Queenstown Airport Corporation

Air Noise Plan Change

Section 32 Report

Revised November 2009

mitchell partnerships

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1. INTRODUCTION

1.1 PURPOSE OF THE REPORT

1.1.1 This report is provided on behalf of Queenstown Airport Corporation (QAC) in order to fulfil the statutory requirements of section 32 of the Resource Management Act 1991 (RMA). The report relates to the QAC proposal to amend the aircraft noise boundaries shown on the District Planning Maps and amend existing provisions and introduce new provisions within the Plan Chapters relating to aircraft noise.

1.1.2 A Notice of Requirement to alter the existing Air Noise Boundary Controls and Aerodrome designations in the District Plan has also been lodged.

1.1.3 In summary:

- At present, the District Plan aircraft noise boundaries and associated objectives, policies, rules and methods are used to protect the airport from reverse sensitivity effects associated with activities sensitive to aircraft noise and manage the effects of air noise on activities around Queenstown Airport including an L_{dn} 55dBA Outer Control Boundary. The current Air Noise Boundary Controls Designation is used to manage the Air Noise Boundary (L_{dn} 65dBA) aircraft noise at Queenstown Airport.
- The Queenstown Airport aircraft noise boundaries have been reviewed and updated and the purpose of this Plan Change is to amend the District Plan maps and plan provisions in line with this new information.
- QAC proposes to introduce a limited number of night flights between 10pm and midnight.
- The Plan Change also introduces new provisions to enable the effects of the proposed night-time flights to be effectively mitigated.
- The Plan Change proposes to provide for the Air Noise Boundary through objectives, policies and rules, rather than by Designation.
- An alteration to the Aerodrome Designation is submitted in conjunction with this Plan Change to reflect these changes including to extend the Airports operating hours beyond the existing 10pm limit, to control activities undertaken by QAC within the designation boundaries and provide for the ongoing management and monitoring of aircraft noise.

1.2 CONTENT OF REPORT

1.2.1 Section 1 of this report sets out the scope of the report and the scope of the Plan Change.

1.2.2 Section 2 of the report sets out the background to the Plan Change. This includes details of the past and present operations and facilities at Queenstown Airport; the regional and national economic benefit derived from Queenstown Airport; growth projections for Queenstown Airport to the year 2037 and the current and potential future noise effects generated by Airport operations.

1.2.3 Section 3 describes the form of the proposed Plan Change. Section 4 provides an assessment of statutory documents relevant to the Plan Change. An assessment against Section 32 of the Act is contained in Section 5 and a description of the consultation undertaken leading up to lodgement of the Plan Change is included at Section 6.

1.3 SCOPE OF PLAN CHANGE

1.3.1 Aircraft noise is currently addressed in the Queenstown Lakes District Plan through a variety of methods. These are detailed in section 2.3 of this report. In summary, the District Plan Maps identify an Outer Control Boundary (OCB) and an Air Noise Boundary (ANB). The Outer Control Boundary relates to objectives, policies and other methods in the District Plan, which set out controls and limitations on certain land use activities within the OCB.

1.3.2 The ANB relates to an Air Noise Designation; Designation 3 of the District Plan. Designation 3 sets out requirements for aircraft noise monitoring and engine testing limitations. Designation 3 also prohibits certain activities from establishing within the Air Noise Boundary.

1.3.3 The existing aircraft noise boundaries extend beyond the Queenstown Airport land holding over the township of Frankton and across part of Lake Wakatipu to the west; up towards State Highway 6 to the north; across the Shotover and into rural land towards Lakes Hayes township to the east; and over Remarkables Park and rural land to the south. These are shown on **Appendix 1**.

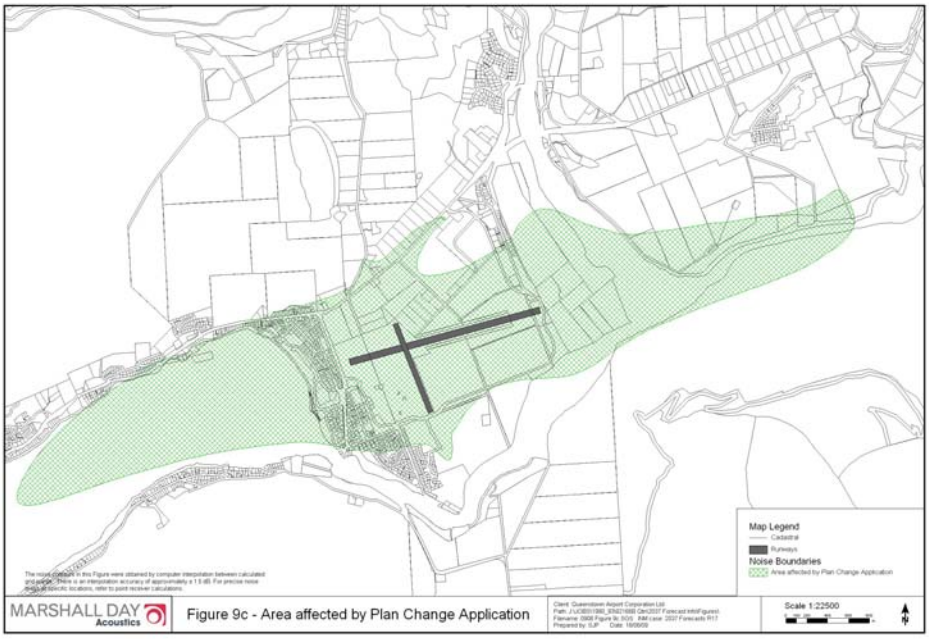
1.3.4 The proposed Plan Change is described in detail in Section 3 of this report. In summary, the Plan Change proposes to increase the extent of the ANB and the OCB and add an additional two noise boundaries; the Sound Insulation Boundary (SIB) and the Night-time Noise Boundary (NNB). The plan contained at **Appendix 2** shows the extent of these boundaries.

1.3.5 The Plan Change also proposes objectives, policies, rules and other methods in the District Plan to manage land use around the airport in conjunction with these boundaries. Noise monitoring and engine testing will continue to be managed through a Designation. This approach is consistent with the current approach. The alternative approach would be provide for monitoring and engine testing as a rule in the Plan and include a condition in the Designation requiring QAC to comply with the rules. This approach is more complex and less efficient than the proposed approach.

1.3.6 A Notice of Requirement to alter the Aerodrome Purposes Designation (Designation 2) has been lodged to address this. It is proposed that Designation 3 would be removed by QAC if and when the Plan Change and Alteration to the Aerodrome Purposes Designation are included in the District Plan as Designation 3 would then be redundant.

1.3.7 Figure 1 below shows the extent of the land affected by the Plan Change.

Figure 1: Scope of Plan Change



2. REASONS FOR THE PLAN CHANGE

2.1 QUEENSTOWN AIRPORT – DESCRIPTION

2.1.1 Queenstown Airport is located in the Wakatipu Basin approximately 7 kilometres to the east of Queenstown in the township of Frankton. The Airport comprises a land area of approximately 130 hectares legally described as:

- 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.

2.1.2 A copy of the relevant certificates of title are contained in **Appendix 3** of this report.

2.1.3 To the north of the Airport lies the 9 hole Frankton Golf Course and adjacent to this is the Queenstown Events Centre (QEC), Aquatic Centre and outdoor areas associated with this facility being a cricket oval and sports fields. The development known as 5-Mile, which is currently no more than an area of

earthworks, and some rural land separate QEC from the industrial area at Glenda Drive, which runs perpendicular to the easternmost end of the Main Runway. To the south of the Airport lies the Remarkables Park development and the Shotover River runs more or less perpendicular to the main runway to the east.

2.1.4 The Aerodrome was established with a Civil Aviation Licence in 1936 with the first commercial flights commencing in 1950. Since then the Airport has continued to grow in terms of facilities and passenger numbers and became an international airport in 1995.

2.1.5 The Airport currently comprises a sealed main runway (05/23), of 1921 metres length and 30 metres wide for most of its length. Two runway extensions have been constructed each at 45m in width. A cross wind grass strip runway (14/32) runs at right angles to the main runway, and is 944 metres in length and 40 metres wide and is for use by aircraft below 5,700kg Maximum Certified Take-off Weight (MCTOW).

2.1.6 A two lane stub taxiway provides access between the main runway and the apron area adjacent to the terminal. A chip seal taxiway runs parallel to the south of the main runway and is only available for use by aircraft below 5,700kg MCTOW.

2.1.7 There are 7 apron stands outside the terminal available for up to Code C[1] aircraft and there is a General Aviation (GA) apron and parking area adjacent to the western end of the terminal. Helicopter operations are located to the south of the terminal and currently comprise five helicopter operators as well as one fixed wing fixed base operation (FBO) and hanger.

2.1.8 The Airport terminal building is approximately 9,300m^2 in area and comprises 16 check-in counters, five departure gates, two baggage carousels, a cafeteria, six retail outlets, eight rental car desks, two currency exchange stores, an airline lounge and the airport administration offices. In addition there are three sightseeing operations based in the Terminal as well as tenant staff room and facilities, airline offices, border control offices and a fully dedicated international arrivals and departure area with two duty free outlets.

2.1.9 Other facilities within the Airport include the control tower, rescue fire service, a flight catering operation, three fixed base rental depots, three aviation engineering operations, a meteorological station and over 600 parking spaces for public, rentals, tour bus operators incorporating drop off zones and dedicated areas for shuttle and taxi pick up.

2.1.10 In terms of passenger numbers, the year ending June 2008 showed major growth in the number of domestic and international passengers visiting Queenstown. Total passengers rose from 652,301 in the year ending June

[1] Code C Aircraft: Wing span of 24 metres up to but not including 36 metres and outer main gear wheel span of 6m up to but not including 14 metres.

2007 to 700,640 in the year ending June 2008, rising over the 700,000 passenger mark for the first time.

2.1.11 In terms of aircraft movements, in the year ending June 2008 there were 8,350 scheduled aircraft movements; 24,849 flight seeing and general aviation movements and 19,315 helicopter movements.

2.2 ECONOMIC CONTRIBUTION

2.2.1 Queenstown Airport is an important link in the economies of Queenstown and Otago. The Airport acts as a gateway to central Otago and facilitates access and economic activity both in the local and broader regional economies. QAC commissioned an economic assessment to determine the impact of Queenstown Airport on the economy. This assessment was carried out by Market Economics and is contained at **Appendix 4**.

2.2.2 The assessment identifies that for the year ending June 2007, Queenstown Airport's operations generated $2.0 million in Gross Output, which translates into a direct impact on the Otago Region economy of $1.1 million in value added (GDP). Nationally the $2.0 million of gross output generates total value added of $2.5 million and sustains employment equivalent to 32 full time workers for a year.

2.2.3 For the year ending June 2007 International passengers using Queenstown Airport created $120.1 million in direct gross output in the Queenstown economy and $50.8 million is direct value added. In total, including indirect and induced impacts, the gross output created was $256.8 million, resulting in $111.4 million of value added and 1,886 Full Time Equivalent (FTE) years of employment. The total New Zealand economy benefitted from international tourism facilitated by Queenstown Airport to the tune of $352.1 million gross output and $151.5 million in value added.

2.2.4 For the same year domestic passengers using the Airport created $46.8 million in direct gross output and $22.2 million in direct value added. In total, including indirect and induced impacts, the gross output created by domestic passengers was $102.5 million, resulting in $46.5 million of value added and 779 FTE years of employment.

2.2.5 Further value is added by the activity stimulated by Queenstown Airport in the travel industry, although this is much smaller than tourist spend. In total the investment returns on business travel facilitated by Queenstown Airport generates around $700,000 in direct GDP in the Queenstown economy. However, once the flow on effects are incorporated, this increases to be equivalent to $1.8 million in regional GDP sustaining employment equivalent to 24 full time jobs.

