Appendix A

ORIGINAL

Decision No. C 166/2005

IN THE MATTER	of the Resource Management Act 1991 **(the Act)**
AND	
IN THE MATTER	of references pursuant to Clause 14 of the First Schedule of the Act
BETWEEN	CHRISTCHURCH INTERNATIONAL AIRPORT LIMITED
	(RMA 507A/01)
	AIR NEW ZEALAND AND BOARD OF AIRLINE REPRESENTATIVES OF AIR NEW ZEALAND INCORPORATED
	(RMA 522A/01)
	ROBINSONS BAY TRUST
	(RMA 518C/01, 518D/01 and 518E/01)
	NATIONAL INVESTMENT TRUST
	(RMA 527C/01, 527D/01 and 527E/01)
	Referrers
AND	CHRISTCHURCH CITY COUNCIL
	Respondent

BEFORE THE ENVIRONMENT COURT

Environment Judge J A Smith (presiding)
Environment Commissioner S Watson
Environment Commissioner A Sutherland

Hearing at CHRISTCHURCH on 31 October 2005

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

Appearances

Ms J M Appleyard for Christchurch International Airport Ltd (**CIAL**), Air New Zealand (**Air New Zealand**) and Board of Airline Representatives of New Zealand Incorporated (**BARNZ**)
Mr B R D Burke for Robinsons Bay Trust (**Robinsons Bay**) and National Investment Trust (**National Investment Trust**)
Mr J G Hardie for Christchurch City Council (**the Council**)

ORAL DETERMINATION OF THE COURT

Introduction

[1] This hearing is the denouement to a long series of references and hearings before this Court relating to the Christchurch International Airport. Either by agreement or by previous decisions of this Court the relevant provisions of the Christchurch City Plan (**the Plan**) relating to the airport land zoning and the noise contours generated by aircraft and other activity have been addressed.

[2] The final part of the jigsaw has been to settle provisions of the Plan relating to the noise effects of the airport on the surrounding environment. Although the provisions of the notified plan were removed by the Commissioner, both the City and CIAL have, for some considerable time, accepted controls as being appropriate in principle. However, the finalisation of these provisions has always required the settlement of the other provisions of the Plan so that the framework in which such rules would operate was clearly known. We are pleased to say that that point has now been reached.

Background

[3] A consent memorandum has been presented to the Court by counsel and relates to four critical issues:

(a) engine testing;
(b) noise monitoring;
(c) noise rule reinstatement; and

(d) noise management plan.

We will deal with each of these in turn.

Engine testing

[4] The references (being RMA 518D/01 and RMA 527D/01) relating to engine testing have been withdrawn. The background to this is that these matters are already controlled by City Council bylaws. However, as we will discuss shortly, it is also intended that a noise management plan be generated by CIAL will also incorporate this issue. On this basis, Mr Burke for National Investment and Robinsons Bay accepts that these proceedings can be withdrawn, relying instead on the bylaw and the noise management plan.

Noise rule reinstatement and noise monitoring

[5] As Mr Hardie for the Council said, these issues are clearly intertwined. There are various changes required to the Plan, particularly to the policies and rules sections. Annexed hereto and marked **"A"** is a set of changes to the Plan which all parties agree upon. The Court has also included in the explanation to the rules 1.5 at Volume 3 page 11/10 a new paragraph relating to the noise management plan, which I will discuss shortly.

[6] Effectively the airport has agreed that it will not generate noise effects above 65 dBA L_{dn} from aircraft beyond the 65 dBA L_{dn} line. That agreement essentially creates the Outer Control Boundary as a limitation on the airport in terms of the noise generated. Because the other contours, particularly the 55 and 55 contours, are a derivation from the 65 dBA L_{dn} contour, there is no need to continue to require these lesser contours to be separately recognised. We agree that this is a sensible approach and the Outer Control Boundary forms a positive line for the assessment of airport noise effects.

[7] This is reflected by amendments to the Plan included within Volume 2 section 6 Urban Growth, which now reflects additions for the control of noise **within the designated area.** An additional sentence reads:

> *However the effects of aircraft noise outside the designated area can be controlled via a rule limiting aircraft noise to 65 dBA L_{dn} at the 65 dBA L_{dn} noise contour line.*

There is specific reference to the fact that engine testing is subject to bylaw requirements already.

[8] There is a necessity to insert in Volume 2 section 7 Transport Policies a provision deleted by the Commissioner, namely 7.8.3 which reads:

> *To limit the noise generated by aircraft movements at the Christchurch International Airport*

and the consequential changes to the explanation and reasons. Importantly, this notes that the 65 dBA L_{dn} equates with the utilisation of the existing runways at full capacity. Accordingly these provisions follow on from the reinsertion of a 65 dBA L_{dn} contour limit for noise generated effects of aircraft movements.

[9] The Council, in consultation with the other parties, has decided that the rules would be better represented within Part 11 Health and Safety than within the general city rules. We agree entirely. The amenity effect and of course potential health effects of noise are matters best addressed directly through the health and safety provisions. We agree with Mr Hardie that this is not a matter of substantive change to the Plan but merely a matter of organisational convenience. To that effect, although no reference specifically sought the transfer of these provisions to Part 11, it is not a difference of substance and is one of proper and more sensible organisation of the provisions of the Plan and thus available to the Court under section 292(1)(b).

[10] Moving to the particular rules proposed, the general statement has some added provisions which specifically identify the relevant zones (which have been altered slightly as a result of Court decisions) and also adds a short paragraph as follows:

> *This section also includes a rule limiting the amount of aircraft noise that can be generated by aircraft movements associated with Christchurch International Airport. At the 65 dBA L_{dn} noise contour, CIA will be required to limit aircraft noise to 65 dBA L_{dn}. This limit equates to the utilisation of the existing runways at full capacity.*

[11] Accordingly, it can be said that the noise contour is one which will occur at a point in the future rather than recording actual usage and noise effects at the current time. There is the addition of a new environmental result anticipated to read:

> *(f) Maintenance and enhancement of amenity values and the quality of the environment for people living near Christchurch International Airport by management of aircraft operations so as to limit noise to a specified maximum level.*

Again this follows on from the changes that have been agreed between the parties and in our view is entirely appropriate.

[12] There are a number of other minor alterations made to various rules and provisions, which we do not need to cover in particular. These consequential amendments are fully set out in Annexure **"A"**.

[13] There are some more substantial changes to 1.2.4 which now relates to ***aircraft*** rather than ***airport*** noise and particularly brings in to play the question of annual monitoring and the provision of results of such monitoring to the Christchurch City Council on an annual basis. The particular elements of the provision include that:

- it be undertaken by an appropriately qualified person;
- it is verified by noise measurement;

- it constitute a contour for the previous year superimposed over a planning map; and
- the measurements are undertaken in accordance with the relevant New Zealand Standard 6805:1992.

[14] Again the particular rule is reflected in 1.3.5 which sets out a critical standard. I will not repeat that in full but essentially it requires the CIAL to manage the operation to comply with the noise limit and it specifies the method of measurement (an INM system) and the period for calculation of the aircraft operations, being the busiest three month period of the year.

[15] There is a provision for exceedence of up to 1 dBA which can be properly attributed to atypical weather patterns.

Noise Management Plan

[16] On their face these provisions give us the ***what***, in other words the measurement criteria, but not the ***how***. The Council and CIAL have long recognised that there needs to be a noise management plan **(the management plan)** developed by the airport relating to its operations. This has also been a major concern for the other appellants. I gather that the issue between the parties has been as to the method by which this is recognised in the Plan. We accept that there are good reasons that the actual provisions of the noise management plan should not be contained within the City Plan. These relate to issues of flexibility, and the difficulty of addressing matters that are in some part voluntary by the airport within the formal structure of a plan and its recognition as a form of derived legislation.

[17] In the end the memorandum presented by the parties did not have any reference to the noise management plan specifically within it. It was however recognised by all the parties that such a noise management plan was going to be developed within the next six month period.

[18] The Court has expressed some concerns about not having any reference to the noise management plan within the provisions of the Plan. All parties have now agreed with the Court that this could recognised by an insertion within the explanation and reasons for rule 1.3.5. This would set out in general terms the nature of the noise management plan and that CIAL will be responsible for its development. All members of the Court are satisfied that this would be an appropriate recognition of the need for a noise management plan and would clearly demonstrate to persons reading the Plan in the future that a noise management plan had been developed and could be referred to if it is of any particular interest.

[19] After discussion with the parties, it is intended to insert the following provision as a new paragraph after the word ***inquiry*** at the end of the explanation and reasons section:

> ***That CIAL will produce a noise management plan including the following provisions:***
>
> ***(a) setting out procedures for monitoring and demonstrating compliance with the noise control rule in the City Plan and for mitigation and review of the noise control lines incorporated in the Plan once noise levels are approaching projected levels;***
>
> ***(b) a comprehensive noise complaints procedure for Christchurch International Airport;***
>
> ***(c) procedures for amendment to the contents and implementation of the noise management plan; and***
>
> ***(d) formalising the engine testing bylaw in the noise management plan.***

[20] Accordingly the Court has incorporated this additional paragraph into the explanation and reasons for rule 1.3.5. We are satisfied that, reading all of the changes in totality, there is clear indication to third parties as to the intent of the noise management plan and its method of operation. We are satisfied that it is not necessary to provide more specific requirements beyond those in the explanation and reasons within the plan itself. In this case, we are satisfied that a more informal method is more likely to achieve an appropriate outcome than a mandatory requirement set out in a rule

or policy. In other words we, like the parties, are satisfied that the objectives of the Act are best met by these provisions, which enable both CIAL and other parties to provide for their wellbeing, while providing a reasonable approach to the management of noise and amenity issues within the Christchurch City, being inserted within the Plan.

Evaluation

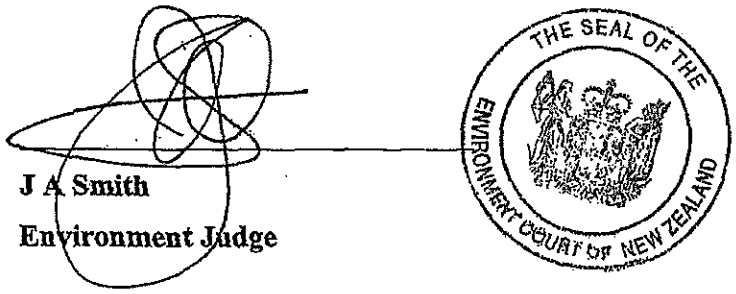
[21] Finally, we are satisfied that a noise management plan has the potential to assist both the people of Christchurch and CIAL to achieve those objectives in terms of amenity and noise effects. The parties have signed a consent memorandum and we accept that section 32 and Part II of the Act are met by the provisions.

[22] Accordingly we conclude that the Plan should be amended as set out in Annexure **"A"**. The track changes show the changes made but are not intended to be displayed in the final version.

[23] We finally record out thanks to the parties for their careful negotiations and consideration of these issues and we anticipate that the Plan will provide a method for the CIAL and the people of Christchurch to move forward with confidence into the future.

[24] There are no issues of costs arising and the Court makes no orders.

Oral decision delivered at Christchurch on 31 October 2005.



J A Smith
Environment Judge

Issued[1]: - 8 NOV 2005

[1] Smithje/Jud_Rule/D/rma507-01(final).doc

Annexure "A"

Volume 2, Section 6 Urban Growth: Airport operations

6.3.7 To discourage noise-sensitive activities within the 50 dBA Ldn noise contour around Christchurch International Airport.

Explanation and reasons

(...)

This policy is intended to ensure that Christchurch International Airport can continue without undue restriction and that residential amenities and the quality of life for people living around the airport are safeguarded. In the Christchurch context it is not necessary to permit urban residential development to occur on land within the 50 dBA Ldn contour as sufficient land for residential expansion can be provided at other locations.

This policy and the other provisions in this Plan that implement it are based upon the premises that noise generated by aircraft movements will not exceed that indicated by noise contours identified on the planning maps. These contours have been calculated following the approach recommended in the New Zealand Standard NZS 6805:1992, Airport Noise Management and Land Use Planning. On the basis of present knowledge it is estimated that the noise levels indicated by these contours will be approached in about the year 2020. If and when this happens the levels of noise in the vicinity of the airport will be significantly higher than at present, as will the effects of airport noise.

NZS 6805:1992 provides that once noise contours have been established the airport operator shall manage its operations so that the limit specified for the Air Noise Boundary is not exceeded, and that if this occurs noise control measures may be necessary. Because there is a designation in place affecting the majority of the land used for the purposes of the Christchurch International Airport it is not possible for effective rules to be included in this Plan for the control of noise within the designated area resulting either from aircraft~~port~~ operations or from

engine testing. However the effects of aircraft noise outside the designated area can be controlled via a rule limiting aircraft noise to 65 dBA Ldn at the 65 dBA Ldn noise contour line (Vol 3, Part 11, Rule 1.3.5). Engine testing is, despite being excluded from this rule~~however~~, subject to the requirements of the Christchurch International Airport Bylaws 1989 approved by the Governor General in The Christchurch International Airport Bylaws Approval Order 1989.

The Council will continue to monitor the growth of airport related noise and will require the airport operator to contribute to this monitoring process (Vol 3, Part 11, Rule 1.2.4.2). That monitoring will enable the Council to consider whether (and if so, what) additional measures are necessary for the control of noise from airport operations and engine testing. These measures may include removal of the designation from this or subsequent plans and the establishment of further rule based controls.

Section 7 Transport, Policies: Airport services

7.8.1 To provide for the effective and efficient operation and development of Christchurch International Airport.

7.8.2 To avoid, remedy or mitigate nuisance to nearby residents through provisions to mitigate the adverse noise effects from the operations of the Christchurch International Airport and Wigram Airfield.

7.8.3 To limit the noise generated by aircraft movements at Christchurch International Airport.

Explanation and reasons

It is essential to protect the operation of transport facilities from other land uses to allow them to function effectively and safely. It is also necessary to protect outside uses from the noise and related activity associated with transport facilities. The two principal ways of minimising impacts of the landuses on each other is by separating the transport facility from other activities through a buffer of land, or by requiring the various land uses to meet stringent conditions to minimise impacts. In addition, the amount of aircraft noise that can be generated by aircraft movements associated with the airport will also be limited.

(...)

The rules are more flexible for alterations to existing buildings within the air noise boundary, where the "affected building" already exists or for some vacant lots existing at 24 June 1995.

At the 65 dBA Ldn noise contour, Christchurch International Airport will be required to limit aircraft noise to 65 dBA Ldn. The limit equates with the utilisation of the existing runways at full capacity.

Volume 3
Part 9 General City Rules

Appendix 6 – 65 dBA Ldn Airport Noise Monitoring Contour – CIAL (p9/74)
Delete this appendix and move it to Part 11 as detailed below.

Volume 3
Part 11 Health and Safety

1. Control of Noise

1.1 Statement (p11/2)

Noise is one of the principal factors, which can adversely affect appreciation of amenity. Noise is a complex "effect" which can be difficult to assess objectively, but which has become part of district scheme planning and now resource management.

The rules recognise that the underlying pattern of land use activities has given rise to different noise environments within the city. These range from "quiet" living, open space and rural environments, to "noisy" business or quarry environments, for example. Some zones have a "transitional" noise character between these two environments. In reality there are numerous complicating factors affecting "background" or ambient noise in these environments, including traffic movement. In general, the rules are aimed at ensuring noise levels from particular activities do not greatly exceed the ambient levels in the zone concerned. However, the rules also recognise that where existing commercial, industrial or recreation activities adjoin living environments, there will be a greater level of noise intrusion than in living areas generally. Similarly, there will also be greater noise intrusion near major transport infrastructure, such as arterial roads, railways and airports. The rules focus on four factors; the average noise level over a 24 hour period; cyclic variations within this period; day and night levels (the latter being more sensitive) and finally the maximum levels acceptable.

The rules applicable are city rule standards for zones, incorporating the above factors, and developed with regard to New Zealand Standard 6801. There are three levels of standards set out in the City Plan with specified exceptions based on particular activities or the sensitivity of the zone environment to noise

intrusion. The controls on exceeding noise levels depend generally on the sensitivity of the zone environment.

The rules on noise do not apply to motor vehicles, trains or aircraft, and a limited range of other activities as set out in Clause 1.2.3. Control of these effects is either inappropriate under the scope of the Act, or can be more appropriately dealt with under the provisions of the enforcement powers in Part 12 of the Act. However, some work will be undertaken in the future on road noise impacts in respect of road surfacing, as part of dealing with traffic noise.

Transit New Zealand is participating in the development of guidelines on road traffic noise and it is intended that these will apply to state highway improvements adjacent to residential buildings, general residential activities and teaching environments.

Some particularly noisy activities (e.g. quarrying, aircraft testing and motor sports) unavoidably involve exclusions, separation distances or specific standards to deal with their particular noise effects.

Specific provisions relating to requirements for protection from ~~airport and~~ aircraft noise are contained separately in the Rural 2, 4, 5, 6 and Quarry Zones, Living 1,2, 5 and Living 1E Zones, part of the Business 5 Zone, Special Purpose (Airport) Zone, Special Purpose (Wigram) Zone and Open Space 3D Zone.

This section also includes a rule limiting the amount of aircraft noise that can be generated by aircraft movements associated with Christchurch International Airport. At the 65 dBA Ldn noise contour, CIA will be required to limit aircraft noise to 65 dBA Ldn. This limit equates to the utilisation of the existing runways at full capacity.

Environmental results anticipated

(a) *Minimised effects of noise in or on residential environments including from noise sources in other zones, but with potentially higher noise outcomes on the interface with noise generating environments such as the International Airport, arterial roads, railways, business zones, existing commercial activities and specialised recreation activities.*

(b) *The establishment of non residential activities in living zones and other noise sensitive zone environments, but only where these have noise levels compatible with the surrounding amenities of occupants in the living zone environment.*

(c) *The protection of the health and amenity of workers and visitors from excessive noise in business environments, while recognising potentially higher noise intrusion in these environments.*

(d) *The protection of rural, open space and passive recreational environments from unreasonable noise, particularly where this would detract from the amenities of residents and passive recreation.*

(e) *The avoidance of exposure to airport noise through limitations on the number of potential dwellings able to establish in proximity to the International Airport, recognising the high noise levels generated from the operations at these facilities.*

(f) *Maintenance and enhancement of amenity values and the quality of the environment for people living near Christchurch International Airport by management of aircraft operations so as to limit noise to a specified maximum level.*

~~(f)~~(g) *The avoidance of exposure to noise from specialised noisy activities such as quarries, motor sports and aircraft engine testing facilities, by limitations on the location of dwellings in close proximity to these activities, or noise attenuation at source, or a combination thereof.*

~~(g)~~(h) *The protection, to the maximum extent practicable, of residences from noise resultant from rural land use practices, such as bird scaring devices, helicopter frost clearance and other rural land use management activities, through policies in the Plan and enforcement action where appropriate, rather than city plan rules.*

~~(h)~~(i) *A higher degree of protection from noise during night hours throughout the city, when the effects of noise intrusion are greatest.*

~~(i)~~(j) *The protection of amenities from noise, which may be intermittent, but of high impact, or of a character duration or timing which creates particular disturbance.*

1.2 General rules

1.2.1 Measurement, calculation and application of sound levels

For the purposes of the application of these rules, and except where otherwise stated, measurement and calculation of the levels of sound emission from any activity shall be as follows:

(i) method of sound level measurement and descriptions and definitions used shall be in accordance with NZS 6801:1991 "Measurement of Sound";

(ii) when calculations are necessary for the prediction of sound level emissions from an activity for the purposes of design or assessment of the activity, then the calculations shall be applied at the boundaries of the site which contains the activity, except as provided for under Clause 1.3.1(b).

For the purpose of applying these rules, the noise level standards shall apply at any point on and beyond the boundary of the site containing an activity generating noise, except as provided under Clauses 1.3.1 and 1.3.4.

Except where otherwise defined in these rules, " boundaries" means the boundaries of a " site" as defined in this Plan; or the boundaries of any lease or other agreement with the land owner; and the vertical extension of these boundaries. Where these rules refer to any location on or beyond the boundaries, this shall be deemed to include any one or more locations on a boundary, or beyond a boundary.

1.2.2 Special provisions for the control of noise

Where an activity, which because of its unusual or specialised character or levels of noise effects; and for which it would be impracticable to specify standards, and/or which circumstances could not have been foreseen by the Plan, generates excessive noise, the Council may, notwithstanding whether or not the activity complies with these rules or is subject to the exclusions under Clause 1.2.3, initiate procedures under Part 12 of the Act (Declarations, enforcement and ancillary powers) and in particular under section 327 of the Act.

1.2.3 Exclusions

The rules in Clauses 1.3.1, 1.3.2 and Table 1 do not apply to:

(a) traffic noise on " roads" (as defined in the Transport Act 1962);

(b) trains, including at railway yards, railway sidings or stations; and tramways existing at the date of notification of the City Plan;

(c) ~~aircraft or~~ aircraft testing and aircraft maintenance where this is carried out within the Special Purpose (Airport) Zone and the Special Purpose (Wigram) Zone;

(d) helicopter landing and takeoff within the Special Purpose (Airport) Zone or Special Purpose (Wigram) zones; and up to three takeoffs and three landings per year in any site in the Open Space 2 Zone, or ten in the Open Space 3, 3A, 3B, or 3C zones; or elsewhere at any time for medical or emergency purposes;

(e) jet boating (on the Waimakariri River only);

(f) farm vehicles and farm equipment (except fixed motors or equipment);

(g) sports events not involving the use of powered machinery, amplification, or explosives as defined in Schedule 1 of the Hazardous Substances Rules (Part 11, Clause 3); and non-commercial private social gatherings;

(h) domestic animals (including dogs, cats, poultry and caged birds);

(i) construction activities;

(j) spontaneous social activities and children's play (but not including pre-schools in Living Zones);

(k) temporary military training activities.

(l) aircraft movements

Note: Rule 1.3.5 controls noise from aircraft operations.

1.2.4 Aircraft~~port~~ noise (p11/4)

1.2.4.1 Aircraft noise exposure

Special rules relating to requirements for protection from aircraft~~port~~ noise in the vicinity of the Christchurch International Airport are contained in the Rural 2, 4, ~~and~~ 5, 6 and Quarry Zones, Living 1, 2, 5 and Living 1E Zones, and the Open Space 3D Zone.

1.2.4.2 Aircraft noise monitoring

CIAL shall annually provide to the Council's Environmental Services Manager the result of calculations based upon monitored aircraft movements for the preceding year and the known noise characteristics of those aircraft. These calculations will be performed by a person with appropriate qualifications and experience in airport noise modelling and acoustic assessments. The provided result shall be verified by noise measurements and shall be in the form of a 65dBA Ldn contour representing the noise created by aircraft operations over that year (other than movements of a kind excluded in the Aircraft Noise Rule 1.3.5) superimposed upon a copy of the plan forming Appendix 3 to Part 11 of this Plan. The measurement of aircraft sound exposure and the resultant derivation of a 65 dBA Ldn shall be in accordance with NZS 6805:1992.

1.2.5 Aircraft Noise - Wigram

Special rules relating to requirements for protection from the effects of aircraft noise in the vicinity of Wigram Airfield are included in the Business 5 zone (Part 3), the Rural 2 Zone (Part 4) and the Special Purpose (Wigram) zone (Part 8).

Wigram Airfield shall be managed so that the noise from aircraft operations does not exceed a Day/Night Level (Ldn) of 65dBA at or outside the Air Noise Boundary shown in the District Planning Maps. Aircraft noise shall be measured

in accordance with NZS 6805: 1992 airport Noise Management and Land Use Planning and calculated as a 90 day rolling average.

I.3.5 Aircraft Noise (to be p11/9)

Critical Standard

CIAL shall manage the Christchurch International Airport so that the noise from aircraft operations does not exceed Ldn 65 dBA outside the Ldn 65 dBA airport noise contour shown in Appendix 3 to Part 11.

Noise from aircraft operations shall be based on noise data from the Integrated Noise Model (INM) and records of actual aircraft operations at CIA. The noise level shall be calculated over the busiest three month period of the year.

Aircraft operations means:

- *the landing and take off of aircraft at CIA*

- *aircraft flying along any flight path associated with a landing or take off at CIA*

The following activities are excluded from the definition of Aircraft Operations;

- *aircraft operating in an emergency for medical or national/civil defence reasons,*

- *air shows,*

- *military operations not associated with the Antarctic programme,*

- *aircraft using the airport as an alternative to a scheduled airport elsewhere,*

- *aircraft taxiing,*

- *aircraft engine testing.*

Exceedance by up to 1dBA of the noise limit is permitted provided CIAL demonstrates at the request of, and to the satisfaction of, the Council that any such exceedance is due to atypical weather patterns.

1.5 Reasons for rules (p11/10)

(...)

It will be noted from Clause 1.2.3 that there are a significant number of exclusions from the rules controlling noise because setting standards is impracticable in these circumstances, and where it is more sensible for the Council to apply enforcement provisions for excessive noise specified in Part XII of the Act. However, further work on noise effects, both in New Zealand and overseas, may eventually result in additional forms of regulatory control where this is the most practicable option.

Rule 1.3.5 addresses aircraft noise via a separate critical standard limiting noise from aircraft operations to 65 dBA Ldn at the 65 dBA Ldn airport noise contour. There are specified exceptions e.g. engine testing, aircraft operating in an emergency for medical or national/civil defence reasons, military operations not associated with the Antarctic programme, and air shows.

Setting the limit for airport noise at the 65 dBA Ldn provides a long term safeguard for the maintenance and enhancement of amenity values and the quality of the environment for people living near the airport. While the limit is unlikely to be approached for more than 10 years, it is appropriate to include the rule in the plan at this time so that the airport operator can work towards limiting noise associated with aircraft operations.

The rule is consistent with New Zealand Standard 6805:1992 which recommends the use of a dual approach by both controlling land uses around airports and setting limits on the amount of noise generated by aircraft movements.

Noise from engine testing is not included in the noise limits on aircraft operations due to the distinct noise profiles of the separate activities, and the fact that engine testing is subject to the requirements of the Christchurch International Airport Bylaws 1989 approved by the Governor General in the Christchurch International Airport Bylaws Approval Order 1989. Some unscheduled operations are exempt because they are infrequent events beyond the control of the airport authority, with potential for commercial operators to be constrained if this exemption is not provided for.

