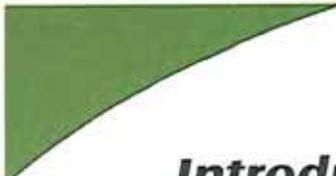


**Queenstown Airport Corporation**  
**Proposed Noise Plan Change**

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**Discussion Document**  
**May/June 2008**





## ***Introduction***

Queenstown Airport Corporation (“QAC”) are proposing to revise the Queenstown Airport noise contours within the Partially Operative Queenstown Lakes District Plan (“the District Plan”) in light of results of up-to-date noise monitoring and a review of current and future airport activity. The existing Airport noise contours have not been amended since the District Plan was notified in 1995 and subsequent updates in air noise modelling technologies and future airport activity projections for Queenstown Airport make now an appropriate time to revisit the noise contours.

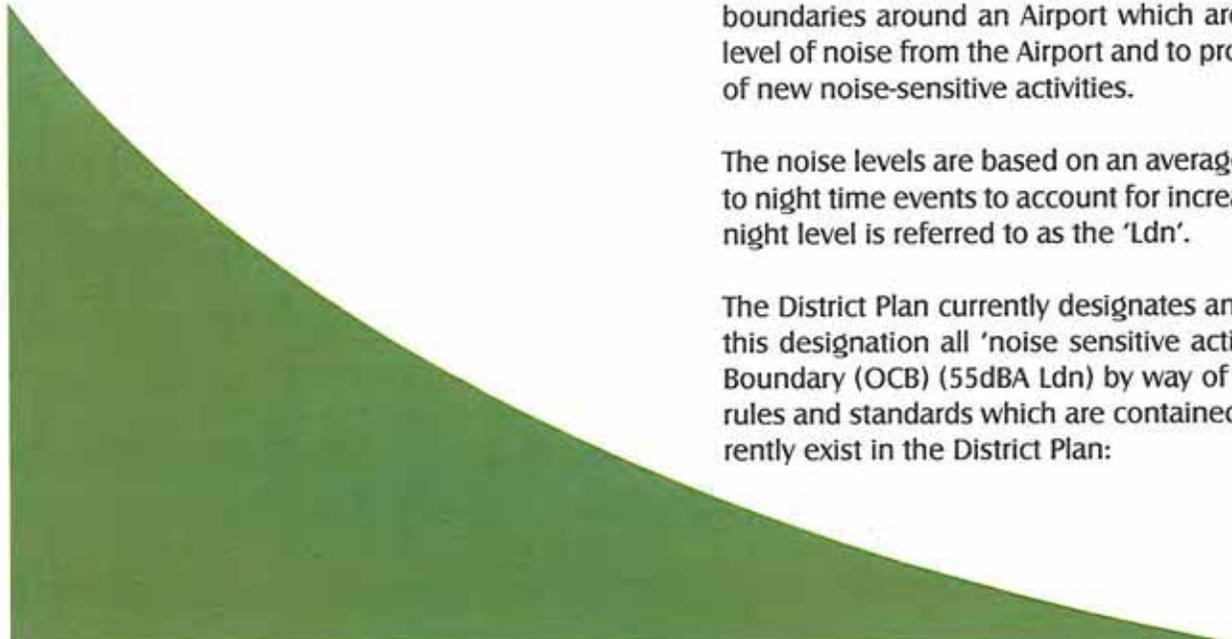
This document has been produced to explain the proposed changes to the District Plan Maps and associated District Plan provisions and to invite your feedback.