2.2.6 Overall the economic assessment found that Queenstown Airport facilitated and directly generated gross output in the Otago regional economy of some $368 million. This included a contribution to regional Gross Domestic Product of $162 million sustaining the employment equivalent of 2,717 full time

workers annually. At the national level, the airport facilitated some $357 million in total gross output and some $154 million in GDP sustaining the equivalent of 2,377 full time workers annually.

2.2.7 In terms of economic benefits both nationally and for Otago in particular, the on-going and efficient operation of Queenstown Airport is of significant importance.

2.2.8 Market Economics also prepared an addendum to the report which looked at the economic benefit of Queenstown Airport taking into account growth projections to 2037. A copy of this addendum is contained at **Appendix 5**.

2.2.9 The addendum states that in 2037 international visitors to Queenstown are projected to spend $461.4m in the Queenstown economy, resulting in a direct gross output of $368.1m and $155.7m in direct added value. In total, including direct and indirect impacts, the gross output created will be $787.3m, resulting in $341.4m of value added and 5,780 full time equivalent years of employment.

2.2.10 It predicts domestic visitors will create $154.9m in direct gross output of which a total of $70.3m will equate to direct value added. In total, once all the flow-on effects are incorporated, the gross output facilitated by the airport will be $325.1m, resulting in $147.5m of value added and sustaining employment equivalent to 2,471 full time workers for per year.

2.2.11 In terms of travel agency fees, approximately $97,000 for New Zealanders flying out of Queenstown in international flights will be attributable to Queenstown Airport. Agency fees generated by domestic flights could be as much as $388,000 by 2037. This generates an additional total value added of $362,000 and sustains employment equivalent to four full-time workers annually.

2.2.12 In addition to facilitating the movement of people, airports facilitate the economic activity that moving business people around the country and the world generates. In 2037 it is estimated that 902 business travellers will fly out of Queenstown per year. These travellers will spend approximately $811,000 on airfares to Australia and approximately $2.0m on other expenses in order to ensure that the business travel was profitable they must generate a return of at least $324,000, giving a total international return on investment of some $3.1m. On this basis it is estimated that domestic business will generate an additional $1.6m return on investment.

2.2.13 In 2037 business returns generated by business travel through Queenstown Airport will contribute around $4.7m in gross output and $1.7m in value added to the Queenstown economy. Once the flow-on effects are incorporated this increases to be equivalent to $4.3m in regional GDP sustaining employment equivalent to some 57 full time jobs.

2.2.14 In total, passenger activity in the Otago Region facilitated by QAC will result in direct expenditure of $528.1m in 2037. This will translate to GDP contribution

of $493.1m once the flow-on effects are incorporated. In total, passenger activity will sustain the employment equivalent of 8,312 full time workers. This represents an increase of $171.1m in direct expenditure, $339m in GPD and 5935 full time equivalent jobs for the 2037 situation.

2.3 EXISTING AIRCRAFT NOISE MONITORING AND COMPLIANCE

2.3.1 Aircraft noise from Queenstown Airport is currently required to meet the noise limits set out in the Air Noise Designation (Designation 3) included the District Plan. Designation 3 of the District Plan comprises an L_{dn} 65dBA boundary known as the Air Noise Boundary (ANB). An L_{dn} 55 dBA Outer Control Boundary (OCB) has been established through objectives, policies and rules of the District Plan. Both boundaries are shown on Map 31a of the District Plan Maps contained at **Appendix 1**.

2.3.2 Designation 3 of the District Plan requires that QAC manages noise from aircraft so it does not exceed the limits of the ANB or the OCB. The Designation requires that QAC prepare a noise management plan (NMP) to monitor and manage aircraft noise. The NMP is contained as **Appendix 6** to this report.

2.3.3 The NMP requires that QAC calculate Annual Aircraft Noise Contours (AANC) using the Integrated Noise Model (INM) programme and records of actual aircraft activity at the Airport. QAC must also carry out aircraft noise monitoring over no less than one summer month and one winter month at two measurement locations over a three year period to check the AANC are within 2dB of measures aircraft noise levels.

2.3.4 The NMP also requires QAC to prepare a noise management action plan in the event that aircraft noise boundaries are exceeded or where there has been, or where there is expected to be, a major change in operational patterns. This has not occurred to date.

2.3.5 A condition of the Designation requires the convening of an 'Airport Liaison Committee' (now called the Airport Environment Committee), which comprises representatives of:

- Community;
- Aircraft and airline operators;
- Airways New Zealand;
- Queenstown Lakes District Council;
- Queenstown Airport Corporation.

2.3.6 The Airport Environment Committee is chaired by QAC and is convened two to three times per year in order to ensure a cooperative approach to managing local aircraft noise issues.

2.3.7 In 2008 acoustic consultants Marshall Day undertook monitoring of aircraft noise at Queenstown Airport to check compliance with the District Plan

requirements. The monitoring regime and results are detailed in the Marshall Day report contained at **Appendix 7** of this documentation. Aircraft noise monitoring was undertaken at three locations close to Queenstown Airport with a monitor placed at each location for a period of one month.

2.3.8 The aircraft noise monitoring found that noise levels at all locations are currently compliant with the requirements of the Designation.

2.4 AIRPORT GROWTH

2.4.1 Over the last five years, QAC has been working toward updating its Master Plan for Queenstown Airport. Growth projections to inform this have been forecast by AirBiz and are contained in **Appendix 8**.

2.4.2 The AirBiz report identifies that the Airport has two main categories of traffic, scheduled and non-scheduled services comprising:

Table 1: Queenstown Airport Aircraft

International	Air New Zealand	A320
	Qantas	B737-800
Domestic	Air New Zealand	B737-300, ATR 72, A320
	Qantas	B737-300/400
Flightseeing	BN-2A Islander, C172/177, C185, C206/207, Nomad, Caravan, Piper Saratoga	
General Aviation	C172/177, C206	
Helicopters	Squirrel AS350, AS355, Hughes 500, R22/R44, Eurocopter	

2.4.3 The report identifies the key drivers for growth at Queenstown airport and analyses historic traffic and growth rates for passengers and aircraft at Queenstown as well as other New Zealand Airports in order to determine trends over recent years. This information was used to determine growth rates as follows:

Table 2: Passenger Movement Growth Rates

	Scheduled		**Non Scheduled**		
Year	**International**	**Domestic**	**Flightseeing**	**GA/ Other**	**Helicopter**
2004 - 13	6.5%	5.4%	6.5%	1.5%	6.5%
2014 - 25	5.5%	4.3%	5.5%	1.3%	5.5%
2026 – 37	4.5%	3.3%	4.5%	1.0%	4.5%

Table 3: Aircraft Movement Growth Rates

Category	**2006 – 2011**	**2012 – 2013**	**2014 – 2016**	**2017 – 2023**	**2024 – 2025**	**2026 – 2037**
International	3.1%	3.1%	2.9%	2.9%	3.2%	3.2%
Domestic	3.1%	3.1%	2.9%	2.9%	3.2%	3.2%
Flightseeing	1.1%	1.1%	1.9%	1.9%	1.9%	1.0%
GA	1.1%	1.1%	1.9%	1.9%	1.9%	1.0%
Helicopters	5.5%	3.5%	3.5%	1.9%	1.9%	1.0%

2.4.4 The growth rates were applied to current traffic levels to predict future passenger and aircraft movements at Queenstown Airport[2]. The updated Master Plan projects that scheduled aircraft movements at Queenstown Airport will grow from 8,350 in the year ending 30th June 2008 to 12,500 in the year ending 30th June 2020 and 21,300 in the year ending 2037.

2.4.5 Passenger numbers for scheduled aircraft are projected to grow from 700,640 in the year ending 30th June 2008 to 1,410,815 in the year ending 30th June 2023 and 2,348,139 in the year ending 30th June 2037. In other words total passenger numbers on scheduled aircraft at Queenstown Airport are forecast to more than treble by 2037.

2.4.6 In terms of flightseeing and GA aircraft, movements are forecast to grow from 24,849 in June 2008 to 32,900 in June 2025 and to 37,900 in 2037. Helicopter movements are forecast to increase from 19,312 in the year to 30th June 2008 to 31,400 in 2025 and 35,400 in 2037. Total non-scheduled passenger movements are forecast to grow from 142,418 in the year ending 30th June 2008 to 340,200 in 2025 and 560,650 in 2037. This represents almost a quadrupling of passengers in the next 29 years.

2.4.7 QAC needs to ensure the facilities and management regimes are in place at Queenstown Airport in order to provide for this anticipated growth. An important aspect of this is undertaking a review of the noise boundaries in order to ensure they do not constrain the growth of the Airport but at the same time appropriately manage the effects of noise from aircraft.

Planning for Growth

2.4.8 In light of the projected growth figures described above, QAC has developed a new Masterplan for the expansion of Queenstown Airport. The Masterplan provides for Airport operations to extend to the south on land legally described as part of Lot 6 DP 304345 ('part Lot 6'). This would provide for the relocation of general aviation (GA) and helicopter operations, freeing up space adjacent to the terminal for terminal expansion and additional land side facilities (such as car parking, car rental facilities, passenger drop off). The proposal relies on land not currently owned by QAC and as such will require separate statutory processes to implement.

2.4.9 GA and helicopters would be relocated to part Lot 6 along with associated facilities, such as aprons and hangars for larger aircraft, aircraft operator offices and car parking areas.

2.5 REVIEW OF NOISE BOUNDARIES

2.5.1 In light of the growth projections for Queenstown Airport, a review of the Queenstown Airport noise boundaries was undertaken by acoustic consultants Marshall Day. A copy of the Marshall Day report is contained at **Appendix 7**.

[2] It should be noted that the new operators at Queenstown Airport, Pacific Blue and Jetstar, do not change the volume and mix of aircraft types used in the forecasting or noise modelling.

2.5.2 Computer modelling is used to predict aircraft noise in the vicinity of an airport. The Marshall Day report describes the modelling undertaken for Queenstown Airport to update the noise contours to the year 2037.

2.5.3 The noise modelling programme known as the Integrated Noise Model (INM) has been used. The INM was development by the US Federal Aviation Authority and is the most widely used of the noise models and is the model recommended in New Zealand Standard NZS6805:1992 'Airport Noise Management and Land Use Planning' (NZS 6085). The most current version of the INM is v7a and this is the version used in the Queenstown Airport modelling.

2.5.4 The INM calculates the noise level at a large number of grid points by summing the 'noise energy' from each aircraft movement during a typical day's operation. The 'noise energy' is calculated using the hourly L_{eq}[3] value night-weighted by +10 dBA and then averaged over 24 hours to give the daily L_{dn}[4] value at each grid point. The grid points with equal noise level are then joined graphically to give a plot of L_{dn} noise boundaries.

2.5.5 Marshall Day then used the AirBiz growth projections and inputted the following information into the model:

- Aircraft type;
- Time of day (day 0700-2200 or night 2200 – 0700)
- Runway usage;
- Departure, arrival or training circuit tracks;
- Stage length at take off.

2.5.6 The proposed boundaries form the basis for this Plan Change and are contained at **Appendix 2**. It should be noted that where a noise boundary generated by the model crosses through a property boundary, it has been pushed out to include the entire property in order to provide clarity for applying the District Plan rule.

2.5.7 It should be noted that the proposed noise boundaries have taken into account the proposed new Masterplan for growth at the Airport, described in section 2.4.8. This is the proposed relocation of the GA and helicopter operations to part of Lot 6 DP 304345 which is land to the south of the existing runway.