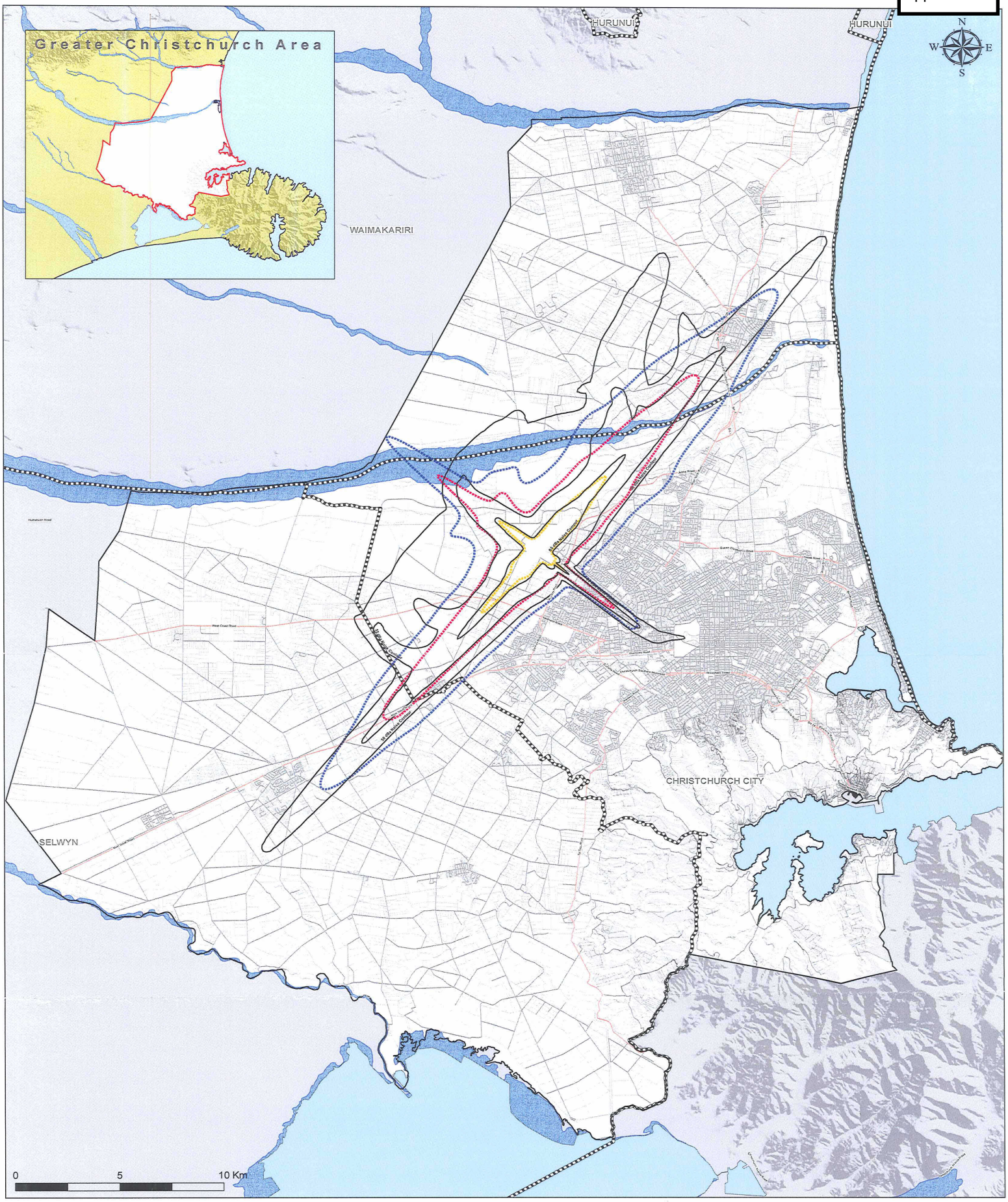
For the purpose of this clause, "engine testing" means ground running of engines for maintenance purposes (not associated with immediate flight operations). "Military operations" includes operations by the Royal New Zealand Air Force and foreign armed forces (exempted by s 4 and s 4A of the Resource Management Act 1991).

The administration of the rules will require a strong emphasis on the provision of adequate information, so that compliance or otherwise with the standards can be determined upon inquiry.

Part 11 Appendices

Insert new Appendix 3 – 65 dBA Ldn Airport Noise Monitoring Contour – CIAL (former Part 9 Appendix 6)

Appendix B



CHRISTCHURCH INTERNATIONAL AIRPORT

EXISTING AND PROPOSED NOISE CONTOURS

Environment Canterbury
Your regional council

Greater Christchurch Boundary
Territorial Authority Boundaries

Christchurch International Airport
Proposed Noise Countours (Case A)

50 dBA 55 dBA 65 dBA Existing Contour

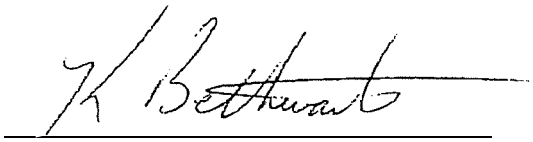
Appendix C

Expert Panel Report in the Matter of

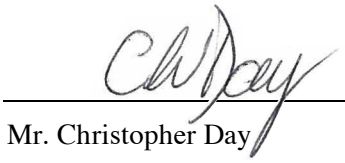
Several appeals against the proposed Selwyn District Plan

under Clause 14 of the First Schedule of the Resource Management Act 1991

Signed on 31 January 2008 by:



Mr. Kevin Bethwaite

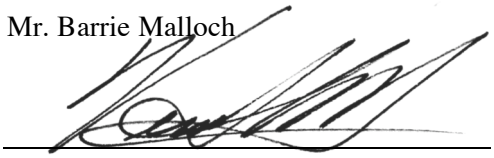


Mr. Christopher Day

Mr. William Bourke

Mr. Barrie Malloch

Dr. John-Paul Clarke



Mr. Vince Mestre

Ms. Laurel Smith

I. Executive Summary

We, a panel of experts constituted to address the matter that is the subject of this report, met for three days in Christchurch and conducted the subsequent analyses and simulations necessary to develop inputs for a noise modelling effort that resulted in noise contours for Christchurch International Airport that are, to the best of our knowledge, representative of what the noise impact would be when the demand at Christchurch International Airport reaches its capacity.

The contours that have been developed are shorter in length and wider along the runway 02/20 axis compared with the contours currently in the three District Plans, while being longer to the northwest and shorter to the southeast of the airport along the runway 11/29 axis. The reduction along the runway 02/20 axis is primarily the result of the RNAV CDA arrival procedures, while the increase to the northwest is the result of the nighttime usage of runway 11 for the majority of landings by domestic jet aircraft and the heavy usage of that runway by propeller aircraft.

We have also developed recommendations regarding the modelling and use of contours as well as on the matter of compliance with these contours. Specifically, we recommended that the noise contours be remodelled every ten years; that a team of experts be engaged to review the INM data using the latest version of the INM; that the City and District Plans utilise the previously modelled contours between each of the remodelling exercises; that the airport company provide an Annual Noise Report (ANR) with the results of noise monitoring carried out near the Ldn 65 dBA noise contour shown in the District Plans as well as Annual Noise Contours (ANC) calculated using the INM and records of aircraft operations and procedures over the year; and that the enforcement procedures allow a tolerance of +-2dB to allow for inherent uncertainties.

II. Introduction

a. Background

The parties in the above referenced matter reached an "out of court" settlement in which an expert panel was to be convened per the terms set out in paragraphs 11 through 17 (under the heading "Experts meeting") of the settlement agreement [see Appendix A].

Pursuant to the terms of the agreement, we the panel of experts convened for three days at the offices of Anthony Harper in Christchurch, New Zealand. During our deliberations, we were cognizant of the relevant issues and concerns articulated in paragraphs 13 through 34 inclusive in the subsequent oral ruling of the Environmental Court on 25 October 2007 [see Appendix B].

Given the charge and the issues and concerns above, we (individually and collectively) felt strongly that our task was to develop noise contours that were, to the best of our knowledge, representative of what the noise impact would be when the demand at Christchurch International Airport reached its capacity.

We also felt that some of the issues discussed by the court warranted clarification. For the sake of continuity, this clarification is provided in Appendix C.

b. Composition of the Expert Panel

Our panel of experts was comprised of:

Dr. John-Paul Clarke (Chair)
Associate Professor, School of Aerospace Engineering
Director, Air Transportation Laboratory
Georgia Institute of Technology

Mr. Kevin Bethwaite
RNP Project Design Coordinator
Airways New Zealand

Mr. William Bourke
Consultant
Formerly Manager Environment Aircraft Operations
Qantas Airways (Retired)

Mr. Christopher Day
Principal
Marshall Day Acoustics Ltd

Mr. Barrie Malloch

Managing Director

ATCANZ

Mr. Vince Mestre
Principal
Mestre Greve Associates

In addition, we were (primarily during the modelling exercise that occurred after the three-day meeting at Anthony Harper) ably assisted by:

Ms. Laurel Smith
Consultant
Marshall Day Acoustics Ltd

c. Agreement on Modelling Assumptions

At the conclusion of the three-day meeting at Anthony Harper, we signed an agreement [see Appendix D] in which we agreed to develop noise contours for the scenario where Christchurch International Airport has 175,000 commercial movements per annum and where (subject to meteorological conditions and the proposed extension of runway 11/29) the preferred runway for all domestic nighttime arrivals is runway 11, the preferred runway for turbo prop departures is runway 29, and the preferred runway for turbo prop arrivals is runway 11. As with the prior modelling effort, we agreed that the number of operations on runway 29 would be "adjusted" to account for the seasonal impact of the Föhn wind. That is, when the usage of runway 29 increases significantly for a period of two to three months, resulting in noise impact that would not be captured in a nominal annual noise impact calculation. We also agreed to replace the A380 and B747-400 with the B777-300 in the fleet mix that is modelled, and not to consider base legs closer than 8nm to the runway threshold.

These assumptions were felt to be conservative in the sense that we all agreed that these events were near certain to happen. Thus, for example, no allowances are made in the fleet mix for the aircraft that will replace the B737 and A320 family of aircraft. Similarly, there is no consideration of procedures with very short final approach segments – aircraft are

assumed to follow ground tracks that were already being flown and that would require little or no change to existing upstream routings.

d. Agreement on Modelling Protocol

With regard to the modelling protocol, we agreed to the following.

Dr. Clarke and Mr. Bethwaite (in the role of reviewer) would:

- Examine, through simulation, how aircraft and air traffic control performance, and noise impact changes as a function of the location of the base leg and the speed and altitude constraints that are placed at each way point;
- Propose the best location for the base leg given the desire to minimize the noise impact while at the same time providing safe and reliable aircraft and air traffic control performance;
- Develop the speed and altitude constraints for the RNAV RNP CDA procedures;
- Provide aircraft trajectories that were suitable for input into the INM, and recommend a scheme to the panel for adjusting the profiles of the aircraft that were simulated to best represent the profiles of the aircraft that were not simulated.

Mr. Bourke and Mr. Malloch would:

- Survey the major airlines currently operating at Christchurch International Airport to determine the departure procedures being used by their flight crews.

Ms. Smith and Mr. Mestre (in the role of reviewer) would:

- Develop INM inputs per the aforementioned agreement of the experts;
- Run the INM to determine the noise impact as exemplified by contours.

III. Flight Procedures

a. Arrivals

RNAV RNP CDA procedures were developed for runways 02 and 20 using the Tool for the Analysis of Separation and Throughput, TASAT (see Appendix E). A “straight-in” procedure was developed for aircraft destined to the runway from an origin directly or nearly opposite the direction of landing. Two “curved” procedures were developed for aircraft that would fly along a base-leg before turning onto their final-leg (or final approach segment). The first was

for an arrival with a base-leg that is 10nm from the runway threshold while the second was for an arrival with a base-leg that is 12nm from the runway threshold.

The steps involved in achieving these objectives were as follows:

- Two speed constraints were tested at each of the two waypoints considered (per the modelling assumptions) as the intercept waypoint, i.e. the point where aircraft would intercept the ILS glide slope –- one was placed 8nm prior to the runway threshold and the other 10nm prior to the runway threshold. The speed restrictions tested at the 8nm-waypoint were 180 and 190 knots, while the speed restrictions tested at 10nm-waypoint were 200 and 210 knots. All twelve aircraft type-waypoint location-speed restriction combinations were simulated in a slight tailwind to determine whether the different aircraft types would be able to slow down and be stabilized by 1,000ft -- the maximum tailwind allowed during landing is 10 knots thus this is the worst-case wind condition for slowing down. It was determined that all the aircraft types simulated would be stabilized by 1,000ft with either a speed restriction of 180 knots at 8nm-waypoint or a speed restriction of 200 knots at 10nm-waypoint.
- The intercept waypoint was placed 10nm prior to the threshold as this would ensure that the aircraft would be idle between 7nm and 10nm -- the region where thrust increases would most affect the location of the Ldn 50 dBA contour. The key consideration here was that there is always a risk when you place a speed restriction at a waypoint that the aircraft might achieve the desired speed prior to reaching the waypoint. Consequently, the throttle setting would have to be increased to maintain the desired speed. Thus, by placing the intercept waypoint 10nm prior to the threshold, we ensure that “throttle ups” would occur prior to that waypoint. Additionally, placing the intercept waypoint further from the threshold ensures that any throttle increases would occur at a higher altitude, a feature that reduces the likelihood that a “throttle up” would contribute to the Ldn 50 dBA contour.
- For the straight in arrival and approach, different altitude constraints were evaluated at a waypoint 18nm prior to the threshold (i.e. 8nm prior to the way point on final) with a speed constraint of 240 knots for a scenario where there was a slight tailwind to determine whether in this worst case wind condition for slowing down the different aircraft types would be able to slow down to 200 knots by 10nm. Given that the altitude constraint at the intercept waypoint was 3350ft MSL (the height of the glide slope at

10nm), it was determined that the altitude constraint at the 18nm-waypoint should be 5,000ft MSL.

- For the curved arrival and approach (i.e. with downwind-base-final legs) different altitude constraints were evaluated at the intercept waypoint and the waypoint between the downwind and base legs (placed 18nm prior to the threshold). Because of the turns, the actual distance flown will be less, the altitude constraint at the intercept waypoint had to be lowered. After several simulations, it was determined that the altitude constraint at the intercept waypoint should be 3200ft MSL and at the 18nm-waypoint 4600ft MSL.

Arrivals to runways 11 and 29 were modelled as conventional arrival and approach procedures in recognition of the facts that most of the operations on those runways would be conducted in propeller aircraft and there is no instrument landing system on those runways.

b. Departures

The major airlines currently operating at Christchurch International Airport were surveyed to determine the departure procedures being used by their flight crews. The results of the survey are as presented in Table 1.

Table 1: Results of Survey of Departure Procedures at Christchurch International Airport

Airline	**ICAO Departure Procedure***
Air New Zealand	NADP 2 (Distant)
Pacific Blue	NADP 1 (Close)
QANTAS	NADP 2 (Distant)
Jet Connect (QF Domestic NZ)	NADP 2 (Distant)

*NADP 1 and NADP 2 are analogous to the older ICAO A and ICAO B noise abatement procedures, respectively.

As indicated, most carriers use a procedure designed to reduce the noise at locations that are distant from the airport -- Noise Abatement Departure Procedure (NADP) 2. Thus, we felt that every departure should be modelled as an NADP 2 given the preponderance of its use, the fact that the NADP 2 is very beneficial for the specific population distribution around Christchurch International Airport, and the option for a NADP 2 mandate to be implemented to standardize departure operations at Christchurch International Airport.

IV. Aircraft Profiles

a. Arrivals

TASAT was also used to generate profiles to runways 02 and 20 for three aircraft types -- B737-800, B767-300, and B777-200 –- starting at 15,000ft above mean sea level and ending 50ft above the ground at the runway threshold. These were derived as follows:

- The curved and straight arrival and approach were simulated for each aircraft type in a headwind condition (which is the worst case noise as the aircraft will slow down early) and for a landing weight that was three-quarters of the way between the operating empty weight and the maximum landing weight – the effect of aircraft weight on performance was evaluated and it was determined that this was a suitable weight.
- It was determined that the profile for the straight in arrival and approach could be used for the arrival and approach with the intercept waypoint 12nm prior to the threshold, as the extra 2nm that must be added to the path to account for the greater distance to the threshold (which will be used for trans-Tasman flights) is approximately equal to the shortening of the path due to the turns.
- The thrust profiles for the A320 and B737-700 (used as the equivalent aircraft for the 787-9) were derived by scaling the corresponding profile for the B737-800 based on the relative values of idle and maximum continuous thrust as the shape of the thrust profiles will be the same. The thrust profile for the B777-300 was similarly derived from the profile for the B777-200. Note that the altitude and speed profiles were assumed to be the same.

The profiles derived above were then appended with ground components (per Ms. Smith and Mr. Mestre) that captured the landing and on-ground deceleration including the use of reverse thrust.

b. Departures

The nominal NADP 2 (ICAO B) profiles within the INM were used for all departures as we agreed that the profiles were accurate representations of NADP 2 operations.

c. INM Inputs

Default profiles were used for all arrival and departure operations except for the jet arrivals to runways 02 and 20. The custom arrival profiles for jet aircraft destined to these two runways

(modelled as either A320-211, B737-700, B737-800, B767-300, B777-200, and B777-300 aircraft) are shown in terms of speed, thrust, and altitude as a function of distance from landing threshold in Figures 1 through 6. As is to be expected given the wide variability in aircraft performance characteristics, there are throttle increases for some aircraft just prior to waypoints with speed constraints as there is no way to optimize the speed constraints of a single procedure for all aircraft. However, by design, the thrust level will be at flight idle for all aircraft types between 8.5nm (approximately 16km) and 5.5nm (approximately 10km) prior to the runway threshold.

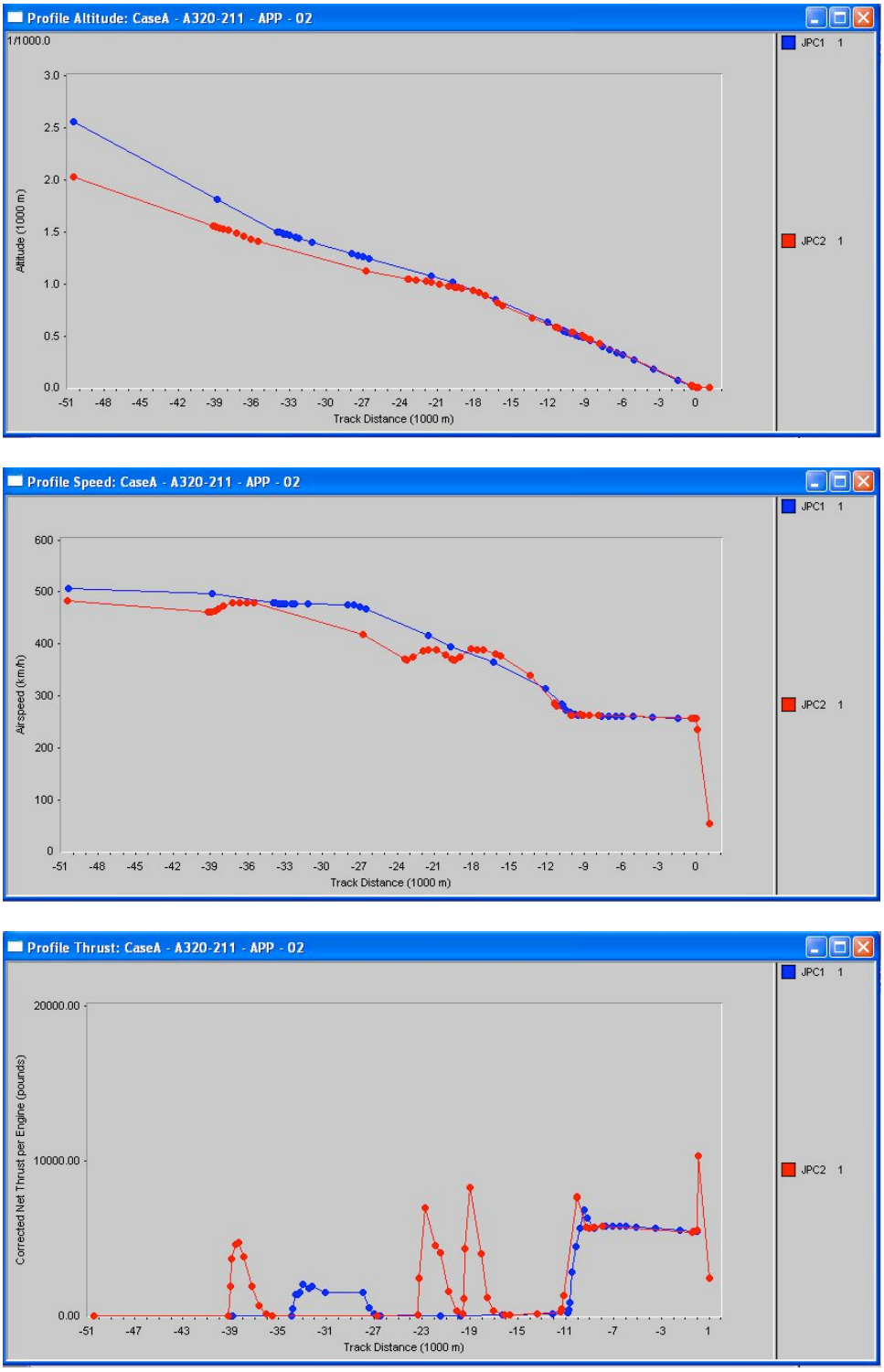


Figure 1: A320-211 Altitude, Speed and Thrust Profiles

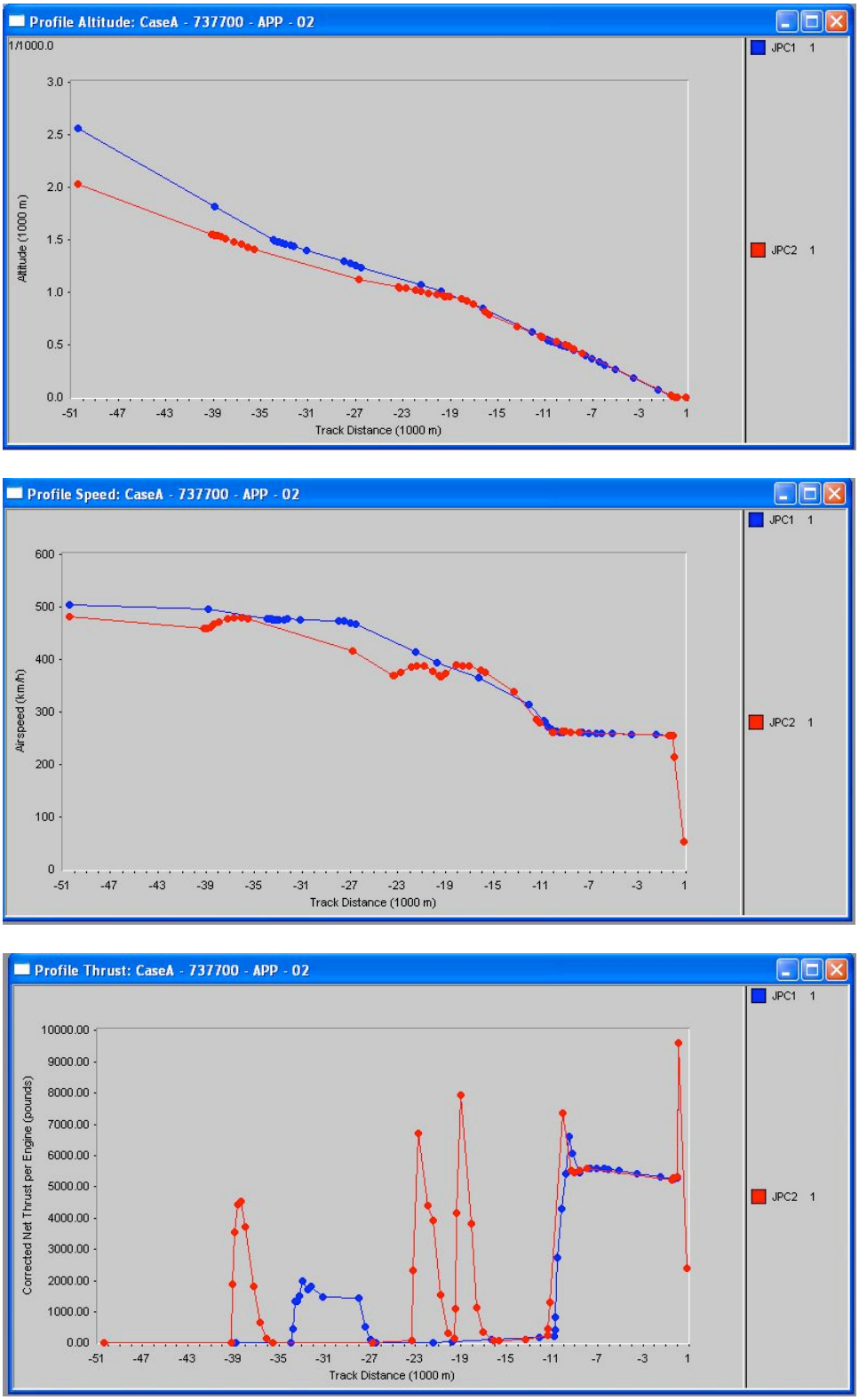


Figure 2: B737-700 Altitude, Speed and Thrust Profiles (Equivalent to 787-9)