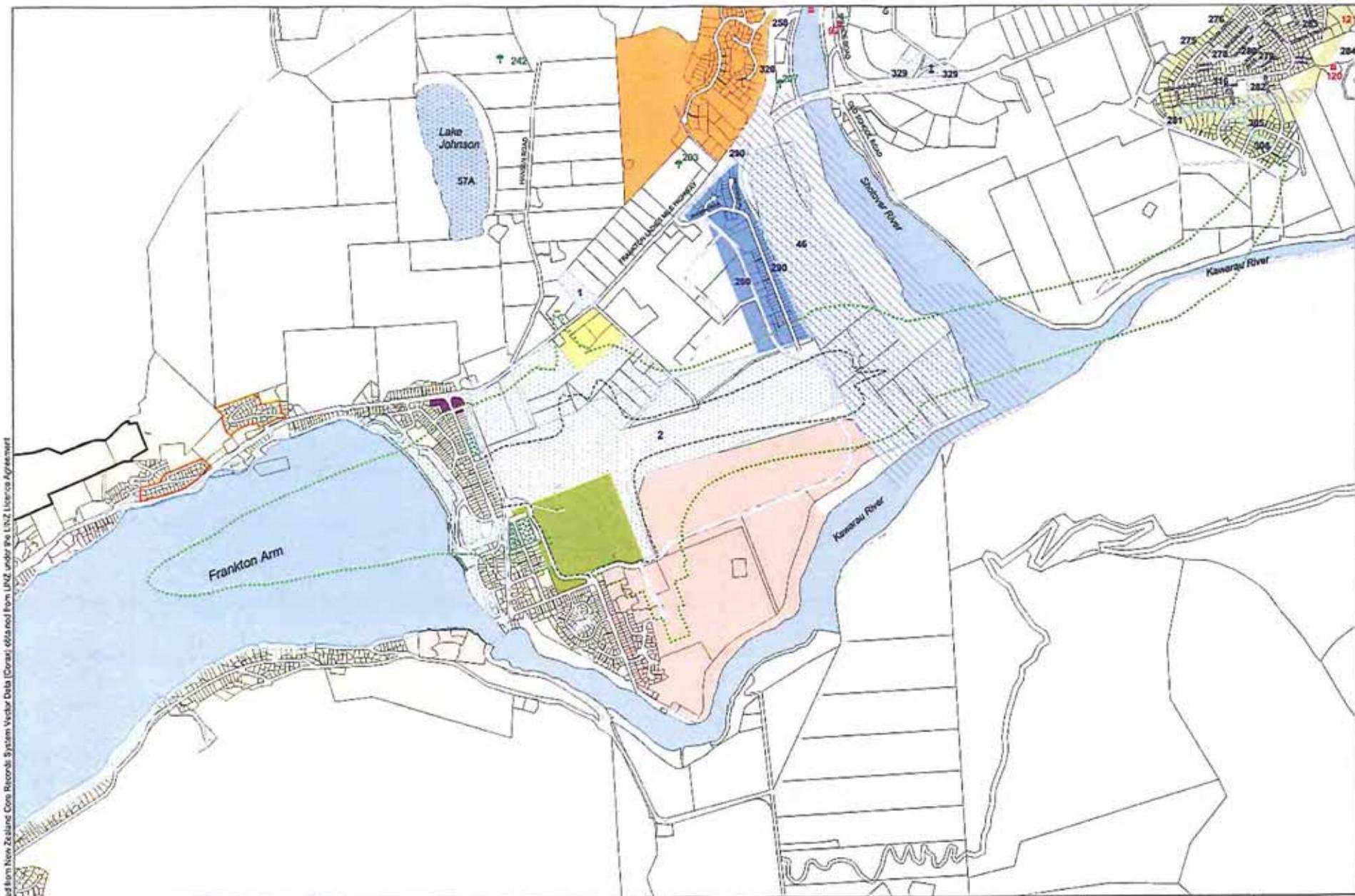
## ***Background***

Airport noise contours are based on the approach recommended in New Zealand Standard NZS 6805:1992 “Airport Noise Management and Land Use Planning”. The objective of this Standard is to develop a set of noise boundaries around an Airport which are designed to protect both the surrounding residents by managing the level of noise from the Airport and to protect the Airport from reverse sensitivity effects due to the encroachment of new noise-sensitive activities.

The noise levels are based on an average noise level over a 24 hour period with a 10 decibel (dB) penalty applied to night time events to account for increased levels of annoyance of sound during night hours. This average day/night level is referred to as the ‘Ldn’.

The District Plan currently designates an Air Noise Boundary (ANB), being the future 65dBA Ldn contour. Within this designation all ‘noise sensitive activity’ is prohibited. The District Plan also provides for an Outer Control Boundary (OCB) (55dBA Ldn) by way of annotation on the District Plan Map and associated objectives, policies, rules and standards which are contained within various chapters. Figure 1 shows the noise contours as they currently exist in the District Plan:



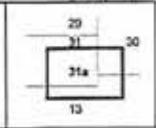


Parcel boundaries derived from New Zealand Core Records System Vector Data (Corax) obtained from LINZ under the LINZ License Agreement

**Queenstown Lakes District Council**  
District Plan Maps

**Queenstown Airport**

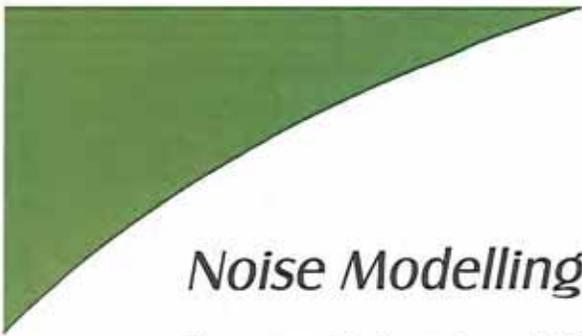
Map printed: February 2008



  
QUEENSTOWN  
LAKES DISTRICT  
COUNCIL  
Maps created by QLDC GIS department

**31a**

Figure 1



## Noise Modelling

The most widely used model for predicting aircraft noise in the vicinity of an airport is the Integrated Noise Model (INM). This is also the model recommended in the New Zealand Standard NZS5805:1992 "Airport Noise Management and Land Use Planning".

The noise contours currently contained in the District Plan (Figure 1) were derived using INM version 5.1. Since then there have been a number of upgrades to the INM program, which produce slightly different results. The current version is INM v7, which allows for a more accurate prediction of sound for propeller-driven aircraft and helicopters and allows for variation in surrounding topography. These are important factors for Queenstown Airport.

Marshall Day Acoustic Consultants were engaged to update the modelling for Queenstown Airport using the current INM v7. The modelling incorporated:

- projections of aircraft to 2037
- up-to-date flight tracks
- terrain data from NASA topographical data
- seasonal loading or 'peak load' applied to future movements for the Airports busiest 3 months.

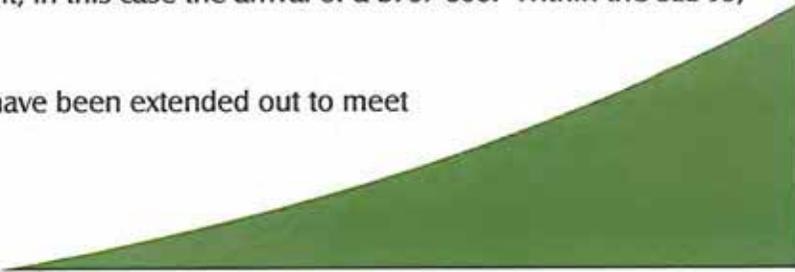
Some adjustments have also been made to the INM model to allow for aircraft taxi-ing and adjustments as a result of individual noise event analysis undertaken at Queenstown Airport to determine under and over prediction of specific aircraft noise signatures in the INM.