2.5.8 As there is no set timeframe for the relocation of the GA and helicopters (an alteration to expand the Aerodrome Purposes Designation is required and QAC would need to purchase the land), both the existing and proposed Master Plan locations have been included in the proposed noise boundaries (to the west of the terminal and south of the main runway respectively). If and when the GA and helicopters are relocated to part of Lot 6 the noise boundaries will be revised. This will result in a reduction in the noise boundaries to the south and west of the terminal.

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3 L_{eq}: Time average sound level or equivalent continuous sound level.

4 L_{dn}: The day/night level.

2.5.9 The effects of the projected increase in aircraft movement have been assessed by Marshall Day in the report contained at **Appendix 7**.

2.5.10 The report explains that there is a wide variation in perceptions of noise. The issue has been the subject off a number of studies, which culminated in the production of a 'curve' of the percentage of people highly annoyed versus external noise level (Ldn); known as the dose response relationship.

2.5.11 The dose response relationship indicates that for aircraft noise environments of Ldn 65dBA, 28% of the population are likely to be highly annoyed. For aircraft noise environments of Ldn 55dBA, 11% of the population are likely to be highly annoyed by the noise.

2.5.12 The report details the results of analysis carried out for Queenstown Airport to predict the number of people likely to be highly annoyed by aircraft noise for three different scenarios:

- The level of activity in 2008 i.e. the current level of noise;
- The level of airport activity anticipated by the District Plan i.e. the existing noise contours; and
- The proposed updated future noise boundaries to 2037.

2.5.13 The following table sets out the number of people likely to be highly annoyed for each scenario listed above:

Table 6 – Number People Likely to be Highly Annoyed by Aircraft Noise

Scenario	**55-60dBA # Houses**	**60-65dBA # Houses**	**>65dBA # Houses**	**# People Highly Annoyed**
Compliance Contours 2008	73	26	0	42
District Plan Noise Boundaries	85	67	0	71
Proposed Noise Boundaries	268	108	72	219

2.5.14 The proposed noise boundaries represent an appreciable increase in the number of people likely to be highly annoyed compared with both the current situation and the existing District Plan boundaries.

2.5.15 It should be noted that the annoyance effects are not confined to levels in excess of Ldn 55dBA (the OCB) but the percentage of people beyond the OCB that would experience annoyance effects is very small.

2.5.16 Table 6 identifies that there are approximately 72 properties within the proposed Ldn 65dBA. These properties will experience the highest level of

noise expose and the report recommends insulation of these existing properties to achieve a satisfactory indoor noise level.

2.5.17 It is proposed that QAC will mitigate the effects of aircraft noise within the Ldn 65dBA contour by ensuring appropriate acoustic insulation is installed at a time when the noise level at that property reaches Ldn 65dBA. It is considered that this will provide adequate mitigation from the effects of aircraft noise in terms of indoor residential amenity and will be undertaken as part of an overall package developed by QAC in consultation with affected property owners. The Notice of Requirement that is being undertaken in conjunction with this Plan Change provides the mechanism for this to occur.

Night time Noise Effects

2.5.18 Aircraft operations are currently permitted to take place at Queenstown Airport between the hours of 6am and 10pm. This means that if runway lights were installed aircraft could arrive and depart in the hours of darkness up until 10pm. QAC intends to install runway lights so that this can occur and to improve visibility during low visibility weather conditions.

2.5.19 It is also intended to provide for extended hours of operation at Queenstown Airport from 6am to 12 midnight in order to provide for aircraft arrivals between 10pm and midnight. This is predominantly sought through the Notice of Requirement lodged in conjunction with this Plan Change, but the Plan Change provides for the Night-time Noise Boundary and provisions relating to land use activity within the Night-time Noise Boundary.

2.5.20 While the proposed night flights have been factored in to the proposed noise boundaries the small number of night flights proposed has very little effect on the extent of the Air Noise boundary. The New Zealand Standard for aircraft noise (NZS6805) recommends an assessment of individual maximum noise levels from aircraft operating at night time, but does not define a level of acceptability. An SEL noise level, being a measure of the total noise energy of an individual aircraft movement, has been used for Queenstown Airport.

2.5.21 Acoustic consultants Marshall Day consider that SEL 95dBA defines a point of significant sleep disturbance. The sleep disturbance at this threshold is likely to vary depending on the number of night-time events and the timing of the events.

2.5.22 The dose response relationship for awakening events shows 10% of the population would be awakened by events of SEL 80dBA received in the bedroom. With windows ajar for ventilation, SEL 80dBA indoors is approximately equivalent to SEL 95dBA outdoors.

2.5.23 Approximately 35 properties are contained within the proposed NNB around Queenstown Airport (all but 6 of these properties are also within the ANB). These are predicted to experience SEL 95 – 100dBA (outdoors) during the proposed night time movements.

2.5.24 It is proposed that QAC will mitigate the effects of aircraft noise within the SEL 95dBA contour by ensuring that dwellings are appropriately acousticly

insulated at a time when the noise level at any of the properties reaches SEL 95dBA. It is considered that this will provide adequate mitigation from the effects of aircraft activity after 10pm in terms of indoor residential amenity and will be undertaken as part of an overall package developed by QAC in consultation with affected property owners. The Notice of Requirement that is being undertaken in conjunction with this Plan Change provides the mechanism for this to occur.

2.5.25 Due to the low number of night flights proposed (11 per week) and the timing of the events (before midnight) Marshall Day considered the potential for sleep disturbance effects can be adequately mitigated through insulation measures.

2.6 NOISE MODELLING PEER REVIEW

2.6.1 The Marshall Day noise modelling has been subject to peer review by John-Paul Clarke of the Georgia Institute of Technology. A copy of this peer review is contained at **Appendix 8**. The Marshall Day Assessment contained in **Appendix 7** includes the modifications recommended by the peer review.

2.6.2 In general the peer review agreed with the flight tracks and overall INM procedures used but did raise some concerns.

2.6.3 The peer reviewer expressed concern at the accuracy in predicting for a 29 year period (up to 2037). Projecting for this period represents a pragmatic approach to the setting of the Airport noise boundaries and protects the Airport for future operations. If there are substantial changes to the inputs then a review of the boundaries can take place when that occurs if necessary.

2.6.4 In terms of fleet mix, the 2003 fleet mix referred to in the peer review has not been used in the modelling carried out for the current process. Revisions have been made to the 2037 fleet mix to account for the fact the Boeing aircraft are unlikely to still be in use.

2.6.5 A discrepancy between the number of arrivals and departures for A320 aircraft was identified in the peer review and this has now been corrected. This had negligible effect on the proposed air noise boundaries.

2.6.6 In terms of topographical data, the peer reviewer identified discrepancies between the INM topographical data and topographical data shown in Google Earth for Queenstown. As suggested by the peer reviewer a comparison was carried out with the INM contours produced with the terrain option on and INM contours produced with the terrain option off. In the areas of concern (Kelvin Heights) there is no difference in the noise boundaries.

2.6.7 The original noise boundaries that were the subject of the peer review included an adjustment of the INM where large differences had occurred between noise measurements on the ground at Queenstown carried out by Marshall Day and noise predictions provided by the INM. No adjustment to the INM has taken place in generating the proposed noise boundaries.

2.7 SUMMARY OF NEED FOR PLAN CHANGE

2.7.1 In summary, it is considered this Plan Change is necessary in order to provide for the on-going and efficient operation of Queenstown Airport. Noise generated by aircraft using Queenstown Airport is nearing the extent of the existing noise contours defined in the District Plan. Projections for aircraft movement to the year 2037 predict an increase in activity at the airport. Noise boundaries generated using the projected growth in aircraft movements at the Airport differ from those currently contained in the District Plan. Airport growth can therefore only occur in conjunction with an amendment to the noise boundaries of the District Plan.

2.7.2 The Airport is a significant asset to the Region in terms of providing a domestic and international transport link and as a considerable contributor to the Regional economy. The Plan Change will enable these positive effects to continue whilst ensuring the noise generated by aircraft is managed in a manner, which appropriately recognises the need to provide for the health and well-being of the local community. This Plan Change also brings the aircraft noise management regime at Queenstown Airport in line with that used at other Regional Airports throughout New Zealand but also takes into account current best practice techniques.

3. FORM OF THE PLAN CHANGE

3.1 The Queenstown Lakes District Plan currently identifies an Outer Control Boundary (OCB, 55dBA contour) and an Air Noise Boundary (ANB, 65dBA contour) as shown on the District Plan Maps.

3.2 The Air Noise Boundary is managed through a Designation (Designation 3 described at D2 of section A-1 of the District Plan). The designation sets out restrictions for the management of noise at Queenstown Airport and requires that the Airport be managed so as noise levels of 55dBA at the OCB and 65dBA at the ANB are not exceeded. The designation also sets out the requirement for QAC to undertake regular noise monitoring to ensure the noise limits are not being breached.

3.3 The Designation also identifies activities that are prohibited within the ANB being new residential, school, hospital or other noise sensitive activities.

3.4 The OCB is addressed through objectives, policies and rules in the District Plan. Objectives and policies in the District Wide Issues (Chapter 4) provide for the efficient operation of the airport whilst recognising the presence of residential, recreational, retail and industrial activity in Frankton.

3.5 Currently, within the Rural Zone new activities sensitive to aircraft noise are prohibited within the OCB. The existing Residential Zone provides for activities sensitive to aircraft noise subject to adequate insulation from aircraft noise being required for buildings. Within the OCB in the existing Business and Industrial Zones new activities sensitive to aircraft noise are prohibited. In the existing Remarkables Park Special Zone some residential and visitor

accommodation activities are provided for within the OCB subject to sound insulation being required for buildings. The Frankton Flats Zone also provides for activities sensitive to aircraft noise subject to appropriate insulation.

3.6 The proposed Plan Change seeks to manage activities on land affected by aircraft noise identified by the updated contours through objectives, policies, rules and other methods in the District Plan. A copy of the proposed plan provisions is contained at **Appendix 10**. Only the controls that manage activities at the airport or that are undertaken by QAC (such as noise monitoring and engine testing) will continue to be addressed by the Aerodrome Designation.

3.7 It is proposed that the District Planning Maps will identify four different noise control boundaries (**Appendix 2**):

- ANB: 65dBA Ldn Air Noise Boundary
- SIB: 58dBA Ldn Sound Insulation Boundary
- OCB: 55dBA Ldn Outer Control Boundary
- NNB: 95dBA SEL Night-time Noise Boundary

3.8 The proposed ANB and the OCB extend beyond the ANB and the OCB currently incorporated into the District Plan Maps as they have been devised using projections of aircraft activity out to 2037. **Appendix 11** shows the proposed boundaries as they extend over the District Plan zones.

3.9 The SIB is based on the Ldn 58dBA noise boundary. The SIB delineates an area within which noise sensitive activities may require minor works to mitigate the effects of aircraft noise. The background to this is that an extensive sound insulation survey was carried out in Manukau City of houses beneath the Auckland Airport flight path. One of the findings was that the typical New Zealand home can achieve a noise reduction from outside to inside of 17 to 18 dBA with the windows ajar. However, at aircraft noise exposures greater than Ldn 58dBA but less than Ldn 65dBA, a mechanical ventilation system will be required in order to ensure doors and windows can be kept closed in order to achieve the noise reduction of 17 to 18dBA.

3.10 It is also proposed to introduce a Night-time Noise Boundary. The Airport is currently restricted to operating between 6am and 10pm. It is proposed to seek an alteration to the Aerodrome Designation to enable the Airport to operate until midnight, with activity between 10pm and midnight being restricted to aircraft landings on the main runway only. The following paragraphs provide an explanation of why a separate NNB has been included.

