised airport noise boundaries proposed by QAC and also the methods used to derive and monitor their accuracy over the next 27 years. There was general acceptance that the Integrated Noise Model ('INM') is appropriate to produce projected airport noise contours, recognising that this software is itself subject to on-going modification. In order to clarify the significance of the proposed 11 weekly night landings within the overall projected

noise contours for 2037, additional comparative contour maps were provided by QAC 'with and without' those night flights included. These show little difference in the resultant areas that would be within the OCB and ANB. We interpret this to indicate that the presence or absence of the proposed additional night landings is unlikely to have any significant restraint upon the strategic growth capacity of Queenstown Airport up to 2037.

5.6 We understand from Mr Day that noise from General Aviation ('GA') has been modelled with the GA based in three different places around the airport, although in reality only one of these locations would be used at any one time. The influence of the GA on the overall extent of the OCB is relatively minor, and the change to the ANB is only on airport land or land that could not otherwise be used for ASAN. While it is not clear that all three locations are reasonably necessary, given that the effect on the ANB and OCB are relatively insignificant we accept those noise contours as proposed.

5.7 One of the three possible areas for the location of GA is 'Lot 6' of the land owned by Remarkables Park Ltd. By including this option in the noise contours, Lot 6 then becomes within the ANB. Given that this land currently cannot be used for ASAN its inclusion in the ANB has no practical effect on its future development whether GA is located there not. RPL raised the issue of its current ownership of Lot 6 and although negotiations to purchase this land are underway, we consider that aspect should not influence the generality of our conclusions as to whether the revised ANB and OCB should now be incorporated into the District Plan.

5.8 Overall therefore and subject to the NNB and SIB deletions referred to, we are otherwise satisfied that it is prudent in order to enable the sustainable use and development of the airport to include the revised OCB and ANB in the District Plan so as to provide for the growth of the Airport in line with current forecast of air passenger movements to 2037.

Night flights

5.9 The second major component of these proposals (and specifically the NoR) is the proposed extension of the Airport's hours of operation from 10pm to 12midnight to enable up to 11 aircraft landings per week between those times (up to 2037). The majority of these flights are anticipated to be trans-Tasman. Expert acoustics evidence indicates that there would be a significant environmental effect of such arrivals, particularly on properties within the revised ANB (and proposed NNB) and to a lesser degree beyond those to about the 60 dB Ldn contour. There are different views on the extent to which this can be mitigated.

5.10 The majority of the airport noise criteria and controls proposed by QAC are directly as recommended by NZS 6805:1992. However, we note that while the Standard mentions the need for specific consideration of night-time operations in some cases, it does not provide a recommended method for doing so. In the absence of

a standardised approach to night-time noise, QAC proposes a NNB to be at the 95 dB SEL contour. Mr Day equated this contour with the onset of significant sleep disturbance. He considers there to be 'low' sleep disturbance effects below 85 dB SEL. This presumably leaves sleep disturbance between low and significant as occurring at somewhere between 85 dB and 95 dB SEL contours. The NNB is therefore only aimed at preventing significant sleep disturbance and not all sleep disturbance.

5.11 In supplementary evidence by QAC it was pointed out that due to prevailing meteorological conditions the proposed 11 night flights would mostly arrive from the Shotover River end of the main runway, with only 26% of those night flights passing over the more sensitive Frankton end, on average around 3 night landings a week.

5.12 For QAC Dr Black, a health expert, presented evidence that the majority of people would not be significantly affected by a small number of landings between the hours of 10pm and 12am, as people "…*would become accustomed to the disturbance*".

5.13 The NNB proposed by QAC was questioned by the acoustics experts Mr Hegley, Mr Goodwin, Mr Hunt, Dr Bullen and Mr Lloyd, for different reasons.

5.14 Mr Goodwin supports the introduction of the NNB but considers that QAC should have referenced the latest research on sleep disturbance in order to locate it in this instance. He did not state how this might alter the proposed location for the NNB. In supplementary evidence Mr Day discussed the World Health Organisation (WHO) criteria raised by Mr Goodwin. He found that the NNB proposed by QAC would correspond with a 6 dB exceedance of the WHO recommended noise limit (40 dB L_{night}), but would be within the interim target (55 dB L_{night}) for cases where the recommended value cannot be achieved in the short-term and a stepwise approach to compliance is adopted. Mr Day did not comment on the Standard ANSI S12.9:2008 also cited by Mr Goodwin.

5.15 We note that Mr Hegley (in providing acoustics advice for Ms Page's report) had also raised similar concerns to Mr Goodwin regarding the research used to locate the NNB, but pointed out that a NNB might not be required at Queenstown. Mr Hegley notes that as the ANB and NNB are essentially in the same location in this case there is no need for the NNB, other than with regards to timing of implementing mitigation. Mr Hegley also provided analysis showing that 95 dB SEL proposed for the NNB could be expected to relate to 3% average awakenings.

5.16 WRAAN provided a written report from Mr Lloyd who considers that the night flights proposed would cause unwarranted sleep disturbance. Mr Lloyd drew attention to the erosion of the current eight hour period available for sleep, given that flights from

Queenstown Airport are currently permitted to occur from 6am each morning.

5.17 Mr Hunt and Dr Bullen both proposed alternative controls to the NNB, considering noise effects that may occur over a significantly wider area. Mr Hunt advocates the use of a composite 85 dB SEL and 60 dB Ldn contour for mitigation, whereas Dr Bullen advocates a more flexible mitigation system that would include mitigation being available for existing ASAN extending out at least as far as the OCB (55 dB Ldn).

5.18 Mr Day subsequently noted that QAC's proposal made during the hearing to partly fund mitigation within the 60 dB Ldn contour would cover all of those ASAN highlighted by both Mr Hunt and Dr Bullen. This is because beyond 60 dB Ldn, little if any mitigation would be required to meet the internal noise criterion. However, as the mitigation in the 60 dB Ldn contour is only to be progressively offered by QAC as the number of aircraft movements increase, at some locations this mitigation might not be available until many years after the introduction of night flights and associated sleep disturbance has commenced.

5.19 In summary, all of the acoustics experts acknowledge that there would be a degree of sleep disturbance due to night flights expected beyond the NNB proposed. However, the experts hold different views as to what is the appropriate mitigation, and what percentage of awakenings or degree of disturbance is reasonable.

5.20 Mr Day provided us with a map (figure 12) showing comparative noise contours as at 2008, with the added 11 night landings to show the relative area that would experience a changed noise environment if such provisions were to be implemented 'immediately'. In general terms this shows a slight enlargement of the 65 dB Ldn contour, but within existing ANB and a slightly greater enlargement of the 55 dB Ldn contour. The 55 dB Ldn contour already extends beyond the OCB without the night flights and adding those flights would cause a slight further infringement.

5.21 Evidence presented by QAC in support of the 11 night flights stressed their potential to enable the Airport to attract and secure a developing trans-Tasman demand for 'short-break' holidays particularly during the winter months and ski-season. The economic benefits of such a facility, not only to airline operators (optimal utilisation of aircraft) but also to the tourism and hospitality based sectors in Queenstown was also emphasised by both Mr Akehurst and Mr Munro for QAC as well as by Mr Goldsmith and Mr Hanson for submitters Jacks Point Limited, Totally Tourism Limited, Over the Top Limited and Good Group Limited.

5.22 No direct evidence of likely commercial demand/ take up of such later flight arrival times was presented by QAC, although reference was made by Ms Dewar in closing submissions to interest expressed by Jetstar in considering that opportunity

if/when it became available. In contrast to the above, as the only airline operator to present evidence, Mr Morgan for Air New Zealand, while not opposing the extended hours sought did not consider that it could efficiently utilise those, suggesting that 12.30am or 1am would be more practical from Air New Zealand's perspective. We understood from QAC that Jetstar might not have the same constraints due to operation of individual aircraft in a mixed domestic and international (trans-Tasman) schedule.

5.23 We accept that given the regime of noise mitigation proposed by QAC together with the likelihood that only a small proportion of that 11 landing total would affect the 'old' Frankton area, potential adverse health effects from those would possibly be no more than minor. However, we remain significantly concerned that adverse effects upon existing amenity currently enjoyed in the surrounding Wakatipu Basin would be experienced by the introduction of such night-time operations. Effects of the night-time flights on amenity were raised by several of the residents and by Mr Hunt in particular, with reference to the wider area. There was limited explicit discussion of effects on amenity by other acoustics experts.

5.24 We consider this proposal to represent a significant 'threshold' in the on-going growth of the Airport particularly as it relates to the introduction of 'night flights' on adjoining and surrounding areas that have also been identified by QLDC for future urban growth, including some ASAN. While we do not consider that the Airport should be restricted as to its reasonable future development and utilisation as a significant element of regional and national infrastructure, the presence or absence of the 11 night landings sought does not appear on the evidence presented to prejudice that 'growth' outcome (particularly as reflected in the projected airport noise contours for 2037). If night landings were enabled, we consider it likely that there would be further pressure for similar commercial possibilities increasing the number of flights and hours of operation over the 27 years envisaged. While any such 'growth' would necessarily require further change to the Designation (and possibly the District Plan), a significant environmental threshold would by then have been crossed.

5.25 We have considered whether the proposed 11 landings would be reasonably necessary to achieve QAC's stated objectives. Those were helpfully set out by Ms Dewar in her opening and are quoted in paragraph 4.2 above. Other than in the general context of enabling "…*sustainable future use of the Airport*…" we do not consider that the achievement those objectives to be of any specific relevance to our consideration of the 11 night landings. Conversely the potential adverse amenity effects of that proposal might be considered contrary to objectives:

> "*(c) To manage the effects of aircraft noise on the community; and*
>
> *(d) To provide the community with certainty as to the noise limits and effects on all surrounding land uses.*"

5.26 For these reasons we cannot support a recommendation to confirm that element of the NoR and PC35. Having duly considered the need for and strategic significance to QAC of the proposed 11 night landings, we therefore conclude that the NNB should be deleted from both the NoR and PC35, and the existing hours of operation allowed for in Designation 2 be retained.

Flight Paths/ safety issues

5.27 Compelling evidence was presented by Mr Kennedy about the use of Required Navigation Performance (Authorisation Required) ('RNP (AR)') approach and departure procedures to show that night-time operations – both approach and departure at Queenstown Airport would be safe and reliable utilising this technology and that it would be a significant improvement on the ground-based navigation aids such as VOR (VHF Omni-directional Range) currently installed at the Airport. As an additional 'by-product' of such control, there is also minimisation of noise effects due to adherence to precise flight paths and ability to use continuous descent approaches.

5.28 The above controls do not apply to GA movements however. A number of submitters are concerned about both engine noise and flight-path safety from such operations. While some evidence of specified flight paths that should be followed by GA movements was presented by QAC, it is doubtful that there is scope within PC35 or the NoR to address those issues further (other than specifically in relation to night-time operations or engine testing perhaps).

Airport noise - Prediction accuracy

5.29 QAC proposes to manage airport noise generally in accordance with NZS 6805. However, one deviation from that Standard sought by QAC is that compliance assessment should be on the basis of predicted airport noise levels only, and not measured levels. Furthermore, QAC proposes that the predictions should always be on the basis of the 2010 version of the prediction software (INM version 7a), regardless of whether that software is updated or replaced in future. Mr Goodwin and Mr Hunt questioned this approach. The justification for QAC's approach appeared to be that it considers its future operations should not be penalised if in later years it transpires that there had been a significant error in the 2010 prediction software.

5.30 The aircraft noise model prepared for Queenstown has been reviewed by an international expert, Mr Clarke of the Georgia Institute of Technology, and only minor issues identified. Mr Day's colleagues have also undertaken a measurement verification process to ensure there are no significant errors in the overall contours/boundaries now proposed. It was noted that there were in fact discrepancies for individual aircraft types but these in effect cancelled each other out. It is possible that the same 2037 scenario modelled in a future (more accurate) version of the

software or assessed using measurements could result in contours exceeding the ANB/OCB as currently proposed.