### *Increased Hours of Operation:*

The recent modelling also incorporated the scenario of the Airport increasing its hours of operation from 6am - 10pm to allow for arrivals until midnight. Given operational restrictions at other airports, aircraft movements between 10pm and midnight would be restricted at Queenstown to arrivals and not departures.

In addition to being reflected in the Ldn contours, a night time noise boundary being the Sound Exposure Limit (SEL) has been produced for operations between 10pm and midnight. This SEL is a measure of the total noise energy from a single event, in this case the arrival of a B737-800. Within the SEL 95, or the night time noise boundary, there may be potential for sleep disturbance.

The contours resulting from the updated modelling are shown in figure 2 below (the contours have been extended out to meet the cadastral boundaries of the properties they affect):



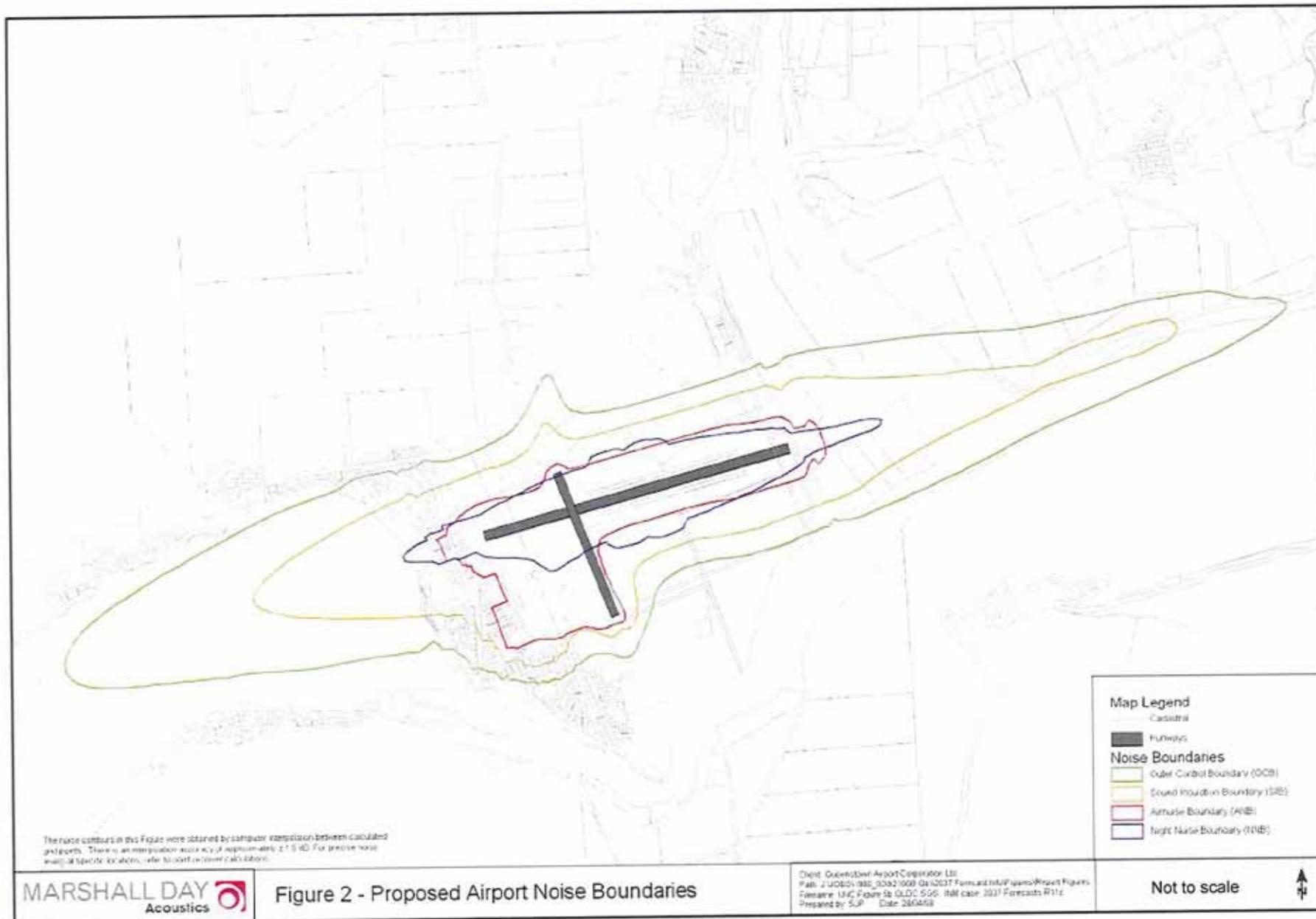


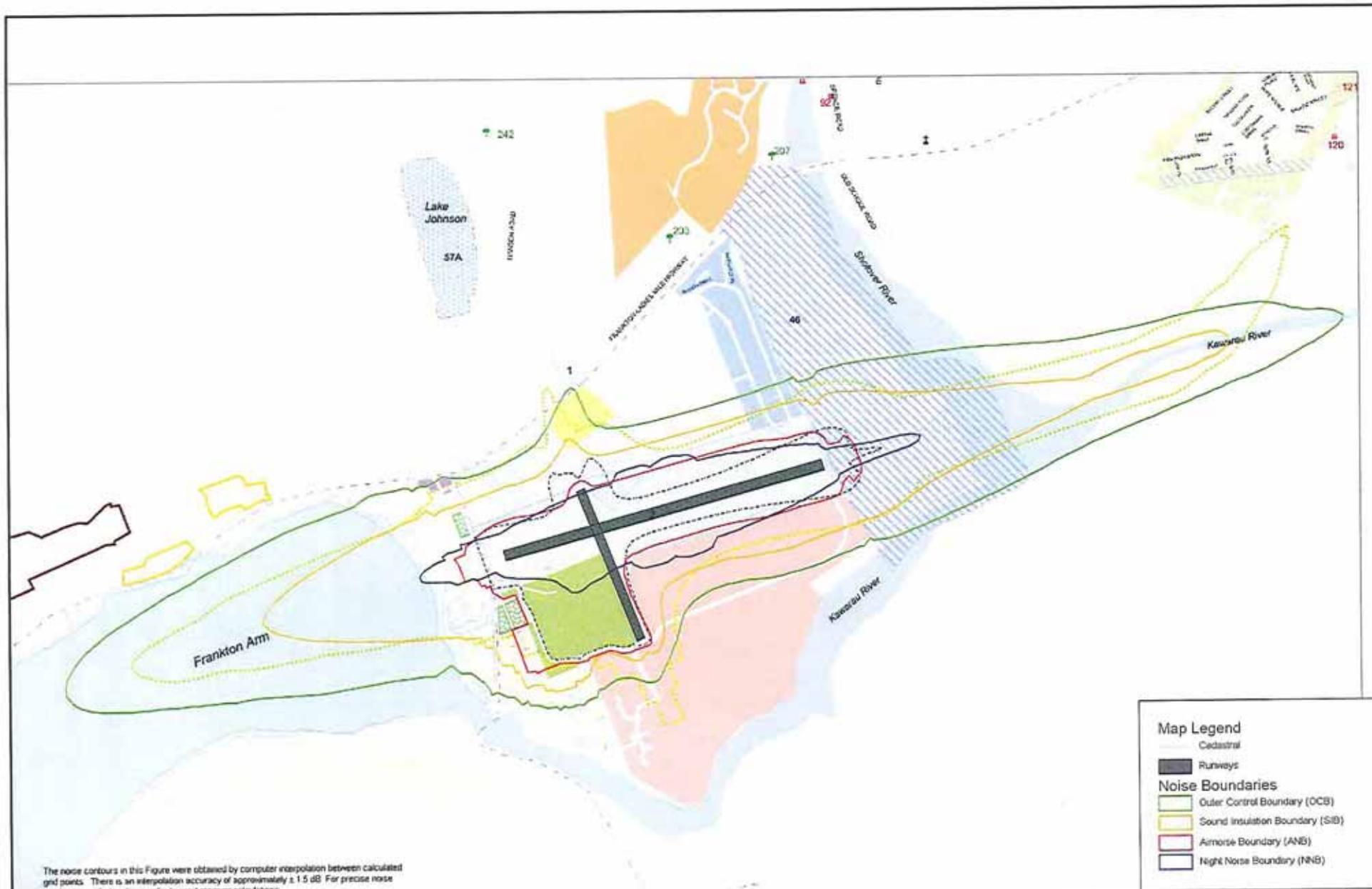
Figure 2 shows that the predicted 2037 Ldn noise contours are slightly wider than the existing District Plan contours and slightly shorter. The increase in noise will occur over a number of years out to 2037 as the number of operations grows gradually and will not be as discernable as a sharp instantaneous rise.

## Proposed Plan Change

QAC propose a change to the District Plan as follows:

- Update the District Plan Maps to reflect the new 2037 projected contours and the night time noise boundary as shown on Figure 3 below (the contours have been extended out to meet the cadastral boundaries of the properties they affect).
- Increase the hours of operation to provide for arrivals until midnight.
- Introduce new and amended objectives, policies and associated rules and implementation methods to reflect the following:
  - The Ldn 65dBA contour represents the 'Air Noise Boundary' (ANB). New noise sensitive development within this contour will be prohibited in the Rural, Industrial and Frankton Flats A and Frankton Flats B Special zones. Alterations, extensions or replacement of existing buildings housing noise sensitive activities will require to be insulated, to achieve an indoor sound level of Ldn 40dBA. Existing noise sensitive activities within the ANB will require retrofitting of sound insulation and ventilation to achieve an indoor sound level of Ldn 40dBA. The QAC will work with affected landowners to complete this work.
  - The 58dBA contour represents the Sound Insulation Boundary (SIB). New noise sensitive activities within the SIB will be prohibited within the Rural, Industrial Frankton Flats A and Frankton Flats B Special zone. Any additions, alterations, extensions or replacement of existing buildings housing noise sensitive activities within the Residential or Remarkables Park Special zones or any new buildings intended to house noise sensitive activities in these zones will require insulation by landowners to achieve an indoor sound level of Ldn 40dBA.
  - The Ldn 55dBA contour represents the Outer Control Boundary (OCB). New noise sensitive activity will be prohibited within the Rural, Industrial Frankton Flats A and Frankton Flats B Special zone. Extensions and alterations of existing noise sensitive activities or the erection of buildings intended to house noise sensitive activities within the Residential or Remarkables Park Special zones or any new buildings intended to house noise sensitive activities in these zones will not require special sound insulation treatment.
  - Night time noise boundary (NNB). As with the ANB, new noise sensitive development within the NNB will be prohibited within the Rural, Industrial and Frankton Flats A and Frankton Flats B Special zones. Alterations, extensions or replacement of existing buildings housing noise sensitive activities will require to be insulated, to achieve an indoor sound level of SEL 65dBA. Existing noise sensitive activities within the NNB will require retrofitting of sound insulation and ventilation to achieve an indoor sound level of SEL 65dBA. The QAC will work with affected landowners to complete this work.
- Include a new definition of Noise Sensitive Activity as follows:

*Noise Sensitive Activity – Means any residential activity, any visitor accommodation, any educational or community facilities or day care facilities.*



The noise contours in this figure were obtained by computer interpolation between calculated grid points. There is an interpolation accuracy of approximately ± 1.5 dB. For precise noise levels at specific locations, refer to point receiver calculations.

**Map Legend**

- Cadastral
- Runways

**Noise Boundaries**

- Outer Control Boundary (OCB)
- Sound Insulation Boundary (SIB)
- Alarmse Boundary (ANS)
- Night Noise Boundary (NNB)

## *Where to from here?*

QAC is seeking feedback on the proposals contained in this document. This will then be considered in finalising the detail of the Plan Change before it is lodged with Queenstown Lakes District Council and notified later in the year.

## *Open Day*

To give you a chance to discuss the proposed Plan Change directly with members of the project team an open day is being held on Wednesday the 11th of June at the Queenstown Events Centre from 2pm until 7pm. We encourage all those interested in the Proposed Plan Change to attend.

## *Feedback*

We welcome your feedback on any aspect of the proposals set out in this discussion document.

Please send your comments to

QAC  
c/- Alison Noble  
Mitchell Partnerships  
PO Box 489  
Dunedin

Or email to [alison.noble@mitchellpartnerships.co.nz](mailto:alison.noble@mitchellpartnerships.co.nz)

All comments must be received by the 18th June 2008.



# QUEENSTOWN AIRPORT – AIR NOISE PLAN CHANGE

## CONSULTATION FOLLOW-UP: AUGUST 2008

In May and June 2008 Queenstown Airport Corporation circulated a discussion document and held an open day to consult with members of the public on a proposed Plan Change to the Queenstown Lakes District Plan. This would see the air noise contours for Queenstown Airport altered and an extension of operating hours introduced to provide for additional arrivals.

There has been considerable response to the consultation with a number of common issues being raised. This notice identifies and provides explanation to some of these issues:

### ***Airport Operating Hours***

Queenstown Airport is currently permitted to operate between the hours of 06.00am and 10.00pm. The Plan Change proposes to extend this from 06.00am to midnight, with the hours between 10.00pm and midnight being restricted to arrivals only.

### ***Runway Lights***

The main runway is not currently lit, however under the Aerodrome Designation, which is Designation 2 of the District Plan, Queenstown Airport can install lights as of right. A project to install lights on the main runway will be implemented in summer 2008/2009.

No navigational lights are required beyond the Aerodrome Designation.

### ***Night Flying***

At present aircraft only fly to and from Queenstown during daylight hours. Once the runway lights have been installed, and in conjunction with Civil Aviation Authority and the Airlines agreeing with operational procedures, aircraft equipped with a system known as Required Navigation Performance (RNP) will be able to fly in the hours of darkness. At present only jet aircraft arriving at Queenstown Airport are equipped with this type of system. Aircraft operating under Visual Flight Rules (VFR), such as commercial sight seeing flights, will not be able to fly in darkness.

### ***Property Sound Insulation***

The proposed Plan Change does not require any property to be retrofitted at the owners cost to insulate against aircraft noise. Only properties within the proposed Air Noise Boundary and Night Time Noise Boundary will require retrofitting to insulate against aircraft noise and Queenstown Airport Corporation will fund the necessary works to these properties. This would not happen until that noise contour (ANB or NNB) actually reaches the individual property.

Between the Air Noise Boundary/Night Time Noise Boundary and out to the Sound Insulation Boundary where alterations, extensions or new noise sensitive development (such as houses) are proposed and are currently permitted activities, they will require construction standards to achieve an indoor noise level of Ldn40dB<sub>A</sub>. However, modern construction standards will generally achieve this anyway.

### ***Next steps***

The process of consultation will continue over the coming weeks during which time we will meet with those living within the Air Noise Boundary and the Night Time Noise boundary to discuss sound insulation requirements. We will also continue to engage with the wider community over this time and we are happy to receive further feedback. In particular your views on allowing for arrivals from 10pm until midnight are important.

Preparatory work on the Plan Change is being progressed and consultation will inform this.

Please send your submissions to:

Queenstown Airport Corporation

C/- Alison Noble

Mitchell Partnerships

PO Box 489

Dunedin

Ph: 03 477 7884

[alison.noble@mitchellpartnerships.co.nz](mailto:alison.noble@mitchellpartnerships.co.nz)



# QUEENSTOWN AIRPORT – FINALISED NOISE CONTOURS

## November 2008

### *Finalised Boundaries*

You may be aware that Queenstown Airport Corporation (QAC) has been working towards updating the air noise boundaries around the Airport. These boundary lines serve two purposes; they set the noise limits for the aircraft operations at Queenstown Airport to comply with and in doing so offer amenity protection. The revised boundaries are based on noise contours that represent future levels of airport noise at Queenstown Airport.