3.11 The ANB, SIB and OCB provide limits for the average noise measured in decibels (dBA) over a day and night period (Ldn) factoring in a 10dBA penalty for night time noise.

3.12 The proposed NNB provides for the measurement of noise as a Sound Exposure Level (SEL), which is a measure of cumulative noise exposure for a single aircraft event. The reason an SEL contour has been generated is that

the effects of up to 11 night time landings per week on the Ldn contours would be barely discernable within the ANB calculations even with a 10dBA penalty for night time flights (less than 0.3dBA). The SEL therefore enables particular account to be taken of the effect of aircraft landing on the main runway after 10pm. An SEL of 95dBA has been chosen as it has been shown to be the limit whereby sleep disturbance effects could be significant and therefore mitigation is required within the 95dBA SEL contour.

3.13 The proposed Plan Change introduces objectives and policies to facilitate the on-going operation of the Airport while managing adverse effects of aircraft noise on the community through the avoidance of inappropriate development, which is exposed to aircraft noise or through the implementation of methods to mitigate the effects of aircraft noise.

Rural Zone

3.14 In the Rural Zone the Plan Change prohibits new activity sensitive to aircraft noise within the OCB (unless otherwise stated, within the OCB includes the NNB, the SIB and the ANB). Extensions or alterations to existing activities sensitive to aircraft noise within the SIB are subject to appropriate acoustic insulation being provided by the property owner. This approach is similar to the current approach in the District Plan. The only differences being the increased extent of the OCB and the requirement for acoustic insulation within for alterations or extensions within the SIB, rather than the OCB. The plan in **Appendix 11** shows the proposed noise boundaries (solid lines) overlaid onto the existing noise boundaries (dotted lines).

3.15 Consultation has taken place with the owners of properties contained within the proposed additional OCB area extending over the Rural Zone. This is described in section 6 of this report. The only land development aspirations within the extended OCB that have been brought to the attention of QAC are the proposed Frankton Flats (B) Plan Change and a proposed extension to the Quail Rise Zone.

3.16 QAC was involved in the Frankton Flats (B) Plan Change process and made QLDC and other interested parties aware that the airport noise boundaries were under review. QAC through the Frankton Flats (B) Plan Change has indicated that no activity sensitive to aircraft noise should be undertaken within the OCB and that the existing contours would be expanded.

3.17 QAC consulted with Quail Rise Limited and understands that the proposed OCB does not adversely affect the development aspirations for the Quail Rise Zone.

3.18 In terms of the remaining properties in the Rural Zone within the OCB, prohibiting any new activity sensitive to aircraft noise will ensure there are no reverse-sensitivity adverse effects.

Residential Zone

3.19 The ANB, the SIB, the OCB and the NNB extend over the existing Residential Zone. The Plan Change provides for new, altered or extended activity

sensitive to aircraft noise inside the SIB, the NNB and the ANB subject to appropriate sound insulation being provided, given that these are existing residential zones. Appropriate construction standards to achieve the insulation are set out in the tables contained in **Appendix 10.** These tables provide a clear guide as to the work required by each property owner. In the alternative, the option is available for different construction materials subject to certification by a qualified acoustic engineer that the required indoor sound level will be achieved.

3.20 With the exception of the cost of the ventilation system, compliance with the construction requirements are unlikely to impose any significantly greater costs than the cost currently required to obtain a building consent that complies with the Building Code. Any additional costs associated with the installation of a ventilation system to enable windows to remain closed would be prudent in any event given the local environment.

3.21 While the Plan Change will result in adverse effects on some properties within the Residential Zone it is considered the proposed mitigation measures will result in the overall effects being no more than minor.

Industrial and Business Zone

3.22 In the Industrial and Business Zone activities sensitive to aircraft noise are prohibited within the OCB. Extensions or alterations to existing activities sensitive to aircraft noise are subject to appropriate acoustic insulation being provided. This is consistent with the current District Plan approach, although the extent of the proposed OCB is greater than the existing and will include more properties in the Glenda Drive industrial area.

3.23 The District Plan currently provides for one custodial unit per site at Glenda Drive. The proposed OCB extension would remove this right for properties within the OCB. This would affect approximately 15 additional property titles. While this does remove a development right from these property owners, the purpose of the Industrial Zone is described in section 11.3.1 of the District Plan as:

> *…to provide for the continued viability of industrial activities and the services they provide for the social and economic well-being of the community.*

3.24 The Zone is clearly intended as an Industrial Zone and residential activity is allowed only as an ancillary use to the industrial activity. The Industrial Zone is not considered to be an appropriate environment for residential activity at this location.

3.25 The Glenda Drive area within the extended OCB is already developed and there appear to be no vacant sites. Businesses and industries within the area are likely to have fitted premises out to their requirements already. Any custodial units that do exist within the area will be permitted to remain. Any future occupiers will be aware of the restrictions through this Plan Change.

Remarkables Park Zone

3.26 In the Remarkables Park Zone activities sensitive to aircraft noise within the SIB require appropriate acoustic insulation. Again, this is consistent with the current approach, although the extension of the SIB is slightly greater than that contained in the Remarkables Park Zone provisions.

Frankton Flats Zone

3.27 Within the Frankton Flats Zone any activities sensitive to air noise within the OCB are to be prohibited.

3.28 The purpose of the Frankton Flats Zone is a high density, mixed-use environment. No buildings currently exist on the site but consent has been granted for some retail and visitor accommodation use.

3.29 QAC considers that residential activity should be prohibited within the OCB in this Zone to minimise the potential for reverse sensitivity issues arising from aircraft noise. Residential development is not permitted as of right in the Zone and the Zone is a mixed-use Zone, not predominantly a residential zone.

3.30 The proposed Plan Change will have an adverse effect on the Zone by prohibiting residential development however there is sufficient development that can occur in the Zone without activities sensitive to aircraft noise. Furthermore, the proposed Plan Change will protect the Zone from the effects of aircraft noise by ensuring that any future residential areas do not occur at inappropriate locations.

QAC Retrofitting of Existing Properties in Residential Zone

3.31 As part of the altered Aerodrome Designation, QAC proposes to develop and implement a mitigation package for existing residential properties within the ANB and the NNB.

3.32 There are approximately 72 properties within the proposed ANB. These properties will experience the highest level of noise exposure over time and it is proposed that these existing properties will be insulated to achieve a satisfactory indoor noise level in habitable rooms.

3.33 There are approximately 35 houses are contained within NNB proposed around Queenstown Airport (all but 6 of these properties are also within the ANB). These houses are predicted to experience SEL 95 – 100dBA (outdoors) during the proposed night time movements.

3.34 In order to mitigate the potential sleep disturbance effects on these properties, in the same way as the properties affected by the ANB, QAC proposes to develop an appropriate package for acoustic insulation for habitable parts of dwellings at each of the properties within the NNB, to be installed at the time of commencement of night flights.

3.35 Due to the low number of night flights proposed (11 per week) and the timing of the events (before midnight) it is considered the potential for sleep

disturbance effects can be adequately mitigated through acoustic insulation measures.

4. STATUTORY FRAMEWORK

4.1 RESOURCE MANAGEMENT ACT 1991

4.1.1 Plan Changes to a District Plan are prepared under a framework provided by the Resource Management Act 1991 (and subsequent amendments) ("the Act").

4.1.2 This Plan Change has been prepared as a means of achieving the purpose of the Act, which is set out in section 5 as follows:

> *(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.*
>
> *(2) In this Act "sustainable management" means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety while –*
>
> *(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
> *(b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
> *(c) Avoiding, remedying or mitigating any adverse effects of activities on the environment.*

4.1.3 The Plan Change meets the purpose of the Act by enabling the operation and growth of Queenstown Airport to be managed in an efficient and sustainable way.

4.1.4 Queenstown Airport is an important, existing strategic asset to the Queenstown Lakes District and Otago Region. It provides a national and international transport link for the local, regional and international community and has a major influence on the Region's economy. The Market Economics Report (**Appendix 4**) confirms that Queenstown Airport is an important link in the economies of Queenstown and Otago and facilitates and directly generates a Gross Domestic Product (GDP) of $108 million. The Airport sustains the employment equivalent of 1,131 full time workers annually. The Airport is therefore important to the social and economic wellbeing of the community and the Plan Change will enable the continued operation of the Airport.

4.1.5 The Plan Change will enable the proper management of airport noise, which is important in the interests of the health and well-being of the local community and through a statutory framework that is similar to other New Zealand airports.

4.1.6 The Plan Change will sustain the potential of the airport as a physical resource now and for future generations. The Plan Change will not affect the life supporting capacity of air, water and soil ecosystems and through the adoption of effective objectives, policies, rules and methods, the adverse effects on the environment can be avoided.

4.1.7 Section 6 of the Act sets out matters of national importance as being:

> *(a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development;*
> *(b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development;*
> *(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna;*
> *(d) The maintenance and enhancement of public access to and along the coastal marine area, lakes and rivers;*
> *(e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga;*

4.1.8 While the Plan Change covers an area containing attributes of national importance it does not promote any physical works and therefore (a) – (c) above are not relevant. The Plan Change will not prevent public access to and along the coastal marine area, lakes and rivers and will not affect the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other toanga.

4.1.9 Section 7 of the Act lists other matters to which persons exercising functions and powers under the Act must have regard to. Those matters relevant to this Plan Change are:

> *(b) The efficient use and development of natural and physical resources;*
> *(c) The maintenance and enhancement of amenity values;*
> *(f) The maintenance and enhancement of the quality of the environment;*

4.1.10 Queenstown Airport is a, established physical resource and is one which is a major asset to the Otago Region. The Airport was established with a Civil Aviation Authority licence at its current location in 1936 and has continued to develop and expand its operations, becoming an international airport in 1995. The Plan Change is necessary to enable the continued use and development of this well-established resource. It is efficient that the airport operations continue and expand at the current location.

4.1.11 The noise boundaries around Queenstown Airport set the noise limits for aircraft operations at the Airport to comply with as part of QAC's obligations in terms of the altered Aerodrome Designation. In doing so the surrounding land uses can be protected as far as practicable.

4.1.12 The noise boundaries seek to manage reverse sensitivity issues between the airport and surrounding land uses to maintain the quality of the indoor environment for those living around the Airport.

4.1.13 Overall it is considered the Plan Change meets the purpose of the Act.

4.2 OTAGO REGIONAL POLICY STATEMENT

4.2.1 The Otago Regional Policy Statement (RPS) was made operative on the 1st October 1998 and is part of a framework established under the Resource Management Act 1991 for the sustainable integrated management of Otago's natural and physical resources.

4.2.2 The RPS provides an overview of the resource management issues of the Otago region and the ways of achieving the integrated management of its natural and physical resources.

4.2.3 The key sections of the RPS of relevance to this Plan Change are outlined below.

4.2.4 Section 5 relates to Land and the objective 5.4.1 is relevant to this Plan Change:

> *5.4.1 To promote the sustainable management of Otago's land resource in order:*
> *(a) …*
> *(b) To meet the present and reasonably foreseeable needs of Otago's people and communities.*

4.2.5 Enabling the growth and consolidation of Queenstown Airport at the Airport's current location enables sustainable growth of an existing resource. The Plan Change is consistent with this objective.

4.2.6 Section 9 relates to the Built Environment and objective 9.4.1 is relevant to this Plan Change:

> *9.4.1 To promote the sustainable management of Otago's built environment in order to:*
> *(a) Meet the present and reasonably foreseeable needs of Otago's people and communities; and*
> *(b) Provide for amenity values; and*
> *(c) …*
> *(d) ….*

4.2.7 The Plan Change provides for sustainable growth of Queenstown Airport, which will meet transport and economic needs of Otago's people and communities.