5.31 Mr Day discussed a hypothetical situation whereby a future version of the software or measurements show the actual noise contours to be 2 dB outside the ANB/OCB, for the same situation currently modelled as being within the ANB/OCB. In that instance, if QAC were bound to the ANB/OCB using the future software or measurements then it would significantly restrict the total number of allowable aircraft movements at the airport. However, he considered that the perceived noise effect of a 2 dB increase by the general community would be only slight.

5.32 The approach proposed by QAC is that if prediction discrepancies are revealed in future then the actual noise exposure should be allowed to extend beyond the boundaries set. This would effectively impact on the community, who would face an additional adverse effect, rather than requiring the airport to face a restriction under those circumstances. We do not consider this justified that the community should be exposed to noise above the limits set. While we accept that no model is perfect, and small errors of say 2 dB might not be significant for the community, however QAC has not proposed any mechanism to address larger errors, which are possible.

5.33 Research into community response to different levels of aircraft noise exposure was referred to in evidence and we are making our recommendations on that basis. Nobody can know the actual number and mix of aircraft types that will occur in 2037, but QAC can be bound by the specified noise exposure. The current process, including public submissions, has been based on noise exposure shown by the contours produced by QAC. We do not consider it appropriate for QAC to be able to subject the community to significantly increased noise exposure without revisiting that process, should such an eventuality arise. While a model update may be inconvenient and potentially costly for QAC if the contours expand, that would be outweighed in our view by the need for the community to have access to a public process prior to any further increases in noise exposure.

5.34 In response to this issue, QAC proposed the use of Noise Mitigation Contours (NMCs) which would be adjusted for any errors identified through measurements. However, these would only be used to trigger QAC funded (or part-funded) noise mitigation, and would not be used to determine compliance with the airport noise limits. Therefore, while accelerating mitigation for some residents, that proposal does not address the wider issue of increased community noise exposure. To achieve appropriate timing of mitigation the NMCs would also be for a year in advance, rather than the AANCs which are for the previous year. We consider that this issue can be addressed without an additional set of noise contours. We therefore recommend that the NMCs are removed from the designation.

Airport noise - Prediction software version

5.35 Mr Goodwin considers that the version of the prediction software should not be specified. For the reasons we have already discussed, we agree that predictions should be as accurate as possible, and the District Plan or designation should not prescribe a specific software type and version. We do not consider that the prediction software in this case is analogous to a Standard, where a version should be cited and must apply, as the software is not defining a performance standard or an assessment method. If the current software has errors then the output will need to be adjusted so that it reflects the actual exposure, subject to 2 dB tolerance. If improved software becomes available then an adjustment might not be required.

5.36 We recommend that the version of the software in current use by QAC should be recorded in the Noise Management Plan (NMP). This can then be updated by the Queenstown Airport Liaison Committee (QALC) when appropriate.

Aircraft noise - Monitoring

5.37 The current Designation 3 provides for the establishment of a 'noise monitoring regime'. The NoR also includes provision for monitoring of Annual Airport Noise Contours ('AANCs') to check that these remain consistent (within 2 dB) with measured levels, although there is no provision made for the event of a discrepancy. Such monitoring is proposed to be undertaken by a suitably qualified acoustician at two measuring locations over a three year period with a minimum of one month in summer and one month in winter at each position. A report on the results is to be provided annually to QLDC.

5.36 Rather than relying upon predicted compliance with the proposed airport noise boundaries, Mr Hunt advocated use of the monitoring to demonstrate compliance with such limits, as occurs at Wellington airport. An important difference in the Wellington case is that at there is only an ANB at that airport, whereas at Queenstown there is also the OCB. Mr Day asserted that an advantage of demonstrating compliance through predictions is that all points of the contours are considered, and not just a handful of discrete locations where measurements have been conducted. On balance, notwithstanding our previous conclusions about prediction accuracy, we agree with Mr Day that predictions provide an efficient and cost effective method of assessing compliance on an annual basis. We therefore recommend that compliance should be determined solely using the AANCs as proposed by QAC.

5.37 To address the issue of prediction accuracy we recommend that the AANCs should be validated by measurements and should be adjusted if there are any errors greater than 2 dB. Any such adjustments may require use of updated software, or potentially a manual change. We accept the three year monitoring programmes with two measurement positions as appropriate for this ongoing verification of the AANCs. If the ANB/OCB are

breached following an adjustment of the AANCs then QAC would need to restrict the number of aircraft movements or adjust the ANB/OCB by a Plan Change.

5.38 As the measurement positions for each monitoring programme are not defined at this stage, we recommend that they are agreed by the QALC prior to each three year measurement programme. Mr Day indicated that discrepancies were more likely on the sides of the contours rather than at the ends, so measurement positions would need to be selected accordingly. We recommend that the results of the noise measurement programme should be reported to the QALC, which includes a representative of the QLDC.

Airport noise mitigation

5.39 Noise mitigation of ASAN refers both to the upgrading of the building fabric to improve sound insulation, and also to the provision of mechanical ventilation so that windows can remain closed. Outside the ANB, only mechanical ventilation would be required to achieve such mitigation. Under QAC's proposal there are two circumstances where mitigation may be required:

a) Constructing a new building containing ASAN or altering an existing building within the OCB, or

b) An existing building containing ASAN falls within the 60 or 65 dB Ldn AANC and QAC is obliged to offer to fund or part-fund mitigation.

The first of these is covered by requirements in the main chapters of the District Plan, whereas the second is detailed in the Aerodrome Designation.

Airport noise mitigation - New and altered buildings

5.40 For new and altered buildings containing ASAN within the OCB, it is proposed that the District Plan should require the building owner to provide mitigation to achieve 40 dB Ldn inside. This is a refinement of an existing control already in the District Plan, although as the OCB is now larger it affects more properties.

5.41 As noted above, to achieve 40 dB Ldn inside buildings, generally requires sound insulation measures and mechanical ventilation for buildings located within the ANB, but only mechanical ventilation for those buildings located between the ANB and OCB. The intention is that compliance with the requirements can be demonstrated either by using construction and ventilation specified in an appendix (13) to the District Plan or by providing a certificate from a person suitably qualified in acoustics. The plan wording proposed was modified by QAC during the hearing and includes additional mitigation requirements in the NNB. For the reasons stated earlier, while we do not recommend that the NNB be included in the District Plan, we nevertheless recommend revised wording in the plan to more clearly convey the compliance options for mitigation in the OCB and ANB. We recommend that the acoustics performance of ventilation systems

should be included in Appendix 13 rather than being repeated in the rules for each zone, and we recommend the proposed advice notes regarding ventilation system installation would be better located in the NMP rather than in Appendix 13.

5.42 QAC noted that a direct comparison between the constructions proposed for sound insulation in the ANB and Building Code requirements was difficult, due to the complexity of the Building Code. WRAAN questioned why it should therefore be left to residents to interpret these different requirements. While it is regrettable that QAC has not taken the opportunity to integrate Airport sound insulation requirements with other requirements from the Building Code, we accept that the construction table is only an auxiliary mechanism to assist residents and the option of acoustics certification is always available to them.

5.42 Throughout the proposed wording in PC35, QAC has stated that mitigation is to be designed to reduce the noise exposure indicated by the AANCs to 40 dB Ldn inside buildings containing ASAN. This apparently conflicts with Mr Day's statement that mitigation is to be designed to the 2037 contours. We consider it would be nonsensical for mitigation to be designed to only cater for the previous year's noise exposure (AANCs) and not the noise exposure expected over future years. We therefore recommend changing the proposed wording throughout the District Plan in both rules and policies, so that mitigation is designed based on the anticipated 2037 noise contours and not the AANCs.

5.43 To enable building owners to obtain acoustics certification they need to know the predicted 2037 noise exposure of their site. We recommend that a condition be added to the designation requiring QAC to provide the 2037 contours in 1 dB intervals to QLDC so that they can be made readily available to the public.

5.44 The extent of mitigation required in any particular case will vary with the specific noise exposure of individual ASAN. As already discussed, between the OCB and ANB we understand that only mechanical ventilation is required. Furthermore, close to the OCB even this is not necessary. QAC therefore proposed to introduce a Sound Insulation Boundary (SIB) at 58 dB Ldn to demark the point at which mitigation should not be required. As discussed, the SIB was subsequently withdrawn by QAC.

5.45 We consider that the SIB did serve a useful purpose, in that within the OCB there will be some ASAN that do not require mitigation. However, this function could be equally achieved through guidance for QLDC and residents rather than a formal noise boundary. To avoid the complexity and confusion highlighted by Air New Zealand, we therefore recommend that the SIB should be removed from PC35 and alternative guidance provided. The Noise Management Plan (NMP) required in the designation primarily details the duties of QAC with respect to mitigation of existing ASAN, rather than obligations of owners of new and altered buildings containing ASAN. However, we consider that the

NMP would be an appropriate place to record the practical interpretation of the District Plan requirements, such as the delineation of where ventilation is no longer required. We therefore recommend that the designation conditions should require the NMP to address this issue.

5.46 The mitigation criterion discussed above is an internal noise level of 40 dB Ldn. We accept this as an appropriate value to protect health and indoor amenity, in preference to the alternative value of 45 dB Ldn proposed by Air New Zealand. Mr Hunt asserted that rather than specifying an internal noise level at all, the sound insulation performance of the building envelope should be specified directly. We do not consider it critical whether the mitigation is defined by the sound insulation performance or the resulting internal noise level. On balance we agree with Mr Day that an internal noise level is likely to be easier for residents to understand in this context, and therefore recommend that it is retained as the specified control.

5.47 The internal noise criterion is specified by PC35 to apply in 'habitable rooms', but that term is not defined. We note that the existing term in the District Plan 'non-critical listening environment' is essentially the inverse of the term 'habitable space' defined in Clause G6 of the Building Code. We therefore recommend that to maintain consistency with existing definition in the District Plan, airport noise mitigation should be required in 'critical listening environments' rather than 'habitable rooms'. An advantage of this definition is that unlike 'habitable space' it is not tied to 'domestic living' which would exclude education activities. We also note that the definition proposed for ASAN appears to confuse activities and locations/buildings. We recommend clarifying this definition so that it refers to activities only. Activities could be indoors or outdoors, so 'outdoor spaces associated with any education facility' does not need to be listed as proposed by QAC. The noise mitigation requirements in the zone standards are limited to new and altered buildings containing ASAN.

Airport noise mitigation - Existing buildings

5.48 We have considered the situation where QAC is obliged by the terms of the proposed designation to mitigate aircraft noise for existing ASAN. The first scenario is for the most exposed ASAN within the ANB. In this instance QAC propose to meet the full cost of sound insulation and mechanical ventilation as required to meet the internal noise criterion. There was no argument over this provision, although we recommend that the designation conditions be explicit that QAC is to meet 100% of the mitigation cost in such cases.

5.49 We note that while QAC is to provide mitigation for ASAN within the ANB, this would be done progressively, with only ASAN within the current 65 dB Ldn AANC being eligible for mitigation at a particular time. Over time the 65 dB Ldn AANC would expand up to the ANB and progressively more residents would become eligible for QAC funded mitigation. Beyond the ANB, QAC did not

initially propose to fund any mitigation, even though the noise exposure is such that in the reverse situation residents would be required to proved mitigation for new ASAN. This inconsistency was questioned by WRAAN and RPL/SPL in particular, who asserted that QAC should meet the cost of mitigation for ASAN within the OCB as well as the ANB as occurs to varying extents at both Auckland and Rotorua airports. After considering this issue QAC now proposes to offer additional funding of 75% of mitigation cost for ASAN within the 60 dB Ldn AANC. This mitigation would just comprise mechanical ventilation.

5.50 We consider that the offer to part-fund additional mitigation within the 60 dB Ldn AANC now results in an appropriate balance in the provision of mitigation. Clearly, it seems fitting that QAC funds the full cost of mitigation for the worst affected ASAN and for other ASAN within the 60 dB Ldn contour, we accept that part-funding, of the cost by QAC (75%) is appropriate. Mitigation could still be warranted as far as the OCB (55 dB Ldn), but in most cases existing building constructions would be sufficient and we therefore accept QAC's proposal to only fund/part-fund mitigation within the 60 dB Ldn contour. We also note that this is consistent with provisions at Auckland and Rotorua Airports.