QAC released the draft proposed boundaries for consultation in May 2008. These draft boundaries have now undergone a thorough peer review by an expert in the field of air noise based in the United States, and have been updated in light of the outcomes of the peer review.

The revised boundaries will now form the Plan Change which QAC will soon lodge with Queenstown Lakes District Council. You will find a plan showing the revised boundaries on the centre pages of this leaflet.

### *What are the key changes between the draft and finalised boundaries?*

The key differences between the finalised boundaries and the draft boundaries are:

- The boundaries have increased slightly particularly in a westerly and easterly direction.
- The change is a result of refinement of the future aircraft types that are likely to use the Airport, the calculation procedures used to generate the contours and the method for monitoring the contours.

### *What will the plan change mean for me?*

The table on the reverse of this document sets out in summary form the effect of the Plan Change on the various District Plan zones it overlays.

### *What happens now?*

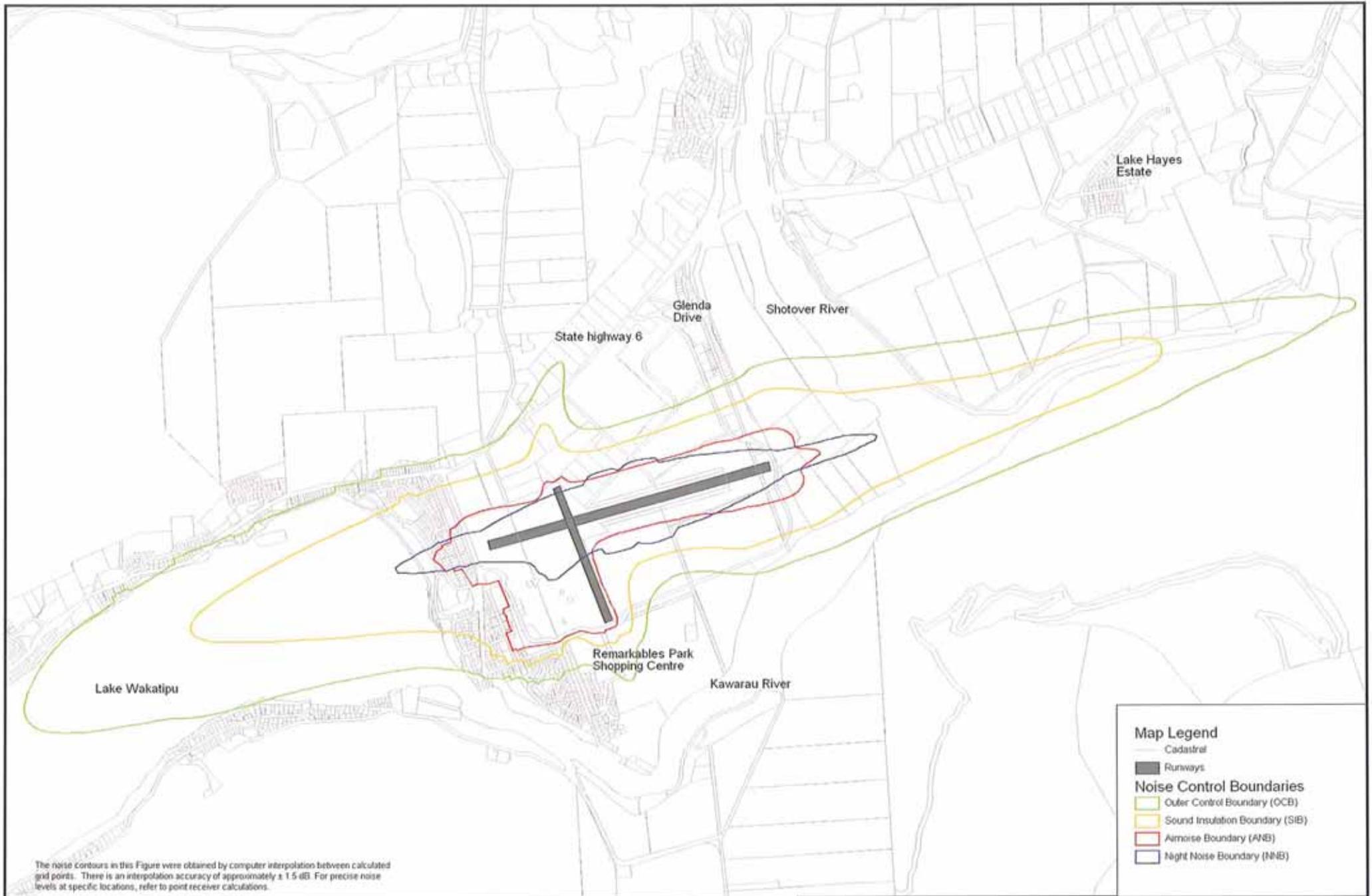
QAC are now working towards finalising the Plan Change documentation for lodging with the Queenstown Lakes District Council. If you have any feedback on the finalised contours or the proposed Plan Change, please send your comments to the address below by the 21st November so that they can be considered.

Queenstown Airport Corporation  
C/- Mitchell Partnerships  
PO Box 489  
Dunedin

Ph: 03 477 7884

or by email to: [alison.noble@mitchellpartnerships.co.nz](mailto:alison.noble@mitchellpartnerships.co.nz)





The noise contours in this Figure were obtained by computer interpolation between calculated grid points. There is an interpolation accuracy of approximately  $\pm 1.5$  dB. For precise noise levels at specific locations, refer to point receiver calculations.