4.2.8 Objective 9.4.2 reads:

To promote the sustainable management of Otago's infrastructure to meet the present and reasonably foreseeable needs of Otago's communities.

4.2.9 The Airport is a key component of Otago's infrastructure allowing the local community to travel throughout New Zealand and overseas and providing a point of access for New Zealanders and overseas visitors. Providing for continued growth of Queenstown Airport in line with expectation and demand is essential. The proposed Plan Change will enable the sustainable growth and management of an existing critical component of regional infrastructure and is therefore wholly consistent with this objective.

4.2.10 Objective 9.4.3 reads:

To avoid, remedy or mitigate the adverse effects of Otago's built environment on Otago's natural and physical resources.

4.2.11 Queenstown Airport has been operating as an Aerodrome since 1936 and can be considered as one of the region's most important physical transportation resources. The proposed Plan Change will provide for management of the surrounding built environment in a manner complementary to the continued operations at the Airport to the year 2037. The proposed Plan Change is consistent with this objective.

4.2.12 Policy 9.5.2 relates to infrastructure and those parts relevant to this Plan Change are:

To promote and encourage efficiency in the development and use of Otago's infrastructure through:

(a) Encouraging development that maximises the use of existing infrastructure while recognising the need for more appropriate technology; and

(b) …

(c) …

(d) Avoiding or mitigating the adverse effects of subdivision, use and development of land on the safety and efficiency of regional infrastructure.

4.2.13 Queenstown Airport is a major component of the regions transport infrastructure. The Plan Change will enable the efficient future operation of the Airport at its current location and will assist to manage subdivision and land use around the Airport in a manner which does not adversely affect the on-going operation of the Airport. The proposed Plan Change is consistent with this policy.

4.2.14 The relevant parts of policy 9.5.3 are:

To promote and encourage the sustainable management of Otago's transport network through:

(a)…

(b)…

(c) …

(d) Promoting the protection of transport infrastructure from the adverse effects of land use activities and natural hazards.

4.2.15 Queenstown Airport forms part of Otago's transport network. The proposed Plan Change provides for the management of land use activities around the Airport in order to protect the on-going operation of the Airport. The Plan Change is therefore consistent with this policy.

4.3 OTAGO REGIONAL AIR PLAN

4.3.1 The Otago Regional Air Plan was made operative on the 1st January 2003 and contains objectives and policies to address the air quality issues facing Otago.

4.3.2 Section 4.9 of the Air Plan relates to Transport Emissions. This section recognises that emissions from aircraft can have intermittent and localised effects around the region's airports. However, the Air Plan states that it is impractical to manage the emissions from aircraft on a regional basis because they only visit the Otago region for a very short period and cause very localised effects.

4.4 QUEENSTOWN LAKES DISTRICT COUNCIL DISTRICT PLAN

4.4.1 The Queenstown Lakes District Plan (District Plan) makes provision for noise from Queenstown Airport through objective, policies and rules of various chapters and through the Air Noise Designation, Designation 3.

4.4.2 There are a number of District Plan objectives and policies of relevance to this Plan Change and these are considered in this section.

4.4.3 Section 4 of the District Plan considers District Wide Issues and 4.9 addresses Urban Growth. Objective 6 relates specifically to the Frankton area and states:

Integrated and attractive development for the Frankton Flats locality providing for airport operations, in association with residential, recreation, retail and industrial activity while retaining and enhancing the natural landscape approach to Frankton along State Highway No. 6.

4.4.5 This objective is supported by policy to:

…provide for the efficient operation of the Queenstown airport and related activities in the Airport Mixed Use Zone.

4.4.6 The Plan Change will enable the continued efficient operation of Queenstown Airport by allowing aircraft operations to take place within specified noise limits.

4.4.7 Chapter 5 of the District Plan relates to Rural Areas. Objective 3 is relevant and states:

***Rural Amenity**: Avoiding, remedying or mitigating adverse effects of activities on rural amenity.*

4.4.8 This objective is supported by policy 3.6:

To require acoustic insulation of buildings located within the airport Outer Control Boundary, that contain critical listening environments.

4.4.9 The Plan Change continues to propose measures to mitigate the effects of aircraft noise on critical listening environments in the Rural Zone.

4.4.10 Objective 7 and associated policy 7.1 of the Rural Zone are also relevant:

Objective 7 – Buffer Land for Airports:
Retention of a greenfields area within an airport Outer Control Boundary to act as a buffer between airports and other land use activities.

Policy 7.1:
To retain a greenfields area within the Outer Control Boundary of airports in order to provide a buffer , particularly for safety and noise measures between the airport and other activities.

4.4.11 The proposed Plan Change seeks to restrict inappropriate development around the Airport within the Rural Zone. The Plan Change is consistent with this objective and policy.

4.4.12 Chapter 7 relates to residential areas and Objective 3 is:

Pleasant living environments within which adverse effects are minimised while still providing the opportunity for individual and community needs.

4.4.13 This objective is supported by relevant policy 3.10:

To require acoustic insulation of buildings located within the airport Outer Control Boundary that contain critical listening environments.

4.4.14 The Plan Change continues to require acoustic insulation of critical listening environments where appropriate and is therefore consistent with objective 3 and policy 3.10 of the Residential Zone.

4.4.15 Chapter 12 of the District Plan relates to Special Zones and the Remarkables Park Special Zone contains policies and objectives relevant to this Plan Change.

***Objective 1:** Integrated management of the effects of residential, recreation, commercial, community, visitor accommodation, education and Queenstown Airport activities.*
***Policy 4:** To ensure that development takes place in a manner complementary to the operational capability of Queenstown Airport.*

Policy 5*: To establish a buffer between the airport and noise sensitive activities in the Remarkables Park Zone.*

4.4.16 The Plan Change continues to provide for the on-going operational capability of the Airport and seeks to avoid activities sensitive to aircraft noise in inappropriate locations. The Plan Change is consistent with the relevant objective and policies of the Remarkables Park Zone.

5. SECTION 32 EVALUATION

5.1 INTRODUCTION

5.1.1 Section 3 of this report sets out how aircraft noise from Queenstown Airport is currently dealt with in the District Plan and the new approach proposed to be taken through this Plan Change. This Plan Change proposes a number of new or amended objectives, policies, rules and methods for the District Plan. The full text of these rules is contained as **Appendix 10**.

5.1.2 This chapter comprises an evaluation under section 32 of the RMA for the objectives, policies, rules and methods proposed.

5.1.3 Section 32 of the Act states:

> *In achieving the purpose of this Act, before a proposed plan, proposed policy statement, change, or variation is publicly notified, a national policy statement or New Zealand coastal policy statement is notified under section 48, or a regulation is made, an evaluation must be carried out by-*
>
> *(a) …*
> *(b) …*
> *(c) …*
> *(d) the person who made the request, for the plan changes that have been requested and the request accepted under clause 25(2)(b) Part 2 of the Schedule 1.*
> *(2) ….*
> *(3) An evaluation must examine-*
> *(a) the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and*
> *(b) whether, having regard to their efficiency and effectiveness, the policies, rules or other methods are the most appropriate for achieving the objectives.*
> *(4) for the purposes of the examinations referred to in subsections (3) and (3A), an evaluation must take into account-*
> *(a) the benefits and costs of policies, rules, or other methods; and*
> *(b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods.*

(5) The person required to carry out an evaluation under subsection (1) must prepare a report summarising the evaluation and giving reasons for that evaluation.

(6) The document must be available for public inspection at the same time as the document to which the report relates is publicly notified or the regulation is made.

5.1.4 This report fulfils the requirements of Section 32(5).

5.2 EVALUATION OF OBJECTIVES

5.2.1 Section 32(3)a requires an evaluation of the extent to which each objective is the most appropriate way to achieve the purpose of the Act.

5.2.2 The purpose of the RMA is described in Part 2, Section 5 of the Act:

(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

*(2) In this Act, **sustainable management** means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while –*

a. Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

b. Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

c. Avoiding, remedying or mitigating any adverse effects on the environment.

5.2.3 Table 4 below sets out the objectives proposed as part of this Plan Change and provide an assessment of appropriateness in terms of the purpose of the Act. In arriving at these objectives it was necessary to consider alternatives. The following paragraphs consider the alternative approaches.

Status Quo

5.2.4 Aircraft noise from Queenstown Airport is already managed through a Designation and objectives, policies and rules contained in the District Plan. The District Plan Maps set out an ANB and an OCB for aircraft noise. One option is to retain the status quo.

5.2.5 The advantage of this option is that it negates the requirement for a Plan Change and so does not introduce any additional land use controls for those living around the airport.

5.2.6 The disadvantage of this option is that the Airport must manage aircraft noise to within the current noise boundaries. As the level of aircraft noise is almost at the extent of the current noise boundaries there is little room from growth in Airport operations. This would have a detrimental effect on the growth of the local and regional economy as there could only be very little increase in

passengers or aircraft into Queenstown. As airlines change their fleets or the way they manage routes the noise restrictions at Queenstown Airport may well become too restrictive. Furthermore, as the resident population of Queenstown grows the need for air travel will also increase. Without growth in aircraft operations travel demand will not be able to be met.

Existing Plan Provisions, New Noise Boundaries

5.2.7 Another alternative would be to propose no changes to Volume 1 of the District Plan but to replace Map 31a with the new boundaries.

5.2.8 The advantage of this is that the Plan Change would be relatively straightforward and easy to understand, essentially being a simple substitution of the new contour plans. Although this would not provide for the proposed new Night-time Noise boundary or the proposed Sound Insulation Boundary.

5.2.9 A change to the Designation would also be required to increase the extent of the ANB. The disadvantage of this is that the ANB designation would extend over a greater number of properties than at present. There is no provision in the Designation for Queenstown Airport Corporation to assist in mitigating aircraft noise effects on properties in the ANB therefore any mitigation would be at the owners expense. Increasing the extent of the Designation would also be more onerous and for property owners as consent from QAC would be required for development within the ANB and could reasonably be withheld for activities sensitive to aircraft noise.

Proposed Objectives

5.2.10 Accordingly it is considered that the most appropriate way is to amend the noise boundaries in conjunction with altering the Aerodrome Designation and subsequently removing the existing Air Noise Designation and including new objectives, policies and other methods in the District Plan, the following objectives are proposed:

Table 4: Proposed Objectives

Proposed Objective	Assessment of Appropriateness against the Purpose of the Act
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.	This objective seeks the continued operation of Queenstown Airport in association with managed noise limits. The noise limits have been generated using projected future aircraft operations at Queenstown Airport. The continued and future operation of Queenstown Airport is consistent with sustaining the potential of a physical resource (the Airport) to meet the reasonably foreseeable needs of future generations. The noise limits are set both to enable the on-going operation of the Airport and to manage the adverse effects of noise on the environment. Associated policies and rules ensure any

	adverse effects are avoided or mitigated, as require my section 5(2)c of the Act. The objective is therefore the most appropriate way to achieve the purpose of the Act.
Manage urban growth issues on land in proximity to Queenstown to ensure that the operational capacity and integrity of the airport is not compromised now or in the future.	This objective is also intended to sustain the potential of the Airport to meet the reasonably foreseeable needs of future generations through ensuring only appropriate development takes place in the immediate vicinity of the Airport and avoiding the potential for reverse sensitivity effects that would compromise Airport operations. This objective also works to avoid adverse effects of the Airport on the built environment and ensure the well-being of the local community. This objective is therefore the most appropriate way to achieve the purpose of the Act.