5.51 One complexity that arises from QAC's additional offer of mitigation is that of sequencing, which was not addressed in detail at the hearing or in the revised designation conditions and NMP. Most or all ASAN in the ANB would be likely to be within the 60 dB Ldn AANC immediately. They would therefore be entitled to 75% funded mitigation. However, in time they would also become within the 65 dB Ldn AANC at which point they would then be entitled to 100% funded noise mitigation. It is unclear whether it was intended that the residents would be entitled to a rebate, or whether only mechanical ventilation would be installed in the first instance. We recommend that if owners of any ASAN in the ANB accept part-funded mitigation it should only be for the ventilation component. When the ASAN later becomes within the 65 dB Ldn AANC we recommend that there should not be a rebate of the resident's contribution to the cost of any ventilation already installed, but they should remain eligible for full funding of the sound insulation component at that time. Alternatively the residents can choose to have no mitigation until the ASAN is within the 65 dB Ldn AANC, at which time all works would be fully funded by QAC.

Prohibition of ASAN

5.52 Land use controls proposed by PC35 include the prohibition of new ASAN within the OCB in some zones surrounding the Airport. That is consistent with the generality of the guideline in Table 2 of NZS 6805: 1992, except that there it is further qualified as follows:
"*… unless a district plan permits such uses, subject to a requirement to incorporate appropriate acoustic insulation to ensure a satisfactory internal noise environment.*"
There was considerable debate at the hearing as to whether such 'prohibition' should apply to the Frankton Flats Special Zone (FFSZ)

(not yet developed). FFSZ includes provisions that enable ASAN subject to buildings providing for specified standards of acoustic insulation against airport noise. We understand Plan Change 19 to be subject to an Appeal to the Environment Court, with QAC opposing such provisions.

5.53 We note that QLDC's "Frankton Development Strategy" provides for future mixed use urban growth (including ASAN) around the Airport, and that in approving Plan Change 19 it has specified what it considers to be "…*appropriate acoustic insulation to ensure a satisfactory internal noise environment*" for such activities. It is not our role in considering PC35 to question the Council's earlier decisions, or the adequacy of acoustic insulation provisions in Plan Change 19. The Council has previously examined alternative locations for both future urban growth in Queenstown and the location of the Airport. It has concluded that both should be accommodated at Frankton. That outcome can only be achieved given a process of noise mitigation, a method apparently accepted by QAC in relation to other areas within the proposed ANB and OCB. If that method can be accepted in those zones we do not consider that prohibition of new ASAN within the extended OCB can now be justified in the Frankton Flats Special Zone. Likewise, we do not consider it appropriate to introduce policies that 'discourage' any further plan changes that may include ASAN in the OCB.

Other noise - Engine testing

5.54 In addition to aircraft operations there are other associated activities permitted by the designation. These other activities are excluded from the assessment standard NZS 6805 and from the airport noise controls we have already discussed. Previously there were no noise limits for these other activities in the designation, although it might be reasonably anticipated that such activity would fall naturally within the activities of 'an airport'. QAC has now proposed noise limits for both planned and unplanned engine testing but not for other activities.

5.55 There are two fundamentally different types of engine testing conducted at Queenstown. There are regular tests of light aircraft and helicopters based at the airport, occurring on average for 5 to 10 minutes every one or two days. There are then unplanned tests of large aircraft (currently B737, A320 or ATR). This would typically occur if say a Boeing B737 had a bird-strike on arrival into Queenstown. Maintenance may then be required, followed by a mandatory engine test. We understand that such unplanned testing occurs very rarely at Queenstown, possibly less than once a year on average. ANZL explained that an aircraft would never land at Queenstown if it were known that maintenance was required and it was not envisaged that Queenstown would ever become a maintenance base. Although none of the major airlines have maintenance facilities based at Queenstown Airport, smaller companies such as Milford Aviation (helicopters) and Air Milford NZ do.

5.56 QAC proposed a limitation on the number of unplanned engine tests and their noise limits, copied from other airports elsewhere in New Zealand. No analysis was provided for the justification of those limits in Queenstown, the practicability of achieving those limits or the effect of the corresponding noise exposure on residents. Concerns over these limits were raised by Mr Hunt, Mr Hegley, Mr Goodwin and Mr Lloyd. Despite our extensive questioning on this issue and request for additional information during the hearing, QAC did not fully address the matter.

5.57 QAC propose that the assessment of engine testing noise should be on a similar basis as that for aircraft taking off and landing with averaging over a day or night. Mr Hegley and Mr Goodwin pointed out that for short duration engine testing this allowed substantially higher noise levels during the testing and that approach is inconsistent with the general environmental noise assessment standard NZS 6802:2008. A single engine testing event would typically be 5 to 10 minutes duration, but may be up to 25 minutes, which is of a different nature to aircraft take-off or landing events.

5.58 The modelling in Mr Day's supplementary evidence showed engine testing scenarios with careful location and screening could allow light aircraft and helicopter engine testing to comply with the normal District Plan noise limits in surrounding zones. While we acknowledge that there may be some practical issues to overcome in moving a helicopter to a test location for example, QAC does not appear to have robustly assessed possible solutions and other noise mitigation options. We do not consider that there are fundamental constraints for implementing mitigation either as illustrated by Mr Day, or alternative optimised solutions. We therefore recommend that engine testing of light aircraft and helicopters should comply with the standard District Plan noise limits for the neighbouring zones. For all other noise sources within the airport designation, such as air conditioning of the terminal, we recommend that the standard District Plan limits should also apply.

5.59 For the unplanned engine testing of large aircraft, Mr Day's assessment shows that compliance with the noise limits would be marginal during the day and impractical at night, even with mitigation. For these tests that might occur once a year we do not see any merit in setting an arbitrary limit. It is accepted that the tests are necessary following essential unplanned maintenance, and that they may be required at night to avoid disruption of flight schedules. We also note that for an unplanned test once a year for up to 25 minutes, it is highly unlikely that any noise prediction or noise monitoring will ever occur, and therefore a noise limit does not serve any purpose. The effect of unplanned testing can however be minimised by careful location of the aircraft. The effect can also be minimised by avoiding testing in the middle of the night if possible. We consider that such management controls are best addressed in the NMP and monitored by the QALC, rather than relying on pre-specified noise limits. We therefore

recommend that there should be an exclusion from the noise limits for unplanned engine testing of large aircraft, but that the designation conditions should require that a procedure for such testing be provided in the NMP, and all testing should be reported to the QALC with reasons for any deviations from the procedures provided.

Noise Management Plan

5.60 A Noise Management Plan is required as a condition of the proposed designation. The NoR indicates that the NMP is to be finalised by QAC following confirmation of the NoR. The primary purpose of that plan is to set out rules and details for the management and mitigation of adverse noise effects from operations at the Airport. A developing draft version of the NMP was provided by QAC at the conclusion of the hearing. Importantly, the NMP also provides for the establishment of an Airport Liaison Committee which will serve as the principal interface between QAC and the surrounding community to resolve any on-going noise issues. Many submitters considered that the NMP should therefore be contained as a provision of the District Plan so as to be more accessible to community oversight processes. For clarity, we recommend the committee be called the Queenstown Airport Liaison Committee ('QALC').

5.61 Our attention was drawn to the decision of the Environment Court in *Wellington International Airport v Wellington City Council* W102/97, where the Court ruled that a noise mitigation plan would not be appropriately located within a district plan because it could then only be amended by way of a Plan Change or Variation. As an adaptive management tool and so as to provide a framework for on-going community involvement, the Court endorsed the council's non-regulatory approach to resolving on-going noise issues in that case.

5.62 As to historical 'noise management', while there have been meetings of an 'Environmental Committee' convened by QAC, prior to 2007, 'noise monitoring' appears to have been more generally focused on liaison with the Airport's occupants and to a lesser extent with surrounding community representatives. Concern was expressed by submitters that the constitution and functioning of the QALC should be representative of the wider community and in particular be chaired by someone independent of QAC or QLDC.

5.63 As Requiring Authority, QAC will determine the final form and content of the NMP, however we consider that there are a number of matters that should be addressed by that Plan and which the Council should therefore recommend to QAC. These are set out in Appendix C to this report. To avoid two plans having the identical names we recommend that the existing 'Noise Management Plan' required by Designation 2 with respect to construction of the RESAs should be renamed.

Consequential changes to District Plan objectives, policies and rules

5.64 As a result of the foregoing, we recommend to the Council that there be consequential changes to objectives, policies and related rules in PC35 so as to remove references to the NNB and the SIB as set out in Appendix A to this report. In addition to these consequential changes we have also noted two internal inconsistencies in PC35 which relate to these matters and which we consider should also be changed.

5.65 Firstly these relate to Rural Zone objective 7 which appears to advocate the retention of green-fields buffer areas within the OCB between ASAN and the Airport in contrast to policy 7.4 which appears to advocate noise mitigation for ASAN, effectively within the same area. We therefore recommend removal of policy 7.4, but note that the issue is addressed in the correct context by policy 3.8.

5.66 Secondly, it has been drawn to our attention that in some zones resource consent for a controlled activity is required for all alterations to existing buildings, with control reserved to design, construction, orientation and location. QAC seek that these provisions be amended to consider design and construction detail only. The proposed zone standards also require alterations to existing buildings to be constructed in accordance with the criteria set out in proposed Appendix 13 of the District Plan, which includes the sound insulation and ventilation tables. An alteration of a building that does not comply with these zone standards would be a Non Complying Activity. We consider that this zone provision would adequately ensure all additions and alterations would meet the required design and construction details necessary to mitigate noise effects. This compliance would be appropriately determined at building consent stage. As a result, we consider it inefficient and a potential duplication of process to also require further consideration of these details at a resource consent stage. For these reasons we recommend that provisions 5.3.3.2, 5.4.2.3 ix (part only), 11.3.3.2 iii, and 11.4.2 x be deleted from the Rural and Industrial Zones.

5.67 We recommend that the ANB and OCB on the District Plan Maps should be based on the 65 dB Ldn and 55 dB Ldn 2037 noise contours, without night-time flights. The contours should be adjusted outwards in urban zones to the nearest cadastral/site boundaries. The District Plan rules in Section 12 for the Remarkables Park Special Zone include Figure 2, which is based on airport noise contours. The terminology in the legend of this figure should be updated to reference ASAN to be consistent with the changes to Section 12.11.3.6, Table 1. We recommend that this figure should also be updated to show the 2037 contours, and the shaded areas should be adjusted so that the area with 'No ASAN' corresponds to the new ANB and the area for 'ASAN with sound insulation' corresponds to the new 58 dB Ldn 2037 contour.

6.0 Statutory Assessments – RMA Part 2, s32 and s168A

Alternative sites / methods

6.1 The issue of selecting and/or establishing an alternative site to deal with the demand for future airport growth in the Wakatipu basin was raised by some submissions. We are satisfied on the evidence presented of a number of earlier studies of that matter that it has been thoroughly examined and that in the absence of any significant change in the factors affecting that issue, further examination would be unnecessary and unlikely to be of any practical benefit.

6.2 We are satisfied in relation to PC35 that the section 32 assessments confirm airport noise management utilising the airport noise boundary concepts set out in NZS 6805:1992 is the appropriate method of integrating land use planning with the projection of such effects. That Standard also advises the necessity to periodically review such contours during the period of projected aircraft operations. The introduction of revised airport noise boundaries into the District Plan following a review of likely passenger growth at the Airport is an efficient and effective method of communicating the likely areal extent in 'graphic' form of the airport noise effects on the environment of projected airport operations for the year 2037.

6.3 Subject to the recommended changes to PC35 and the NoR set out in Appendices A & B to this report, we are also satisfied that the additional noise mitigation and insulation methods proposed by QAC appropriately recognise and provide for the mitigation of the noise effects of the additional air-traffic likely to be generated by the anticipated future growth of the Airport's operations up to the currently permitted operating hours of 6am to 10pm.