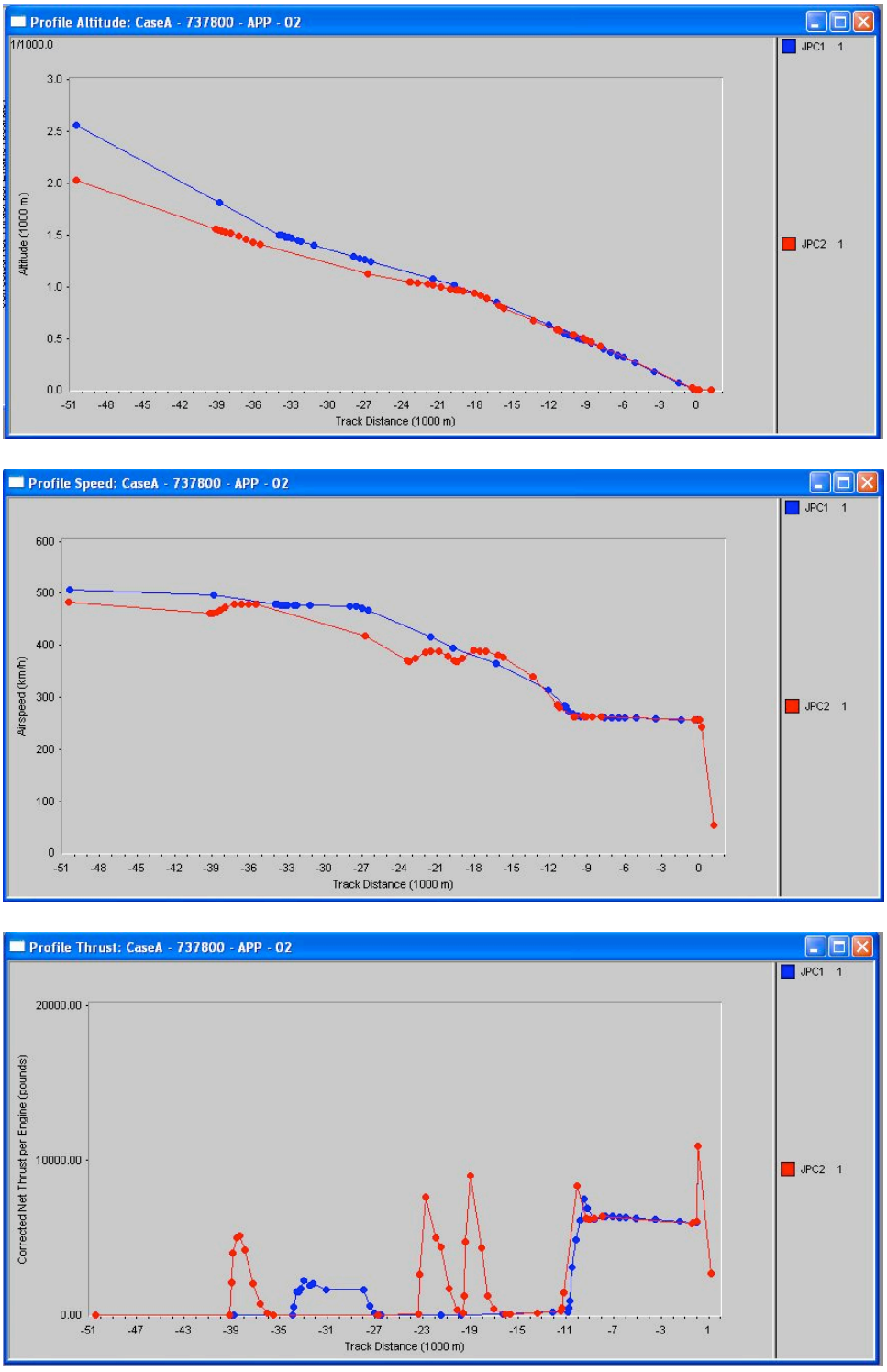


Figure 3: B737-800 Altitude, Speed and Thrust Profiles

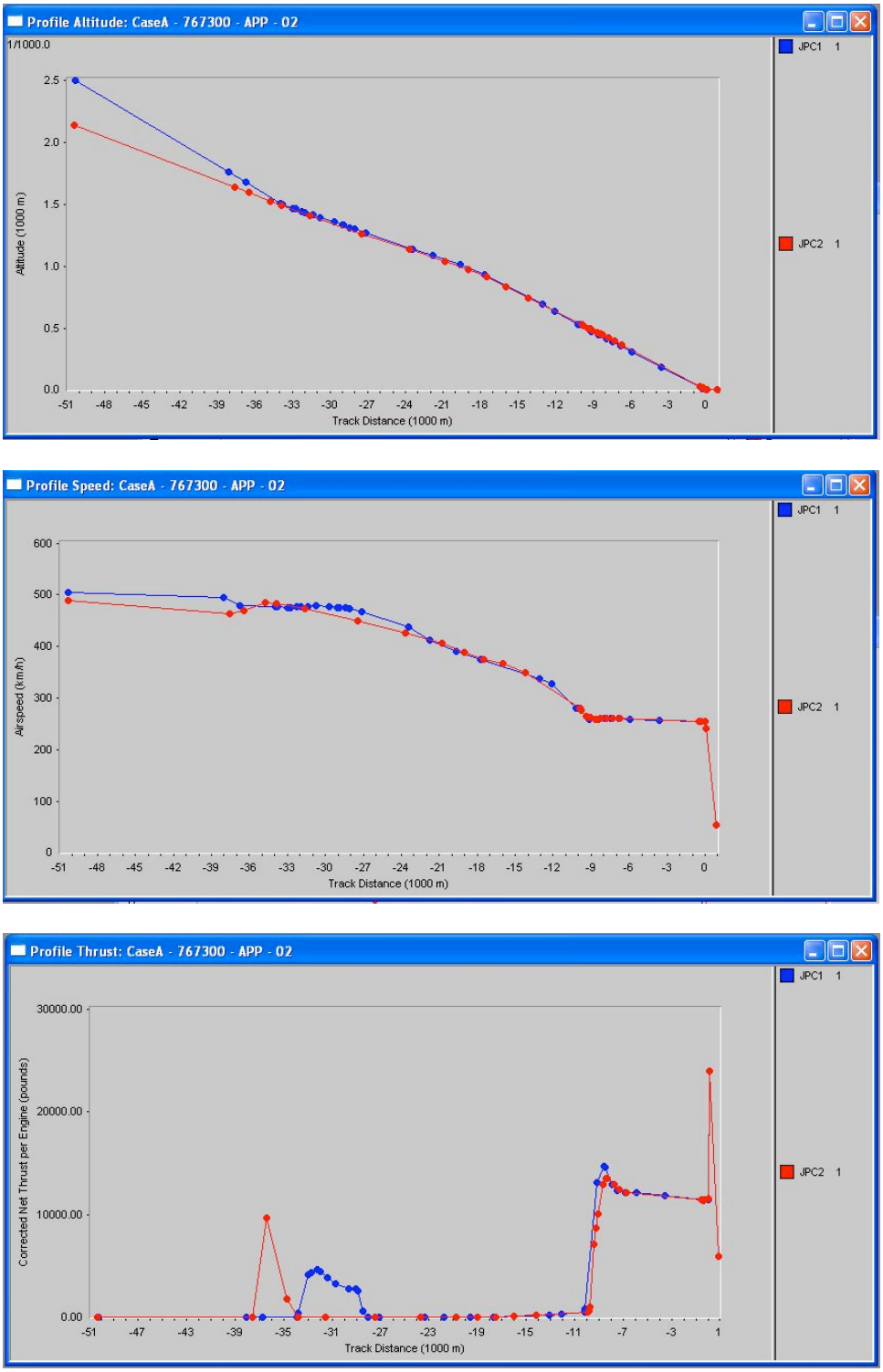


Figure 4: B767-300 Altitude, Speed and Thrust Profiles

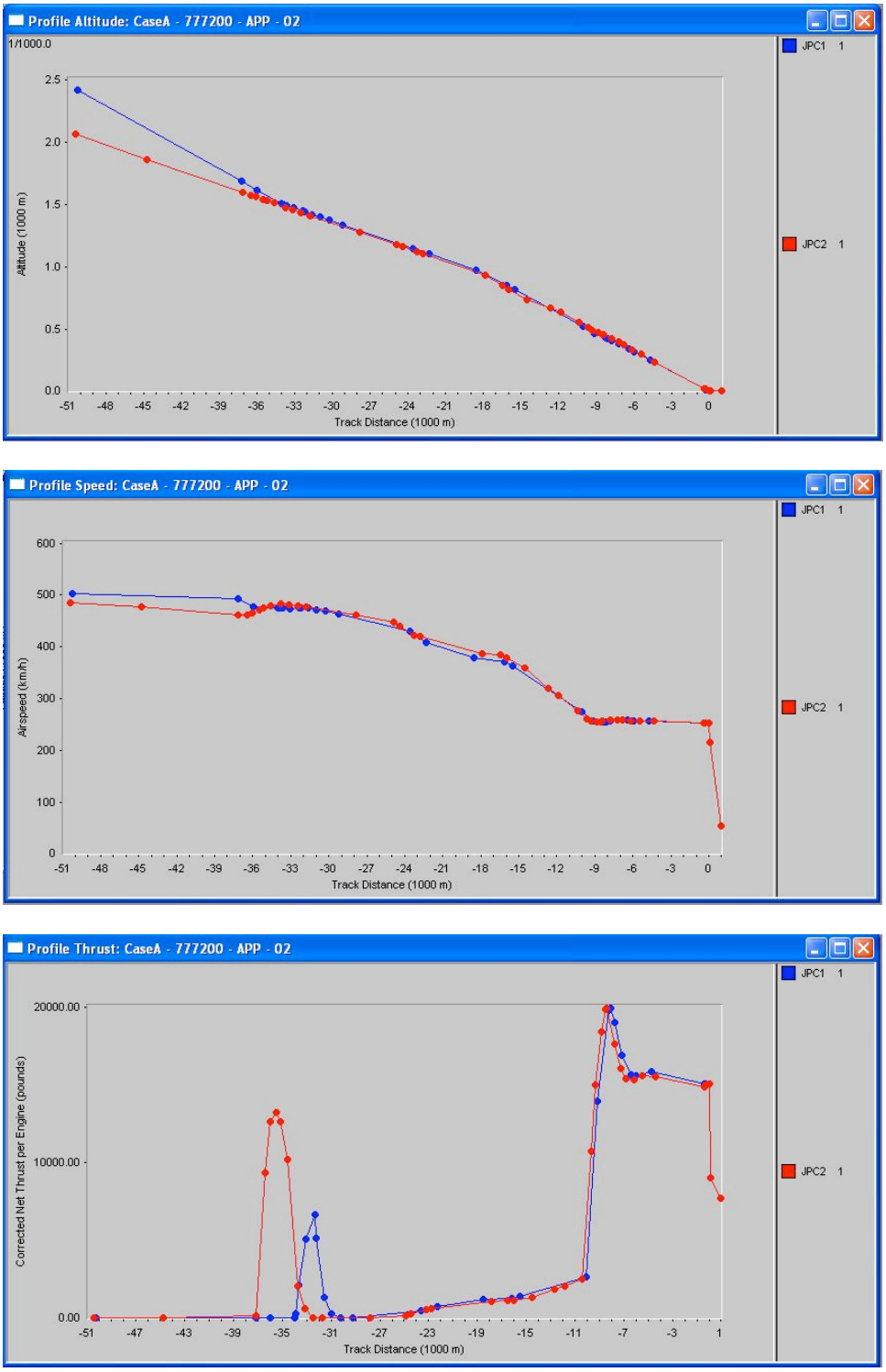


Figure 5: B777-200 Altitude, Speed and Thrust Profiles

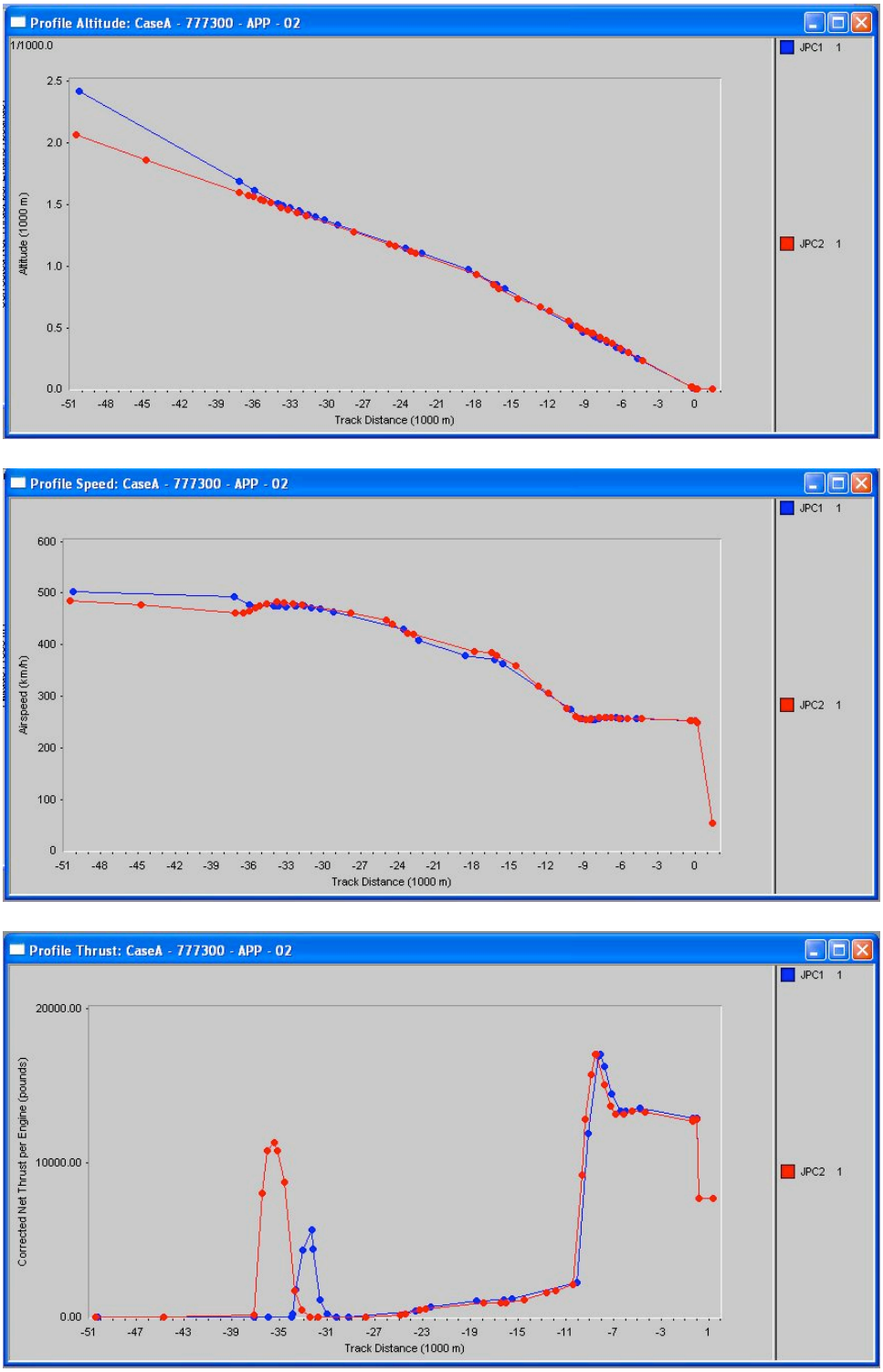


Figure 6: B777-300 Altitude, Speed and Thrust Profiles

V. Aircraft Ground Tracks

a. Overview

The ground tracks used in the modelling exercise were for the most part those that were developed by Mr. Bethwaite as part of the RNP design effort of Airways New Zealand. The exceptions were the base legs at 10nm that were added for arrivals to runways 02 and 20 from either side of the final approach course (northwest and southeast of the airport); removal of the 12nm base leg for arrivals from the southeast of the airport; and a slight modification to the ground track for departures from runway 02 which will be explained in the discussion of the departure tracks.

b. Arrivals

The ground tracks for the arrivals are depicted below in Figure 7. As may be seen, there is only one base leg for arrivals from the southeast of the airport to runway 02 (the same is also true for arrivals from the southeast of the airport to runway 20). The reason for this is that the 12nm base leg was only necessary for trans-Tasman arrival so it was not necessary to include that base leg (with the associated extra track distance) for arrivals from the southeast of the airport. This reduces the distance flown by aircraft arriving from that direction.

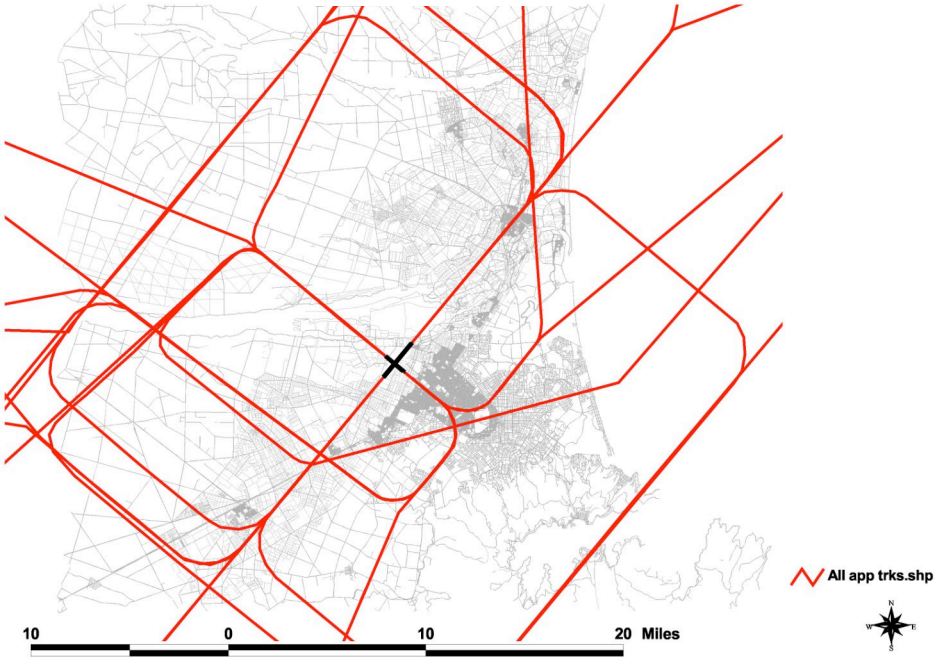


Figure 7: Arrival Ground Tracks

c. Departures

The departure tracks for the departures are depicted in Figure 8. As mentioned in the overview of this section, there is a slight modification to the departure tracks from runway 02 relative to the tracks that were developed by Mr. Bethwaite. Specifically, a fraction (approximately 20%) of the aircraft departing runway 02, for destinations to the north/northeast of the airport, deviate to the left of the extended runway centerline to avoid populated areas to the northeast of the airport.

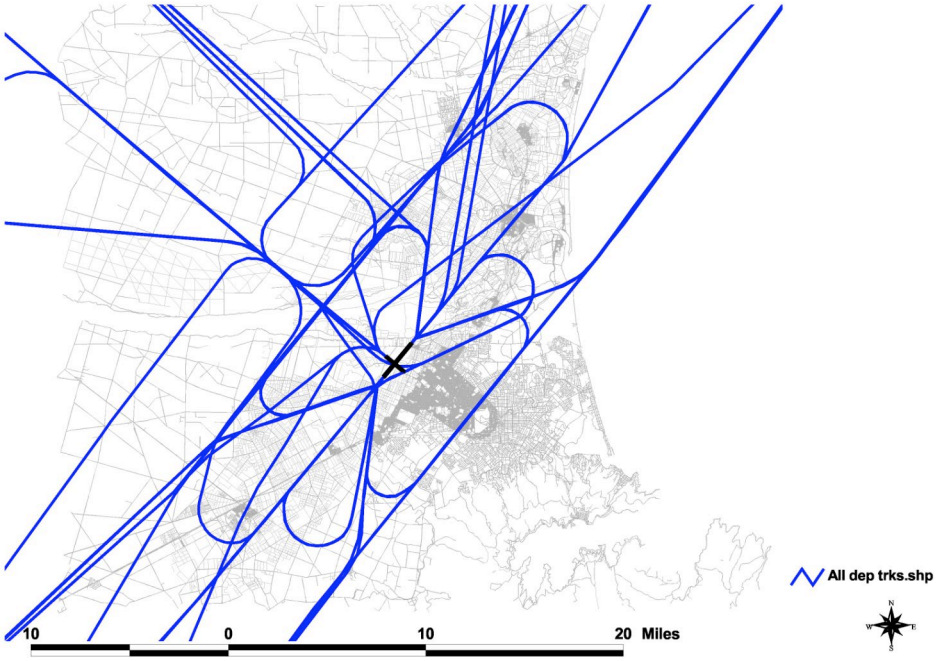


Figure 8: Departure Ground Tracks

d. INM Inputs

The ground tracks depicted in Figures 9 and 10 are the ground tracks that were input into the INM. Both figures include backbone tracks that represent the nominal flight track and sub-tracks that represent the range of tracks that result from aircraft track dispersion.

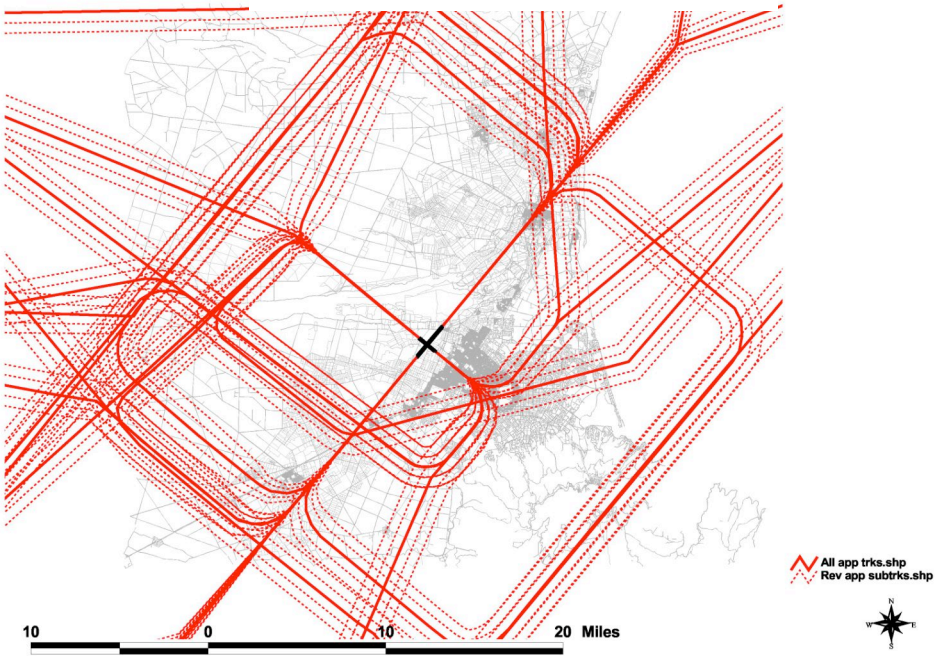


Figure 9: Arrival Ground Tracks as Input into INM

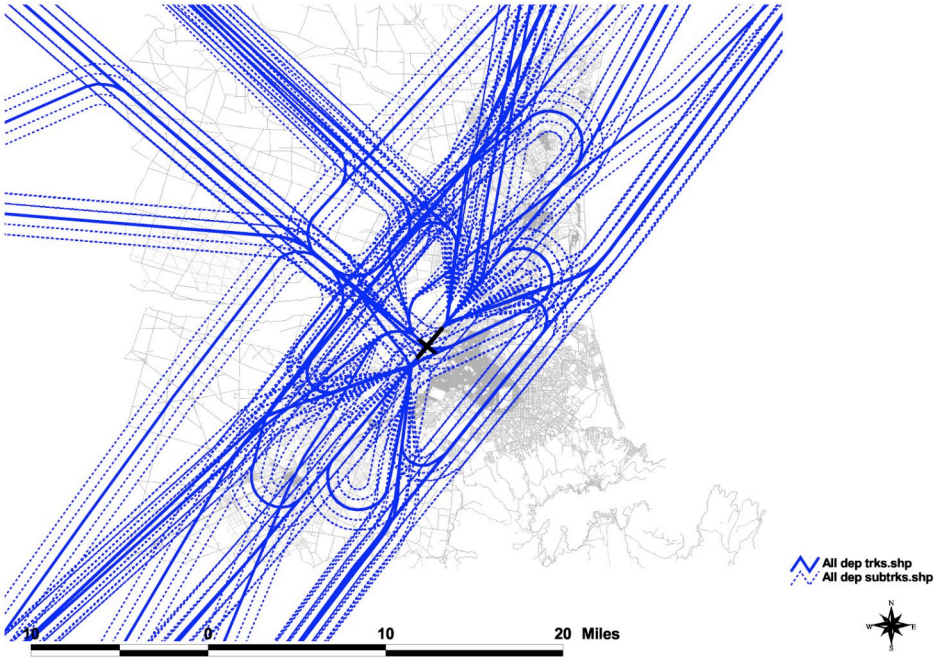


Figure 10: Departure Ground Tracks as Input into INM

VI. Airport Movements

a. Overview

The number of airport movements per annum was determined from three perspectives. Detailed calculations are provided in Appendix F.

First, we developed a simple model of the operations at Christchurch International Airport. In this model, we assumed that the fleet mix within each 15-minute period of the day was as forecast, but the sequence of arrivals and departures was assumed to be random to reflect the fact that the actual sequence of arrivals and departures is often different from the scheduled sequence of arrivals and departures due to the push back, taxi, and flight time variability. We then computed the maximum number of operations that could be conducted in each 15-minute period considering the air traffic control rules in New Zealand. This required estimates of the time between each runway event. Some were readily available but others had to be determined experimentally. For example, we measured the time between an arrival and the subsequent departure on the same runway empirically during observations at the air traffic control tower. Finally, we scaled up the current time of day schedule to the point where the demand in one (or more) of the 15-minute periods was equal to the capacity. The resulting schedule was therefore the maximum schedule assuming time of day variability in demand was unchanged. We felt that this was a reasonable approach to estimating the overall capacity because the location of Christchurch (and New Zealand in general) was such that it is highly unlikely that there will be significant changes in the timing of flights.

Second, we considered the maximum number of operations that could be supported at Christchurch International Airport given the planned terminal and gate layout in the 2025 timeframe, and the amount of time that each gate would be occupied by aircraft of different weight classes.

Third, we determined the number of operations at other airports throughout the world with one primary runway (or with one primary runway and a shorter crossing runway) where the airport in question was operating at or near capacity. We then corrected for difference in the time of day demand patterns at these airports and the time of day demand pattern at Christchurch.