	<i>Air Noise Boundary (ANB)</i>	<i>Sound Insulation Boundary (SIB)</i>	<i>Outer Control Boundary (OCB)</i>	<i>Nighttime Noise Boundary (NNB)</i>
<i>Residential Zone</i>	QAC will acoustically insulate habitable rooms of existing houses. New buildings or alterations or extensions to existing buildings housing noise sensitive activities must be constructed to meet acoustic insulation standards.	Any new, altered or extended properties must be constructed to meet acoustic insulation standards. Existing properties need not take any action.	No action required.	QAC will acoustically insulate habitable rooms of existing houses. New buildings or alterations or extensions to existing buildings housing noise sensitive activities must be constructed to meet acoustic insulation standards.
<i>Rural Zone</i>	QAC will acoustically insulate habitable rooms of existing houses. No new noise sensitive development will be permitted. Alterations or extensions to noise sensitive activities must be acoustically insulated.	Alterations or extensions to noise sensitive activities must be acoustically insulated. New noise sensitive development will be prohibited.	Alterations or extensions to noise sensitive activities must be acoustically insulated. New noise sensitive development will be prohibited.	QAC will acoustically insulate existing buildings housing noise sensitive activities. No new noise sensitive development will be permitted. Alterations or extensions to noise sensitive activities must be acoustically insulated.
<i>Frankton Flats Zone</i>	No new noise sensitive development will be permitted. Alterations or extensions to noise sensitive activities must be acoustically insulated.	Alterations or extensions to noise sensitive activities must be acoustically insulated. New noise sensitive development will be prohibited.	Alterations or extensions to noise sensitive activities must be acoustically insulated. New noise sensitive development will be prohibited.	No new noise sensitive development will be permitted. Alterations or extensions to noise sensitive activities must be acoustically insulated.
<i>Remarkables Park Zone</i>	There are already controls within the Remarkables Park Zone relating to the ANB, the SIB and the OCB. The Structure Plan in the Remarkables Park Zone will be amended to reflect the updated boundaries. New rules will be introduced for the NNB in line with those proposed for the Residential Zone. Refinements will also be made to the sound insulation standards and to introduce the term "noise sensitive activities".			
<i>Industrial Zone</i>		Alterations or extensions to noise sensitive activities must be acoustically insulated. New noise sensitive development will be prohibited.	Alterations or extensions to noise sensitive activities must be acoustically insulated. New noise sensitive development will be prohibited.	

**Notes to table**

QAC will insulate existing buildings housing noise sensitive activities, as the Ldn 65 contour grows to reach those properties. This will be determined by the annual airport noise monitoring.

Noise Sensitive Activities Means any residential activity, any visitor accommodation, any educational or community activities and day care facilities.

Acoustic insulation must be sufficient to achieve an indoor sound level of 40dBA Ldn at the same time as maintaining appropriate levels of ventilation. This means a forced ventilation system will be required.

# QUEENSTOWN AIRPORT

## REVISED AIRCRAFT NOISE BOUNDARIES

### June 2009

#### *Revised Aircraft Noise Boundaries*

Queenstown Airport Corporation has been working towards updating the Queenstown Lakes District Plan noise boundaries, which set limits for aircraft noise at Queenstown Airport. The most recent set of draft boundaries was circulated for information in November 2008.

After further investigations, revisions have been required to the November 2008 boundaries. The reasons for the revisions and what they might mean for you are detailed below. The revised noise boundaries are shown on the map on the inside pages of this flyer.

#### *Reasons for the Revisions*

The air noise boundaries are the result of a range of inputs into a noise modeling programme known as an INM Model. These inputs include predicted operations data, topographical data, meteorological data and flight tracks. The updated noise boundaries produced last year took into account updated operations data (aircraft types and activity through to 2037). Since the review last year flight tracks for Queenstown Airport have been finalised, which take into account RNP technology recently installed on some aircraft, runway circuits, and updated flight fans. As a result a revised set of noise boundaries has been generated.

#### *What the Revisions Mean*

The revised boundaries still include an Outer Control Boundary (OCB); a Sound Insulation Boundary (SIB); an Air Noise Boundary (ANB); and a Night-time Noise Boundary (NNB). The main change between the previously released boundaries is an increase in the extent of the OCB and the SIB, particularly to the north of the Airport.

The previously proposed controls still apply to the revised boundaries. Please check the table on the reverse of this flyer to find out what this means for the District Plan Zone in which your property is located.