6.4 Having examined the additional airport noise contour projections for 2037 both with and without the 11 night landings, there appears to be relatively little difference between the land areas likely to be affected by the extended OCB and ANB for either scenario. In other words, the operational hours and associated airport infrastructure improvements permitted under the current provisions of Designation 2 are likely to result in airport noise effects that over the 27 year forecast period will eventually extend to cover a very similar area, whether additional night landings are now to be enabled or not.

Necessity to achieve QAC objectives.

6.5 Having regard to QAC's objectives (set out by Ms Dewar, para. 4.2 above) we consider that those provisions of both PC35 and the NoR that relate to the revised OCB and ANB within the currently permitted operational hours of 6am to 10pm are reasonably necessary to achieve all of QAC's objectives as stated.

6.6 We also confirm as being necessary to achieve QAC's objectives (particularly (c) and (d)) those proposed alterations to the NoR that enable greater involvement of the community in the operation of the proposed Noise Management Plan together with the further control and mitigation of noise effects of engine testing and general aviation activities (with the exception of emergency services) being set out in that Plan.

6.7 However on the evidence before us, having regard to the likely amenity effects of aircraft noise on the wider community in the short to medium terms and so as to provide certainty as to the duration of noise effects on surrounding land uses, we do not consider that the extension of operating hours to provide for potential passenger operations between 10pm and 12midnight has been shown to be necessary to achieve the stated QAC objectives.

6.8 In reaching the above conclusions we have had regard to the purpose of the RMA set out in section 5 of part 2 of the Act, and also to the other matters in sections 7(b), 7(c) and 7(f) for managing the use and development of the physical resources involved here.

7.0 Overall recommendations.

Plan Change 35 ('PC35')

7.1 For all of the foregoing reasons we therefore recommend that the Council approves PC35 to the District Plan (including the revised projections to 2037 of airport noise contours for the ANB and OCB) with the exception of all of those provisions in PC35 and planning maps dealing specifically with the proposed extension of hours of operation and airport noise boundaries to enable 11 scheduled passenger aircraft arrivals between 10am and 12midnight.

7.2 We further recommend that the Council approve the consequential amendments to the proposed objectives, policies, rules and noise mitigation measures in PC35 as indicated in Appendix A to this report.

7.3 For the avoidance of doubt we also recommend to the Council that the proposed SIB and NNB contours and related provisions not be included in the District Plan and relevant planning maps.

7.4 Finally we recommend to the Council that submissions and further submissions in relation to PC35 be accepted, accepted in part, or rejected so as to reflect and be consistent with the above recommendations.

Notice of Requirement ('NoR')

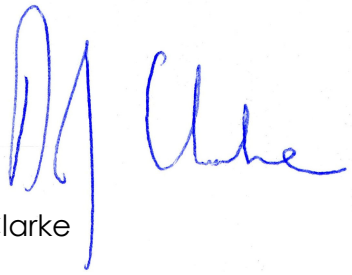
7.5 For all of the foregoing reasons, we recommend to the Council that it recommends to the Queenstown Airport Corporation Limited ('QAC') as Requiring Authority that its Notice of

Requirement to amend the existing Queenstown Aerodrome designation in the District Plan be modified as recommended in Appendix B to this report.

7.6 While it is accepted that as part of the amended NoR, QAC propose to finalise a 'Noise Management Plan' ('NMP') currently in 'Draft' form, it is recommended to the Council that it recommends to the Requiring Authority that the Draft NMP be modified to at least include those changes indicated in Appendix C to this report.

7.7 We lastly recommend to the Council that submitters and further submitters in relation to the NoR be notified of the above recommendations.

Signed by Hearing Commissioners:



D. Clarke

S. G. Chiles

R. W. Batty (Chair)

Dated: 1st November 2010

Appendices

A. Recommendations to the QLDC on changes to the District Plan.
B. Recommendations to QAC on modifications to the NoR.
C. Recommendations to QAC on contents of the Noise Management Plan.

Appendix A.
Recommendations to the QLDC on changes to the District Plan.

Underlined text indicates insertions and text that has ~~strikethrough~~ indicates deletions.

4. DISTRICT WIDE ISSUES

4.9.3 Objectives and Policies

Objective 7 – Queenstown Airport - Noise Management

Maintain and promote the efficient operation of Queenstown Airport and set appropriate noise limits in order to protect airport operations and to manage the effects of aircraft noise.

Policies

7.1 To ensure appropriate noise boundaries are established and maintained to enable operations at Queenstown Airport to continue and to expand over time.

7.2 To manage the adverse effects of noise from aircraft on any activity sensitive to aircraft noise within the airport noise boundaries whilst at the same time providing for the efficient operation of Queenstown Airport.

Implementation Methods

i District Plan

The identification of airport noise boundaries within the District Plan Maps

The inclusion of rules to manage activity sensitive to aircraft noise around the airport.

Regular monitoring of airport noise in accordance with the conditions attached to Designation 2 to ensure compliance with the airport noise boundaries.

Queenstown Airport Corporation funded retrofitting over time of sound insulation and mechanical ventilation in existing buildings containing activity sensitive to aircraft noise in the ANB to achieve an internal design sound level of 40 dB Ldn. Calculations shall be based on the 2037 noise contours and retrofitting should occur before the 65 dB Ldn AANC reaches the property. Retrofitting shall be conducted in accordance with the conditions attached to Designation 2.

Queenstown Airport Corporation part funded retrofitting of mechanical ventilation of Critical Listening Environments within existing buildings containing an activity sensitive to aircraft noise located inside the 60 dB Ldn AANC. This ventilation is to enable windows and doors to remain closed to achieve a reduction in indoor design sound level if required. Calculations shall be based on the 2037 noise contours and retrofitting should occur before the 60 dB Ldn AANC reaches the property. Retrofitting shall be conducted in accordance with the conditions attached to Designation 2.

ii Other Methods

Consultation with residents and dissemination of information on the current levels of airport noise and future intentions.

Explanation and Principal Reasons for Adoption

Queenstown Airport is a significant asset to the region. It provides a transportation hub for residents, visitors and business travellers and offers both domestic and international scheduled flights. The Airport also facilitates and supports a number of local tourist and aviation related businesses.

The Airport has been established at its current location in Queenstown since 1936. Since then the Airport has faced pressure from urban development. It is essential that such development is managed in a way that protects the current and future ability of the Airport to operate efficiently. It is also reasonable that noise boundaries are established for aircraft operations at the Airport in order to appropriately mitigate adverse effects on activity sensitive to aircraft noise in the surrounding environment.

Being within the township of Frankton, Queenstown Airport has some existing residential neighbours. It is recognised that the anticipated growth in operations at Queenstown Airport will necessitate sound insulation and mechanical ventilation works to some existing, new or altered buildings in order to mitigate the effects of airport noise.

Queenstown Airport Corporation will undertake regular monitoring to ensure that the owners or occupiers of existing buildings for an activity sensitive to aircraft noise within the 65 and 60 dB Ldn AANCs are offered appropriate noise mitigation in accordance with a Noise Mitigation Plan.

The noise boundaries are also necessary to ensure new noise sensitive development does not occur in inappropriate locations, and new and altered buildings are designed to result in an appropriate level airport noise indoors.

Objective 8 – Queenstown Airport – Urban Growth Management

Manage urban growth issues on land in proximity to Queenstown Airport to ensure that the operational capacity and integrity of the Airport is not significantly compromised now or in the future.

Policies

8.1 To prohibit all new activity sensitive to aircraft noise within the Rural, Business and Industrial Zones located within the Outer Control Boundary at Queenstown Airport.

To ensure that all new and altered buildings containing activity sensitive to aircraft noise located in the existing Residential zones, Frankton Flats and Remarkables Park Special Zones within the Queenstown Airport Outer Control Boundary are

designed and built to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours.

8.2 *To incorporate airport noise mitigation controls for activity sensitive to aircraft noise enabled by any plan changes or land use proposals for land within the Outer Control Boundary at Queenstown Airport.*

Implementation Methods

i District Plan

The provision of rules to prohibit or otherwise control activity sensitive to aircraft noise in the Rural, Residential, Industrial, Frankton Flats, Airport Mixed-Use and Remarkables Park zones.

Where appropriate the provisions of rules, standards and sound insulation and ventilation construction tables to ensure new buildings for any activity sensitive to aircraft noise in the Outer Control Boundary in the Residential Zone and Frankton Flats and Remarkables Park Special Zones are designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours.

ii Other Methods

Consultation with Queenstown Airport Corporation on any Plan Change or other land use proposal affecting land within the Outer Control Boundary.

Explanation and Principal Reasons for Adoption

Some types of activity on land adjacent to the Airport may give rise to issues of reverse sensitivity. It is essential for the current and future operation of Queenstown Airport that appropriate measures are taken in regard to noise sensitive activity in the vicinity of the Airport to ensure reverse sensitivity issues are avoided. The Airport is a key strategic asset for the district and makes a significant contribution to the district's economic, social and cultural well-being. Appropriate management of land use activities on land around the Airport in order to protect its ongoing function and operation is imperative. Such land use management will also manage the adverse effects on residential amenity, in particular indoor amenity, and community well-being by avoiding unnecessary exposure to higher than desirable levels of aircraft noise.

5. RURAL AREAS

Policies

3.7 To prohibit all new activity sensitive to aircraft noise on rural zoned land within the Outer Control Boundary at Queenstown Airport to avoid adverse effects arising from aircraft operations on future activity sensitive to aircraft noise.

3.8 To require sound insulation and mechanical ventilation of buildings which are being altered, where the activity contained is sensitive to aircraft noise on land located within the Outer Control Boundary of Queenstown Airport to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours.

Implementation Methods

(ii) The provision of rules to prohibit new activity sensitive to aircraft noise within the Outer Control Boundary of Queenstown Airport.

(iii) The provision of rules including sound insulation and mechanical ventilation construction tables to ensure appropriate sound insulation and ventilation is designed into any alterations to a building containing an activity sensitive to aircraft noise within the Outer Control Boundary of Queenstown Airport to achieve an indoor design sound level of 40 dB Ldn, based on the 2037 noise contours.

(iv) The New Zealand Standard NZS 6805:1992 – "Airport Noise Management and Land Use Planning" will be used as the basis for establishing noise boundaries and associated rules in the District Plan in relation to controlling noise from airports in the District while also protecting those airports from the reverse sensitivity effects associated with activities which are sensitive to aircraft noise.

Explanation and Principal Reasons for Adoption

The rural environment has particular amenity and environmental values, which are important to rural people. These include privacy, rural outlook, spaciousness, ease of access, clean air, and at times, quietness. However, a wide range of activities occur in the rural areas, including traditional livestock farming and the growing of supplementary crops, as well as more intensive new pastoral and horticultural enterprises. These result in levels of noise, dust, traffic generation and smell that are an integral part of rural amenity values, and which will be noticeable to residents in rural areas. Queenstown Airport is also located such that the effects of aircraft operations are experienced within some parts of the rural environment. Provided that these effects do not constitute a general nuisance or health risk, the Council considers they should be accepted as anticipated components of rural amenity values; however the potential for conflicts between such amenity values and the expectations of rural residents should be avoided, as far as possible.

Objective 7

Retention of a greenfields area or at Queenstown Airport an area for Airport related activities or where appropriate an area for activities not sensitive to aircraft noise, within an airport's Outer Control Boundary to act as a buffer between airports and other land use activities.

Policiesy

7.2 To prohibit the location of any new activity sensitive to aircraft noise on land within the Outer Control Boundary for Queenstown Airport.

7.3 To incorporate airport noise mitigation controls for activity sensitive to aircraft noise enabled by any plan changes or land use proposals for land within the Outer Control Boundary at Queenstown Airport.

Implementation Methods

Objective 7 and associated policies will be implemented through a number of methods including:

i District Plan

(b) Provision of zone rules ~~restricting~~ prohibiting any activity sensitive to aircraft noise within the Outer Control Boundary in the Rural Zone of Queenstown Airport.

(e) Identification of an Air Noise Boundary on the District Plan Maps for Queenstown Airport.