Based on all three approaches to estimating the number of operations, it was determined that Christchurch International Airport, with an extension of runway 11/29 would be able to support 175,000 scheduled operations per year.

b. Allocation of Arrivals to Runways

Arrivals were initially allocated to runways as per the runway percentages originally developed by Airbiz. Additionally, a modification was made for nighttime domestic jet arrivals whereby 75% of these were assigned to runway 11 and 25% assigned to runway 02. It was decided that during night time hours, lower traffic volumes and wind conditions would allow most aircraft to be directed onto runway 11 thereby reducing the night time noise impact on built-up areas under the main runway flight paths.

c. Allocation of Departures to Runways

Departures were allocated to runways as per the runway percentages originally developed by Airbiz.

d. Adjustment to Runway 29 Operations

To account for the three-month period of the year when the dominant wind direction is northwest the number of movements on runway 29 has been factored up. The runway percentages used for the model assume the average usage per runway over a 12-month period. However this does not represent the large seasonal variations that occur in Christchurch. During spring, approximately 13% of all movements occur on runway 29 however the 12-month average is only 4.9%. Therefore for the purpose of producing representative noise contours the total number of movements on runway 29 has been multiplied by a factor of 2.65 (the ratio of 13/4.9). This increases the total annual movements in the model from 175,000 to approximately 199,300.

e. INM Inputs

Table 2: Runway Operations Summary+

Runways Total Operations Summary								
Runway ID	Arrival Operations	Arrival Percent	Departure Operations	Departure Percent	T&G* Operations	T&G* Percent	Total Operations	Percent Of Total
2	38,984.0	42.0%	21,866.1	20.5%	-	0.0%	60,850.1	30.5%
11	14,311.3	15.4%	-	0.0%	-	0.0%	14,311.3	7.2%
20	30,939.7	33.3%	19,576.2	18.4%	-	0.0%	50,515.9	25.3%
29	8,662.3	9.3%	30,409.1	28.6%	-	0.0%	39,071.4	19.6%
I02	-	0.0%	30,785.7	28.9%	-	0.0%	30,785.7	15.4%
I20	-	0.0%	3,810.1	3.6%	-	0.0%	3,810.1	1.9%
Totals	92,897.3	100.0%	106,447.2	100.0%	-	0.0%	199,344.5	100.0%

* One Touch-and-Go = Two Operations

+ The number of arrivals is not equal departures because the peaking factor described above in section d affects departures more than arrivals resulting in more departures than arrivals.

Table 3: Runway 02 Operations

Runway 02 Annual Aircraft Arrival, Departure, and T&G Operations

Aircraft Type	Arrival Operations	Arrival Percent	Departure Operations	Departure Percent	T&G* Operations	T&G* Percent	Total Operations	Percent Of Total
(1) A320-211	14,011.3	35.9%	7,037.6	32.2%	0.0	0.0%	21,048.9	34.6%
(2) 737800	7,540.7	19.3%	3,672.7	16.8%	0.0	0.0%	11,213.4	18.4%
(3) 737700	5,394.5	13.8%	5,394.1	24.7%	0.0	0.0%	10,788.6	17.7%
(4) HS748A	4,275.2	11.0%	2,143.7	9.8%	0.0	0.0%	6,418.9	10.5%
(5) DHC830	2,968.9	7.6%	744.3	3.4%	0.0	0.0%	3,713.2	6.1%
(6) 777200	1,770.7	4.5%	1,770.6	8.1%	0.0	0.0%	3,541.3	5.8%
(7) DHC8	2,493.9	6.4%	625.2	2.9%	0.0	0.0%	3,119.1	5.1%
(8) 777300	296.2	0.8%	296.2	1.4%	0.0	0.0%	592.4	1.0%
(9) 767300	164.7	0.4%	164.7	0.8%	0.0	0.0%	329.4	0.5%
(10) ATR42	67.9	0.2%	17.0	0.1%	0.0	0.0%	84.9	0.1%
Totals	38,984.0	100.0%	21,866.1	100.0%	0.0	0.0%	60,850.1	100.0%

* One Touch-and-Go = Two Operations

Runway 02 Annual Aircraft Arrival Operations By Time Period

Aircraft Type	Day Arrival Operations	Day Arrival Percent	Night Arrival Operations	Night Arrival Percent	Total Arrival Operations	Percent Of Total
A320-211	12,172.2	86.9%	1,839.1	13.1%	14,011.3	35.9%
737800	6,656.0	88.3%	884.7	11.7%	7,540.7	19.3%
737700	4,447.4	82.4%	947.1	17.6%	5,394.5	13.8%
HS748A	4,275.2	100.0%	-	0.0%	4,275.2	11.0%
DHC830	2,849.8	96.0%	119.1	4.0%	2,968.9	7.6%
DHC8	2,493.9	100.0%	-	0.0%	2,493.9	6.4%
777200	1,647.2	93.0%	123.5	7.0%	1,770.7	4.5%
777300	296.2	100.0%	-	0.0%	296.2	0.8%
767300	-	0.0%	164.7	100.0%	164.7	0.4%
ATR42	67.9	100.0%	-	0.0%	67.9	0.2%
Totals	34,905.7	89.5%	4,078.2	10.5%	38,984.0	100.0%

Runway 02 Annual Aircraft Departure Operations By Time Period

Aircraft Type	Day Departure Operations	Day Departure Percent	Night Departure Operations	Night Departure Percent	Total Departure Operations	Percent Of Total
A320-211	5,989.6	85.1%	1,048.0	14.9%	7,037.6	32.2%
737700	4,281.5	79.4%	1,112.5	20.6%	5,394.1	24.7%
737800	3,241.0	88.2%	431.7	11.8%	3,672.7	16.8%
HS748A	2,143.7	100.0%	-	0.0%	2,143.7	9.8%
777200	1,647.0	93.0%	123.5	7.0%	1,770.6	8.1%
DHC830	714.5	96.0%	29.9	4.0%	744.3	3.4%
DHC8	625.2	100.0%	-	0.0%	625.2	2.9%
777300	296.2	100.0%	-	0.0%	296.2	1.4%
767300	-	0.0%	164.7	100.0%	164.7	0.8%
ATR42	17.0	100.0%	-	0.0%	17.0	0.1%
Totals	18,955.8	86.7%	2,910.3	13.3%	21,866.1	100.0%

Table 4: Runway 11 Operations

Runway 11 Annual Aircraft Arrival, Departure, and T&G Operations

Aircraft Type	Arrival Operations	Arrival Percent	Departure Operations	Departure Percent	T&G* Operations	T&G* Percent	Total Operations	Percent Of Total
(1) HS748A	5,770.7	40.3%	0.0	0.0%	0.0	0.0%	5,770.7	40.3%
(2) DHC830	4,007.4	28.0%	0.0	0.0%	0.0	0.0%	4,007.4	28.0%
(3) DHC8	3,366.2	23.5%	0.0	0.0%	0.0	0.0%	3,366.2	23.5%
(4) A320-211	1,075.4	7.5%	0.0	0.0%	0.0	0.0%	1,075.4	7.5%
(5) ATR42	91.6	0.6%	0.0	0.0%	0.0	0.0%	91.6	0.6%
Totals	14,311.3	100.0%	0.0	0.0%	0.0	0.0%	14,311.3	100.0%

* One Touch-and-Go = Two Operations

Runway 11 Annual Aircraft Arrival Operations By Time Period

Aircraft Type	Day Arrival Operations	Day Arrival Percent	Night Arrival Operations	Night Arrival Percent	Total Arrival Operations	Percent Of Total
HS748A	5,770.7	100.0%	-	0.0%	5,770.7	40.3%
DHC830	3,846.7	96.0%	160.7	4.0%	4,007.4	28.0%
DHC8	3,366.2	100.0%	-	0.0%	3,366.2	23.5%
A320-211	-	0.0%	1,075.4	100.0%	1,075.4	7.5%
ATR42	91.6	100.0%	-	0.0%	91.6	0.6%
Totals	13,075.2	91.4%	1,236.2	8.6%	14,311.3	100.0%

Runway 11 Annual Aircraft Departure Operations By Time Period

Aircraft Type	Day Departure Operations	Day Departure Percent	Night Departure Operations	Night Departure Percent	Total Departure Operations	Percent Of Total
Totals	-	0.0%	-	0.0%	-	0.0%

Table 5: Runway 20 Operations

Runway 20 Annual Aircraft Arrival, Departure, and T&G Operations

Aircraft Type	Arrival Operations	Arrival Percent	Departure Operations	Departure Percent	T&G* Operations	T&G* Percent	Total Operations	Percent Of Total
(1) A320-211	7,751.0	25.1%	8,389.9	42.9%	0.0	0.0%	16,140.9	32.0%
(2) 737800	4,377.5	14.1%	4,378.4	22.4%	0.0	0.0%	8,755.9	17.3%
(3) HS748A	6,163.8	19.9%	1,295.7	6.6%	0.0	0.0%	7,459.5	14.8%
(4) 737700	3,306.7	10.7%	3,307.1	16.9%	0.0	0.0%	6,613.8	13.1%
(5) DHC830	4,280.4	13.8%	449.9	2.3%	0.0	0.0%	4,730.3	9.4%
(6) DHC8	3,595.6	11.6%	377.9	1.9%	0.0	0.0%	3,973.5	7.9%
(7) 777200	1,085.4	3.5%	1,085.5	5.5%	0.0	0.0%	2,171.0	4.3%
(8) 777300	180.4	0.6%	180.5	0.9%	0.0	0.0%	360.9	0.7%
(9) 767300	101.0	0.3%	101.0	0.5%	0.0	0.0%	201.9	0.4%
(10) ATR42	97.8	0.3%	10.3	0.1%	0.0	0.0%	108.1	0.2%
Totals	30,939.7	100.0%	19,576.2	100.0%	0.0	0.0%	50,515.9	100.0%

* One Touch-and-Go = Two Operations

Runway 20 Annual Aircraft Arrival Operations By Time Period

Aircraft Type	Day Arrival Operations	Day Arrival Percent	Night Arrival Operations	Night Arrival Percent	Total Arrival Operations	Percent Of Total
A320-211	7,066.2	91.2%	684.8	8.8%	7,751.0	25.1%
HS748A	6,163.8	100.0%	-	0.0%	6,163.8	19.9%
737800	3,864.0	88.3%	513.6	11.7%	4,377.5	14.1%
DHC830	4,108.7	96.0%	171.7	4.0%	4,280.4	13.8%
DHC8	3,595.6	100.0%	-	0.0%	3,595.6	11.6%
737700	2,726.1	82.4%	580.6	17.6%	3,306.7	10.7%
777200	1,009.7	93.0%	75.7	7.0%	1,085.4	3.5%
777300	180.4	100.0%	-	0.0%	180.4	0.6%
767300	-	0.0%	101.0	100.0%	101.0	0.3%
ATR42	97.8	100.0%	-	0.0%	97.8	0.3%
Totals	28,812.4	93.1%	2,127.3	6.9%	30,939.7	100.0%

Runway 20 Annual Aircraft Departure Operations By Time Period

Aircraft Type	Day Departure Operations	Day Departure Percent	Night Departure Operations	Night Departure Percent	Total Departure Operations	Percent Of Total
A320-211	7,140.5	85.1%	1,249.4	14.9%	8,389.9	42.9%
737800	3,863.8	88.2%	514.6	11.8%	4,378.4	22.4%
737700	2,625.0	79.4%	682.1	20.6%	3,307.1	16.9%
HS748A	1,295.7	100.0%	-	0.0%	1,295.7	6.6%
777200	1,009.8	93.0%	75.7	7.0%	1,085.5	5.5%
DHC830	431.9	96.0%	18.0	4.0%	449.9	2.3%
DHC8	377.9	100.0%	-	0.0%	377.9	1.9%
777300	180.5	100.0%	-	0.0%	180.5	0.9%
767300	-	0.0%	101.0	100.0%	101.0	0.5%
ATR42	10.3	100.0%	-	0.0%	10.3	0.1%
Totals	16,935.4	86.5%	2,640.8	13.5%	19,576.2	100.0%

Table 6: Runway 29 Operations

Runway 29 Annual Aircraft Arrival, Departure, and T&G Operations

Aircraft Type	Arrival Operations	Arrival Percent	Departure Operations	Departure Percent	T&G* Operations	T&G* Percent	Total Operations	Percent Of Total
(1) HS748A	2,520.0	29.1%	12,001.1	39.5%	0.0	0.0%	14,521.1	37.2%
(2) DHC830	1,750.0	20.2%	8,334.1	27.4%	0.0	0.0%	10,084.1	25.8%
(3) DHC8	1,470.0	17.0%	7,000.6	23.0%	0.0	0.0%	8,470.6	21.7%
(4) A320-211	1,375.2	15.9%	1,375.4	4.5%	0.0	0.0%	2,750.6	7.0%
(5) 737800	717.7	8.3%	717.8	2.4%	0.0	0.0%	1,435.5	3.7%
(6) 737700	581.0	6.7%	581.1	1.9%	0.0	0.0%	1,162.1	3.0%
(7) 777200	190.7	2.2%	190.7	0.6%	0.0	0.0%	381.5	1.0%
(8) ATR42	40.0	0.5%	190.5	0.6%	0.0	0.0%	230.5	0.6%
(9) 767300	17.7	0.2%	17.7	0.1%	0.0	0.0%	35.5	0.1%
Totals	8,662.3	100.0%	30,409.1	100.0%	0.0	0.0%	39,071.4	100.0%

* One Touch-and-Go = Two Operations

Runway 29 Annual Aircraft Arrival Operations By Time Period

Aircraft Type	Day Arrival Operations	Day Arrival Percent	Night Arrival Operations	Night Arrival Percent	Total Arrival Operations	Percent Of Total
HS748A	2,520.0	100.0%	-	0.0%	2,520.0	29.1%
DHC830	1,679.8	96.0%	70.2	4.0%	1,750.0	20.2%
DHC8	1,470.0	100.0%	-	0.0%	1,470.0	17.0%
A320-211	1,158.4	84.2%	216.7	15.8%	1,375.2	15.9%
737800	633.5	88.3%	84.2	11.7%	717.7	8.3%
737700	479.0	82.4%	102.0	17.6%	581.0	6.7%
777200	177.4	93.0%	13.3	7.0%	190.7	2.2%
ATR42	40.0	100.0%	-	0.0%	40.0	0.5%
767300	-	0.0%	17.7	100.0%	17.7	0.2%
Totals	8,158.1	94.2%	504.2	5.8%	8,662.3	100.0%

Runway 29 Annual Aircraft Departure Operations By Time Period

Aircraft Type	Day Departure Operations	Day Departure Percent	Night Departure Operations	Night Departure Percent	Total Departure Operations	Percent Of Total
HS748A	12,001.1	100.0%	-	0.0%	12,001.1	39.5%
DHC830	7,999.8	96.0%	334.3	4.0%	8,334.1	27.4%
DHC8	7,000.6	100.0%	-	0.0%	7,000.6	23.0%
A320-211	1,170.6	85.1%	204.8	14.9%	1,375.4	4.5%
737800	633.4	88.2%	84.4	11.8%	717.8	2.4%
737700	461.2	79.4%	119.9	20.6%	581.1	1.9%
777200	177.4	93.0%	13.3	7.0%	190.7	0.6%
ATR42	190.5	100.0%	-	0.0%	190.5	0.6%
767300	-	0.0%	17.7	100.0%	17.7	0.1%
Totals	29,634.7	97.5%	774.4	2.5%	30,409.1	100.0%

VII. Noise Contours

a. Overview

DNL noise contours were creating using INM version 7.0 and the inputs listed above. The resulting contours were overlaid on a map of the Christchurch area as well as compared to the contours in the existing District Plan.

b. Contours

The DNL contours for operations at Christchurch International Airport when it is at capacity of 175,000 scheduled operations are shown in Figure 11.

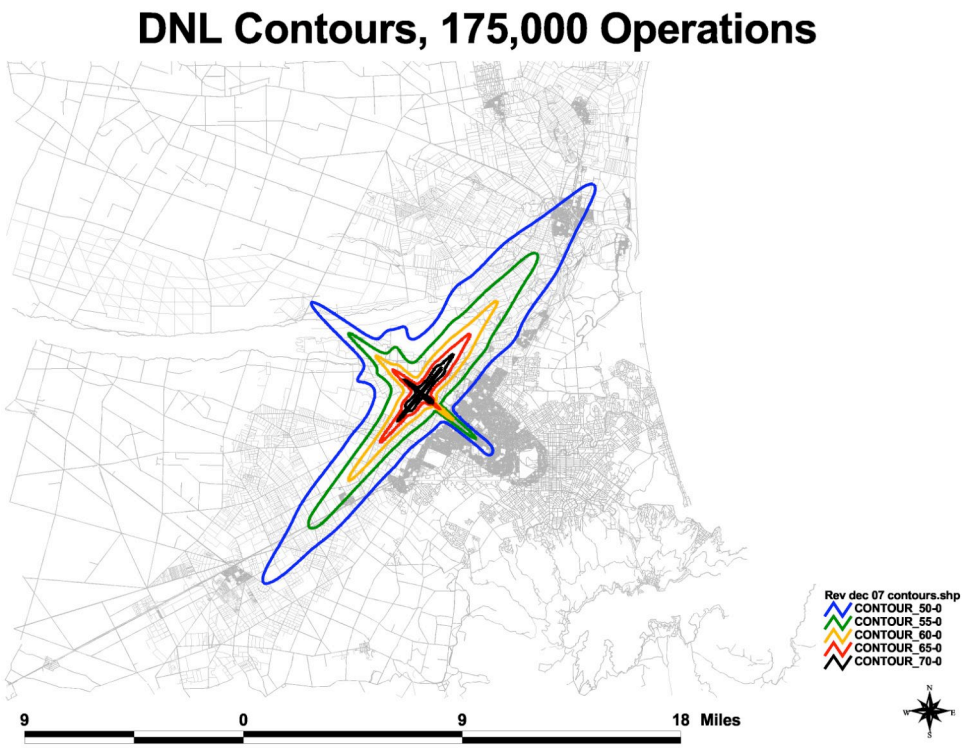


Figure 11: DNL Contours

c. Comparison to Existing Contours

The DNL contours and the corresponding contours in the existing District Plan are shown in Figure 12. As may be seen, the contours that have been developed as part of this effort are shorter in length and wider along the runway 02/20 axis, i.e. both to the northeast and southwest of the airport, while longer to the northwest and shorter to the southeast of the airport along the runway 11/29 axis. The reduction along the runway 02/20 axis is primarily the result of the RNAV CDA arrival procedures, while the increase to the northwest is the result of the nighttime usage of runway 11 for landings by jet aircraft and the heavy usage of that runway by propeller aircraft.

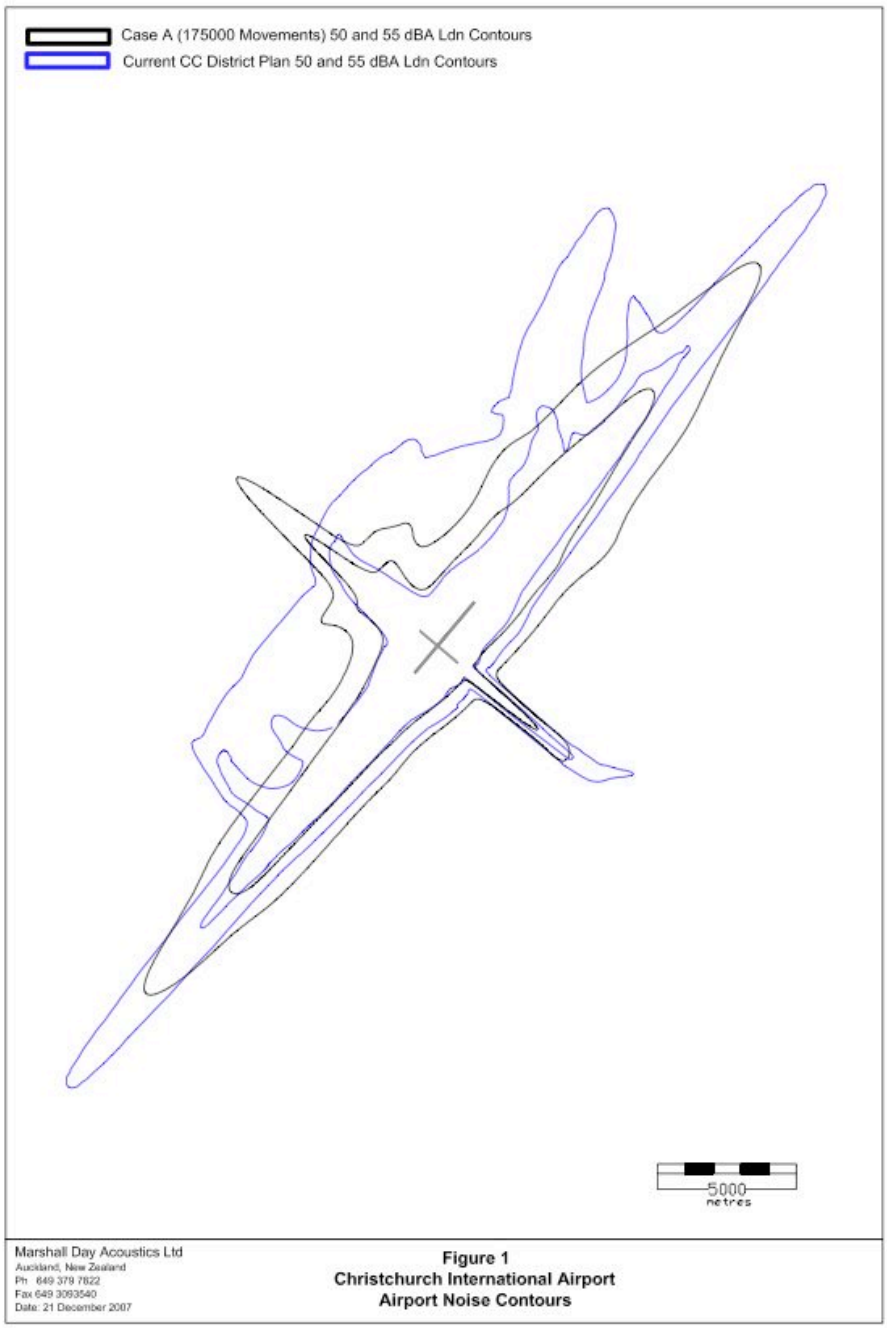


Figure 12: Comparison of DNL Contours to Existing District Plan

d. SEL 95 Contours

We were also cognizant of the guidance in the New Zealand Standard NZS 6805:1992 "Airport Noise Management and Land Use Planning" regarding sleep disturbance, and the prior inclusion of the appropriate SEL 95 noise contours in the CIAL air noise boundary in the current District Plans. Thus, in Appendix G, we provide SEL 95 contours for the noisiest

nighttime operations on each runway and provide guidance as to whether and how these contours should be used in addition to the Ldn 65 dBA contour to create an air noise boundary that is consistent with existing practice.

e. Recommendations Regarding the Modelling and Use of Contours

We recommended that the noise contours be remodelled every ten years and that all interested parties (e.g. Christchurch City and adjacent District Councils, Canterbury Regional Council and CIAL) engage a team of experts to review the INM data using the latest version of the INM. We further recommend that the City and District Plans utilise the previously modelled contours between each of the remodelling exercises.

VIII. Compliance with Noise Contours

The New Zealand Standard NZS 6805:1992 recommends that in addition to the noise contours being used for land use planning around the airport, that noise from airport operations are not to exceed the noise levels fixed by the noise contours. Clauses 1.4.1.2 and 1.4.2.2 imply that the noise levels should be measured at the Ldn 65 dBA contour and calculated at the Ldn 55 dBA contour. A rule affecting this approach would normally be included in the local authority District Plan.

There are, however, a number of uncertainties associated with the development of the contours and with the monitoring of noise levels. Monitoring for compliance and any subsequent constraint on airport operations will need to take these effects into account.

1. Measurement Uncertainty

   Any outdoor noise monitoring system will experience measurement uncertainty due to instrumentation variability and environmental effects. A standard method of describing noise measurement sampling uncertainty is presented in Society of Automotive Engineers (SAE) ARP 4721, Part 1, "Monitoring Noise and Operations in the Vicinity of Airports," SAE, 2006. Section 7, "Temporal Sampling, Computing Metrics, and Statistical Techniques." Overall measurement uncertainty is defined according to international standards by the International Standards Organization (ISO) in its "Guide to the Expression of Uncertainty in Measurement," ISO, 1995. This guide is commonly known as GUM. ISO is in the process of finalizing a standard specifically oriented to provide standards for measuring and reporting noise levels around airports. That document is called "Noise From Aircraft at Civil Airports," and is known as ISO/DIS 20906 (Draft).

Annex B includes the uncertainty associated with such factors as the Sound Level Meter and the effects of ambient noise. These effects are reduced if a permanent well maintained and calibrated system is installed, however an uncertainty of +- 1dB is realistic for such a system.

2. INM Modelling Uncertainty
   Computer modelling programs are not perfect – there are discrepancies between predicted levels and actual levels experienced on the ground. A systematic uncertainty of +- 1 to 2dB is estimated for the INM program.

3. Forecasting Uncertainty
   The input provided for the INM program involves a number of forecasts or projections of how the airport will be operating in the future. These include, projected numbers of aircraft movements, forecasts of likely aircraft fleet mix, projected flight tracks and navigational procedures etc. All of these projections involve a statistical uncertainty - estimated to be +- 1 to 2 dB overall in this case.

The combined uncertainty of these three elements needs to be determined. While mathematically the systematic errors should be additive, it is proposed that this is too conservative in this case and the 'root mean square' method should be utilized. This approach yields an overall uncertainty of +- 2dB.

We recommend that the District Plan airport noise rules incorporate the following:

- The airport company shall provide an Annual Noise Report (ANR) with the results of noise monitoring carried out near the Ldn 65 dBA noise contour shown in the District Plan. The ANR shall also provide Annual Noise Contours (ANC) calculated using the INM and records of aircraft operations and procedures over the year. The same version of the INM that was used for producing the District Plan contours shall be used to calculate the ANC.
- The measured noise level shall not exceed Ldn 65 dBA at the Ldn 65 dBA contour. If the monitoring position cannot be located exactly on the 65 contour, then the limit shall be adjusted according to the INM contours.
- The calculated Ldn 55 dBA contour shall be no larger than the Ldn 55 dBA contour shown in the District Plan.

- Enforcement procedures shall allow a tolerance of +-2dB to allow for inherent uncertainties.

Appendix A Settlement Agreement

CIAL/ Selwyn CI brief

AGREEMENT RELATING TO SETTLEMENT OF AN ENVIRONMENT COURT PROCEEDING

CHRISTCHURCH INTERNATIONAL AIRPORT LIMITED (CIAL)

SELWYN DISTRICT COUNCIL (SDC)

MR AND MRS FOSTER (THE FOSTERS)

NIMBUS CONSULTANTS LIMITED (NIMBUS)

CHRISTCHURCH CITY COUNCIL (CCC)

CANTERBURY REGIONAL COUNCIL (CRC)

WAIMAKARIRI DISTRICT COUNCIL (WDC)

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Agreement dated the ____ day of October 2007

Introduction

1 This Agreement records the basis of a settlement of an Environment Court (Court) proceeding between the Parties, which proceeding commenced in Christchurch before the Court on 15 October 2007.