5.2.11 Overall it is considered the proposed objectives are necessary to ensure the on-going operation of Queenstown Airport whilst avoiding or mitigating adverse effects on the environment arising from reverse sensitivity issues. This includes managing noise from Aircraft as well as avoiding inappropriate development within the Airports noise boundaries. Overall it is considered that the objectives are the most appropriate way to achieve the purpose of the Act.

5.3 ASSESSMENT OF THE EFFECTIVENESS AND EFFICIENCY OF POLICIES, RULES, OR OTHER METHODS

5.3.1 A package of policies, rules and other methods has been developed in order to implement the relevant objectives of the District Plan, both proposed (as per section 3.3.1) and existing. These are contained at **Appendix 10**.

5.3.2 Section 32 of the RMA requires each policy or method (including rules) to be assessed, having regard to its efficiency and effectiveness, as to whether it is the most appropriate method for achieving objectives of the District Plan. The assessment must take into account the benefits and costs of the proposed policies and methods (including rules) and the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods.

5.3.3 The following identifies each relevant objective and the policies, rules or other methods developed to implement the objective.

Chapter 4.0 District Wide Objectives

Section 4.9 Urban Growth

Proposed 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.

Proposed Policy	*To ensure appropriate noise boundaries are established and maintained to enable operations at Queenstown Airport to continue and to expand over time.*
Appropriateness	*This policy promotes the establishment of noise boundaries at Queenstown Airport. The policy enables changes to these boundaries in line with Airport operations in the future. The policy effectively achieves the objective by promoting the establishment of noise boundaries, which will set appropriate noise limits to enable the effects of aircraft to be managed and to ensure noise sensitive activity does not occur in inappropriate locations or that new buildings are designed to achieve an appropriate level of sound insulation.* *The policy is efficient in implementing the objective in that it enables operations at Queenstown Airport to continue to expand over time. This will result in positive economic benefits. The Economics Report addendum prepared by Market Economic contained at* ***Appendix 5*** *states that in 2037 international visitors to Queenstown are projected to spend $461.4m in the Queenstown economy, resulting in a direct gross output of $368.1m and $155.7m in direct added value. In total, including direct and indirect impacts, the gross output created will be $787.3m, resulting in $341.4m of value added and 5,780 full time equivalent years of employment.* *Domestic visitors will create $154.9m in direct gross output of which a total of $70.3m will equate to direct value added. In total, once all the flow-on effects are incorporated, the gross output facilitated by the airport will be $325.1m, resulting in $147.5m of value added and sustaining employment equivalent to 2,471 full time workers for a year.* *In terms of travel agency fees, approximately $97,000 for New Zealanders flying out of Queenstown in international flights will be attributable to Queenstown Airport. Agency fees generated by domestic flights could be as much as $388,000 by 2037. This generates an additional total value added of $362,000 and sustains employment equivalent to four full-time workers annually.* *In addition to facilitating the movement of people, airports facilitate the economic activity that moving business people around the country and the world generates. In 2037 it is estimated that 902 business travellers will fly out of Queenstown. These travellers will spend approximately $811,000 on airfares to Australia and approximately $2.0m on other expenses in order to ensure that the business travel was profitable they must generate a return of at least $324,000, giving a total international return on investment of some $3.1m. On this basis it*

	is estimated that domestic business will generate an additional $1.6m return on investment. In 2037 business returns generated by business travel through Queenstown Airport will contribute around $4.7m in gross output and $1.7m in value added to the Queenstown economy. Once the flow-on effects are incorporated this increases to be equivalent to $4.3m in regional GDP sustaining employment equivalent to some 57 full time jobs. *In total, passenger activity in the Otago Region facilitated by QAC will result in direct expenditure of $528.1m in 2037. This will translate to GDP contribution of $493.1m once the flow-on effects are incorporated. In total, passenger activity will sustain the employment equivalent of 8,312 full time workers. This represents an increase of $171.1m in direct expenditure, $339m in GPD and 5935 full time equivalent jobs from the 2037 situation.*
Benefits	- *The policy promotes a set of noise boundaries so the noise limits for Queenstown Airport can be clearly understood and implemented.* - *The policy provides for future on-going operation and future expansion of the Airport, which will result in an increased economic benefit brought to the Region by the Airport. The current economic benefit is set out in section 2.2 of this report. The Market Economics Addendum contained at* ***Appendix 5*** *sets out the future economic benefit of the Airport projected to 2037. This addendum states that in total, passenger activity in the Otago Region facilitated by QAC will result in direct expenditure of $528.1m in 2037. This will translate to GDP contribution of $493.1m once the flow-on effects are incorporated. In total, passenger activity will sustain the employment equivalent of 8,312 full time workers. This represents an increase of $171.1m in direct expenditure, $339m in GPD and 5935 full time equivalent jobs from the 2037 situation.* - *The policy promotes the use of noise boundaries, which is an already accepted method of setting aircraft noise limits in the Queenstown Lakes District*
Costs	- *The boundaries may require to be amended in the future (beyond 2037). This creates an element of uncertainty.* - *There will be additional costs for some landowners included in the new, extended boundaries i.e. new houses in the extended ANB.* - *The expanded noise boundaries will provide for increased activity at Queenstown Airport, which will result in a substantial increase in the number of people likely to be highly annoyed by aircraft noise. However, it should be borne in mind that this will happen incrementally over the next 28 years just as activity at the airport has grown incrementally since it was first licensed in 1936.*
Proposed Policy	*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.*
Appropriateness	*This policy promotes the management of the adverse effects of aircraft noise on noise sensitive activities within the Airport Noise Boundaries. The noise boundaries are an efficient and effective tool to identify the locations where the effects of aircraft noise need to be managed, which is in line with the aim of the objective.* *Although there is wide variety in perceptions of noise, the noise boundaries identify noise levels at which aircraft noise is likely to have an adverse effect. The most appropriate controls or mitigation can then be implemented within the boundaries, such as the avoidance of*

	activity sensitive to aircraft noise where the effects are greatest or the requirement to insulate buildings for activity sensitive to aircraft noise where this would adequately mitigate the effects. The noise contours are therefore part of a package to ensure the health and well-being of the community is not adversely affected by the effects of aircraft noise.
Benefits	- *The noise boundaries clearly identify those areas that may be affected by aircraft noise* - *The policy promotes management of the adverse effects of aircraft noise within the noise boundaries, which is beneficial for the health and welfare of the community by ensuring activity sensitive to aircraft noise is appropriately located and/or insulated to mitigate the effects of aircraft noise.* - *QAC will offer to fund the sound insulation building works over time to existing properties within the ANB or NNB as part of a package to be developed in consultation with the affected property owners. This work is not anticipated to occur until the ANB reaches the property or night flights eventuate for the NNB.*
Costs	- *The policy may restrict the ability to establish new activities sensitive to aircraft noise within the noise boundaries* - *Any new development or alteration or extension of an activity sensitive to aircraft noise within the ANB or SIB must be acoustically insulated to an appropriate standard at the developer/property owners cost, although in the SIB this is likely only to involve the installation of mechanical ventilation.* - *In the Rural Zone and Industrial Zone activity sensitive to aircraft noise within the OCB is prohibited, although this only affects properties between the existing and extended OCB as activity sensitive to aircraft noise within the current OBC is prohibited.* - *Activity sensitive to aircraft noise in the Frankton Flats Zone will be prohibited.*
Proposed Implementation Methods	- *Identification of noise contours on the District Planning Maps* - *Inclusion of rules to manage noise-sensitive development around the airport* - *Regular monitoring of aircraft noise to ensure compliance with noise boundaries* - *Regular monitoring of aircraft noise to determine the actual extent of the Air Noise Boundary (65dBA Ldn contour)* - *Queenstown Airport funded retrofitting of existing buildings for an activity sensitive to aircraft noise within the Air Noise Boundary and Night-time Noise Boundary (SEL 95 dBA) contour to achieve an appropriate indoor sound level* - *Consultation with residents and dissemination of information on the current levels of airport noise and future intentions*
Appropriateness	*These implementation methods set out the air noise boundaries in the District Plan and provide for regular monitoring of noise levels to ensure compliance. This is a clear and effective method of identifying noise limits within which Queenstown Airport must operate and to determine the current performance against the set standards.* *Rules to manage activity sensitive to aircraft noise around the Airport are an effective way of managing the effects of aircraft noise by ensuring only appropriate development takes place around the Airport. This will ensure that activity sensitive to aircraft noise is prohibited in certain locations or subject to sound insulation requirements.*

	The implementation methods also provide for Queenstown Airport funded retrofitting of existing residential properties within the ANB to achieve appropriate indoor sound insulation. These physical works are an effective way of implementing the objective of managing the effects of aircraft noise on internal living environments. *On-going consultation is also an effective means of ensuring the effects of aircraft noise at Queenstown Airport are being managed appropriately. On-going consultation will also assist in facilitating the efficient continued operation and future of Queenstown Airport by keeping the community informed of the Airports intentions, such as when GA and helicopter operations might move to part Lot 6, and addressing any other issues as they arise.*
Benefits	- *The implementation methods provide for future on-going operation and future expansion of the Airport, which will result in an increased economic benefit brought to the Region by the Airport. By 2037 passenger activity in the Otago Region facilitated by QAC will result in direct expenditure of $528.1m. This will translate to GDP contribution of $493.1m once the flow-on effects are incorporated. In total, passenger activity will sustain the employment equivalent of 8,312 full time workers. This represents an increase of $171.1m in direct expenditure, $339m in GPD and 5935 full time equivalent jobs from the 2037 situation.* - *The noise boundaries clearly identify those areas that may be affected by aircraft noise* - *Rules to manage ASAN's around the Airport provide a clear framework to landowners on what activities can and can not occur within the zones around the Airport* - *QAC will offer to fund the sound insulation building works over time to existing properties within the ANB or NNB as part of a package to be developed in consultation with the affected property owners. This work is not anticipated to occur until the ANB reaches the property or night flights eventuate for the NNB.* - *Queenstown Airport is required to undertake regular monitoring to ensure noise from aircraft is managed such that it falls within the set limits.*
Costs	- *There will be costs involved in on-going noise monitoring for Queenstown Airport, these costs will be met by QAC.* - *There will be costs and disruption involved in the retrofitting of properties. Costs incurred in the retrofitting of existing residential properties in the ANB and NNB will be met by QAC.* - *The implementation methods will result in some activities not being permitted at some locations and will require additional sound insulation works to be implemented for some new buildings housing activity sensitive to aircraft noise.* - *The rules will require that any new development or alteration or extension of an activity sensitive to aircraft noise within the ANB must be acoustically insulated to an appropriate standard at the developer/property owners cost.* - *The rules will require that within the Rural Zone and Industrial Zone activity sensitive to aircraft noise within the OCB is prohibited, although this only affects properties between the existing and extended OCB as activity sensitive to aircraft noise within the current OBC is prohibited.* - *The rules will require that Activity sensitive to aircraft noise in the Frankton Flats Zone is prohibited.*