5.3 Rural Areas and Ski Area Sub-Zone – Rules

5.3.1.1 Rural General Zone

The purpose of the Rural General Zone is to manage activities so they can be carried out in a way that:

- *protects and enhances nature conservation and landscape values;*
- *sustains the life supporting capacity of the soil and vegetation;*
- *maintains acceptable living and working conditions and amenity for residents of and visitors to the Zone;*
- *protects the on-going operations of Queenstown Airport*

5.3.3.2 Controlled Activities

~~5.3.3.2vi Additions and Alterations to Buildings within the Outer Control Boundary - Queenstown Airport~~

~~Any alteration or addition to a building or part of a building to be used for residential activities, visitor accommodation or community activities on any site located within the Outer Control Boundary as indicated on the District Plan Maps, in respect of the design, construction, orientation and location of the building to achieve adequate indoor sound insulation from aircraft noise.~~

5.3.3.5 Prohibited Activities

5.3.3.5 iii Activities within the Outer Control Boundary – Queenstown Airport

On any site located within the Outer Control Boundary, which includes the Air Noise Boundary, as indicated on the District Plan Maps, any new ~~residential activities, visitor accommodation or community~~ activity sensitive to aircraft noise shall be a Prohibited Activity.

5.3.5.2 Zone Standards

5.3.5.2vii Airport Noise – Alteration or Addition to Existing Buildings (excluding any non-critical listening environment) within the ~~Outer Control Boundary~~ Queenstown Airport Noise Boundaries

~~(a) On any site located within the Outer Control Boundary as indicated on the District Plan Maps any alteration or addition to a building or part of a building to be used for residential activities, visitor accommodation or community activities shall be designed and constructed from aircraft noise so as to meet and indoor design sound level of 40dBA Ldn based on an external noise level determined by the District Plan Maps, except for non-critical listening environments where no special sound insulation is required.~~

~~(b) This control shall be met in either of the following two ways:~~

~~EITHER~~

~~(i) By providing a certificate from a recognized acoustic engineer stating that the proposed construction will achieve the internal design noise level.~~

~~OR~~

~~*(ii) The buildings shall be constructed and finished in accordance with the provisions of Table 1 in part 5.3.5.2.*~~

(a) ***Within the Air Noise Boundary (ANB)*** *- Alterations to existing buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by adoption of the constructions in Table 1 of Appendix 13 and installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

(b) ***Within the Outer Control Boundary (OCB)*** *- Alterations to existing buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

5.4.2 Assessment Matters

5.4.2.3ix Controlled Activity - Addition or alteration to ~~Buildings within the Outer Control Boundary - Queenstown Airport and~~ Buildings within the Outer Control Boundary - Wanaka Airport

Conditions may be imposed to ensure the design, construction, orientation and location of buildings for residential activities, visitor accommodation or community activities within Wanaka Airport's Outer Control Boundary~~, or the alteration or addition to an existing building or part of a building used for residential activities, visitor accommodation or community activities within Queenstown Airport's Outer Control Boundary~~ is such to ensure the indoor design sound level~~s~~ specified in Zone Standard~~s~~ 5.3.5.2~~(viii) and~~ (x) is ~~are~~ met.

6. QUEENSTOWN AIRPORT MIXED-USE ZONE – RULES

6.2.3.5 Prohibited Activities

*The following shall be **prohibited:***

i Forestry Activities

~~*ii Visitor Accommodation*~~

~~*iii Residential Activities*~~ *Activity Sensitive to Aircraft Noise*

iii~~iv~~ Commercial Recreation Activity

~~*v Community Activities*~~

iv~~i~~ Farming

v~~ii~~ Factory Farming

vi~~ii~~ Mining Activities

ix~~vii~~ Any activity requiring an Offensive Trade Licence under the Health Act 1956

~~*x Residential Flat*~~

7. RESIDENTIAL AREAS

Policies

3.11 To require ~~acoustic~~ sound insulation and mechanical ventilation for any buildings containing activity sensitive to aircraft noise ~~of buildings~~ within the Queenstown A~~a~~irport Outer Control Boundary and Air Noise Boundary~~, that contain critical listening environments~~.

Implementation Methods

i District Plan

(g) Rules to require sound insulation and mechanical ventilation of new and altered buildings that contain activity sensitive to aircraft noise on land within the Outer Control Boundary to achieve an indoor design sound level of 40 dB Ldn, based on the 2037 noise contours.

(h) Queenstown Airport Corporation funded retrofitting over time of sound insulation and mechanical ventilation in existing buildings containing activity sensitive to aircraft noise in the ANB to achieve an internal design sound level of 40 dB Ldn. Calculations shall be based on the 2037 noise contours and retrofitting should occur before the 65 dB Ldn AANC reaches the property. Retrofitting shall be conducted in accordance with the conditions attached to Designation 2.

(i) Queenstown Airport Corporation part funded retrofitting of mechanical ventilation of Critical Listening Environments within existing buildings containing an activity sensitive to aircraft noise located inside the 60 dB Ldn AANC. This ventilation is to enable windows and doors to remain closed to achieve the indoor design sound level if required. Calculations shall be based on the 2037 noise contours and retrofitting should occur before the 60 dB Ldn AANC reaches the property. Retrofitting shall be conducted in accordance with the conditions attached to Designation 2.

ii Other Methods

(c) Notification through Land Information Memoranda of the requirement to provide sound insulation and mechanical ventilation for new or altered buildings containing activity sensitive to aircraft noise within the Outer Control Boundary.

Explanation and Principal Reasons for Adoption

The residential areas are sensitive noise environments and this is a major factor which must be taken into account when considering the impact of other activities. Noise in a residential area is likely to result from non-residential activities and as such the plan includes provisions setting noise standards for non-residential activities in the residential zones. Noise from normal residential living, including animals and social events will be controlled through the excessive noise provisions of the Act. Noise from Queenstown Airport will be managed in line with the Aerodrome Designation (Designation 2) to contain noise levels to the noise boundaries set out in the District Plan Maps. Sound insulation and mechanical ventilation requirements will assist to

maintain the indoor amenity for any buildings used for an activity sensitive to aircraft noise in the Residential Zone.

7.2 Queenstown Residential and Visitor Accommodation Areas

7.2.2 Issues

xi Protection of airport operations ~~from noise sensitive activities~~ from any activity sensitive to aircraft noise within the Outer Control Boundary and Air Noise Boundary.

7.2.3 Objectives and Policies – Queenstown Residential and Visitor Accommodation Areas

Policies:

11. To require sound insulation and mechanical ventilation of any buildings that contain activity sensitive to aircraft noise on land within the Outer Control Boundary to achieve an indoor design sound level of 40 dB Ldn, based on the 2037 noise contours.

Implementation Methods

The objectives and policies will be implemented through:

i District Plan

(b) Rules to require sound insulation and mechanical ventilation of new and altered buildings that contain activity sensitive to aircraft noise on land within the Outer Control Boundary to achieve an indoor design sound level of 40 dB Ldn, based on the 2037 noise contours.

(c) A requirement within the Aerodrome Designation for Queenstown Airport Corporation to prepare and implement a noise mitigation plan in consultation with affected property owners for existing buildings within the 60 dB Ldn AANC.

Explanation and Principal Reasons for Adoption

The policies reinforce the District wide objectives for residential activity of consolidation and enhancement of residential amenity values. In addition the policies seek to maintain the general character of the majority of the existing residential environment which will provide a degree of certainty and security for residents by limiting changes to the scale, density and type of activity in the residential area. This policy recognises the importance of the living environment to the social well-being of the residents. The policy relating to sound insulation from the noise effects of aircraft using Queenstown Airport seeks to manage the adverse effects on the health and well-being of the residential community around the Airport as far as practicable.

7.5.5.3 Zone Standards – Residential Activities and Visitor Accommodation

7.5.5.3vi Airport Noise – Queenstown Airport (excluding any non-critical listening environments)

~~(a) On any site located within the Outer Control Boundary as indicated on the District Plan Maps, any building or part of a building used for residential activities or visitor accommodation shall be insulated from aircraft noise so as to~~

~~*meet an indoor design level of 40 dBA Ldn, except for non-critical listening environments where no special sound insulation is required.*~~

~~*(b) This control shall be met in either of the following two ways:*~~
~~*EITHER:*~~

~~*(i) By providing a certificate from a recognised acoustic engineer stating that the proposed construction will achieve the internal design noise level.*~~
~~*OR:*~~

~~*(ii) The building shall be constructed and finished in accordance with the provisions of Table 7.4 in part 7.5.5.3.*~~

~~***Table 7.4 – Acoustic Insulation of Buildings Containing Noise Sensitive Activities (except non-critical listening areas)***~~

~~***BUILDING ELEMENT***~~	~~***REQUIRED CONSTRUCTION***~~
~~*External Walls*~~	~~*Exterior: 20mm timber or 6mm fibre cement*~~ ~~*Frame: 100mm gap containing 100mm acoustic blanket (R2.2 Batts or similar two layers of 12.5mm gypsum plasterboard* (Or an equivalent combination of exterior and interior wall mass)*~~
~~*Windows*~~	~~*Up to 40% of wall area: Minimum thickness 6mm glazing***~~ ~~*Up to 60% of wall area: Minimum thickness 8mm glazing***~~ ~~*Up to 80% of wall area: Minimum thickness 8mm laminated glass or minimum 10mm double glazing***~~ ~~*Aluminium framing with compression seals (or equivalent)*~~
~~*Pitched Roof*~~	~~*Cladding:0.5mm profiled steel or tiles or 6mm corrugated fibre cement*~~ ~~*Frame: Timber truss with 100mm acoustic blanket (R2.2 Batts or similar)*~~ ~~*Ceiling: 12.5 gypsum plaster board**~~
~~*Skillion Roof*~~	~~*Cladding:0.5mm profiled steel or 6mm fibre cement*~~ ~~*Sarking: 20mm particle board or plywood*~~ ~~*Frame: 100mm gap containing 100mm acoustic blanket (R2.2 Batts or similar)*~~ ~~*Ceiling: 2 layers of 9.55mm gypsum plasterboard**~~
~~*External Door*~~	~~*Solid core door (min 24kg/m2) with weather seals*~~

~~* *Where exterior walls are of brick veneer or stucco plaster the internal linings need to be no thicker than 9.5mm gypsum plasterboard*~~

~~** *Typical acoustic glazing usually involves thick single panes or laminated glass. Where two or more layers of glass are employed with an air gap between, total thickness of window glass may be calculated as the total of all glass layers (excluding air gap) provided that at least one glass layer shall be of a different thickness to the other layer(s)*~~

(a) ***Within the Air Noise Boundary (ANB)*** *– New and altered buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13.*

Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by adoption of the constructions in Table 1 of Appendix 13 and installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.