2 The Parties involved in the proceeding and the Parties to this agreement are:

2.1 Christchurch International Airport Limited (*CIAL*);

2.2 Selwyn District Council (*SDC*);

2.3 Mr and Mrs Foster (*the Fosters*);

2.4 Nimbus Consultants Limited (*Nimbus*);

2.5 Christchurch City Council (*CCC*);

2.6 Canterbury Regional Council (*CRC*);

2.7 Waimakariri District Council (*WDC*).

3 The Parties, with the exception of WDC, are parties to an agreement dated 17 July 2006. The purpose of the 17 July 2006 agreement was to undertake a remodelling of air noise contours, which were previously modelled in 1994 and then included within the SDC proposed Plan of 2000. The remodelling was completed with many matters/issues agreed between the Parties and their experts but some were not.

4 This lack of agreement on all matters led to the Court proceeding referred to above taking place. Air noise contours are a key issue for the Parties in the proceeding referred to above and in respect of proposed Change No. 1 to the Canterbury Regional Policy Statement, which is open for submissions until 31 October 2007.

5 The Parties to the proceeding prepared their respective cases on alternative basis. Fosters and Nimbus were of the view that the results of the remodelling exercise completed under the 17 July 2006 agreement would provide the Court with sufficient information to enable the Court to resolve the issues between the Parties firstly on where the contours should lie within the SDC Proposed Plan. Secondly and/or alternatively, Fosters and Nimbus relied upon the remodelling for the purpose of receiving some guidance from the Court about how a contouring exercise should be undertaken, in particular, direction and/or guidance from the Court in relation to the modelling parameters and guidance relating to resource management considerations for such an exercise. CIAL/CRC took the position that there was no jurisdiction available to the Court to replace the noise contours in the Plan from 2000, but rather would provide evidence of the noise effects experienced at particular sites the subject

of appeals. CIAL/CRC accepted that the remodelled contours produced may result in a Variation to the Plan by SDC.

6 As the Court proceeding between the Parties progressed it become apparent to the Parties that the Court was unlikely to provide an answer to the issues set out by Foster and Nimbus and the Parties mutually agreed to call a cessation to the proceeding and endeavour to resolve their difference by further expert based negotiation and mediation.

7 The Parties are all desirous of obtaining a resolution to the air noise contour issue. They all recognise the importance of the air noise contours, both in terms of the Council's District Plan and in terms of proposed Change No. 1 to the Canterbury Regional Policy Statement.

8 Accordingly, the Parties wish to undertake a process whereby the result of a modelling exercise can be seen as robust and reliable, and to provide a sustainable outcome in terms of the Resource Management Act in the view of all the Parties.

Therefore the Parties agree:

9 Foster and Nimbus will withdraw that part of their appeal that relates to the issue of where the contours should lie within the SCD Proposed Plan. Also, they will withdraw that part of their appeal that relates to what was described within the Court proceeding as the Foster "trapezoid block". The remainder of the appeals, the "Foster finger" of land as described within the Court proceeding will by consent be rezoned Living 2A and all policy issues in dispute between the Parties will be resolved by consent. A consent memorandum including all of the above matters will be signed by all Parties and lodged with the Court as soon as possible.

10 In return for the above, the Parties agree that they will endeavour to resolve the air noise contour issue by firstly having their experts meet to agree a resolution and failing that the Parties agree to mediate their differences in respect of the air noise contour issue. Details of the experts meeting and mediation process follow.

Experts meeting

11 The Parties experts will meet in Christchurch between 23 and 24 October 2007, and 25 October if necessary, and such other dates that they may mutually agree for the purpose of agreeing on an approach to modelling of contours to be included in the SDC and WDC Plans and CCC Plans and proposed Change No. 1 to the Canterbury Regional Policy Statement.

12 In particular, the experts are to agree on the parameters for such a contouring exercise. They are to agree on all of the inputs required for a remodelling exercise including:

12.1 the INM version to be utilised

12.2 fleet mix

12.3 flight tracks

12.4 runway utilisation (to be agreed in conjunction with CIAL)

12.5 aircraft movements and/or year for the projections

12.6 have regard to the recommendations of the New Zealand Standard 6805 Airport Noise Management and Land Use Planning both in the land use controls and Airport noise.

It is recognised that the experts between them have available to them considerable data, which has already been collected by CIAL and utilised for the previous exercises. These materials will be available to the experts for their consideration.

13 In addition to the above, the experts are to consider the points of difference that arose in the Court proceeding between them which can be identified as follows:

- Modelling year 2025 or some other year/planning horizon.
- What allowance, if any, for aircraft noise reduction should made over time?
- Reliability of predictions having regard to the term of the prediction.
- Flight tracks – agreeing the basis upon which the flight tracks which are to be utilised.

14 The experts will meet, discuss and seek to resolve issues acting as experts.

15 Associate Professor J P Clarke has been engaged by SDC for the purpose of undertaking an independent peer review of the differing expert opinions expressed by CIAL/CRC experts and Nimbus/Foster experts. It is agreed that Associate Professor Clarke will act as a chairperson of the experts meeting and facilitate the negotiations, discussions and dialogue between the experts.

16 The outcome sought from the experts meeting is either:

16.1 remodelled contours which are acceptable to the experts;

16.2 an agreed process by which a remodelling exercise can be undertaken.

17 In the instance where the experts are not able to agree by Friday 2 November 2007, the experts will set out in a memoranda their points of difference providing supporting reasons to substantiate their difference as well as providing information that demonstrates the sensitivity of that difference in respect of the ultimate position of the contours.

Mediation

18 In the instance that the experts fail to agree in terms of the outcome set out above, the Parties to this Agreement agree to facilitate mediation between them to resolve the points of difference as set out in the experts memoranda.

19 A mediator shall be appointed and the mediator will be Associate Professor Mr Peter Skelton or Mr Richard Budd or some other suitably qualified and mutually acceptable mediator. The mediator will need a background in resource management issues. If the Parties cannot agree as to the appointment of a mediator by 9 November 2007, then at the request of any one of the Parties to this Agreement a mediator shall be appointed by the President of the Resource Management Law Association (RMLA) or his nominee and the Parties agree that they will be bound by that recommendation.

20 Mediation will be convened for the purpose of endeavouring to resolve the issues and disagreement between the experts as referred to above. The mediation will be conducted upon the terms as set out within the LEADR New Zealand Inc. standard mediation agreement, a copy of which is **attached** and marked "A".

Costs

21 All Parties will bear their own costs in relation to matters referred to in this agreement. However, all Parties will pay an equal proportionate share of the cost of the mediator, if one is required to resolve differences between them.

Timeframe

22 The Parties and the experts engaged on their behalf will work productively to obtain an outcome as soon as practicable and will avoid unreasonable delay.

Good faith and all reasonable endeavours

23 The Parties will deal with each other in good faith and will use all reasonable endeavours to resolve the airport noise contour issue as soon as practicable. The Parties also agree to instruct their experts to act on their behalf in the same manner.

J Appleyard
for and on behalf of
Christchurch International Airport Limited and Canterbury Regional Council

KG Smith
for and on behalf of
Selwyn District Council

PG Rogers
for and on behalf of
Mr and Mrs Foster and Nimbus Consultants Limited

JG Hardie
for and on behalf Christchurch City Council

P Steven
for and on behalf of
Waimakariri District Council

Appendix B - Environment Court Oral Decision

Decision No. C /2007

IN THE MATTER	of the Resource Management Act 1991 (the Act)
AND	
IN THE MATTER	of various appeals against the proposed Selwyn District Plan under Clause 14 of the First Schedule of the Act
BETWEEN	DJ & AP FOSTER, AND
	NIMBUS CONSULTANTS LIMITED
	Appellant
	CANTERBURY REGIONAL COUNCIL
	Appellant
	CHRISTCHURCH INTERNATIONAL AIRPORT
	Appellant
AND	SELWYN DISTRICT COUNCIL
	Respondent

BEFORE THE ENVIRONMENT COURT
Environment Judge J A Smith (presiding)
Environment Commissioner S J Watson
Environment Commissioner A Sutherland

Hearing at CHRISTCHURCH from 15-19 OCTOBER 2007 inclusive, and 23 OCTOBER 2007.

APPEARANCES
Mr JO Appleyard and Ms LL Sewell for Christchurch International Airport (**CIAL**) and the Canterbury Regional Council (**CRC**)
Mr PG Rogers for DJ & AP Foster and Nimbus Consultants Limited (**Foster** and **Nimbus**) with Mr DO Pedley
Mr KG Smith and CO Carrenceja for the Selwyn District Council
Ms PA Stevens and RM Walt for the Waimakariri District Council
Mr JG Hardie for the Christchurch City Council (Submissions only)

ORAL DECISION

Introduction

[1] These appeals relate to land zoning issues around Rolleston and also to noise contour, included in the Selwyn District plan around Rolleston, under the 50 dBA L_{dn} contour. The two are interconnected, in that all of the land for which zoning changes were sought is situated underneath the 50 dBA L_{dn} contour. Mr Rogers for Foster and Nimbus, indicated in opening that they were seeking the removal of the 50 dBA L_{dn} contour from Weedons Road to the south. Ms Appleyard for the Airport Company indicated in opening that they were not seeking to change the living 2A zoning of certain blocks of land, which are shown on appendix A to this decision, as C, D and E.

[2] On this basis the areas of land in dispute for a zoning of living 2A underneath the contour were those two blocks marked A and B on the plan. One had been zoned by the Selwyn District Council as living 2A and CIAL sought its removal. The other, the Council did not confirm living 2A zoning on B and Foster sought its inclusion as living 2A, CIAL opposed that relief. The case however, proceeded very much on the basis of modelling arguments relating to the modelling of the 50 dBA, 55 dBA L_{dn} and 65 dBA L_{dn} contours around the Christchurch Airport.

[3] There were a significant number of witnesses in this area, including a number of international experts and the Court proceeded to hear this evidence, notwithstanding its concerns about its relevance to the appeals before the Court.

[4] On Tuesday 23 October, the Court were advised that the parties had reached a settlement in respect of this matter and presented to the Court a memorandum signed by all the parties, together with draft objectives, policies and methods for insertion in the plan, and the map I have already referred to. Annexed to this decision is a copy of the proposed changes to the plan marked appendix B and a copy of the memorandum marked appendix C.

[5] The drafting changes reflect a number of appeals that were extant before the Court, but which were secondary to the main arguments that the Court has already identified. Many of them related to wording improvements and the Court directed that the planning experts meet to see if these issues could be resolved. In light of the wider agreement between the parties, the wording of these objectives, policies and methods has also been agreed.

[6] One of the major concerns of the CIAL was the potential for the wording to policy 23 (previously policy 22) to be utilised for the rezoning of rural land to living uses beyond the living 2A zones shown in the plan. That has now been resolved by redrafting and it is clear that the policy provides as an exception for the living 2A within the contour, but not otherwise. This is reflected also in the removal of words in several places, which gave an exception in the following terms:

> *Unless any potential adverse effects on the future, unrestricted operation of Christchurch International Airport will be minor.*

Those words are now removed and this avoids the potential for arguments in the future, both under policy 2 or policy 23, for rezoning of land generally, based upon minor effects. The Court has no difficulty with the rewording of these objectives, policies and methods and they have greater clarity in expressing the provisions of the plan, they are therefore incorporated into the plan itself.

[7] A further consequence of the agreement is that certain of the land that were already included in the plan as living 2A is now confirmed, that is C, D and E. Again, given the wording of the relevant policy and the historical nature of these sites, we accept that they should properly be living 2A and that that is a proper exception in terms

of the 50 dBA L_{dn} contour. Accordingly the zoning of those blocks of land as living 2A is now confirmed in accordance with the parties' agreement.

[8] In respect of block 'A' this nine hectare block has also traditionally been zoned as rural residential and was zoned as living 2A, confirmed by the Selwyn District Council on the submissions. The CIAL have opposed this being rezoned simply because it has yet to be developed. They have now changed their position and accept that due to its historical zoning it should be included within the living 2A zone and accordingly they withdraw their appeal in that regard.

[9] We also agree that it is a block of historical land, which should be included in living 2A. It would seem counter intuitive to this Court that people should be punished for not developing land in accordance with its highest zoning use and we do not see that there's any proper basis on which this land should be excluded from living 2A zoning.

[10] In respect of the block of land marked as 'B' on the plan, the parties are agreed that this should remain rural zoning. This was a block of approximately 19 hectares, around 17 under the contour, and in terms of its rural zoning would be capable of four or possibly up to five residential houses, one per four hectares. To rezone this as living 2A would effectively preclude its development on this basis and mean that a non-complying consent would need to be obtained for any residential dwellings upon it. In the circumstances the appellant has withdrawn their appeal in respect of this block of land and accordingly it will remain as rural.

[11] In our view that represents a better outcome in terms of the plan in any event, because it does allow a level of residential development in the meantime, although based on one per four hectares of land. Any rezoning of the land would require a non-complying consent and is likely to be subject to the discussions about the appropriate contours, which may occur in future variations to the plan.

[12] Mr Rogers has now confirmed that Fosters and Nimbus withdraw their appeals relating to the noise issues generally, including the placement or accuracy of the contours. All parties agree that there are no issues as to costs. Accordingly the appeals

are determined in accordance with the memorandum of agreement signed and the directions made by this Court. The changes to the plan are to be made without delay.

General Comment

[13] Given that the Court has heard some five days of evidence in this matter, it is probably appropriate to add some additional comment in relation to the noise modelling issues. It was clear before this Court that the current position of knowledge in respect of modelling around the Christchurch Airport has different contour lines, at least for the 50 and 55 dBA L_{dn} than is shown in the current versions of the Christchurch City, Waimakariri District and Selwyn District Plans.

[14] Whether those are appropriate for insertion in a plan was not the argument before this Court and it was accepted that the Court does not have jurisdiction to adopt different lines. At best it could have adopted a line within the 50 dBA L_{dn} line shown on the planning maps, but both parties' contours showed different alignments, with a wider band on the north/south and east/west axis in both cases. One showed the tongue of these contours for 50 and 55 being somewhat shorter due to certain assumptions underlying the modelling. That for Marshall Day for the Airport, showed them longer or approximately the same as the current contour termination points, based again on a number of assumptions.

[15] Given that the experts are meeting to discuss this issue today on 23 October and given that this is an issue which will be addressed in far more detail through the regional policy statement process currently underway and potentially in terms of variations to all of the plans, the following comments may assist those experts and their advisors when considering this issue.

The Standard

[16] The first is that all parties ascribe to the New Zealand Standard NZS6805-1992 as the appropriate tool for minimum standard for airport noise management and land use planning around Christchurch Airport. Importantly this Court has previously accepted that the adoption of a 50 LDA contour as an outer control boundary is appropriate. That was not an issue in this hearing and I make no further comment on it at this stage.

[17] The Standard itself recognises that a contour other than the 55 might be appropriate in particular cases. The plan also sets out a 65 L_{dn}/95 SEL contour and the Christchurch City Plan requires the Airport to operate within that. This Court was therefore surprised to hear that there had been no monitoring to ascertain whether that was the case. From our perception we believe it would be very helpful to know what the actual measurements were on representative points on that contour, to enable firstly, a ground testing of earlier modelling and secondly a bases for projections in the future.

[18] The Standard itself recognises that continuous noise monitoring might be appropriate and certain of the expert witnesses have identified this as being one method which could be adopted. From this we note the example of Port Chalmers where this has assisted with enabling noise abatement processes and also assuring communities of compliance and it would seem to commend itself in this case as being a matter for serious consideration.

[19] We note that Mr Mestra has also mentioned in his evidence, although it hasn't been tested, that there may be significant advantage in coupling continuous noise measurement data with radar flight paths. This again seems to commend itself, although we don't know if there are any technical difficulties relating to it.

[20] Perhaps that leads us to the next issue, which is that we only learnt late in the evidence for CIAL that currently they do provide for instrument landings on the east/west runway approaching from the west, because they do not have the equipment in place. Again, a consideration needs to be given as to whether that is likely to be installed within a reasonable period of time and whether that will result in greater use of the runway to the west of the cross-point for landings.

[21] One of the other issues that the Court became confused on as the case progressed was the use of the required navigation procedures RNP, sought to achieve continuous descent arrival (CDA). However, it was not clear to us from the evidence given to us whether in fact the modelling was progressed on the basis of planes overflying the 50 contour at 17 or 18 kilometres from runway, on low or no throttle with undercarriage up. Given that those two changes would make a significant difference to the amount of noise, it is a matter that should be discussed between experts to see if it is agreed and

also there needs to be some discussion as to whether the four NM threshold mentioned by Mr Bethwaite as being the position on a CDA for undercarriage, is appropriate or some other distance.

[22] This leads us on to the question generally of the relationship between INM modelling, version 7 and RNP and CDA procedures. Again it is not clear to us whether our RNP and CDA procedures are being used at any other international airports and if so, whether they are included within the model and if so on what basis. In other words it would be useful to know that actual measurements had been taken to calibrate the CDA RNP model if it used in INM.

[23] Much of this seems to turn upon expectations as to future equipment that might be available and it became clear to us that there is the potential in the future for far more sophisticated real time metering of aircraft, to enable real time adjustment to the required navigation procedure. That is a matter of some importance and depends on your planning horizon. If a shorter planning horizon of 10 or 20 years is used there doesn't seem to be any realistic expectation that that would be in general use on a fleet wide basis.

[24] However, if expectation is for ultimate capacities at the airport, which we were told was 220,000 craft, then that's not likely to be reached until 2045 to 2065. In those circumstances the ability for distributed landings at different lengths before the aircraft meets the centre line position on its incoming arrival, does appear to be a greater prospect. In that regard we note the comment made by Ms Steven that it was recognised by the experts that there are three critical issues relating to aircraft travelling to and from the airport, being safety, efficiency for the airline and environmental impact for the community.

[25] Mr Bethwaite told us that the environmental impact for the community had only become a major issue in the last two to three years, for the consideration of flight tracks. From our perspective we believe that any body deciding this issue may need to look at the various elements of those three legs and particularly the question of the minimisation of environmental impact. In that regard the question of amenity impacts becomes important on a 50 dBA L_{dn} line.

[26] There are it seems to us, any argument that could be had around this and there is an argument of obviously of concentration of tracks to minimise the area affected or maximisation of the number of tracks to disperse that effect, and those are arguments in our view which are matters of some public importance, because they affect how communities around the airport live. They have particular importance for communities such as Kaiapoi and Rolleston – depending which model is adopted the effects change. I need to keep in mind that even though dispersion may lower it below 50 dBA there is still an effect and dispersed effects over a wider area need to be compared to concentrated effects over a smaller area.

[27] Those are not matters that this Court has enough information to make any judgment on, but are matters of considerable importance, not only to the communities, but to the way in which arrivals and departures are modelled. And in this regard I note particularly Ms Steven's concern with the north-western turn on takeoff from the runway to the north of the cross-runway point, which heads towards Kaiapoi. Traditionally aircraft have turned to the north-west, rather than flying straight ahead. That type of action if changed to a straight ahead path, may have consequences in terms of noise contours. Those are matters that need to be considered.

[28] In terms of modelling generally, I would suggest that we need a robust approach to this and sensitivity analysis would be very useful to any deciding body. In note that the parties have carefully excluded from their modelling general aircraft and also military aircraft. Nevertheless, those have the potential to have an impact upon people and communities and should be kept in mind for the purposes of understanding the type of effects that may occur.

[29] We would suggest that something in the order of modelling for what is occurring now and into the future in various scenarios would be very helpful to any deciding body. It would also give a robustness and enable any body deciding this issue to have a grasp on the changes that are necessary to make a distinct difference. Mr Day told us that nearly a doubling in a number aircraft may only affect the contour by three to four dB; we're not clear whether that's the case or not, but certainly that type of information would assist in making decisions in this area.

[30] We should also note finally that we understood from the witnesses we heard from that a decision has been made by the airport to minimise its landings from the east over the city and effectively to undertake no takeoffs in that direction and only land effectively when weather conditions require i.e. a north-wester. If that is the case it should be explicit, because it does have an effect on the modelling generally. The question is whether that is a matter that could change in the future, because of course it would change the concerns of various other bodies, but also would have an effect upon the distribution of aircraft around the airport.

[31] Overall we commend the parties on the resolution they have reached. We understand that these issues are of widespread public importance, particularly as they relate to the modelling and future contours around the airport. However we recognise that in terms of this Court's jurisdiction on these appeals, it was not possible for us to set up a new set of contours, even with Selwyn. Quite clearly we had no power to address the operative plans of the Waimakariri District or Christchurch City, and if new contours are found to be necessary, those Councils will need to consider that process.

[32] We understand that there is underlying agreement between the Councils and the Regional Council that any changes to those contours put in place by RPS Change 1 or any other document made operative by the Regional Council, would be incorporated into district plans. Nevertheless in the meantime, all the parties have progress on the basis of the plans and the existing contour lines. To that end we consider that some indication on the contour lines within the Selwyn District Plan would be helpful so that people understood their relationship to the properties in question.

[33] To that end we are minded to have inserted on relevant pages of the plan, or in another note, that the contour lines are inserted, based on modelling performed in 1994, which is now the subject of review. The Court would be minded to consider any other equivalent wording if suggested by the parties. Subject only to that one change, we therefore confirm the changes that have been made.

[34] We hope that the comments we've made about modelling generally are helpful to the parties and accept that those matters will be properly addressed in appropriate

forums in the future. As indicated by all parties there are no orders as to costs and the appeals are now at an end.

Delivered orally at CHRISTCHURCH on 23 October 2007

J A Smith

Environment Judge

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Appendix C

Clarification of Technical Matters Discussed in the Court Ruling

I. Regarding Paragraph 20

In additions to adding the word "not" between “do” and “provide” in line 2, we believe we should clarify that, while there is no ILS, VOR, RNAV, GPSS, etc. type approach provided for runway 11 or 29, there are some very seldom occasions when although the cloud/visibility precludes the more common Visual Approach, these runways must be used due to the wind conditions (direction and speed) at the time. In this case aircraft make one of the established "instrument" approaches to either runway 02 or 20 and then circle to land on runway 11 or 29 provided the cloud and visibility is sufficient for the circling maneuver. In this context if you asked a Christchurch controller if they have an "instrument" approach for runway 11 or 29 they will reply in the affirmative. However, based the internationally accepted definition of an instrument approach, there is no instrument approach to 11 or 29. Thus, we concluded that the court intended to follow the internationally accepted definition.

II. Regarding Paragraph 21

We concur with Mr. Bethwaite’s assertion that the aim of a procedure designer is to provide procedures which enabled aircraft to maintain as "clean" a configuration for as long as possible. Thus, in the very best case, as far as the point where the gear is let down is concerned, we concur that this could be delayed as close as 4 to 5 nm from the threshold. However, the point at which the gear is let down is traditionally determined by the aircraft operators (airlines and/or pilots) and is typically done at greater distances prior to landing.

III. Regarding Paragraph 25

We believe that the greatest reduction in "environmental effects" would be achieved by providing CDA to a level that was almost guaranteed. I.e. the "biggie" is to eliminate level segments at levels nominally below 10,000ft. The tracks provided by Airways are an excellent basis on which to do this, as has been demonstrated by the resulting procedures that were modeled.

IV. Regarding Paragraph 27

a. Line 5

Based on the ICAO terminology for runway operations, the description should read "departures off runway 02". Thus, it should not be described as “takeoff from the runway to the north of the cross-runway point, which heads towards Kaiapoi.”

b. Line 6

We noted the fact that traditionally and currently aircraft track straight ahead after takeoff on runway 02 for a significant distance before being cleared by the departure radar controller to turn. The timing of such a turn is typically dependent on the climb ability of the departing aircraft (the greater the initial climb rate the more likely the early turn). It is also a function of different airline operating procedures (some not actually contacting departures radar until passing about 1200ft in the climb). It is true that a greater percentage of aircraft have destinations requiring a left turn off runway 02 but right turns are also very common as is continuing straight ahead for 6 to 8 NM.

V. Regarding Paragraph 30

We noted that Airways currently operates a "neighbourhood friendly practise" whereby a landing option of runway 29 is not offered or granted when the wind allows safe landings on runway 20 or runway 02. The phrase used is "unless it is required for operational purposes runway 29 should not be used for landings by medium and heavy weight category aircraft". With reference to takeoffs on runway 11 this again is only an option if required for operational purposes. Thus, runways 11 and 29 are only used when the wind dictates that they are the only runways that that aircraft can use.

Appendix D - Expert Panel Agreement

Modelling Agreement on 25 October 2007

Experts representing SDC, CIAL, the Fosters and Nimbus have met between Tuesday 23 and Thursday 25 October 2007 pursuant to an agreement dated 23 October 2007, and have resolved and agreed the following in terms of a modelling exercise to be undertaken for CIAL to determine air noise contours.

1) 175,000 commercial movements per annum (runway extensions assumed) subject to Wake Turbulence and fleet mix factors, including the runway 29 seasonal factors to account for the Föhn wind (nor'wester) effect and the infrequent use of runway 29 as prime runway for all traffic;

2) 2025 fleet mix as modified in accordance with the table below

2025	Replace 747-400 with 777-300
	Replace A380 with 777-300

3) J-P/KB flight tracks

   a) Arrivals: 10 nm for 8 nm / 8 nm for 6 nm with the following flight profile constraints:

      i. aircraft deceleration;

      ii. air traffic control considerations.

   b) Departures: ICAO B is to be used subject to airline confirmation;

   c) J-P/KB to calculate the percentage time for the left deviation turn to the north off runway 02 will be used.

4) J-P CDA profiles

   a) Subject to 3(a) above, J-P will provide the final set of aircraft profile inputs;

   b) J-P to locate B737-700 data and review its appropriateness B787 substitution; and

   c) J-P to obtain Airbus flight profile data.

5) Recognition of uncertainty

   a) The measuring system;

   b) The modelling;

   c) Input parameters;

   d) Chris Day to prepare best practice guidelines information based upon permanent monitoring at the 65 dBA contour and INM monitoring at the 55 dBA contour, noting the INM version used;

e) The compliance process should recognise the uncertainties identified in a), b) and c) above and the best practice guidelines in d) above;

f) Subject to further review the current view of the expert panel is that the total uncertainties are +/- 2 dBA; and

g) For the period between remodelling exercises the previously utilised version INM is to be used.