4.0 District Wide Issues

4.9 Urban Growth
Proposed 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 compromised now or in the future.

Proposed Policy	*8.1 To prohibit all new activity sensitive to aircraft noise within the Rural, Business and Industrial, Frankton Flats A Special Zone located within the Outer Control Boundary at Queenstown Airport are prohibited.* *8.2 To ensure that all new activity sensitive to aircraft noise located in the existing Residential zones and Remarkables Park Special Zone within the Queenstown Airport Sound Insulation Boundary are designed and built to achieve an appropriate internal noise environment and are appropriately ventilated.* *8.3 To discourage plan changes or land use proposals which are promoted or initiated on land within the Outer Control Boundary at Queenstown Airport where these incorporate provisions for activity sensitive to aircraft noise on the basis that such activities have the potential to compromise the ongoing operational efficiency of the Airport.*
Proposed Implementation Methods	*The provision of rules to prohibit or otherwise control activity sensitive to aircraft noise in the Rural, Residential, Industrial, Frankton Flats and Remarkables Park zones.* *The provision of rules, standards and sound insulation construction tables to ensure appropriate sound insulation is designed into new building for an activity sensitive to aircraft noise in the Residential and Remarkables Park Zones.* *Consultation with Queenstown Airport Corporation on a Plan Change or other land use proposal affecting land within the Queenstown Airport Outer Control Boundary.*
Appropriateness	*The policies and implementation methods set out effective ways to manage activity sensitive to aircraft noise in the Airport noise boundaries to ensure reverse sensitivity issues do not arise. Such reverse sensitivity issues may have the potential to affect the operational capacity of the airport now or in the future. The policies and methods prohibit activity sensitive to aircraft noise where appropriate and require sound insulation of buildings for activity sensitive to aircraft noise in other areas.*

	In the Rural Zone and the Business and Industrial Zone activity sensitive to aircraft noise within the OCB is prohibited. This is currently the case. Prohibiting activity sensitive to aircraft noise in the Rural and Business and Industrial Zones will ensure there are no adverse effects from reverse-sensitivity. *The purpose of the Frankton Flats Zone is a high density, mixed-use environment. No buildings currently exist on the site but consent has been granted for some retail and residential use. Residential activity should be prohibited in the Zone (with the exception of any residential activity already consented) to minimise the potential for reverse sensitivity issues arising from aircraft noise. Residential development is not permitted as of right in the Zone and the Zone is a mixed-use Zone, not predominantly a residential zone therefore the policy relating to this zone is the most appropriate.* *Sound insulation is required for properties located inside the SIB in the Residential Zone and the Remarkables Park Zone. This will ensure that existing residential development rights will remain, but the proposed sound insulation mitigation will ensure the health and welfare of the residents is protected from the effects of aircraft noise.* *In order to ensure no future, unmitigated reverse-sensitivity issues arise in respect of aircraft noise, it is appropriate to discourage further plan changes that would introduce activity sensitive to aircraft noise within the airport noise boundaries.*
Benefits	- *Inappropriate development within the Airport noise boundaries will be avoided or mitigated, which will ensure the health and welfare of the community is protected.* - *The policies provide guidance for people considering plan changes within the Airport boundaries* - *Consultation will facilitate effective communication between Queenstown Airport and developers around the Airport.* - *The policies and methods will ensure the operation of Queenstown Airport is not affected by reverse-sensitivity issues and will consequently provide for the on-going operation of the airport. This will result in a positive economic benefit brought to the Region by the Airport. By 2037 passenger activity in the Otago Region facilitated by QAC will result in direct expenditure of $528.1m. This will translate to GDP contribution of $493.1m once the flow-on effects are incorporated. In total, passenger activity will sustain the employment equivalent of 8,312 full time workers. This represents an increase of $171.1m in direct expenditure, $339m in GPD and 5935 full time equivalent jobs from the 2037 situation.* - *The noise boundaries clearly identify those areas that may be affected by aircraft noise*
Costs	- *The policies may restrict the ability to establish new activities sensitive to aircraft noise within the noise boundaries* - *The rules will require that any new development or alteration or extension of an activity sensitive to aircraft noise within the ANB and SIB of the Residential Zone must be acoustically insulated to an appropriate standard at the developer/property owners cost, although within the SIB this is likely to only require the installation of mechanical ventilation.*

	- *The rules will require that within the Rural Zone and Industrial Zone activity sensitive to aircraft noise within the OCB is prohibited, although this only affects properties between the existing and extended OCB as activity sensitive to aircraft noise within the current OBC is prohibited.* - *The rules will require that Activity sensitive to aircraft noise in the Frankton Flats Zones is prohibited.*

5.0 Rural Areas
Existing Objective 3

Avoiding, remedying or mitigating adverse effects of activities on rural amenity.

Proposed Policy	*To prohibit all new activity sensitive to aircraft noise on any rural zoned land inside the Outer Control Boundary at Queenstown Airport to avoid adverse effects arising from aircraft operations on future activities sensitive to aircraft noise.* *To require acoustic insulation and mechanical ventilation of buildings which are being altered or added to, where the activity contained is sensitive to aircraft noise on land located inside the Sound Insulation Boundary of Queenstown Airport.*
Proposed Implementation Methods	*The provision of rules to prohibit new activity sensitive to aircraft noise within the Outer Control Boundary of Queenstown Airport.* *The provision of rules and acoustic insulation and ventilation construction tables to ensure appropriate sound insulation is designed into any alterations or additions to activity sensitive to aircraft noise within the Sound Insulation Boundary of Queenstown Airport.* *The New Zealand Standard 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.*
Appropriateness	*The District Plan anticipates some residential activity in the Rural Zone by providing for it as a Discretionary Activity. The part of the Rural Zone included in the Airport noise contours will be subject to a higher level of noise from aircraft than the rest of the Zone and may not provide the rural amenity of other parts of the Zone. The policies and rules therefore seek to prevent the establishment of activities that are likely to be sensitive to aircraft noise within the noise boundaries. This is effective in avoiding adverse amenity effects. This approach is the approach currently taken for the Rural Zone within the District Plan.* *Prohibiting activity sensitive to aircraft noise in the Rural Zone will ensure there are no adverse effects from reverse-sensitivity.* *Requiring acoustic insulation for alterations or extensions to a building for an activity sensitive to aircraft noise in the Rural Zone will assist in protecting the health and well-being of the occupants.* *The implementation method relating to the New Zealand Standard ensures that the relevant national guidance is taken into consideration in establishing noise boundaries and associated rules.*

Benefits	- *The potential for adverse effects from aircraft noise on activities sensitive to aircraft noise is avoided, in the interests of the health and well being of the community.* - *On-going operation of the airport is protected, which will result in economic benefit brought to the Region by Queenstown Airport. By 2037 passenger activity in the Otago Region facilitated by QAC will result in direct expenditure of $528.1m. This will translate to GDP contribution of $493.1m once the flow-on effects are incorporated. In total, passenger activity will sustain the employment equivalent of 8,312 full time workers. This represents an increase of $171.1m in direct expenditure, $339m in GPD and 5935 full time equivalent jobs from the 2037 situation.*
Costs	- *Restrictions or prohibition on development within the noise contour, although this position is only new for landowners between the existing and proposed OCB.* - *Additional expense from the installation of sound insulation, although this is likely to involve the installation of mechanical ventilation only.*

5.0 Rural Areas
Existing Objective 7

Retention of greenfields area, or an area for activities not sensitive to aircraft noise, within an airport Outer Control Boundary to act as a buffer between airports and other land use activities.

Proposed Policy	*To prohibit the location of any new activity sensitive to aircraft noise on land within the Outer Control Boundary around Queenstown Airport.* *To discourage plan changes or land use proposals which are promoted or initiated on land within the Outer Control Boundary at Queenstown Airport where these incorporate provision for activity sensitive to aircraft noise on the basis that such activities have the potential to compromise the ongoing operational efficiency of the Airport.* *To require acoustic insulation and mechanical ventilation of buildings that contain any new activity sensitive to aircraft noise or where an existing building is being altered or added to on land inside the Sound Insulation Boundary of Queenstown Airport.*
Proposed Implementation Methods	*The provision of rules prohibiting any activity sensitive to aircraft noise within the Outer Control Boundary in the Rural Zone of Queenstown Airport.* *Identification of an Outer Control Boundary* *Identification of a Sound Insulation Boundary, a Night-time Noise Boundary and an Air Noise Boundary on the District Plan Maps for Queenstown Airport.*
Appropriateness	*The policies and methods prohibit the establishment of activities sensitive to aircraft noise around Queenstown Airport. This will result in a buffer between activities sensitive to aircraft noise and the Airport, which is the most appropriate and effective way in which to achieve the objective. This is the approach that is currently adopted in the District Plan for the Rural Zone.* *This is the most appropriate way to ensure the operation capability and integrity of the airport is maintained, which will benefit the local economy.* *This is also the most appropriate way to ensure the protection of the health and well-being of the community through avoiding development in inappropriate locations or requiring sound insulation.*

Benefits	- *On-going protection of the operation of the Airport, which will result in economic benefit brought to the Region by Queenstown Airport. By 2037 passenger activity in the Otago Region facilitated by QAC will result in direct expenditure of $528.1m. This will translate to GDP contribution of $493.1m once the flow-on effects are incorporated. In total, passenger activity will sustain the employment equivalent of 8,312 full time workers. This represents an increase of $171.1m in direct expenditure, $339m in GPD and 5935 full time equivalent jobs from the 2037 situation.* - *protection of residential properties from the effects of aircraft noise to the benefit of the health and well-being of the residents.* - *clarity in what can and cannot occur around the Airport*
Costs	- *Restrictions or prohibition on development within the noise contour, although this position is only new for landowners between the existing and proposed OCB.* - *Additional expense from the installation of sound insulation, although this is likely to involve the installation of mechanical ventilation only.*

7.0 Residential Areas
Existing Objective 3

Pleasant living environments within which adverse effects are minimised while still providing the opportunity for individual and community needs.

Proposed Policy	*To require acoustic insulation and mechanical ventilation of any activity sensitive to aircraft noise within the Queenstown Airport Sound Insulation Boundary, Night-time Noise Boundary and Air Noise Boundary that contain critical listening environments.*
Implementation Methods	*Rules to require acoustic insulation and mechanical ventilation of buildings that contain any new activity sensitive to aircraft noise or where an existing building is being altered or added to on land inside the Sound Insulation Boundary* *Notification through Land Information Memorandum of the requirement to sound insulate new or alterations or additions to buildings containing noise sensitive activities inside the Sound Insulation Boundary.*
Appropriateness	*The policy seeks to ensure pleasant living environments are maintained through the use of acoustic insulation of those properties where aircraft noise is 58dBA Ldn or greater. This, combined with the proposed insulation rules is an effective and efficient method of achieving the objective through a simple and clear method. The policy is the most appropriate way to ensure the protection of the health and welfare of the community.* *Notification of the restrictions will ensure on-going clarity for property owners that particular construction standards apply.*
Benefits	*- Protection of indoor residential amenity, which is of benefit to the health and welfare of the community.* *- clear guide as to the construction requirements for new or additions or alterations to properties inside the Sound Insulation Boundary*
Costs	*- Additional expense from the installation of sound insulation for new, altered or extended properties, although this is likely to involve the installation of mechanical ventilation only within the SIB.*

7.0 Residential Areas

Queenstown Residential Areas Objective (7.2.3)

Residential development and associated activities at a scale, density and character consistent with the existing density, which enhances the essential elements of the surrounding landscape, lakeshore and the visual outlook from residential buildings.

Provision for new consolidated residential areas at identified locations.

Higher density residential development around the periphery of the town centre of Queenstown and in new areas of residential development outside the main existing residential areas.