#### *What Now?*

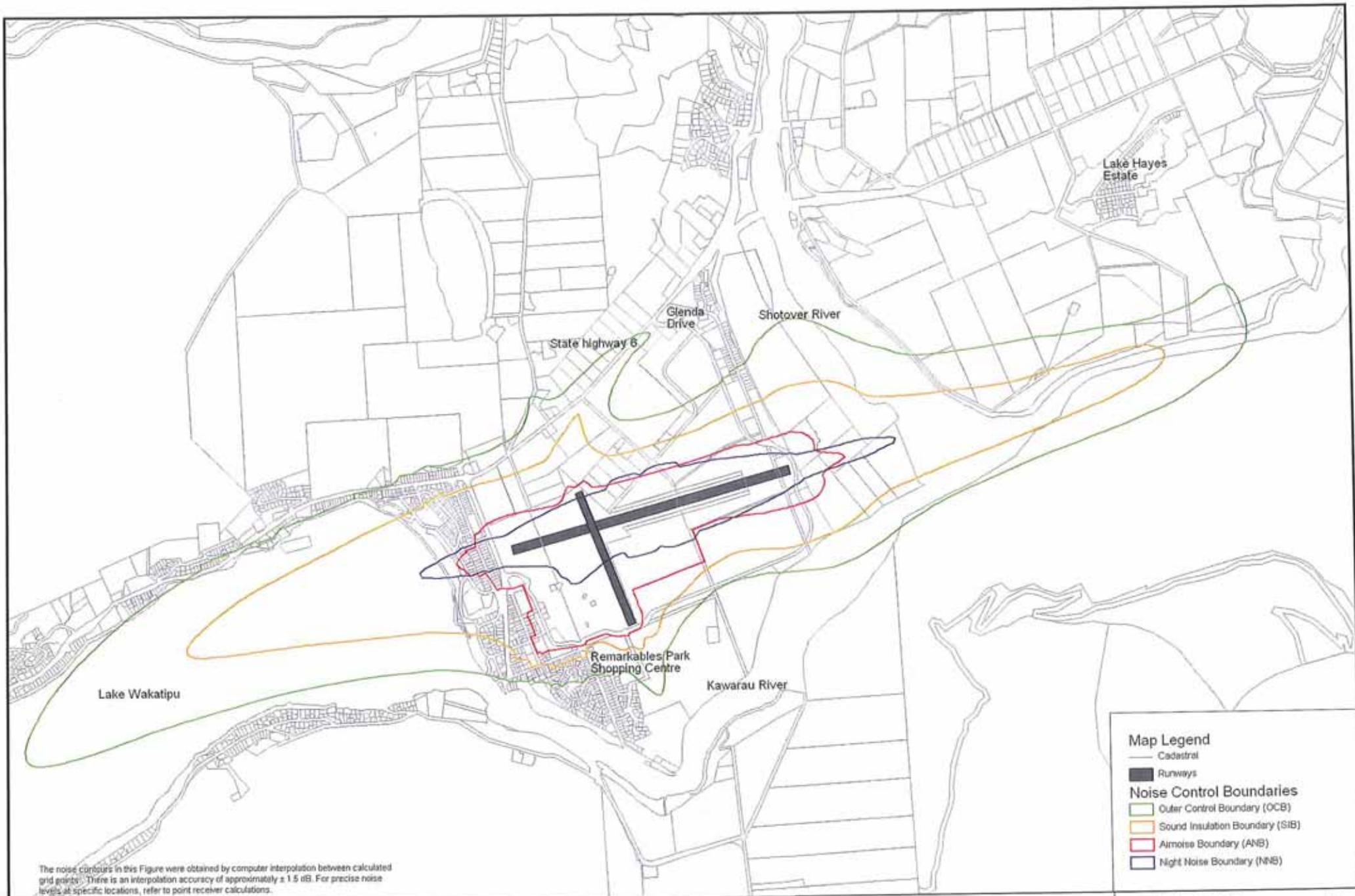
Queenstown Airport Corporation is now preparing to lodge the revised contours with Queenstown Lakes District Council. If you have any particular concerns or questions about the revised boundaries and would like to discuss or meet with a member of the project team please do not hesitate to contact:

Queenstown Airport Corporation  
C/- Mitchell Partnerships  
PO Box 489  
Dunedin

Ph: 03 477 7884

or by email to: [alison.noble@mitchellpartnerships.co.nz](mailto:alison.noble@mitchellpartnerships.co.nz)





<i>Inside the Air Noise Boundary (ANB)</i>	<p>New buildings or alterations or extensions to existing buildings for an activity sensitive to aircraft noise must be acoustically insulated. A separate agreement will be made between QAC and each affected property owner to progressively acoustically insulate habitable rooms of existing houses.</p>	<p>Rooms of existing houses.</p>	Existing Residential Zone
<i>Outside the ANB but inside the Sound Insulation Boundary (SIB)</i>	<p>No action required.</p>	<p>New buildings or alterations or extensions to existing buildings for an activity sensitive to aircraft noise must be acoustically insulated. A separate agreement will be made between QAC and each affected property owner to progressively acoustically insulate habitable rooms of existing houses.</p>	Rural Zone
<i>Outside the SIB but inside the Outer Control Boundary (OCB)</i>	<p>Alterations or extensions to an activity sensitive to aircraft noise must be acoustically insulated. New noise sensitive development will be prohibited.</p>	<p>Alterations or extensions to an activity sensitive to aircraft noise must be acoustically insulated. New noise sensitive development will be prohibited.</p>	Frankton Flats Zone
<i>Inside the Nighttime Noise Boundary (NNB)</i>	<p>New buildings or alterations or extensions to existing buildings for an activity sensitive to aircraft noise must be acoustically insulated. A separate agreement will be made between QAC and each affected property owner to progressively acoustically insulate habitable rooms of existing houses.</p>	<p>New activity sensitive to aircraft noise will be prohibited.</p>	Remarkables Park Zone
	<p>Alterations or extensions to activity sensitive to aircraft noise must be acoustically insulated. New activity sensitive to aircraft noise will be prohibited.</p>	<p>Alterations or extensions to activity sensitive to aircraft noise must be acoustically insulated. New activity sensitive to aircraft noise will be prohibited.</p>	Industrial Zone