6) Runway use:

a) Preferred runway for night landings is runway 11 for all domestic jet subject to an extension of the runway;

b) Preferred runways for turbo prop departure will be runway 29 using applicable air traffic and meteorological conditions;

c) Preferred runways for turbo prop arrivals will be runway 11 using applicable air traffic and meteorological conditions; and

d) KB/J-P to modify the Airbiz runway usage allocations in light of preferred runway recommendations in a), b) and c) above;

7) District Plan review

a) It is recommended by the panel of experts that the noise contours be remodelled every ten years and that all interested parties (e.g. Christchurch City and District Councils, Regional Council and CIAL) engage a team of experts to review the INM data using the latest version of the INM.

b) Between each of the remodelling exercises it is recommended that the City and District Plans contain the previously modelled contours.

8) Interim compliance

a) MDA will model the current activity contours and investigate the growth and activity that would cause these contours to exceed the agreed future contours; and

b) MDA to work with J-P to improve the modelling of current flight profiles.

Items 1 through 7 will be completed prior to on 30 November 2007, subject to mutually agreed changes in completion date.

Associate Professor J-P Clarke will prepare a report based upon the agreed modelling parameters explaining the rationale behind the modelling parameters that the experts have agreed. This rational to include an appropriate bibliography of applicable reference documents.

We, the undersigned, have hereby agreed to the following modelling parameters:

J-P Clarke
Selwyn District Council

Vince Mestre
Fosters and Nimbus

Bill Bourke
Fosters and Nimbus

Barrie Malloch
Fosters and Nimbus

Chris Day
CIAL

Kevin Bethwaite
Airways NZ

Appendix E

Tool for the Analysis of Separation and Throughput (TASAT)

TASAT has two components. The first is a Monte Carlo simulation environment that has been developed to predict trajectory variations of aircraft conducting CDA. The second is a separation analysis methodology that has also been developed to determine the target spacing required at the intermediate metering point. A brief description of the tool is given in this Appendix to facilitate understanding of the analyses that were conducted.

I. Monte Carlo Simulation Environment

For RNAV CDA, trajectory variations are generated in two ways. First, the flight path that is built by the onboard FMS varies from flight to flight in response to variations in operating conditions. Second, uncertainties encountered during the execution of the procedure cause deviations from the FMS-computed flight path. Factors contributing to aircraft trajectory variations were identified as

- Aircraft type—differences in aircraft design and dynamics
- CDA descent path logic—difference in aircraft equipage and design
- Aircraft weight—variation due to demand and operational conditions
- Pilot technique—variations among pilots and pilot response randomness
- Weather conditions—predominantly variation in winds

To ensure simulation accuracy, careful consideration was given to the modeling of each of these components. The central piece of the Monte Carlo simulation environment is a fast-time aircraft simulator. The structure of the aircraft simulator is shown in Fig. E-1. The dynamics of the aircraft are determined using a point-mass model based on non-steady-state equations of motion and is thus more accurate in simulating wind effects than an ordinary point-mass model based on steady-state equations of motion. The model for each aircraft type was developed based on aerodynamic data and installed engine performance data provided by aircraft manufacturers. The autopilot, the autothrottle, and the FMS Lateral Navigation (LNAV) and Vertical Navigation (VNAV) capabilities are also modeled. Given the same CDA procedure

design, the FMS-computed VNAV path would vary with aircraft type and the flap schedule. The FMS module in the aircraft simulator captures these differences.

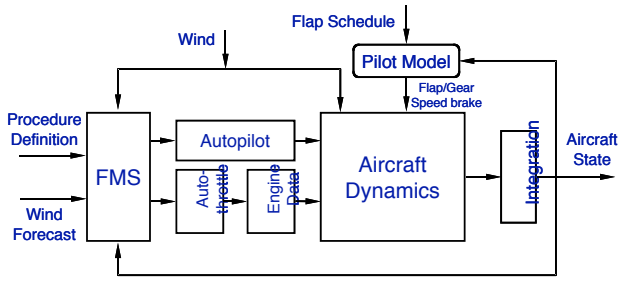

Fig. E-1 Aircraft simulator block diagram.

Because aircraft weight influences the FMS-computed VNAV path and aircraft performance, historical data collected from airline operations were used to model the distribution of the aircraft landing weight.

A pilot agent is included in the aircraft simulator to control the extension of flaps, landing gear, and speed brakes. For each aircraft type, the flap schedule in the corresponding aircraft operation manual [see Reference E-1], or one tailored to the given procedure could be used. A pilot response delay model obtained from a previous human-in-the-loop simulation study is included in the pilot agent [see Reference E-2].

Winds are the most significant single factor affecting aircraft trajectories. Winds are modeled using nominal profiles that reflect long-term statistical expectations, and short-term variations that reflect wind changes between consecutive flights. A unique mode decomposition and autoregressive technique was developed to model wind variations between flights [see Reference E-3]. Specific wind models are developed using Aircraft Communications Addressing and Reporting System (ACARS) automated weather reports by commercial aircraft as archived by the National Oceanic & Atmospheric Administration (NOAA).

The Monte Carlo simulation environment can be used to simulate a given procedure hundreds of times with different aircraft types and configurations under varying aircraft landing weights and wind conditions. Pilot response time is randomly generated for each of the control actions. Assuming there is no direct interaction between consecutive flights, each flight can then be simulated separately.

II. Separation Analysis Methodology

The distance versus time diagram for a specific pair of trajectories conducting the same CDA is depicted in Fig. E-2. Assume that the leading trajectory and the trailing trajectory in the pair are independent of each other. The minimum feasible spacing—the minimum spacing at the metering point that assures the separation minima for the specific trajectory pair during the descent to the runway—can be determined by moving the trailing trajectory in the direction parallel to the time axis (as indicated by the arrow) until the separation minima (shown by the dashed curve) are satisfied without additional spacing. If the actual spacing at the metering point is greater than the minimum feasible spacing for the specific trajectory pair, the procedure can be executed without interruption. The separation minima curve shown in the figure depicts the case where the separation minimum transitions from a larger radar separation minimum to a smaller radar separation minimum (or to a pair-wise wake vortex separation minimum) as the aircraft get closer to the airport, e.g. within 40 nm, as showing by the kink on the curve.

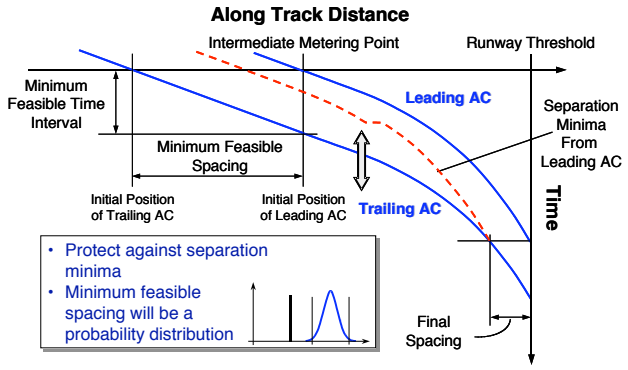

Fig. E-2 Minimum feasible spacing.

It can be seen from Fig. E-2 that the minimum feasible spacing depends on the separation minima, the location of the metering point, and the characteristics of both the leading and the trailing trajectories. Although in the figure the trailing trajectory is positioned such that it touches the separation minimum at the point when the leading aircraft is over the runway threshold, it is not necessarily always the case. The touch point could very well be at a location prior to that point. For a large sample of independent trajectory pairs, such as that would be obtained using the simulation described in the previous subsection, probability densities functions (pdfs) of the minimum feasible spacings could be estimated. Those probability densities are depicted schematically in Fig. E-2. In the figure, only the pdfs of aircraft sequences of type A leading

type B and the sequence of type B leading type A are shown. The difference between these two sequences as shown in the figure would occur when aircraft type B is from a weight class heavier than type A where different pair-wise wake vertex separation minima would be used. The sequences with aircraft of the same type are omitted for the sake of simplicity.

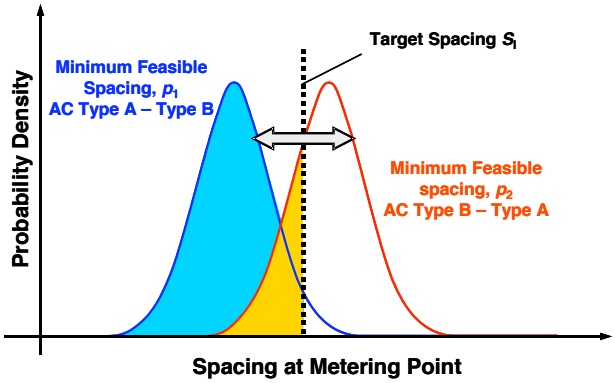

Fig. E-2 Conditional probability method.

For a selected target spacing, the probability of uninterrupted execution is the integral of the pdfs from zero to the target spacing. Note that the probability is actually a conditional probability as it is determined for the condition when the spacing at the metering point is exactly equal to the target spacing. To find out the proper target spacing, the vertical line in Fig. E-2 can be shifted to the left or right (as indicated by the arrow) until the conditional probability is equal to a desired value (e.g. 70%). The method to determine the target spacing using this conditional probability is thus referred to as the conditional probability method.

In reality, neither controllers nor automation are this precise. The spacing at the metering point subject to a given target spacing would have a probability distribution itself as depicted by the thick gray curve (adjusted traffic) in Fig. E-3. The thick black curve depicts the pdf of the spacing at the metering point when there is no special target spacing imposed (unadjusted traffic). With the pdf of spacings in adjusted traffic known, the total probability of uninterrupted procedure execution can be determined—by computing the total probability for an infinitesimal slice of traffic and then integrating it from zero to infinity. The total probability for an infinitesimal slice of traffic (the patched small vertical strip in Fig. E-3) is computed by multiplying the conditional probability at that point by the area of patched small vertical strip. The integration process is equivalent to finding the mean of conditional probabilities across all possible traffic spacings. Interested readers are referred to Reference E-5 for the mathematical derivation of the total

probability method. The method to determine the target spacing using the total probability is thus referred to as the total probability method.

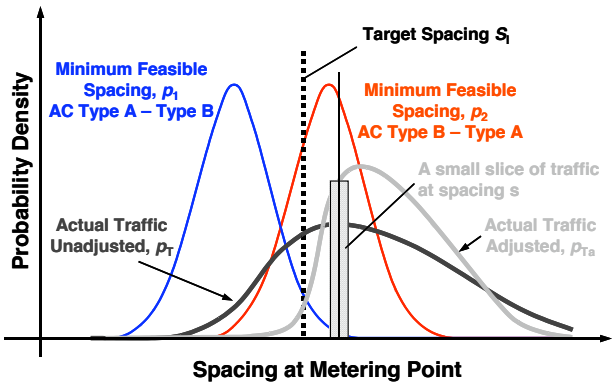

Fig. E-3 Probability under adjusted traffic flow.

The traffic throughput can be determined using the average time interval at the metering point. It is expected that given a target spacing at the metering point, the final spacing at the runway threshold would also be a probability distribution. Another specification of the traffic throughput, final separation buffer can thus be defined as the mean of final spacings minus the corresponding separation minima in effect at the runway threshold. The separation analysis methodology has also been extended to the use of multiple sequence-specific target spacings [see Reference E-5].

E-1: UPS B757/767 Aircraft Operating Manual, Document: UPS33075, UPS Flight Publications, Louisville, KY, 2003.

E-2: Ho, N. T., and Clarke, J.-P. B., "Mitigating Operational Aircraft Noise Impact by Leveraging on Automation Capability," AIAA Paper 2001-5239, 2001.

E-3: Ren, L., "Modeling and Managing Separation for Noise Abatement Arrival Procedures," Sc.D. Thesis, Department of Aeronautics and Astronautics, Massachusetts Institute of Technology, Cambridge, MA, Sep. 2006.

E-4: "NOAA/ESRL/GSD Aircraft Data Web," [online database], http://acweb.fsl.noaa.gov/ [retrieved 28 Aug. 2007].

E-5: Ren, L., and Clarke, J.-P. B., "A Separation Analysis Methodology for Designing Area Navigation Arrival Procedures," *Journal of Guidance, Control, and Dynamics*, Vol. 30, No. 5, 2007, pp. 1319-1330. DOI: 10.2514/1.27067.

Appendix F

Capacity Analysis

I. Runway Usage Analysis

We analyzed the runway operations at Christchurch International Airport to determine the maximum number of operations that could be conducted in a period of one hour for the most favorable runway configuration from a capacity perspective.

To do so, we first determined the probability that an event (departure or landing) of a given fleet type will be followed by an event of another fleet type (in the form of Fleet Mix Matrix) based on the forecast fleet mix in 2025. The resulting Fleet Mix Matrix (shown in Table F-1) was developed assuming that the fleet type of an event is random, and was used throughout our calculations to "weight" the actual times between a given pair of events.

Table F-1: Fleet Mix Input Data

Fleet Mix (Fraction)

heavy	large	medium
0.13	0.37	0.5

Fleet Mix Matrix (Fraction)

	heavy	large	medium
heavy	0.0169	0.0481	0.065
large	0.0481	0.1369	0.185
medium	0.065	0.185	0.25

We then determined the amount of time between each event type on the runway based on the observed runway occupancy times and the air traffic control rules in New Zealand, and further weighing them according to the Fleet Mix Matrix above to determine the average inter-event times. The calculations to determine the average inter-event times for a landing followed by a landing, a landing followed by a departure, a departure followed by a landing, and a departure followed a departure are shown in Tables F-2 through F-5. As you will see, the average inter-event times for a landing followed by a landing is 95.9 seconds, a landing followed by a departure 57.0 seconds, a departure followed by a landing 125.1 seconds, and a departure followed a departure 75.3 seconds.

Table F-2: Average Inter-Event Time for Landing followed by Landing

Average Approach Speed (knots)

heavy	large	medium
145	125	115

Separation Matrix (NM)

		Trailing Aircraft		
		heavy	large	medium
Leading	heavy	4	5	5
Aircraft	large	3	3	3
	medium	3	3	3

Separation Matrix (seconds)

		Trailing Aircraft		
		heavy	large	medium
Leading	heavy	99.3	144.0	156.5
Aircraft	large	74.5	86.4	93.9
	medium	74.5	86.4	93.9

Separation Matrix (seconds weighted by fraction)

		Trailing Aircraft		
Leading		heavy	large	medium
Aircraft	heavy	1.7	6.9	10.2
	large	3.6	11.8	17.4
	medium	4.8	16.0	23.5

Summary 95.9 seconds before each landing

Table F-3: Average Inter-Event Time for Landing followed by Departure

Runway Occupancy (seconds)

heavy	70
large	55
medium	55

Separation Matrix (seconds weighted by fraction)

	heavy	large	medium
heavy	1.2	3.4	4.6
large	2.6	7.5	10.2
medium	3.6	10.2	13.8

Summary 57.0 seconds before each departure

Table F-4: Average Inter-Event Time for Departure followed by Landing

Average Approach Speed (knots)

heavy	large	medium
145	125	115

Separation Matrix (NM)

		Trailing Aircraft		
		heavy	large	medium
Leading	heavy	4	4	4
Aircraft	large	4	4	4
	medium	5	5	4

Separation Matrix (seconds)

		Trailing Aircraft		
		heavy	large	medium
Leading	heavy	99.3	115.2	125.2
Aircraft	large	99.3	115.2	125.2
	medium	124.1	144.0	125.2

Separation Matrix (seconds weighted by fraction)

		Trailing Aircraft		
		heavy	large	medium
Leading	heavy	1.7	5.5	8.1
Aircraft	large	4.8	15.8	23.2
	medium	8.1	26.6	31.3

Summary 125.1 seconds before each landing

Table F-5: Average Inter-Event Time for Departures followed by Departure

Separation Matrix (seconds)

		Trailing Aircraft		
		heavy	large	medium
Leading	heavy	120	120	120
Aircraft	large	60	60	60
	medium	90	90	60

Separation Matrix (seconds weighted by fraction)

		Trailing Aircraft		
		heavy	large	medium
Leading	heavy	2.0	5.8	7.8
Aircraft	large	2.9	8.2	11.1
	medium	5.9	16.7	15.0

Summary 75.3 seconds before each departure

The overall maximum capacity was then determined by further weighting the four inter-event times according to a random occurrence of departures and landings. As can be seen, the average time between operations is 86.4 seconds, which translates into 41.7 operations per hour.

Table F-6: Overall Capacity Calculation

Fraction Departures 0.59

		Trailing Operation	
		Departures	Landings
Leading Operation	Departures	0.3481	0.2419
	Landings	0.2419	0.1681

		Trailing Operation	
		Departures	Landings
Leading Operation	Departures	26.21193	30.25802124
	Landings	13.776205	16.11524132

Summary 86.4 seconds between operations
41.7 operations per hour

We then scaled up (in a same way that Airbiz did) the current hourly traffic breakdown of scheduled operations to the point where the maximum hourly demand was equal to the maximum capacity that had been derived. The resulting hourly traffic breakdown is shown in Table F-7. As can be seen, Christchurch International Airport will be able to handle 456 scheduled operations per day, which corresponds to 166,440 scheduled operations per annum. We recognized that this average value could be slightly higher with changes to the fleet mix and time of scheduling, so we conducted sensitivity analyses based on the greatest possible change in both of these factors and determined that the runways could at the most support 175,000 operations per annum. Note that this value does not include general aviation operations that are typically conducted such that they do not interfere with the scheduled operations. Thus, the total number of operations could be as high as 225,000 operations.

Table F-7: Hourly Operations Breakdown

Future Schedule		
Departures	Arrivals	Operations
0	4	4
0	2	2
0	0	0
0	0	0
0	0	0
0	0	0
8	0	8
15	9	24
9	9	18
25	17	42
9	11	20
11	8	19
11	21	32
13	9	22
15	15	30
17	19	36
15	15	30
17	9	26
15	17	32
19	21	40
15	13	28
6	11	17
8	10	18
0	8	8
228	228	456

II. Gate Usage Analysis

The Terminal Master Plan 2023 developed by Airbiz for CIAL has 20 gates for jet aircraft (10 international, 4 swing gates, 6 domestic) as well as 12 gates for turbo prop aircraft. To determine the number of operations these gates can support, we first define the gate utilization time as the time that an aircraft is scheduled to spend "on gate" plus the time before and after when the gate cannot be used because either the aircraft is blocking the ramp area near the gate or the aircraft's arrival or departure is delayed. If we then assume fairly optimistic gate utilization times of 90 minutes for international jet gates, 75 minutes for swing gates, 60 minutes for domestic jet gates, and 45 minutes for turbo prop aircraft, then the gates can support 510 operations in the 16 "effective" hours of operations per day, which corresponds to 186,150 departures (372,300 operations) per annum. Note that these values are for the case where all gates are scheduled for use every minute of a 16 hours per day, which is highly unlikely given the typical usage patterns at airports, thus the true gate-based capacity will be less than the value determined here.

III. Comparison with Other Airports

We compared the operations at Christchurch International Airport with other airports in the region (such as Sydney International Airport prior to its runway expansion project) and globally (such as San Diego International Airport which is one of the busiest single runway airport in the world). After making adjustments for differences in fleet mixes and air traffic control rules (separation requirements in the US are less than in New Zealand and Australia) we determined that Christchurch International Airport could potentially support between 200,000 and 230,000 total operations per annum including general aviation operations that can "fit in between" scheduled operations because they do not take up much runway time and do not have scheduling constraints at other airports.

IV. Summary

Based on the analyses above, we must logically conclude that the runways are the constraining resources, and that the infrastructure at Christchurch International Airport can support 175,000 scheduled operations per annum and 225,000 total operations (including general aviation operations) per annum.

Appendix G

Use of SEL 95 Contours in Setting Air Noise Boundary

I. Overview

The expert panel understands that the Air Noise Boundary currently defined in the Christchurch City Plan is the combination of the calculated Ldn 65 dBA contour and calculated Sound Exposure Level (SEL) 95 dBA contours for individual aircraft movements during nighttime hours.

If this approach is retained when revising the Air Noise Boundary then it is appropriate that the SEL contours are also remodelled. Therefore as part of this remodelling exercise the SEL 95 dBA contours for the noisiest aircraft movements during nighttime hours have been calculated.

The noisiest, regular nighttime events in the remodelled scenario are the Boeing B767-300 movements on runways 02, 20 and 29. The noisiest regular event on runway 11 is an A320 arrival. The following figures illustrate the calculated SEL 95 dBA contours for these events. In summary, these SEL contours are smaller than the Ldn 65 dBA contour in the runway 02/20 direction. In the runway 11/29 direction, the B763 SEL contour is larger than the Ldn 65 dBA contour and would therefore be superimposed on the Ldn contours.

II. SEL 95 dBA Contour for A320 Arriving on Runway 11

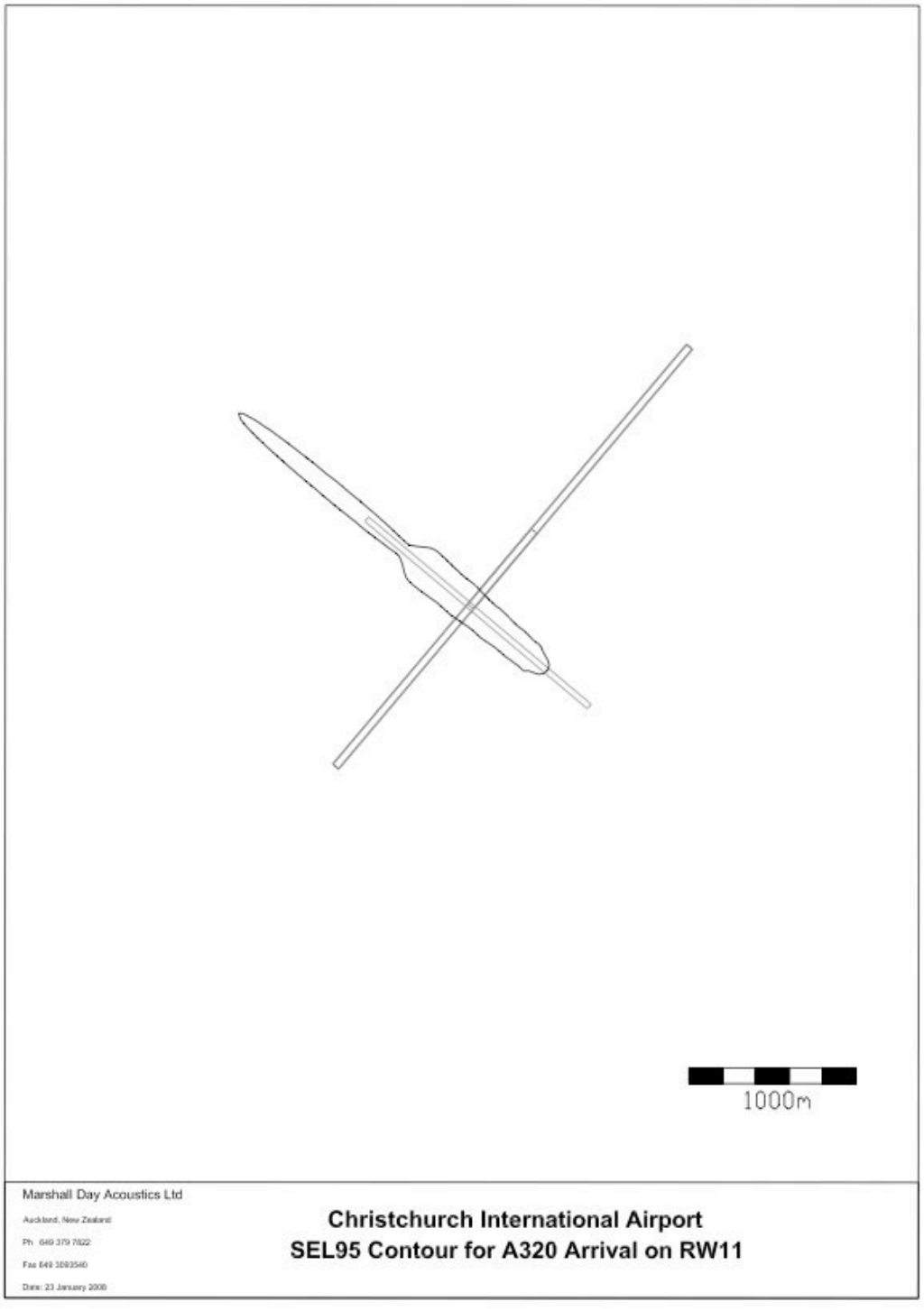

Figure G-1: SEL 95 dBA Contour for Nighttime A320 Arrival on Runway 11.