Proposed Policy	*To require acoustic insulation and mechanical ventilation of buildings that contain any new activity sensitive to aircraft noise or where an existing building is being altered or added to on land inside the Sound Insulation Boundary.*
Proposed Implementation Methods	*Rules to require acoustic insulation and mechanical ventilation of buildings that contain any new activity sensitive to aircraft noise or where an existing building is being altered or added to on land inside the Sound Insulation Boundary.* *A requirement within the Aerodrome designation for Queenstown Airport Corporation to meet acoustic insulation requirements for existing residential properties in the Air Noise Boundary and Night-time Noise Boundary.*
Appropriateness	*The objective encourages a consolidation of residential development and higher density development. The policy and other methods are the most appropriate way to ensure any such development will be constructed such that the health and well being of the community can be protected from the effects of aircraft noise.*
Benefits	*- Enable development to occur subject to acoustic insulation.* *- Protects indoor residential amenity and the health and well being of the community.* *- QAC will offer to fund the sound insulation building works over time to existing properties within the ANB or NNB as part of a package to be developed in consultation with the affected property owners. This work is not anticipated to occur until the ANB reaches the property or night flights eventuate for the NNB.*
Costs	*- Construction costs from sound insulation, although for properties within the SIB this is likely to only be the installation of mechanical ventilation.* *- Cost for QAC for the retrofitting of existing residential properties inside the ANB or the NNB.*

12. Remarkables Park Zone

12.10.3 Objectives and Policies

Objective 1: Integrated management of the effects of residential, recreation, commercial, community, visitor accommodation, educational and Queenstown Airport activities.

Proposed Implementation Methods	*Noise contours identified in the District Plan Maps*
Appropriateness	*Noise boundaries are an efficient and effective tool to identify the locations where the effects of aircraft noise need to be managed. This ties in with the objective to integrate different land uses.* *Although there is wide variety in perceptions of noise, the noise boundaries identify noise levels at which aircraft noise is likely to have an adverse effect. Appropriate controls or mitigation can then be implemented within the boundaries, such as the avoidance of activity sensitive to aircraft noise where the effects are greatest or the requirement to insulate buildings for activity sensitive to aircraft noise where this would adequately mitigate the effects. The noise contours are therefore part of a package to ensure the health and well-being of the community is not adversely affected by the effects of aircraft noise.*
Benefits	*- The noise boundaries clearly identify those areas that may be affected by aircraft noise and allow for appropriate mitigation measures to be implemented.*
Costs	*- The propose noise boundaries extend over more land than the noise boundaries currently adopted in the plan. This may result in more properties requiring sound insulation.*

Definitions

New definitions will be added to the Definitions section of the Plan. This is appropriate in order to define some of the new noise terms introduced to the District Plan through the objectives, policies, rules and other methods. **Appendix 10** sets out the proposed definitions.

5.4 RISK OF ACTING OR NOT ACTING

5.4.1 Section 32 of the Act requires an evaluation to take into account the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods.

5.4.2 The risk of not acting in this case is the stifling of growth at Queenstown Airport as a result of the existing noise boundaries not allowing for future growth. The assessment of effects in section 6 of this report considers the economic impact of the growth at Queenstown Airport. In short, not providing for growth could result in a loss of $171.1m in direct expenditure, $339m in GDP and 5935 full time equivalent jobs.

5.4.3 The risk of acting is limited to the growth of Queenstown Airport not meeting the projections. In this event the restrictions imposed by the land use controls would be unnecessary. However, the likelihood of the Airport not experiencing any growth is very low.

5.4.4 Overall, the risk of not acting would be of far greater consequence than the risk of acting.

6. CONSULTATION PROCESS

6.1 As part of QAC's proposal to review the Airport's air noise contours, QAC has undertaken an extensive pre-application public consultation process with those people residing/owning property within the air noise boundaries.

6.2 The consultation process involved three rounds of consultation occurring in May/June, August and November 2008, respectively. The information distributed by QAC is attached as **Appendix 12**.

6.3 In late May 2008 the first round of pre-application consultation associated with the proposed revision to the Queenstown Airport Noise Control Boundaries within the District Plan commenced. The consultation initially involved the distribution of a discussion document to those people residing/owning property within the proposed Outer Control Boundary. The discussion document, attached as **Appendix 12** provided the residents with an overview of QAC's proposal, invited the residents to attend an open day on 11th June at the Queenstown Events Centre and provided contact details for any correspondence.

6.4 On 11th June 2008 QAC held an open day at the Queenstown Events Centre to allow those residents interested in the proposal to view more detailed information, ask questions of technical experts and airport representatives and to obtain further information. Feedback forms were provided to allow attendees to comment on the proposal.

6.5 During the June 2008 consultation approximately 70 people attended the open day, and a total of 38 emails, letters and feedback forms were received from

residents/landowners during the course of the consultative period; 6 in support, 24 in opposition and 8 neutral submissions.

6.6 The key reasons provided for the support of the proposed plan change related to:

- Recognition of the importance of the airport to the growth and economic wellbeing of the Queenstown Lakes District.
- The airport existing prior to the majority of the residential development.
- The QAC's willingness to work with affected landowners to complete any required work for buildings housing noise-sensitive activities in the Air Noise Boundary and Night-time Noise Boundary.

6.7 The key reasons provided for the opposition to the proposed plan change relate to:

- The potential for extended operational hours from the existing 6am to 10pmto allow night-time landings between 10pm and 12pm disturbing sleep.
- The proposed amendment of the noise boundaries may adversely affect property values.
- Concern over the possibility those persons affected would have to fund compliance with the proposed acoustic requirements themselves.
- Concerns over the safety of night-time flights into Queenstown Airport, and the potential light pollution that may result if runway lights are installed to accommodate this flying.

6.8 Following the initial consultation with the residents/landowners located within the proposed Noise Control Boundaries in June, a follow-up consultation flyer was distributed. This consultation flyer summarised the key issues raised by submitters during the June 2008 consultation and provided further information upon them.

6.9 The response from the distribution of the consultation flyer was a total of 11 emails and letters from residents/landowners; three in support, seven in opposition and one neutral submission. All of the submissions received were new submissions.

6.10 Of the three submissions received in support of the proposal, all stated the key reason for their support of the proposed plan change as being the inevitable progression of the Airport.

6.11 The key reasons provided during the August 2008 consultation for the opposition to the proposed plan change relate to:

- The proposed amendment adversely affecting property values.
- The potential for extended operational hours from the existing 6am to 10pm to allow night-time landings between 10pm and 12pm disturbing sleep.

6.12 Many of the respondents who made comment on the night-time landings noted they accepted there would be noise associated with living near an airport. However, all expressed the view that such an activity beyond the hours of 10PM was a significant imposition upon the Frankton community and their right to undisturbed sleep at these hours.

6.13 In November 2008 a second consultation flyer was sent to those residents/landowners located within the proposed Noise Control Boundaries. This consultation flyer contained details informing them of revisions to the proposed air noise boundaries following a review by an independent expert in the field of air noise. The consultation flyer incorporated a map showing the finalised version of the proposed noise boundaries. A summary table was also included in the consultation flyer to provide readers with details of what the effect of the proposed plan change would be upon the various District Plan zones it overlays.

6.14 The response from the distribution of the consultation flyer was a total of 23 emails and letters from residents/landowners; none in support, 16 in opposition and seven neutral submissions. As with the previous two rounds of consultation the recurring concerns over disturbed sleep and adversely affected property values were present. However, with the amendment of the proposed noise boundaries, new residents/landowners were added to the list of parties to be consulted with, which raised several new concerns.

6.15 To many of the submitters the finalised demarcation of the noise control boundaries appeared random and at odds with their real-world experiences.

6.16 One submitter questioned whether the acoustic survey would occur prior to the lodgement of the plan change. This submitter noted it was expecting a fair amount of good faith of the affected residents without knowing any firm details of necessary works, payment mechanisms or clear timeframes for remedial works to occur.

6.17 In particular, the following concerns were thematic throughout the submissions from the November 2008 consultation:

- The finalised Air Noise Boundary contour line does not include people who believe they are affected, and consequently will receive no financial assistance to mitigate any noise effects.
- The finalised contour lines appear random to submitters who do not believe they equate to their real-world experiences.
- The proposed amendment adversely affecting property values.
- The potential for extended operational hours from the existing 6am to 10pm to allow night-time landings between 10pm and 12pm disturbing sleep.

6.18 As an outcome of the consultation process QAC has engaged acoustic consultants Marshall Day; building engineers Beca; and quantity surveyors Maltbys to investigate appropriate acoustic insulation building works to be developed as a package and offered to the owners of properties within the

proposed Air Noise Boundary and Night-time Noise Boundary as the relevant noise boundary reaches each property.

6.19 In May 2009 a final update to the proposed noise boundaries was undertaken. This was in light of flight tracks being updated and finalised to include those tracks used by planes with RNP[5] technology installed. The key change to the boundaries resulting from this is the OCB extending further to the north than previously. As a result of the change a further information flyer was circulated in June 2009 to those affected by the revised noise. A copy of the June 2009 flyer is contained at **Appendix 12**.

6.20 Meetings were also held with key stakeholders identified as being the receivers of Five Mile (owners of the Plan Change 19 Zone) and Quail Rise Limited in light of their aspirations to extend the Quail Rise Zone.

6.21 The representative for the receivers of Five Mile raised some concern that the OCB extends further over the Frankton Flats B Plan Change area, although a high proportion of the affected land is proposed for commercial development and would not be adversely affected.

6.22 Quail Rise Limited considered the OCB would not adversely affect the development aspirations for the Quail Rise Zone as a 50m buffer from the State Highway has already been factored in.

6.23 In addition to the above consultation, meetings were also held with the Kelvin Heights and Frankton Residents Associations to explain the upcoming Plan Change.

6.24 Consultation has also taken place with Qantas and Air New Zealand, the two major airline operators using the airport while the Plan Change was being drafted. Qantas were provided with the consultation brochures but did not request any further discussion. Air New Zealand were also provided with the consultation brochures and subsequent meeting took place between QAC and Air New Zealand on the 27th October 2009 to discuss the Plan Change.

6.25 The Ministry of the Environment and Iwi were also provided with details of the Plan Change and the opportunity for further discussion remains open with both parties.

7. SUMMARY AND CONCLUSION

7.1 In summary QAC seeks a Plan Change for the following:

- To update the ANB and the OCB in the District Plan
- To introduce two new noise boundaries; the NNB and the SIB
- To introduce new objectives, policies, rules other methods into the District Plan to manage land use activity around the Airport.

[5] RNP – Required Navigation Performance is a program that enables aircraft to fly more precise, predetermined flight paths resulting in improved access to terrain challenged airports, reduced diversions due to weather and increased schedule reliability.

7.2 The Plan Change will enable Queenstown Airport to grow in line with growth projections to 2037. This will result in a substantial benefit to the regional economy.

7.3 The provisions to manage land use around the airport relate to activity sensitive to aircraft noise. The provisions direct such activity away from inappropriate locations. This will ensure operations at the Airport are not constrained now or in the future and will also manage the effects of aircraft noise on the health and well-being of the community.

7.4 An alteration to the Aerodrome Designation in the District Plan submitted in conjunction with this Plan Change and includes QAC's proposal to develop a package in consultation with affected landowners to mitigate the effects of aircraft noise for habitable rooms within the ANB and the NNB. This will further manage the effects of aircraft noise on the health and well-being of the community.

7.5 In conclusion, Queenstown Airport is a major asset and economic benefit for the Otago Region. This Plan Change is necessary to protect the continued and future efficient operation of the Airport.

APPENDIX 1

Existing Noise Boundaries

APPENDIX 2

Proposed Noise Boundaries

APPENDIX 3

Certificates of Title

APPENDIX 4

Market Economics Report

APPENDIX 5

Market Economics Addendum

APPENDIX 6

Noise Management Plan

APPENDIX 7

Marshall Day Report

APPENDIX 8

AirBiz Growth Predictions

APPENDIX 9

J P Clarke Peer Review

APPENDIX 10

Proposed Plan Provisions

APPENDIX 11

Proposed Boundaries on District Plan

APPENDIX 12

Consultation Material