(b) ***Within the Outer Control Boundary (OCB)*** *- New and altered buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

7.5.6.3 Zone Standards – Non-Residential Activities (other than Visitor Accommodation in the High Density Residential Zone)

7.5.6.3viii Airport Noise – Queenstown Airport (excluding any non-critical listening environments)

~~*(a) On any site located within the Outer Control Boundary as indicated on the District Plan Maps, any building or part of a building used for residential activities or visitor accommodation shall be insulated from aircraft noise so as to meet an indoor design level of 40 dBA Ldn, except for non-critical listening environments where no special sound insulation is required.*~~

~~*(b) This control shall be met in either of the following two ways:*~~
~~*EITHER:*~~

~~*(i) By providing a certificate from a recognised acoustic engineer stating that the proposed construction will achieve the internal design noise level.*~~
~~*OR:*~~

~~*(ii) The building shall be constructed and finished in accordance with the provisions of Table 7.8 in part 7.5.6.3.*~~

~~***Table 7.8 – Acoustic Insulation of Buildings Containing Noise Sensitive Activities (except non-critical listening areas)***~~

~~***BUILDING ELEMENT***~~	~~***REQUIRED CONSTRUCTION***~~
~~*External Walls*~~	~~*Exterior: 20mm timber or 6mm fibre cement*~~ ~~*Frame: 100mm gap containing 100mm acoustic blanket (R2.2 Batts or similar two layers of 12.5mm gypsum plasterboard* (Or an equivalent combination of exterior and interior wall mass)*~~
~~*Windows*~~	~~*Up to 40% of wall area: Minimum thickness 6mm glazing***~~ ~~*Up to 60% of wall area: Minimum thickness 8mm glazing***~~ ~~*Up to 80% of wall area: Minimum thickness 8mm laminated glass or minimum 10mm double glazing***~~ ~~*Aluminium framing with compression seals (or equivalent)*~~
~~*Pitched Roof*~~	~~*Cladding:0.5mm profiled steel or tiles or 6mm corrugated fibre cement*~~ ~~*Frame: Timber truss with 100mm acoustic blanket (R2.2*~~

	~~Batts or similar)~~ ~~Ceiling: 12.5 gypsum plaster board*~~
~~Skillion Roof~~	~~Cladding:0.5mm profiled steel or 6mm fibre cement~~ ~~Sarking: 20mm particle board or plywood~~ ~~Frame: 100mm gap containing 100mm acoustic blanket (R2.2 Batts or similar)~~ ~~Ceiling: 2 layers of 9.55mm gypsum plasterboard*~~
~~External Door~~	~~Solid core door (min 24kg/m2) with weather seals~~

~~* Where exterior walls are of brick veneer or stucco plaster the internal linings need to be no thicker than 9.5mm gypsum plasterboard~~

~~** Typical acoustic glazing usually involves thick single panes or laminated glass. Where two or more layers of glass are employed with an air gap between, total thickness of window glass may be calculated as the total of all glass layers (excluding air gap) provided that at least one glass layer shall be of a different thickness to the other layer(s)~~

(a) ***Within the Air Noise Boundary (ANB)*** *– New and altered buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by adoption of the constructions in Table 1 of Appendix 13 and installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

(b) ***Within the Outer Control Boundary (OCB)*** *- New and altered buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

11. BUSINESS AND INDUSTRIAL AREAS

11.3.3.2 Controlled Activities

~~11.3.3.2iii Alterations to Buildings within the Outer Control Boundary – Queenstown Airport~~

~~Any alteration or addition to a building or part of the building to be used for residential activities, visitor accommodation or community activities on any site located within the Outer Control Boundary as indicated on the District Plan Maps, in respect of the design, construction, orientation and location of the building to achieve an indoor sound level of 40 dB Ldn.~~

11.3.3.5 Prohibited Activities

11.3.3.5i Activities within the Outer Control Boundary – Queenstown Airport

On any site located within the Outer Control Boundary as indicated on the District Plan Maps, any new ~~Residential Activities, Visitor Accommodation or Community Activities~~ activity sensitive to aircraft noise shall be a Prohibited Activity.

11.3.5.2 Zone Standards

11.3.5.2 iii Queenstown Airport (excluding any non-critical listening environment)

~~Airport Noise - Alteration or Addition to Existing Buildings within the Outer Control Boundary~~

~~On any site located within the Outer Control Boundary as indicated on the District Plan Maps, any alteration or addition to a building or part of a building to be used for residential activities, visitor accommodation or community activities shall be insulated from aircraft noise so as to meet an indoor design sound level of 40dBA Ldn, except for non-critical listening environments where no special sound insulation is required.~~

(a) ***Within the Air Noise Boundary (ANB)*** *- Alterations to existing buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by adoption of the constructions in Table 1 of Appendix 13 and installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

(b) ***Within the Outer Control Boundary (OCB)*** *- Alterations to existing buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

11.4.2 Assessment Matters

~~11.4.2x Controlled Activity – Addition or Alteration to Buildings within the Outer Control Boundary – Queenstown Airport~~

~~Conditions may be imposed to ensure the design, construction, orientation and location of all alterations to an existing building or part of a building used for residential activities, visitor accommodation or community activities within Queenstown Airport's Outer Control Boundary is such to ensure the indoor design sound levels specified in Zone Standard 11.3.5.2(iii) are met.~~

12. REMARKABLES PARK ZONE

12.10.3 Objectives and Policies

Objective 1

Implementation Methods

i. District Plan

~~*(c) Notification through Land Information Memorandum of the restrictions on properties between the 58 and 60dBA Ldn contours.*~~

(~~d~~c) Inclusion of noise control and noise attenuation standards.

(d) Noise boundaries identified in the District Plan Maps

ii. Other Methods

(a) Notification through Land Information Memorandum of the restrictions on properties between the 58 and 60 dB Ldn noise contours.

12.11.3.6 Table 1

Activity	**Activity Area**									
	1	2a	2b	2c	3	4 *	5 *	6 *	7	8 *
Buildings except Residential Units in Activity Area 1	CON	CON	CON	CON	CON	CON	CON	CON	CON	CON
Residential Activities		N-C	N-C	N-C			CON			N-C
Commercial Activities	N-C	DIS	DIS	DIS	CON	DIS		DIS	DIS	N-C
Commercial Recreational Activities	DIS	CON	CON	CON	CON	CON	CON	CON	CON	CON
Educational Facilities	N-C	N-C	N-C	N-C	DIS	CON	CON	CON	DIS	N-C
Retirement Villages	DIS	N-C	N-C	N-C	DIS	DIS	DIS	CON	DIS	PRO
Hospitals	DIS	N-C	N-C	N-C	DIS	DIS	DIS	CON	DIS	N-C
Health/Day Care Facilities	DIS	N-C	N-C	N-C	DIS	DIS	DIS	CON	DIS	N-C
Visitor Accommodation	DIS	N-C	N-C	N-C	CON	CON	CON	CON	CON	N-C
Premises licensed for the sale of liquor	N-C	N-C	N-C	N-C	CON	DIS	CON	DIS	DIS	DIS
Factory Farming	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C
Forestry Activities	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C
Mining	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C
Take-off or landing of aircraft other than for emergency landings and rescues or fire-fighting	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C	N-C
*Buildings within the ~~blue~~ hatched area indicated on Figure 2 – Airport Measures and labelled "NO BUILDINGS AREA"										PRO
~~*Residential, Visitor Accommodation and Community Activities~~ Activities sensitive to aircraft noise within the ~~blue~~ semi-hatched area indicated on Figure 2 – Airport Measures and labelled "~~NO RESIDENTIAL, VISITOR ACCOMMODATION OR COMMUNITY ACTIVITIES AREA~~" "NO ACTIVITIES SENSITIVE TO AIRCRAFT NOISE".							PRO			PRO
~~*Residential Activities, Visitor Accommodation and Community Activities~~ Activities sensitive to aircraft noise where accommodation for any individual or group exceeds 90 continuous days per annum within the ~~grey~~ hatched area indicated on Figure 2 – Airport Measures and labelled "SHORT STAY WITH SOUND INSULATION"						PRO	PRO	PRO		PRO
Panelbeating, spray painting, motor vehicle repair or dismantling, fibreglassing, sheet metal work, bottle or scrap storage, motorbody building, fish or meat processing, or any activity requiring an offensive trade licence under the Health Act 1956.	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO
Industrial Activities	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO
Service Activities	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO

12.11.5.2 Zone Standards

12.11.5.2iv Airport Measures – Queenstown Airport <u>(excluding any non-critical listening environment)</u>

~~*(a) On any site located within the grey hatched or the grey shaded area on Figure 2 – "Airport Measures", any building or part of a building, or any alteration or addition to a building, to be used for residential activities, visitor accommodation or community activities shall be acoustically insulated from aircraft noise so as to achieve an indoor design sound level of 40 dBA Ldn, except for non-critical listening environments where no special sound insulation is required.*~~

~~*(b) This control shall be met in either of the following two ways:*~~

~~*EITHER:*~~

~~*(i) By providing a certificate from a recognised acoustic engineer stating that the proposed construction will achieve the internal design noise level.*~~

~~*OR:*~~

~~*(ii) The building shall be constructed and finished in accordance with the provisions of Table 2 appended to this rule.*~~

~~***Table 2 – Acoustic Insulation of Buildings Containing Noise Sensitive Uses (except non-critical listening areas)***~~

~~***BUILDING ELEMENT***~~	~~***REQUIRED CONSTRUCTION***~~
~~*External Walls*~~	~~*Exterior: 20mm timber or 6mm fibre cement*~~ ~~*Frame: 100mm gap containing 100mm acoustic blanket (R2.2 Batts or similar two layers of 12.5mm gypsum plasterboard* (Or an equivalent combination of exterior and interior wall mass)*~~
~~*Windows*~~	~~*Up to 40% of wall area: Minimum thickness 6mm glazing***~~ ~~*Up to 60% of wall area: Minimum thickness 8mm glazing***~~ ~~*Up to 80% of wall area: Minimum thickness 8mm laminated glass or minimum 10mm double glazing***~~ ~~*Aluminium framing with compression seals (or equivalent)*~~
~~*Pitched Roof*~~	~~*Cladding:0.5mm profiled steel or tiles or 6mm corrugated fibre cement*~~ ~~*Frame: Timber truss with 100mm acoustic blanket (R2.2 Batts or similar)*~~ ~~*Ceiling: 12.5 gypsum plaster board**~~
~~*Skillion Roof*~~	~~*Cladding:0.5mm profiled steel or 6mm fibre cement*~~ ~~*Sarking: 20mm particle board or plywood*~~ ~~*Frame: 100mm gap containing 100mm acoustic blanket (R2.2 Batts or similar)*~~ ~~*Ceiling: 2 layers of 9.55mm gypsum plasterboard**~~
~~*External Door*~~	~~*Solid core door (min 24kg/m2) with weather seals*~~

~~* Where exterior walls are of brick veneer or stucco plaster the internal linings need to be no thicker than 9.5mm gypsum plasterboard~~

~~** Typical acoustic glazing usually involves thick single panes or laminated glass. Where two or more layers of glass are employed with an air gap between, total~~

~~*thickness of window glass may be calculated as the total of all glass layers (excluding air gap) provided that at least one glass layer shall be of a different thickness to the other layer(s)*~~

(a) ***Within the Air Noise Boundary (ANB)*** *- Alterations to buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by adoption of the constructions in Table 1 of Appendix 13 and installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

(b) ***Within the Outer Control Boundary (OCB)*** *- New and altered buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

12. FRANKTON FLATS

12.18.5.2 Zone Standards

12.18.5.2iii Airport Noise – Queenstown Airport

~~*(a) On any site located within the Outer Control Boundary as indicated on the District Plan Maps any building or part of a building to be used for any activity specified below shall be insulated from aircraft noise so as to meet the indoor design noise levels specified for the particular activity:*~~

~~***Activities***~~	~~***Design Noise Levels***~~	
	~~***Lmax dBA***~~	~~***Ldn dBA***~~
~~*Visitors Accommodation*~~	~~*55*~~	~~*40*~~
~~*Community Activity (indoor)*~~	~~*55*~~	~~*40*~~
~~*Offices*~~	~~*65*~~	~~*50*~~
~~*Commercial Activity (indoor) excluding offices*~~	~~*75*~~	~~*60*~~
~~*Service Activities*~~	~~*75*~~	~~*60*~~
~~*Recreational Activities*~~	~~*75*~~	~~*60*~~
~~*Educational Activities*~~	~~*55*~~	~~*40*~~
~~*Residential*~~	~~*55*~~	~~*40*~~

~~*(b) This control shall be met in either of the following two ways:*~~

~~*EITHER:*~~

~~*(i) By providing a certificate from a recognised acoustic engineer stating that the proposed construction will achieve the internal design noise level.*~~

~~*OR:*~~

~~*(ii) The building shall be constructed and finished in accordance with the provisions of Table 2 appended to this rule.*~~

~~***Table 2 – Acoustic Insulation of Buildings Containing Noise Sensitive Uses (except non-critical listening areas)***~~