III. SEL 95 dBA Contours for B767-300 Movements on Runways 02, 20, an 29

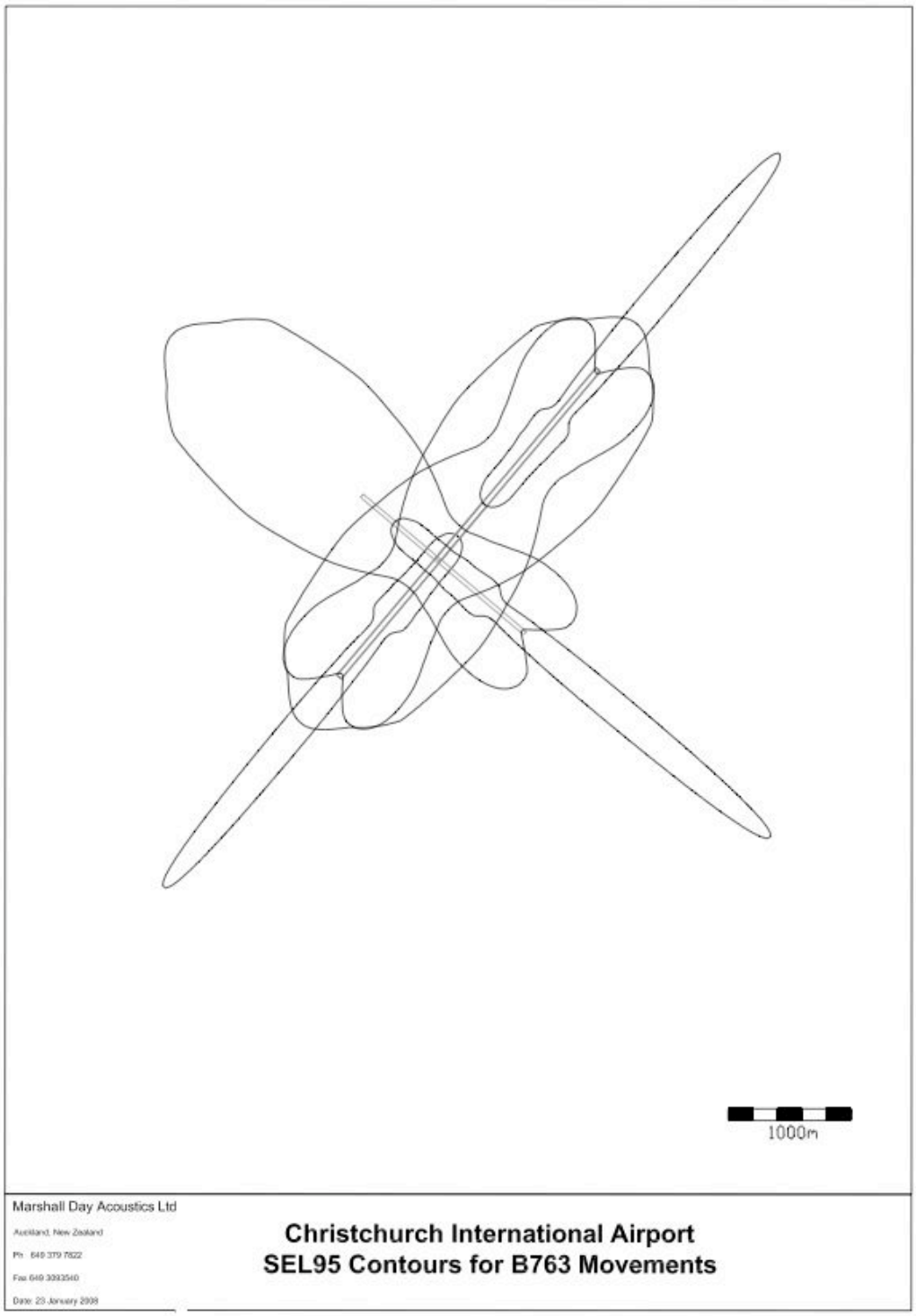

Figure G-2: SEL 95 dBA Contours for Nighttime B767-300 Movements on Runways 02, 20, and 29.

C
CHRISTCHURCH INTERNATIONAL AIRPORT BY-LAWS APPROVAL ORDER 1989

References

CHRISTCHURCH INTERNATIONAL AIRPORT BY-LAWS APPROVAL ORDER 1989

SR 1989/405

PURSUANT to section 9 of the Airport Authorities Act 1966, His Excellency the Governor-General, acting by and with the advice and consent of the Executive Council, hereby makes the following order.

ANALYSIS
(List of Sections)

ORDERS

C

References

CHRISTCHURCH INTERNATIONAL AIRPORT BY-LAWS APPROVAL ORDER 1989
1. Title—

1. Title—

This order may be cited as the Christchurch International Airport By-laws Approval Order 1989.

C
CHRISTCHURCH INTERNATIONAL AIRPORT BY-LAWS APPROVAL ORDER 1989
SCHEDULES
SCHEDULE

SCHEDULE

CHRISTCHURCH INTERNATIONAL AIRPORT BY-LAWS

PURSUANT to section 9 of the Airport Authorities Act 1966, Christchurch International Airport Limited hereby makes the following by-laws.

By-Laws

1.

Short Title and commencement—

(1) These by-laws may be cited as the Christchurch International Airport By-laws.

(2) These by-laws shall come into force on the 28th day after the date on which these by-laws are approved by the Governor-General by Order in Council.

2.

Interpretation—

In these by-laws, unless the context otherwise requires,—

``Aircraft'' means any machine that can derive support in the atmosphere from the reactions of the air otherwise than by the reactions of the air against the surface of the earth:

``Aircraft park'' means an area within the airport that is made available for the parking or storage of aircraft:

``Airport'' means Christchurch International Airport at Harewood Christchurch in the Canterbury Land District, being an area of approximately 560 hectares which includes a runway, a terminal and other buildings, installations, and facilities and which is vested in or controlled by the Company:

``Airport manager'' means the person from time to time appointed by the Company to that office, and includes that person's deputy or authorised representative:

``Airport official'' means the airport manager and any person appointed or authorised by the Company or the airport manager to assist in the management or control of persons and property at the airport:

``Airport road'' means any area within the airport made available by the Company for the movement, or standing, or parking of vehicles; and includes a road as defined in section 2 of the Transport Act 1962:

``Apron'' means those parts of the airport that are intended to accommodate aircraft for the purpose of

loading or unloading passengers or cargo, refuelling, parking or maintenance:

"Authorised vehicle" means a vehicle authorised by the airport manager to enter and remain in a restricted area:

"Charge" means the charge prescribed by the Company to park a motor vehicle:

"Coin gate" means a restraining bar which is automatically raised or lowered by inserting a coin into a mechanical device:

"Company" means Christchurch International Airport Limited:

"Coupon parking area" means a road, or portion of a road, or other land, or a building or part of a building, that is designated by the Company as a place where vehicles may be parked using parking coupons, whether or not it is also a metered area:

"Coupon parking space" means a space or section in a coupon parking area marked off for parking a motor vehicle, whether or not it is also a metered space:

"Fuel handling" means—

(a) The fuelling and refuelling of aircraft:

(b) The drainage of fuel and oil and fuel and oil wastes:

(c) The management of fuel and oil and fuel and oil wastes:

"Hangar" means a building or installation used for the storage, or shelter, or repair of aircraft:

"Itinerant aircraft" means any aircraft other than—

(a) An aircraft that is based on the airport; or

(b) An aircraft operated by an air carrier licensed under any enactment governing the licensing of air services whose aircraft are entitled under a lease or licence to use an area of the airport:

"Large passenger service vehicle" has the same meaning as in section 2 of the Transport Services Licensing Act 1989:

"Manoeuvring area" means that part of the airport used for the taking-off and landing of aircraft and the movement of aircraft associated with taking-off and landing; but does not include loading or unloading areas and areas set aside for aircraft maintenance:

"Metered zone" means an airport road or part of an airport road authorised by the Company to be used as a place where vehicles may be parked using parking meters installed by the Company:

"Metered space" means a space, or a section, of a metered zone, marked off for parking a motor vehicle at which a parking meter has been installed:

"Motor vehicle" means a motor vehicle as defined in section 2 of the Transport Act 1962; but does not include an aircraft:

"Movement area" means any part of the airport that is intended for the movement of aircraft on the ground; and includes the manoeuvring area, maintenance areas and aprons:

"Parking" in relation to—

(i) Any part of an airport road where parking is governed by parking meters, means the stopping or standing of a vehicle for a period exceeding five minutes:

(ii) Any other part of an airport road, means the stopping or standing of a vehicle;

and ``park'' has a corresponding meaning:

``Parking coupon'' means a coupon or document issued by the Company to a person for the purpose of indicating the time of parking a motor vehicle and the fee paid:

``Parking meter'' means a mechanical appliance installed at a metered space and designed to measure and indicate automatically the time within which a motor vehicle is, or may be, parked at that space, and includes the standard to which that appliance is fixed:

``Parking space'' means a space or section marked off for parking a motor vehicle:

``Passenger terminal area'' means the airport terminal buildings commencing at a point south of the southern building line of the Ansett terminal building and extending in a northerly direction to a point north of the northern building line of the international terminal building; and includes the roadways adjacent to the buildings designated as such by the Company:

``Person'' includes a body of persons whether corporate or unincorporate:

``Publicly notified'' means publicly notified as defined by section 2 of the Local Government Act 1974:

``Restricted area'' means the movement area and any other part of the airport to which entry by members of the public is prohibited or restricted pursuant to these by-laws; but does not include any area (other than the movement area) to which entry by members of the public is subject to payment of a fee or charge:

``Small passenger service vehicle'' has the same meaning as in section 2 of the Transport Services Licensing Act 1989:

``Small passenger service vehicle stand'' means any area at the airport reserved by the Company for the standing of small passenger service vehicles while awaiting, or under, hire and designated by the Company by means of a sign, marking, or a notice:

``Storage locker'' means a device for the storage of goods provided by the Company at any part of the airport for hire by persons authorised to use that part of the airport:

``Vehicle'' means a vehicle as defined in section 2 of the Transport Act 1962 and includes a large passenger service vehicle and a small passenger service vehicle:

``Visitors park'' means an area made available by the Company for the parking of visitors' vehicles.

PART I—GENERAL

3.

Advertising—

Except with the prior written consent of the airport manager, no person shall, within the airport,—

(a) Display or distribute any advertisement for goods or services;

(b) Display or distribute any poster, placard, handbill, writing, picture, pamphlet or circular advancing or opposing any cause or issue.

4.

Animals—

(1) Except with the prior consent of the airport manager, no person shall enter the airport riding on an animal or in a vehicle drawn by an animal.

(2) No person shall bring an animal or bird into the airport unless the animal or bird is—

(a) To be delivered to a person authorised to accept it under a contract of carriage with an airline; and

(b) Confined so as to make it impossible for it to escape; and

(c) Under proper control and properly cared for.

(3) Nothing in this by-law applies to—

(a) A guide dog engaged in guiding a blind person and kept under restraint by harness:

(b) A dog under the control of a police or customs officer and being used in the course of duty:

(c) Stock which, with the consent of the Company, is brought on to the airport and grazed in areas set aside for grazing.

5.

Area control—

(1) For the purposes of this by-law,—

(a) The Company may, from time to time designate areas or places at the airport to which entry by members of the public is prohibited or restricted and may prescribe conditions of entry:

(b) The airport manager may, from time to time, designate areas or places at the airport to which entry by members of the public is prohibited or restricted for a period not exceeding 6 months.

(2) Every such area or place shall be indicated by conspicuous signs or notices.

(3) No person shall, except in accordance with conditions imposed by the Company, enter or remain in a restricted area.

(4) Every person who enters or remains in a restricted area otherwise than in accordance with conditions imposed by the Company, shall forthwith leave that area at the request of an airport official.

(5) Nothing in subclauses (3) and (4) of this by-law applies to—

(a) A person authorised to enter and remain in the restricted area for the purpose of discharging any duty or providing any service:

(b) Passengers boarding or leaving an aircraft stationed on the apron.

6.

Commercial photography—

(1) No person shall take photographs, film, or make a video recording within the airport for commercial purposes or profit, unless that person is—

(a) An accredited representative of the news media who is engaged in carrying out that person's duties:

(b) Authorised in writing to do so by the airport manager.

(2) Every person referred to in subclause (1)(b) of this by-law shall produce his or her authority to an airport official when required to do so.

7.

Conduct—

(1) No person shall—

(a) In any part of the airport open to the public, not being licensed premises as defined in section 2 of the Sale of Liquor Act 1962,—

(i) Drink any intoxicating liquor; or

(ii) Have in his or her possession or control any intoxicating liquor for consumption in that part of the airport.

(2) No person shall, in any part of the airport,—

(a) Behave in a disorderly or indecent manner or be drunk; or

(b) Behave in a manner, or do any act, which threatens public order or safety or the safety or security of persons or property; or

(c) Cause a nuisance to, or annoy, persons at the airport by—

(i) Using insulting or offensive language; or

(ii) Behaving in an insulting, rowdy, or offensive manner; or

(d) Throw, leave, or drop any article, thing, or substance capable of:

(i) Injuring, annoying, or creating a hazard for, any person;

(ii) Damaging, or creating a hazard for, property;

(iii) Fouling any part of the airport; or

(e) Without lawful authority climb or attempt to climb a wall, fence, barrier, railing or post; or

(f) Wilfully give a false fire or ambulance alarm; or

(g) Without lawful authority leave a door or gate open or unfastened.

(3) An airport official or member of the Police who has reasonable grounds for suspecting that a person has contravened paragraph (a) or paragraph (b) or paragraph (c) of subclause (2) of this by-law may require that person to leave the airport and that person shall do so immediately.

8.

Entry and exit—

No person shall, except in the course of duty, enter or leave the airport other than by a route maintained by the Company for that purpose.

9.

Identity cards and temporary passes—

(1) The airport manager may direct that—

(a) Identity cards be issued to persons employed at the airport:

(b) Temporary passes be issued to any visitor to the airport or to any class or classes of visitors to the airport.

(2) Any identity card or temporary pass shall be carried by the person to whom it is issued so as to be clearly visible at all times when he or she is in a restricted area.

(3) Access to a restricted area shall be limited to the area described on the identity card or temporary pass.

(4) An airport official or a member of the Police may require—

(a) A person to whom an identity card or temporary pass has been issued and who refuses, or is unable, to produce it for inspection:

(b) A person who is employed at the airport and who is not at the time on duty—

to leave a restricted area and that person shall do so immediately.

10.

Conduct of business—

(1) No person shall carry on any business within the airport or engage in any activity at the airport for the purposes of, or connected with, the carrying on of any business outside the airport, except in accordance with a lease or licence or other authority granted by the Company.

(2) Nothing in subclause (1) of this by-law applies to the carriage and delivery of goods or persons in accordance with the terms of any licence or permit issued by a Government Department or a tribunal or body constituted under any Act.

11.

Left luggage lockers—

(1) The Company may provide lockers for the storage of luggage and other articles.

(2) No person shall leave perishable food or any noxious or offensive article or substance in a storage locker.

(3) An airport official may, at any time,

(a) Open any locker in which he or she has reasonable cause to suspect there is perishable food or any noxious or offensive article or substance and remove it:

(b) If the airport official considers that the food, article or substance may constitute a nuisance, destroy it or arrange for its disposal.

(4) The owner of any food, article, or substance which is destroyed or disposed of is not entitled to be compensated by the Company.

(5) An airport official may, at any time, open a storage locker in which luggage or other articles have been stored beyond the period allowed by the Company and may retain the luggage or articles in safe custody.

(6) Luggage and articles which are removed from a locker under subclause (5) of this by-law may be claimed between the hours of 9.00am to 5.00pm on any week day that is not a public holiday.

(7) The Company is not liable to any person for loss or damage to, or deterioration of, any luggage or other articles arising from the exercise of its powers under this by-law unless it is proved to have resulted from wilful neglect or default by the Company or its servants or agents.

(8) Locker keys shall remain the property of the Company.

(9) A copy of this by-law shall be posted on the inside of each storage locker in a place where it is clearly visible to the user together with a statement that the Company accepts no responsibility for the safety of any goods placed in it.

12.

Lost property—

(1) The Company shall operate a lost property office at the airport.

(2) Every person shall deliver to the office of the airport manager or the airport police any article or thing found by that person at the airport.

(3) The airport manager may destroy or arrange for the disposal of any perishable or valueless property found in the airport.

(4) The Company may, from time to time, sell by public auction any property that has remained unclaimed after being held by the Company for not less than 3 months.

(5) Before any property is sold by auction the Company shall advertise its intention to hold the auction twice in a newspaper circulating within the Christchurch region, the second advertisement to be published at least 14 days and not more than 21 days before the date appointed for the sale.

(6) The proceeds of sale shall, after deducting the costs of sale and any lost money which is unclaimed be disposed of in accordance with the Airport Authorities Act 1966.

13.

Obstruction—

No person shall obstruct, hinder, or interfere with—

(a) The proper use of the airport or activities lawfully carried on at the airport:

(b) Any person lawfully carrying out any duty at the airport.

14.

Access to restricted areas—

No person shall—

(a) Drive or bring a vehicle into a restricted area unless authorised to do so by an airport official:

(b) Remain in a restricted area after being required to leave it by an airport official.

15.

Sanitation and hygiene—

(1) No person shall cast, drop, or leave litter, except in a receptacle provided for litter, or scatter confetti.

(2) No person shall expectorate on the floors or other surface of any part of an airport building or on any area to which the public has access.

16.

Soliciting funds—

Except with the prior written approval of the airport manager, no person shall solicit funds, canvass for subscriptions, sell raffle or lottery tickets, or appeal for donations.

17.

Special events—

(1) No person shall hold or participate in any reception, parade, exhibition, display, demonstration, protest march, or organised assembly unless:

(a) It takes place in a room or area approved by the airport manager for the purpose; and

(b) A written permit for it has first been obtained from the airport manager.

(2) No person shall behave at any such event in contravention of the terms of the permit.

18.

Telephones—

Except with the prior written approval of the airport manager, no person shall install a public or private telephone within the airport.

19.

Vandalism—

No person shall—

(a) Without lawful authority, damage or destroy any part of the airport or any vehicle or equipment used in connection with it:

(b) Deposit, or cause to be deposited, in any coin operated machine provided by the Company anything other than the proper coin required for its operation:

(c) Abandon any property or deposit any waste, refuse, or offensive or dangerous material at the airport:

(d) Place or allow to be placed in any drain, soakhold, water intake, channel, or outlet, or in any sanitary fitting or appliance, any refuse, broken glass, or substance likely to foul, injure, or obstruct it or affect its operation.

PART II—ROADS AND MOTOR VEHICLES

20.

Airport roads—

(1) The Company may, from time to time, make any area within the airport available as an airport road.

(2) The Company may, in relation to an airport road or part of the road, from time to time,—

(a) Open the road or part of it to members of the public generally or a specified class or specified classes of persons:

(b) Close the road or any part of it:

(c) Revoke or vary the right of members of the public generally or a specified class or specified classes of persons to use the road or any part of it:

(d) Declare that the road or any part of it is no longer available for use as an airport road:

(e) Alter the area, size, or location of the road or any part of it:

(f) Restrict traffic movement to one direction only:

(g) Set aside any part of the road for use at all times or during specified times as a loading zone for vehicles loading or unloading passengers or goods or as a place where such vehicles may wait between trips:

(h) Set aside any part of the road for the parking of motor vehicles subject to any prohibitions, limitations and restrictions as the Company may from time to time impose.

(3) The Company may, from time to time, impose prohibitions, limitations and restrictions on the

operation, stopping, standing, or parking of motor vehicles on any airport road or any part of it.

(4) The Company shall erect notices or signs governing the use of airport roads in a manner set out in the Traffic Regulations 1976 and all prohibitions, limitations and restrictions imposed on the use of airport roads, whether by these by-laws or by the Company or otherwise, shall be indicated by signs installed or marked out by the Company in accordance with those regulations.

21.

Compliance with directions and signs—

(1) Every driver and every person who is in charge of a motor vehicle shall comply with any lawful direction for the regulation of traffic given by a member of the Police, traffic officer, or airport official, and with every traffic sign, directional indicator, line, dome, zone or marking laid down, placed or made on an airport road.

(2) No driver or person in charge of any motor vehicle shall:

(a) Drive or attempt to drive the motor vehicle across, or leave it on, any part of the airport that is not marked out for the passage or standing of motor vehicles:

(b) Enter or leave, or attempt to enter or leave, any vehicle park by a route that is not marked out for the purpose.

(3) Nothing in subclause (2) of this by-law applies to authorised vehicles.

22.

Coupon parking areas—

(1) Even though a road or part of a road is a metered area, the Company may, from time to time:

(a) Declare the road or part of it to be a coupon parking area:

(b) Prescribe the time allowed for parking in coupon parking spaces within the coupon parking area and, in relation to such coupon parking spaces, declare a maximum period beyond which it shall be unlawful to remain parked.

(2) The Company shall indicate each coupon parking space by placing or erecting such signs, markings, notices or devices as may be prescribed by regulations made under the Transport Act 1962.

(3) If any road or part of a road declared to be a coupon parking area has also been declared to be a metered zone, a vehicle may be parked either in accordance with the provisions of this clause or in accordance with the provisions of clause 32 of these by-laws.

23.

Coupons to be displayed—

(1) No person shall park a vehicle in a coupon parking area during a period when coupon parking is permitted unless—

(a) One or more valid coupons covering the period during which the vehicle is parked are displayed on the vehicle; or

(b) The coupon parking area is also a metered zone and that person has activated the parking meter mechanism in accordance with these by-laws.

(2) For the purposes of subclause (1) of this by-law, a coupon is not a valid coupon if—

(a) It is torn, defaced, or mutilated or the figures or other particulars on it are illegible; or

(b) The period for which it is valid has expired; or

(c) The date and the time of commencement of parking are not indicated on it in accordance with subclause (1)(b) of by-law 26 of these by-laws.

24.

Parking in coupon parking areas—

(1) Subject to subclause (2) of this by-law, no driver, or person in charge, of a motor vehicle shall park the vehicle across a line marking a coupon parking space or in such a position that the vehicle is not entirely within the area marked out as a parking space.

(2) The driver or person in charge of a vehicle that is longer than a coupon parking space, or that has a trailer attached to it, may park the vehicle or the vehicle and the trailer, as the case may be, in 2 or more coupon parking spaces which are parallel to the kerb or footpath and shall display the coupons required for each space occupied.

(3) No driver or person in charge of a motor vehicle shall park the vehicle in a coupon parking space which is already occupied by another vehicle.

(4) Where a coupon parking space is at an angle to the kerb or footpath, the driver or person in charge of a vehicle shall park the vehicle in such a manner that it is headed in the general direction of the movement of traffic on the side of the road on which the vehicle is parked.

25.

Parking of motorcycles in coupon parking areas—

(1) Not more than 6 motorcycles may be parked in a single coupon parking space.

(2) Every motorcycle that is parked in a coupon parking space shall be parked substantially at right angles to the kerb or footpath.

(3) Every person who parks a motorcycle in a coupon parking area shall display a coupon in accordance with these by-laws.

26.

Coupon Display—

(1) Every coupon displayed on a vehicle shall—

(a) Be displayed in accordance with the instructions printed on it; and

(b) Show the date and time of commencement of parking in accordance with the instructions printed on it.

(2) If 2 or more coupons are displayed on a motor vehicle to cover the period during which the vehicle is to be parked in a coupon parking area, the time of commencement of parking indicated in the second and subsequent coupon or coupons shall run immediately after the time of expiry of the period of parking indicated on the coupon for the prior period of parking.

27.

General provisions relating to coupons—

(1) Coupons may be issued by the Company or by any person authorised by the Company on payment of any charges set by the Company under section 4(2) of the Airport Authorities Act 1966.

(2) Refunds shall not be given for unused coupons except in circumstances specified by the Company. No refund shall be given for coupons that are defaced, mutilated or rendered invalid.

(3) Except as provided in subclause (2) of by-law 26 of these by-laws, no person shall display on a motor vehicle parked in a coupon parking area in which parking by coupon is permitted, a coupon in which the time of commencement of parking indicated is later than the time when that person parks the motor vehicle.

(4) No person shall display on a motor vehicle a coupon that has been altered or interfered with in a material way.

28.

Driver may be required to produce coupons—

(1) The driver or other person in charge of a motor vehicle shall, on being required to do so, by a traffic officer or airport official, produce every coupon displayed on the motor vehicle for inspection by that traffic officer or airport official.

(2) A traffic officer or airport official may take possession of any coupon produced for his or her inspection.

29.

Parking not to exceed time allowed—

No driver or person in charge of a motor vehicle shall park that motor vehicle in a coupon parking area in excess of the time allowed by a parking coupon displayed on the vehicle.

30.

Off-street coupon parking areas—

The Company may, from time to time, declare that any land, not being a road or part of a road, or a building or part of a building, at the airport, is a coupon parking area and the provisions of by-laws 22 to 29 of these by-laws shall apply with such modifications as shall be necessary.

31.

Parking meters—

(1) The Company may, from time to time:

(a) Declare any airport road or part of an airport road to be a metered zone:

(b) Prescribe the number and location of metered spaces within a metered zone:

(c) Prescribe the maximum time allowed for parking in metered spaces.

(2) The Company may, from time to time,—

(a) Amend or revoke any such declaration; or

(b) Alter the number and location of metered spaces prescribed or the maximum time allowed for parking in metered spaces prescribed.

(3) The Company shall mark out metered spaces in every metered zone and shall install a parking meter at each one.

(4) Parking meters shall—

(a) Be installed adjoining each metered space:

(b) Clearly indicate the time allowed for parking:

(c) Clearly indicate the coin or coins in New Zealand currency to be used to activate the meter to record the time permitted for parking.

(5) Metered spaces shall be indicated by white lines painted on the ground.

32.

Parking in metered zones—

(1) No driver, or person in charge, of a vehicle shall park the vehicle in a metered zone across any line marking a metered space, or in such a position that the vehicle is not completely within a metered space.

(2) No driver or person in charge of a vehicle shall park the vehicle in a metered space which is already occupied by another vehicle.

(3) If the metered space is parallel to the general direction of traffic in the immediate vicinity, the driver, or person in charge, of a vehicle shall park the vehicle so that it is headed in the general direction of the movement of traffic on that side of the road.

(4) If the metered space is at an angle to the general direction of traffic in the immediate vicinity, the driver, or person in charge of a vehicle shall park the vehicle in such a manner that it is facing substantially in the general direction of the movement of traffic on that side of the road and parallel to the metered space.

(5) As soon as any vehicle is stationed in a metered space the driver or person in charge of the vehicle shall deposit in the parking meter the coin or coins indicated on the parking meter as a parking fee and shall set the parking meter in operation by causing the coin to operate the meter. The vehicle may then be lawfully parked in the metered space during the period indicated on the parking meter.

(6) The driver, or person in charge, of a vehicle may, without any payment, park the vehicle during such time, if any, as may be indicated on the parking meter as being unexpired from its previous use.

(7) Unless the total period allowed for parking a vehicle in a metered space is exceeded, the driver or person in charge of the vehicle may, upon the expiry of any authorised period of parking, deposit the appropriate coin or coins in the parking meter and set the parking meter in operation. The vehicle may then

be lawfully parked in the metered space for the further period indicated on the parking meter.

(8) No driver or person in charge of a vehicle shall cause or allow it to remain in a metered space if the parking meter installed at the metered space shows that the time has expired.

(9) Notwithstanding the foregoing provisions of this by-law, a vehicle may stand in a parking place for not more than five minutes before the parking meter is activated, or for not more than five minutes after the authorised period for parking has expired.

33.

General provisions—

(1) If the airport manager considers that the use of any metered space or spaces should be temporarily discontinued he or she may erect an appropriate notice at the metered space or spaces and, except with the prior written approval of the airport manager and then only for the period stated in the approval, no person shall park a vehicle at the metered space or spaces while the notice is placed there.

(2) No person shall—

(a) Misuse a parking meter:

(b) Interfere, or tamper, or attempt to interfere or tamper, with the working or operation of a parking meter:

(c) Without lawful authority, affix or attempt to affix a placard, advertisement, notice, list, board or other thing to a parking meter:

(d) Paint or write on, or disfigure, a parking meter.

(3) No person shall deposit or cause to be deposited in any parking meter any article or thing except the coin or coins prescribed for payment of the prescribed parking fee.