~~***BUILDING ELEMENT***~~	~~***REQUIRED CONSTRUCTION***~~
~~*External Walls*~~	~~*Exterior: 20mm timber or 6mm fibre cement*~~ ~~*Frame: 100mm gap containing 100mm acoustic blanket (R2.2 Batts or similar two layers of 12.5mm gypsum plasterboard* (Or an equivalent combination of exterior and interior wall mass)*~~
~~*Windows*~~	~~*Up to 40% of wall area: Minimum thickness 6mm glazing***~~ ~~*Up to 60% of wall area: Minimum thickness 8mm glazing***~~ ~~*Up to 80% of wall area: Minimum thickness 8mm laminated glass or minimum 10mm double glazing***~~ ~~*Aluminium framing with compression seals (or equivalent)*~~
~~*Pitched Roof*~~	~~*Cladding:0.5mm profiled steel or tiles or 6mm corrugated fibre cement*~~ ~~*Frame: Timber truss with 100mm acoustic blanket (R2.2 Batts or similar)*~~ ~~*Ceiling: 12.5 gypsum plaster board**~~
~~*Skillion Roof*~~	~~*Cladding:0.5mm profiled steel or 6mm fibre cement*~~ ~~*Sarking: 20mm particle board or plywood*~~ ~~*Frame: 100mm gap containing 100mm acoustic blanket (R2.2 Batts or similar)*~~ ~~*Ceiling: 2 layers of 9.55mm gypsum plasterboard**~~
~~*External Door*~~	~~*Solid core door (min 24kg/m2) with weather seals*~~

~~* Where exterior walls are of brick veneer or stucco plaster the internal linings need to be no thicker than 9.5mm gypsum plasterboard~~

~~** Typical acoustic glazing usually involves thick single panes or laminated glass. Where two or more layers of glass are employed with an air gap between, total thickness of window glass may be calculated as the total of all glass layers (excluding air gap) provided that at least one glass layer shall be of a different thickness to the other layer(s)~~

Within the Outer Control Boundary (OCB) *- New and altered buildings containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2037 noise contours, at the same time as meeting the ventilation requirements in Table 2 of Appendix 13. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by installation of mechanical ventilation to achieve the requirements in Table 2 of Appendix 13.*

DEFINITIONS

Air Noise Boundary Queenstown (ANB) *– means a boundary as shown in District Plan Map 31A, the location of which is based on the predicted day/night sound level of 65 dB Ldn from airport operations in 2037.*

Outer Control Boundary Queenstown (OCB) *- means a boundary as shown in District Plan Map 31A, the location of which is based on the predicted day/night sound level of 55 dB Ldn from airport operations in 2037.*

Annual Airport Noise Contours (AANC) Queenstown *– means the Annual Airport Noise Contours calculated as specified by the Aerodrome Designation 2.*

Activity Sensitive to Aircraft Noise (ASAN) *– means any residential activity, visitor accommodation activity, community activity and day care facility activity, but excludes activity in police stations, fire stations, courthouses, probation and detention centres, government and local government offices.*

Aircraft Operations *– includes the operation of aircraft during landing, take-off and taxiing but excludes:*

- *aircraft operating in an emergency;*
- *aircraft using the Airport as an alternative to landing at a scheduled airport;*
- *military aircraft movements;*
- *engine testing.*

Critical Listening Environment *– means any space that is regularly used for high quality listening or communication, for example principal living areas, bedrooms and classrooms but excludes non-critical listening environments.*

Design Sound Level *– means 40 dB Ldn in all Critical Listening Environments.*

Appendix 13

The following table sets out the constructions required to achieve appropriate sound insulation within the airport Air Noise Boundary (ANB).

Table 1: Sound Insulation Requirements – Acceptable Constructions.

Building Element	***Minimum Construction***	
External Walls	***Exterior Lining:***	*Brick or concrete block or concrete, or 20mm timber or 6mm fibre cement*
	Insulation:	*Not required for acoustical purposes*
	Frame:	*One layer of 9mm gypsum or plasterboard (or an equivalent combination of exterior and interior wall mass)*
Windows/Glazed Doors	*4mm glazing with effective compression seals or for double glazing 6mm-6mm airgap-6mm*	
Pitched Roof	***Cladding:***	*0.5mm profiled steel or masonry tiles or 6mm corrugated fibre cement*
	Insulation:	*100mm thermal insulation blanket/batts*
	Ceiling:	*1 layer 9mm gypsum or plaster board*
Skillion Roof	***Cladding:***	*0.5mm profiled steel or 6mm fibre cement*
	Sarking:	*None Required*
	Insulation:	*100mm thermal insulation blanket/batts*
	Ceiling:	*1 layer 9mm gypsum or plasterboard*
External Door	*Solid core door (min 24kg/m^2) with weather seals*	

Note: The specified constructions in this table are the minimum required to meet the acoustic standards. Alternatives with greater mass or larger thicknesses of insulation will be acceptable. Any additional construction requirements to meet other applicable standards not covered by this rule (eg fire, Building Code etc) would also need to be implemented.

The following table sets out the ventilation requirements within the airport Outer Control Boundary (OCB) and Air Noise Boundary (ANB).

Table 2: Ventilation Requirements

Room Type	***Outdoor Air Ventilation Rate*** *(Air Changes per Hour, ac/hr)*	
	Low Setting	*High Setting*
Bedrooms	*1-2 ac/hr*	*Min. 5 ac/hr*
Other Critical Listening Environments	*1-2 ac/hr*	*Min. 15 ac/hr*
Noise from ventilation systems shall not exceed 35 dB $L_{Aeq(1\ min)}$, on High Setting and 30 dB $L_{Aeq(1\ min)}$, on Low Setting. Noise levels shall be measured at a distance of 1 m to 2 m from any diffuser.		
Each system must be able to be individually switched on and off and when on, be controlled across the range of ventilation rates by the occupant with a minimum of 3 stages.		
Each system providing the low setting flow rates is to be provided with a heating system which, at any time required by the occupant, is able to provide the incoming air with an 18 ºC heat rise when the airflow is set to the low setting. Each heating system is to have a minimum of 3 equal heating stages.		
If air conditioning is provided to any space then the high setting ventilation requirement for that space is not required.		

Appendix B.
Recommendations to QAC on modifications to the NoR.

Underlined text indicates insertions and text that has ~~strikethrough~~ indicates deletions.

D QUEENSTOWN AIRPORT

The area of land covered by the Aerodrome Designation shall include the sites described below:

- Part Sections 59, 60, 61, 62, 63, 65 Block I, Shotover Survey District
- Lots 1 – 3 DP12475
- Lot 9 DP22121
- Part of Glenda Drive, and all legal roads within the above described land.
- Lots 2, 8, 11, 22 and 32 DP304345
- Part of Lots 1 and 2 DP394343
- Lot 1 and 2 DP300177
- SO14262
- Part of Lot 1 DP306621
- Part Sections 141, 142 and 145 Block I, Shotover Survey District
- The portion of an unformed legal road bounded by Lot 1 DP306621, Part Sections 141, 142 and 145 Block I Shotover Survey District and Lots 8 and 32 DP304345 to the east and Lot 2 DP304345 to the west.

D.1 AERODROME PURPOSES

The following conditions and provisions be included in the Plan as D.1 - Aerodrome Purposes.

This designation is defined to protect the operational capability of the airport, while at the same time minimising adverse environmental effects from aircraft noise on the community at least to the year 20~~15~~37.

Permitted Activities

1. The nature of the activities covered by this designation are described as follows:

(a) Aircraft operations, private aircraft traffic, domestic and international aircraft traffic, rotary wing operations, aircraft servicing, fuel storage and general aviation;

(b) Associated activities, buildings and infrastructure, navigational aids and lighting, car parking, offices and cafeteria provided there is a functional need for the activity to be located within the designation;

(c) The main runway has a maximum usable length of 1,931 metres oriented 05-23 and a width of 45 metres. The main runway will have a runway seal dimension of 1,891 metres, 60 metre sealed starter extension/strip west, 118 metre runway extension west, 1,341 metre original runway, a 320 metre runway extension

east and a 52 metre starter extension strip allowance east, with 20 metre strip lengths beyond both starter extension thresholds and a 90 metre runway end safety area at both the eastern and western ends of the runway end strip;

(d) A crosswind runway orientated 14-32 with a grass runway strip length of 944 metres including a 90 metre starter extension to the south and a 60 metre width;

(e) The following roading alterations:
- stopping the southern part of Glenda Drive
- stopping three roads off Glenda Drive
- provision of a road link to provide access to Hawthorne Drive from Glenda Drive

The fixed wing operations are concentrated on runways 05-23 and 14-32. ~~Helicopters currently operate to the south west of the terminal~~.

Restrictions on Aerodrome Purposes Activities

Building Height

2. Maximum height of any building shall be 9.0 metres except that this restriction does not apply to the control tower, hangars, lighting towers or navigation and communication masts and aerials.

Building Setback

3. Minimum setback from all boundaries shall be 10.0m.

~~***Operations during Hours of Darkness***~~ ***Operational Hours***

~~The airport shall not be used for scheduled passenger during the hours of darkness. "Hours of darkness" shall mean the hours between 10pm and 6am.~~

4. No aircraft operations, other than emergency aircraft operations shall occur between 10pm and 6am.

Prohibited Activities

5. Non-airport related activities are prohibited within the Aerodrome designation.

~~***Airport Master Plan***~~

~~Queenstown Airport Corporation is to provide an Airport Master Plan within 12 months of the airport designation being finalised~~.

~~***Hawthorne Drive***~~

~~Hawthorne Drive shall be maintained in its present position for a distance of 75 metres each side of the centre line of the cross-wind runway.~~

Airport Noise

6. Airport noise shall be measured, predicted and assessed in accordance with NZS 6805:1992 *Airport Noise Management and Land Use Planning*, by a person suitably qualified in acoustics. The terms ANB, OCB, AANC, ASAN, and Design Sound Level shall be as defined in the District Plan.

7. Queenstown Airport Corporation (QAC), shall provide the Queenstown Lakes District Council (QLDC) with predicted airport noise contours for the year 2037 in 1 dB increments from 70 dB Ldn to 55 dB Ldn inclusive. These contours shall be provided in an electronic format. The 2037 contours in 1 dB increments shall also be appended to the Noise Management Plan (NMP).

8. Each year, QAC, shall produce 55 dB, 60 dB and 65 dB Ldn Annual Aircraft Noise Contours (AANCs), using airport noise prediction software and records of actual aircraft movements for the busiest three months of the preceding year. The software type and version to be used each year shall be determined by the Queenstown Airport Liaison Committee (QALC) and shall be recorded in the Noise Management Plan (NMP).

9. Every three years, QAC shall undertake a monitoring programme and shall check that measured levels are no more than 2 dB greater than the AANCs. The monitoring programme shall include measurements within a three year period including: a minimum of one month summer and one month winter at each of two measurement locations determined by the QALC. The AANCs shall be corrected for any differences from the measurements greater than 2 dB.

10. Each year the AANCs shall be reported to the QALC. Every three years the results of the monitoring programme and any corrections required to the AANCs shall be reported to the QALC.

11. The Airport shall be managed so that the noise from aircraft operations does not exceed 65 dB Ldn outside the Air Noise Boundary (ANB) or 55 dB Ldn outside the Outer Control Boundary (OCB). The ANB and OCB are as shown on the District Plan Maps. Compliance with the ANB and OCB shall be determined on the basis of the AANCs, including corrections.

Other Noise

12. Sound from activities operating in this designation, which is outside the scope of NZS 6805:1992, shall comply with the District Plan noise limits set in the zone standards for each zone in which the sound is received. This requirement includes engine testing other than for essential unplanned engine testing of aircraft for scheduled passenger services.

13. No noise limits shall apply to essential unplanned engine testing of aircraft for scheduled passenger services. The NMP shall detail noise management practices for unplanned engine testing including preferred locations and times. Following each unplanned engine test the QAC shall report to the next meeting

of the QALC why the testing was required and what noise management practices were followed.

Airport Noise Mitigation

14. Each year the QAC shall offer to provide 100% funding of noise mitigation for buildings that existed on [insert date designation confirmed] containing Activity Sensitive to Aircraft Noise (ASAN) and are predicted to be within the 65 dB Ldn AANC for the following year. The mitigation shall achieve an internal design sound level of 40 dB Ldn or less.

15. Each year the QAC shall offer to provide 75% funding of mechanical ventilation for buildings that existed on [insert date designation confirmed] containing ASAN, and are predicted to be within the 60 dB Ldn AANC for the following year. Where a building owner accepts this offer they shall not be eligible for further funding of mechanical ventilation if the building later becomes within the 65 dB Ldn AANC, but they shall become eligible for 100% funding of any sound insulation required.

16. Mechanical ventilation shall be in accordance with Table 2 of Appendix 13 to the District Plan.

17. Noise mitigation funding offered by the QAC shall only be required where the benefitting building owner agrees to the methods offered and agrees to enter into a binding property agreement or covenant based on no future complaints against airport noise. Alternative mitigation strategies may be adopted by agreement of QAC and the building owner. A procedure for dispute resolution shall be provided in the NMP.

18. A Noise Mitigation Plan detailing the processes required to give effect to the funding of sound insulation and mechanical ventilation, shall be included as part of the Noise Management Plan (NMP).

Noise Management Plan

19. Within twelve months of [insert date designation confirmed], QAC shall provide a Noise Management Plan (NMP) to the QALC to:

    a) continue dialogue between QAC and the local community regarding noise management matters at Queenstown Airport,

    b) establish and articulate a clear process for the monitoring and reporting of noise levels at Queenstown Airport and actions to be followed in the event of a noise level exceedance,

    c) provide a mechanism for the recording and investigation of noise complaints in relation to operations and activities at Queenstown Airport,

d) establish a process and measures for the avoidance, remediation and mitigation of noise effects at Queenstown Airport, particularly effects on existing buildings accommodating ASAN within the 60 dB Ldn AANC,

e) To manage the effects of aircraft noise on the community, and

f) To provide the community with certainty as to the noise limits and effects on all surrounding land uses.

20. The NMP shall include provisions for a Queenstown Airport Liaison Committee (QALC) including:

a) the membership of the QALC shall be: chair, QAC (1 member), QLDC (1 member), community (3 members), Airways Corporation (1 member), airline representative (1 member), Milford Users Group (1 member),

b) a quorum of the QALC shall be four members including at least one representative of each of QAC, QLDC and the community,

c) the QALC shall have an independent chair appointed by QAC in consultation with the QLDC,

d) all expenses of the QALC including secretariat and the independent chair's remuneration shall be met by QAC, and

e) the QALC shall meet at least once every three months.

21. The NMP shall provide guidance for noise mitigation by owners of new and altered buildings for ASAN within the OCB. This shall include details of the likely mitigation required within each 2037 noise contour, including identification of the point at which no mitigation is required.

22. The current version of the NMP shall be made available to the public on QAC's web site.

Eastern Runway End Safety Area (RESA)

Construction Management Plan

23. (i) Prior to the commencement of construction of the RESA, and in conjunction with the outline plan required by Section 176A, a Construction Management Plan shall be submitted to the Council for review and approval. The purpose of the Construction Management Plan shall be to:

(a) Describe the methods proposed for the construction of the RESA and the programme for construction of each element;
(b) Describe what actions will be taken to manage the actual or potential effects of construction activities associated with the RESA and to satisfy conditions on the designation;

(c) Provide a list of key personnel and points of contact during RESA construction;
(d) Describe how stakeholders will be kept informed during construction of the RESA and how complaints will be managed; and
(e) Ensure compliance with the conditions of the designation as they relate to RESA construction work.

(ii) The Construction Management Plan shall include the following details:

(a) A staging plan, identifying the RESA works and proposed duration of each stage;
(b) Description of all RESA construction works including (as required) identification of fill sources and additional construction material required, access roads and tracks, identification of areas for storing plant and machinery, locations and colours of any temporary buildings, design details of the blast fence at the west of the runway, mitigation measures, rehabilitation, monitoring and reporting to be undertaken;
(c) Design responsibilities and method of RESA construction, including methods of conducting vegetation clearance and earthworks, disposal (if required) of excavation material, in river works management, sediment management, surface water and erosion management, methods for management of hazardous substances, dust management, noise (including vibration) management and fire fighting;
(d) The name and contact details of personnel holding key positions during RESA construction, including an appropriately qualified person on site to have responsibility for managing environmental issues, responding to community complaints, and ensuring that conditions in the designation and management plans and are adhered to throughout the RESA construction; and
(e) Details of the minimum requirements for investigations, inspections and monitoring throughout RESA construction to ensure that construction is being undertaken in accordance with the requirements of this designation.

(iii) The Requiring Authority shall adhere to the requirements of the Construction Management Plan at all times during the construction of the RESA.

24. The earth-fill embankment shall be constructed such that it generally incorporates the ability to provide for the horizontal and vertical alignment of the future arterial road, as outlined on Airey Consultants Ltd, plan number 5814/155, SK02-1. The construction shall allow for this road corridor to have a width of between 16 and 22 metres, a design speed of 60km/hr and a posted speed limit of 50km/hr.

25. The use of Old School Road and Spence Road, Hawthorne Drive and Glenda Drive shall not be permitted as haulage routes for truck movements during the construction period for the RESA.

26. Prior to commencing works on site, and after consultation with potentially affected occupiers, the Requiring Authority shall submit a RESA Construction Traffic Management Plan, endorsed by the New Zealand Transport Agency, to Council for approval. The RESA Construction Traffic Management Plan shall include a Traffic Impact Assessment that provides an assessment of the actual and potential effects of construction traffic on the surrounding State highways and other roads (including the Shotover Delta Access Track outside the construction area) by an appropriately qualified traffic engineer. The Traffic Impact Assessment shall incorporate:

(i) Proposed construction haulage routes, excluding Glenda Drive, Hawthorne Drive and Old School Road/Spence Road and excluding use of the public road network for night time deliveries of any materials;
(ii) Construction traffic volumes over haulage routes; and
(iii) Recommendations for the RESA Construction Traffic Management plan, including any physical works including ongoing maintenance work required on the State highways, other roads and/or other access routes (including the Shotover delta access track) to provide for safe and efficient access, and mitigate against all adverse effects including those of dust and noise (including vibration).

27. The RESA Construction Traffic Management Plan shall be prepared by a Site Traffic Management Supervisor (certification gained by attending the STMS course and getting registration) and incorporate the recommendations of the Traffic Impact Assessment. All contractors obligated to implement temporary traffic management plans shall employ a qualified STMS on site. The STMS shall implement the Construction Traffic Management Plan.

28. Prior to the commencement of works on site, all recommendations for physical improvement works on the State highways and/or other roads or access routes, as outlined in the RESA Construction Traffic Management Plan, and as approved or required the New Zealand Transport Agency and/or Council, shall be implemented.

29. During RESA construction the Requiring Authority shall monitor all access roads used as part of the construction to ensure that they are maintained in a suitable condition (including being kept free from potholes) in order to assist in achieving condition 8 and to mitigate the effects of dust.

RESA Construction Noise and Vibration Management Plan

30. Prior to the commencement of RESA construction works on site the Requiring Authority shall prepare and submit to Council for review and approval a noise and vibration management plan. The purpose of that Plan is:

(i) To identify the measures the Requiring Authority will take to comply with the requirements of Section 16 RMA, including in relation to vibrations;.
(ii) To ensure that at all times during the RESA construction, construction noise complies with NZS 6803:1999 – Acoustic Construction Noise. For

the avoidance of doubt compliance with the Acoustic Construction Noise Standard is not required for residential occupiers located in the Glenda Drive Industrial zone;

(iii) To identify the measures for reducing the noise generated by vehicles associated with the RESA construction work including alternative methods for dealing with reversing vehicle warning systems;

(iv) The Noise and Vibration Management Plan may make different provisions for daytime and night time noise; and

(v) To provide details of a leaflet drop to all neighbouring residents situated on Glenda Drive recommending they keep windows shut during the short term night construction phase.

31. The Requiring Authority will ensure that all work and operations are carried out in accordance with the Noise and Vibration Management Plan.

Lighting (Night Time) Management Plan

32. Prior to the commencement of construction works at night on the site, a Lighting (night time) Management Plan shall be submitted to Council for review and approval. This shall detail the best practicable options to reduce off site light spill if RESA construction work is undertaken during night time hours. The Requiring Authority shall adhere to the provisions of this plan during night time construction.

General

33. No RESA construction machinery shall be parked within the active Shotover riverbed at any time.

34. Prior to the commencement of the RESA construction work a detailed planting and ongoing planting maintenance plan for the RESA shall be submitted to Council for review and approval. The planting plan shall have the following objectives:

(i) To visually integrate the RESA and the future arterial road bench into the surrounding landscape;

(ii) To improve the ecological integrity and functioning of the site; and

(iii) To assist in the management of surface erosion.

The planting plan shall be progressively implemented as the RESA is constructed and shall be completed within the first planting season following the construction of the RESA.

35. If the Requiring Authority:

(i) Discovers koiwi tangata (human skeletal remains), waahi taoka (resources of importance), waahi tapu (places or features of special significance) or other Maori artefact material, the requiring authority shall without delay;

(ii) Notify the Consent Authority, Tangata Whenua and New Zealand Historic Places Trust and in the case of skeletal remains, the New Zealand Police;

(iii) Stop work within the immediate vicinity of the discovery to allow a site inspection by the New Zealand Historic Places Trust and the appropriate runanga and their advisors, who shall determine whether the discovery is likely to be extensive, if a thorough site investigation is required, and whether an Archaeological Authority is required;

(iv) Any koiwi tangata discovered shall be handled and removed by tribal elders responsible for the tikanga (custom) appropriate to its removal or preservation;

(v) Site work shall recommence following consultation with the requiring authority, the New Zealand Historic Places Trust, Tangata Whenua, and in the case of skeletal remains, the New Zealand Police, provided that any relevant statutory permissions have been obtained; and

(vi) Te Ao Marama shall be advised about construction activity prior to construction commencing.

36. The RESA fill shall at all times, including after completion of the RESA construction work, be protected in an appropriate manner from the risk of erosion by the river in accordance with accepted engineering practice.

Appendix C.
Recommendations to QAC on contents of the Noise Management Plan.

The Council recognises that the updated Noise Management Plan ('NMP') referred to in the proposed amendment to Designation 2 Aerodrome Purposes is yet to be finalised by QAC. The Council has considered the working Draft of that Plan dated August 2010 as submitted by QAC for consideration at the hearing. While it is not legally appropriate to recommend the following matters as 'conditions' of the NoR or to specify detailed wording for relevant clauses at this stage, the Council recommends that in addition to those currently set out in that document, QAC include the following additional provisions in any final document. These are set out below under the headings and clause references provided in the August 2010 document. The Council further recommends that any such amendments to the NMP will be discussed with the proposed Liaison Committee before being adopted as part of that Plan

1.Introduction
1.2 objectives;
The objectives should be updated to reflect those set out in the designation conditions.

2. Liaison Committee
It is recommended that this be formally described as the "Queenstown Airport Liaison Committee" ('QALC').

The details of the QALC should be updated as set out in the designation conditions.

A procedure for QAC to provide the QALC with technical reports relating to system developments should be added.

The NMP requires details of complaints to be provided to the QALC, and it is recommended that this be extended to include copies of correspondence.

3. Noise monitoring
It is recommended that reference be added that all noise monitoring is to be undertaken in accordance with NZS6805:1992.

The system for changing the noise modelling software should be detailed, and processes updated as set out in the designation conditions.

The process for adjusting the AANCs in response to discrepancies greater than 2 dB should be detailed.

The process for non-compliance with the OCB/ANB should include the steps of restricting aircraft movements/types or seeking a plan change to adjust the boundaries.

4. Engine testing rules
The locations and procedures for planned and unplanned engine testing of each aircraft type should be detailed.

The applicable District Plan noise limits should be stated.

The process should be detailed for reporting to the QALC the reasons for unplanned engine testing and the noise management measures adopted.

5. Complaints and investigations

5.6 It is recommended that a copy of any complaint and correspondence arising there from be provided to QLDC.

7. Noise mitigation plan

This should be updated as set out in the designation conditions.

The procedure for considering the AANCs for a year in advance should be detailed.

Guidance for residents and the QLDC relating to mitigation for new and altered buildings containing ASAN should be included as set out in the designation conditions. This should include the installation guidance on ventilation systems previously proposed to be included in Appendix 13 of the District Plan.

General

References to SIB, NNB, NMC should be removed.

2037 noise contours in 1 dB increments should be appended.