34.

Speed—

(1) The Company may, from time to time, restrict the speed at which vehicles may be driven at any locality at the airport.

(2) No person shall drive a motor vehicle, other than an ambulance, police, traffic or fire vehicle on urgent mission, on an airport road, at a speed in excess of 50 kilometres per hour or, where any other speed has been prescribed by the Company for any locality and notified by appropriate and conspicuous signs, at any speed in excess of the speed prescribed.

(3) Except with the authority of the Company, which may be given generally or in relation to any specified person or class or classes of persons, no person shall drive a motor vehicle at a speed in excess of—

(a) Sixty five kilometres per hour on the manoeuvring area:

(b) Eight kilometres per hour within 15 metres of an aircraft:

(c) Thirty kilometres per hour on any other part of the movement area.

(4) It is a defence to a person charged with an offence against this by-law if he or she proves that at the

time of the alleged offence he or she was—

(a) Driving an ambulance that was fitted with a siren or bell to or from an accident or emergency at the airport; or

(b) Driving a vehicle used to attend fires or accidents at the airport to or from a fire or accident at the airport; or

(c) Conveying a Police officer or traffic officer or an airport official to or from an accident or emergency at the airport;—

and that the speed of the vehicle was reasonable in all the circumstances.

35.

Small Passenger Service Vehicles—

(1) The driver of a small passenger service vehicle that is in the passenger terminal area for the purposes of hire shall, unless otherwise directed by a member of the Police, a traffic officer or an airport official, park the vehicle on a stand designated by the Company and wait his or her turn for hiring.

(2) Where a coin gate is installed for controlling a particular class of small passenger service vehicle, the Company shall issue a toll ticket for every charge fixed and paid pursuant to section 4(2)(a) of the Airport Authorities Act 1966 in respect of the use of that designated area.

(3) The driver of a small passenger service vehicle using the designated area controlled by a coin gate shall on demand by a traffic officer or an airport official, produce for inspection the current toll ticket in respect of that particular use.

36.

Vehicle operation—

No person shall drive a motor vehicle, and no person in charge of a motor vehicle shall allow a motor vehicle to be driven, on an airport road in a manner or condition that does not comply with the provisions of the Transport Act 1962 or any regulations made under that Act or the provisions of these by-laws.

37.

Repairs—

(1) No person shall clean, or repair, or work on, a motor vehicle at the airport except in a motor vehicle repair shop or other area set aside by the Company for the purpose.

(2) Nothing in subclause (1) of this by-law prevents a person making running repairs to, or working on, a motor vehicle to enable it to be driven away.

38.

Free way to aircraft—

The driver, or person in charge, of any vehicle shall at all times give right of way to aircraft moving on or near to the ground.

39.

Loading and unloading of vehicles—

The driver or person in charge of a motor vehicle shall not load or unload passengers, or luggage, or freight except at a place set aside by the Company for the purpose and indicated by an appropriate sign or signs. In the case of a private motor vehicle, passengers and their luggage may be loaded or unloaded at any place where the vehicle may lawfully be parked.

40.

Abandoned vehicles—

No person shall leave a vehicle in a public car park at the airport for a period exceeding 3 months without the written authorisation of an airport official. Any vehicle left in a car park at the airport for a continuous period exceeding 3 months without proper authority shall be treated as abandoned.

41.

Removal of vehicles—

(1) The airport manager may remove, or have removed, any motor vehicle that has been—

(a) Abandoned; or

(b) Left at the airport in contravention of any prohibition or restriction imposed by these by laws.

(2) The airport manager may deal with the vehicle in the same manner as if it had been abandoned on an airport road.

42.

Stopping and standing of vehicles on airport road—

No person who is the driver, or person in charge, of any vehicle shall drive, stop, stand, or park that vehicle on any airport road in contravention of any prohibition limitation or restriction imposed by or under these by-laws and indicated from time to time by a sign, notice or warning.

43.

Refuelling tankers—

No person shall stop, stand or park a mobile refuelling tanker on the apron except when the tanker is refuelling an aircraft. The tanker shall be removed from the apron immediately after the refuelling operation is complete.

PART III—AIRCRAFT OPERATION AND GATE POSITION

44.

Boarding, and interference with, aircraft—

No person shall—

(a) Without lawful justification or excuse, board or attempt to board an aircraft in circumstances prejudicial or likely to be prejudicial to the security or safety of the aircraft or persons on board:

(b) Tamper or interfere with an aircraft or anything used in connection with the control, operation, maintenance, repair or storage of an aircraft.

45.

Cleaning down, maintenance and repair of aircraft—

(1) No person shall clean down, or carry out maintenance or repair work on an aircraft or a vehicle used in connection with aircraft operations except in a hangar or an area designated by the Company for the purpose.

(2) Nothing in subclause (1) of this by-law prevents minor adjustments being made to an aircraft.

46.

Gate standing times—

(1) The periods of time during which aircraft may remain stationed on the apron shall be as follows:

(a) For aircraft for the time being engaged in:

(i) Domestic services operating to a fixed schedule, 1 hour:

(ii) International services operating to a fixed schedule, 2 hours:

(b) For aircraft for the time being engaged in services not operating to a fixed schedule, such period of time as the airport manager may in each particular case direct.

(2) The airport manager may extend or reduce the times specified in paragraph (a) and paragraph (b) of subclause (1) of this by-law if traffic conditions permit or require.

47.

Use of gate positions—

No person shall cause or permit an aircraft:

(a) To be stationed on the apron except at such place as the airport manager may direct;

(b) To remain stationed on the apron for a period of time in excess of the period applicable to that aircraft and prescribed by or under these by-laws.

48.

Parking of aircraft—

(1) No person shall park an aircraft except in such places and in such manner as directed by the airport manager and subject to such terms and conditions as may be specified by the airport manager from time to time.

(2) No aircraft shall be left unattended at the airport unless it is properly secured against adverse

weather conditions and unauthorised entry or other interference.

49.

Use of apron—

(1) No person operating, or in charge of, an aircraft shall use an apron unless—

(a) Authorised to do so by the airport manager; and

(b) The use of the apron conforms with the parking pattern approved by the airport manager.

(2) Every person operating, or in charge of, an aircraft using an apron in contravention of subclause (1) of this by-law shall, when required to do so by an airport official, remove the aircraft in accordance with the directions of that airport official.

50.

Servicing vehicles—

No person shall use any vehicle or equipment, or allow any vehicle or equipment to be used, in the servicing or maintenance of aircraft if its condition is, or its contents are, likely to create a hazard by fire, flash or otherwise to aircraft, or refuelling facilities, or persons.

51.

Spilt substances—

No person shall spill, drop, throw or deposit any oil, grease, fuel, refuse, broken glass, or any other thing or substance, likely to—

(a) Foul, obstruct, damage, endanger or create a hazard for, an aircraft:

(b) Injure or endanger any person.

52.

Stationary engine testing—

(1) No person shall start up or run an aircraft engine in a hangar.

(2) Subject to subclause (3) of this by-law, no person shall start up or run an aircraft engine for the purposes of stationary testing in an open space at the airport unless—

(a) The total duration of engine testing in respect of any aircraft does not exceed 5 minutes, or

(b) The engine testing is carried out in a special facility approved in writing by the airport manager, or

(c) The engine testing is carried out at the threshold of Runway 11 or, when Runway 11 is in use, in the holding bay on the main taxiway and under the direction of Air Traffic Control, or

(d) The testing is carried out at such other place and in such manner as shall be approved in writing by the airport manager before the test commences.

(3) Nothing in subclause (2) of this by-law authorises the testing of an aircraft engine between 2300 hours and 0600 hours unless—

(a) The testing is necessary to provide an urgent scheduled flight; and

(b) The person responsible for the testing delivers to the airport manager within 24 hours after the testing a report which sets out—

(i) The date, time and duration of the test; and

(ii) The reason for the test; and

(iii) The date and time of the scheduled flight for which the test was necessary.

53.

Acts causing fire risks—

No person shall, at the airport:

(a) Do any act that causes or is likely to cause a fire; or

(b) Light a fire other than in a safe place, under safe conditions, and for a lawful purpose; or

(c) Leave or drop a lighted match, ash, a lighted cigarette, cigar or pipe, or any other burning or smouldering article or substance.

54.

Floor care—

Every lessee, licensee and holder of any concession at the airport shall keep the floors of buildings and aprons and adjacent areas free and clear of oil, grease and other inflammable materials.

55.

Prohibition against smoking and flames—

(1) The Company may from time to time prescribe an area or areas within the airport in which smoking and lighted and naked flames are prohibited and erect or install a warning notice or notices to define the area or areas.

(2) No person shall smoke in, or produce or bring any lighted or naked flame into,—

(a) Any place in the airport where it is prohibited;

(b) Any place within 50 metres of an aircraft or a store or container of liquid fuel or explosives.

56.

Liquid fuel—

No person shall, except in an area designated by the Company for the purpose,—

(a) Fill any container or the fuel tank of a motor vehicle or aircraft with liquid fuel; or

(b) Discharge liquid fuel from any container or the fuel tank of a motor vehicle or aircraft.

57.

Storage of inflammables—

No person shall, in any part of the airport, place, store, or accumulate any inflammable substance in a way or in a quantity that is likely to create a fire hazard.

58.

Installations to comply with fire code—

(1) All portable filling tanks, underground fuel storage tanks, installations, safety equipment, pumps and other associated facilities shall be installed and operated in such a manner as to comply with the requirements of the airport manager, the applicable provisions of any fire code of the Christchurch City Council, the Dangerous Goods Act 1974, or any applicable regulations or by-laws.

(2) No person shall install a fuel storage tank above or below the ground at the airport unless that person first obtains the written approval of the airport manager and any necessary permit or approval from the Christchurch City Council.

59.

Offences and penalties—

Every person who—

(a) Acts or omits to act in breach of these by-laws; or

(b) Fails to comply with or perform any duty imposed by these by-laws; or

(c) Fails to comply with any order, direction, or requirement lawfully given under these by-laws—

commits an offence and shall be liable on conviction to a fine not exceeding $500.

The above By-Laws were made by Christchurch International Airport Limited by a resolution of its Board of Directors passed at a duly constituted meeting held on 6 November 1989.
The Common Seal of Christchurch International Airport Limited was hereunto affixed in the presence of:

B. R. MANN, Director.

H. G. HAY, Director.

[L.S.]

C J HILL,
for Clerk of the Executive Council.

EXPLANATORY NOTE

This note is not part of the order, but is intended to indicate its general effect.

This order approves the bylaws made by Christchurch International Airport Limited. The bylaws are set out in a Schedule to the order.

Section 9(5) of the Airport Authorities Act 1966 provides that bylaws made by an airport authority that is not a local authority shall not have any force or effect until approved by the Governor-General by Order in Council.

This order, which is made pursuant to section 9(5) of that Act, approves the bylaws made under that Act by Christchurch International Airport Limited for Christchurch International Airport.

The order is deemed, under section 9(6)(b) of the Act, to be a regulation for the purposes of the Regulations Act 1936.

Issued under the authority of the Acts and Regulations Publication Act 1989.
Date of notification in *Gazette*: 20 December 1989.
This order is administered in the Ministry of Transport.

Airside Operations Agreement

BETWEEN CHRISTCHURCH INTERNATIONAL AIRPORT LIMITED
("CIAL")

AND "_____"
("The Operator")

Whereas

A. CIAL is the owner and Operator of Christchurch International Airport and is the holder of an aerodrome operating certificate issued under Part 139 of the Civil Aviation Rules.

B. The Operator has a requirement to operate airside at the airport.

C. This agreement is entered into for the purpose of achieving and promoting safety at the airport, including compliance with CAR Part 139 and other legislative requirements and to record the parties' commitment to comply with this agreement.

In consideration of the premises the parties agree:

1. Interpretation

1.1 The definitions set out below apply to this agreement and all attached schedules, unless they provide to the contrary.

"CIAL" means Christchurch International Airport Limited, being the first signatory to this agreement, a duly incorporated company having its registered office at Christchurch

"The Operator" means the organisation that is the second signatory to this agreement. This definition includes an individual, or a group of individuals.

"The Airport" means Christchurch International Airport at Harewood being an area of approximately 750 hectares which includes two runways, an international terminal and a domestic terminal and other buildings, installations and facilities together with any other land, buildings, installations and facilities which may from time to time be acquired or come under the control of CIAL for the purposes of Christchurch Airport.

"AFS" means the Airport Fire Service operating at Christchurch Airport

"Airside" means all of the security area except for those parts within the terminal building.

"Airside Safety Committee" means a committee established and chaired by CIAL, which meets on a regular basis to discuss and review safety and security matters affecting the airside operations.

"Apron" has the same definition as in the Civil Aviation Rules Part 1, meaning *"those parts of the airport that are intended to accommodate aircraft for the purpose of loading or unloading passengers or cargo, refuelling, parking or maintenance".*

"ATS" means the Air Traffic Control Service provided by the Christchurch control tower.

"Bylaws" means the approved Christchurch International Airport Bylaws

"CAR Part 139" means the Civil Aviation Rule Part 139 promulgated under the Civil Aviation Act 1990 and any subsequent amendment.

"HSE" means the Health and Safety in Employment Act 1992, any subsequent amendments, related regulations and approved codes of practice.

"Manoeuvring Area" means that part of the airport used for the taking-off and landing of aircraft and the movement of aircraft associated with taking off or landing (does not include the Aprons).

"Principal Party" means Christchurch International Airport Limited or the named operator to this agreement.

"Ramp" has the same meaning as "Apron".

"RMA" means the Resource Management Act 1991 and any subsequent amendment.

"Safety and Security Policies" means the policies promulgated by CIAL to ensure safety on the Aprons and the Manoeuvring Area, including the regulation and control of drivers and the use of motor vehicles and equipment within the security area of the airport. A copy of the Safety and Security Policies is annexed as Schedule A to this agreement.

"Safety and Security Procedures" means the procedures developed by the Airside Safety Committee and promulgated by CIAL to ensure the Safety and Security Policies are complied with. A copy of the Safety and Security Procedures is annexed as Schedule B to this agreement.

"Security Area" means that part of the Airport so designated in accordance with section 84 of the Civil Aviation Act 1990 as detailed on drawing B5-1 of the CIAL Policy Manual (attached).

2. Compliance

2.1 The Operator agrees to observe and comply with:

2.1.1 CAR Part 139 insofar as it relates to the Operator's activities at the airport (and have access to the latest revision of CAR Part 139).

2.1.2 CAR Rule Part 19 Subpart G – Security (and have access to the latest version of CAR Part 19). For information only, see schedule A, Appendix 1 (refer latest CAR Part 19 version for compliance detail).

2.1.3 The Safety and Security Policies (Schedule A).

2.1.4 The Safety and Security Procedures (Schedule B).

2.1.5 The Operator specific requirements (Schedule C).

2.1.6 Exclusive Security Agreement (Schedule D)

2.1.7 Any other reasonable and non-discriminatory requirements of procedures which apply to the Operator as may be formally advised by CIAL to the Operator in writing.

2.1.8 All statutes, regulations, rules, bylaws and other enactments lawfully in force, insofar as they relate to the Operator's activities at the airport; and

2.1.9 Any legally enforceable requirements by any Government agency.

2.2 CIAL acknowledges that it is obliged to observe and comply with CAR Part 139 in all respects and it agrees to observe and comply with the other documents and enactments referred to in clause 2.1, to the extent that they relate to CIAL's operations at the airport.

2.3 CIAL may amend the attached schedules from time to time as circumstances require. Any such changes will be subject to prior discussion with the Operator(s) affected.

2.4 This document is binding on the Officiers, Directors, Employees, Agents Suppliers, Contractors and assigns for both principal parties.

3. Information and inspections

3.1 Each Principal Party party agrees to co-operate with and facilitate any reasonable request by the other Principal Party for the provision of information (whether documented or otherwise) or for the inspection of equipment or facilities, where that information or inspection is necessary to enable them to comply with the requirements specified in clause 2.

4. Failure to comply

4.1 If one Principal Party reasonably considers that the other has failed to comply with this agreement the concerned Principal Party shall advise the other in writing, setting out the failure, specifying the remedy which is required and a requested time frame for action.

4.2 Upon receipt of such written advice, the other Principal Party shall either comply with the requirement or advise in writing that it is unable to comply, setting out the reasons why it is unable to do so. For the purposes of this subclause, "unable to

comply" includes circumstances where they reasonably consider that the matters referred to do not amount to a failure to comply with this agreement.

4.3 If the other Principal Party does not comply in the time frame requested, or the concerned Principal Party reasonably concludes that any explanation given under subclause 4.2 is not satisfactory, then they may:

4.3.1 Report such failure to the Director of Civil Aviation;

4.3.2 Take any other action which it is lawfully able to do.

5. Arbitration

5.1 Any dispute or difference arising between the parties in connection with this agreement and any schedules to it which cannot be settled by negotiation shall be referred to a single arbitrator if the parties can agree upon one or, if not, to a person nominated by the President of the New Zealand Law Society and the arbitrator's decision shall be final and binding on the parties. Unless the parties otherwise agree, a reference to arbitration under this provision shall be deemed to be a reference under the New Zealand Arbitration Act 1996 and the reference shall proceed in accordance with the provisions of that Act.

6. Force majeure

6.1 A party shall not be liable for any delay or failure to perform its obligations under this agreement if such failure or delay is due to any cause reasonably outside the control of that party. A party unable to fulfil its obligations shall immediately notify the other in writing of the reason for its failure to fulfil its obligations and the effect of such failure.

6.2 A party relying upon subclause 6.1 shall use its best endeavours to fulfil its obligations and as soon as the cause of the delay or failure to fulfil its obligations is at an end shall comply with the terms of this agreement.

7. Termination and amendment

7.1 This agreement is automatically terminated if the Operator discontinues their operation within the security area at the Airport.

7.2 CIAL reserves the right to decide that an Operator has discontinued their operation within the security area at the Airport.

7.3 Either Principal Party may request a review of this agreement at any time and both Principal parties agree to co-operate in such review.

7.4 The schedules to this agreement may be reviewed and/or amended in accordance with clause 2.3.

8. Applicable law

8.1 This agreement shall be governed by and construed pursuant to the laws of New Zealand and the parties agreed to submit to the exclusive jurisdiction of the New Zealand courts.

9. Term

9.1 This agreement shall come into force when signed by both parties and remains in force subject to the clauses contained in section two of this agreement,

In witness of which this agreement has been executed.

SIGNED by and on behalf of)
CHRISTCHURCH INTERNATIONAL AIRPORT)
LIMITED in the presence of:)
)

SIGNED by and on behalf of the Operator by:)
in the presence of:)
)

Schedule A – Airside Safety and Security Policies at Christchurch International Airport

Introduction

This schedule is part of an Airside Operations Agreement between Christchurch International Airport Ltd (CIAL) and the Operator. The policies detailed in the schedule must be understood and complied with by all persons employed by or associated with the Operator and who need airside access at Christchurch International Airport.

Security

Security is a significant aspect of all airside operations. Persons airside **MUST** be security conscious at all times and report any security incident or suspicious situation.

Access to airside

General Access

ONLY the following persons may be airside on Christchurch International Airport:

- Persons required to be airside at that time in the course of their duties.
- Contractors working in a specific area.
- Official visitors (who must be accompanied).
- Passengers who are in the process of joining or leaving their flight.
- The crew of an aircraft who are in the process of joining or leaving their flight.
- Pilots of non-scheduled and light aircraft who are in the process of servicing or preparing their aircraft for flight.
- Passengers on non-scheduled and light aircraft escorted by a crewmember of such aircraft.

Vehicle Access

Vehicles requiring access airside must adhere to the following guidelines:

- Auto Gate 1 is the main vehicle access point airside for the airport at all times.
- Auto Gate 1 will have static guarding 24/7 and Auto Gate 5 will have static guarding during the hours of domestic operation and will be CCTV controlled outside of these hours.
- Only authorised vehicles that have been issued with an RFID tag will be allowed entry unless prior arrangement for a temporary permit has been obtained.
- Vehicles issued with a temporary permit will only be granted access through Auto Gate 1 or Auto Gate 5 during the hours of domestic operation.
- The General Aviation (GA) Auto Gate (western grass) will be CCTV controlled and vehicle access will be by escort only.
- When a Auto Gate is CCTV controlled, only single person capable vehicles will be able to gain access. Multi-person capable vehicles will be required to access the security area through Auto Gate 1, or will require an Aviation Security Service officer to attend the Auto Gate and provide authorised vehicle access.

- Only emergency vehicles will be granted access through the Auto Gate by AFS.

An approved Airport Identity Card MUST be worn (on the front of the outer garment) by all persons airside, except for passengers in the process of joining or leaving their flight and operators of light aircraft who must have in their possession a valid pilot's licence, photographic proof of identity and evidence of intended travel (aircraft keys, flight plan etc). Where the purpose of access is for aircraft servicing, then evidence of intended travel is not required.

Where access to airside is obtained by a card/key issued by CIAL the card/key at all times remains the property of CIAL. Card/key(s) must at all times remain under the control of the person to whom it was issued, must not be lent or given to other persons and must be returned to the CIAL Customer Services Manager when the holder ceases to operate at the airport.

Safety

All persons who require unsupervised airside access must undertake a CIAL approved airside safety and security course, prior to being allowed airside without continuous supervision. The successful completion of this course must be formally recorded and able to be confirmed when required.

All staff must take responsibility for their own safety, the safety of others working near them on the apron and passengers.

Personal safety

It is CIAL policy that persons working on the apron must at all times wear a reflectorised jacket which meets the NZ Standard.

Training

Safety and security awareness training

All persons requiring unsupervised airside access at Christchurch International Airport **must** undertake a CIAL approved course of instruction on the safety and security requirements designed to meet the requirements of Civil Aviation Rule 139 and other legal requirements. In addition to any operator specific safety and security training, the training must include:

- CIAL Safety and Security Policies (this schedule).
- CIAL Safety and Security Procedures (Schedule B).
- Responsibilities of holders of security IDs.
- Airside driving (if applicable).
- Airport Emergency Plan overview (if applicable).
- Apron emergency procedures.

- Requirement to report safety and security incidents.

Safety and Security awareness training must be completed before the person is permitted airside unsupervised and prior to the issue of access cards.

Refresher training must be provided at least every two years.

Delegation of safety / security awareness training

Organisations may be delegated the responsibility of training their own staff for some or all of the above requirements.

Safety and Security training and refresher training can be provided by CIAL for staff of other organisations where there is no delegated authority. The CIAL Manager Airside Operations & Safety can arrange training as and when required. There is no charge for this training.

Airside driving permits

General

All persons operating vehicles within the security area at Christchurch International Airport must hold a valid airside driving permit unless they are being escorted by CIAL, Aviation Security or the NZ Police. There are two levels of permit.

Category 1 airside driving permit

All persons who need to operate vehicles on the apron areas and the perimeter road require a **category 1** driving permit. Prior to being issued a **category 1** driving permit, the person must complete a CIAL approved driving course.

Category 2 airside driving permit

All persons who need to operate vehicles on the Manoeuvring Area require a **category 2** driving permit. Prior to being issued a **category 2** driving permit, the person must complete a CIAL approved driving course and undergo a practical driving test on the manoeuvring area conducted by an approved training officer.

A category 2 permit also includes all the requirements of a category 1 permit.

Prior to the issue of an airside driving permit the applicant must hold a current Airport Identity Card.

Prior to the issue of an airside driving permit the applicant must hold a current NZ drivers licence for the class of vehicle they will drive unless a dispensation on vehicle class has been granted by the CIAL Manager Airside Operations & Safety.

All persons issued an airside driving permit must comply with the requirements detailed herein at all times whilst operating a vehicle airside at Christchurch International Airport.

Drivers shall carry their airside driving permit with them at all times whilst driving airside and shall produce the permit when requested by a uniformed CIAL staff member, Police officer or Aviation Security officer. Airside driving permits remain the property of CIAL and must be surrendered when the person ceases employment at the airport.

Airside driving permits may require periodic revalidation to meet operational requirements.

Delegation of airside driver training

Organisations may be delegated the responsibility for training their own staff in airside driving training. In order to obtain a delegation, organisations must demonstrate the formal training program and record keeping.

Airside driver training and refresher training can be provided by CIAL for staff of other organisations where there is no delegated authority. The CIAL Manager Airside Operations & Safety can arrange training as and when required. There is no charge for this training.

CIAL will issue driving permits to those staff who have completed a training course conducted by CIAL or an approved organisation.

Vehicle requirements

General

- Only organisations or individuals with whom Christchurch International Airport Ltd has a signed Airside Operations Agreement may operate vehicles airside unescorted at Christchurch International Airport.
- Vehicle operations shall be restricted to those vehicles that are essential for servicing aircraft or necessary for some other airside operation approved by CIAL.
- Vehicles operated airside at Christchurch International Airport shall only be driven or operated by persons holding an airside driving permit.
- All other vehicles must be escorted by CIAL, Aviation Security or NZ Police unless a specific exemption has been given by CIAL.

All vehicles

- Registered vehicles shall meet LTSA warrant of fitness/certificate of fitness requirements for that class of vehicle.
- Unregistered vehicles and equipment shall be maintained to a safe mechanical standard and in the case of specialist airport vehicles and equipment, recognised industry standards shall be met.
- Vehicles servicing aircraft shall be fitted with spark arresters if the exhaust is likely to create a fire hazard.
- Engine exhausts shall be fitted with mufflers to minimise sound emissions.
- There shall be no oil, fuel or other fluid discharge onto the ground.
- Noxious gaseous emissions shall be minimised.
- Vehicles must be fitted with headlights and tail lights including hazard identification lights where appropriate.
- Where vehicles are used at nighttime or during periods of poor visibility headlights and tail lights must be illuminated.
- Vehicle repairs other than those necessary to enable the vehicle to be driven away must only be conducted in a motor vehicle repair shop or other area set aside by CIAL.

Vehicle Identification

Vehicles operating airside shall have identification as follows:

- Signs and/or logos that clearly identify the operating organisation, of sufficient size and clarity to be clearly readable at a distance of 10 metres.
- Registration plates or numbers that allow the vehicle to be uniquely identified.
- An authorised RFID Tag attached to the windscreen.

In addition to the above, vehicles operating on the Manoeuvring Area unescorted must also be fitted with:

- An approved amber rotating beacon visible through 360°, or in the case of emergency vehicles, a red or blue rotating/flashing beacon.
- Radio equipment to allow communication with ATS on 121.9 MHz.

Temporary vehicle identification

Where any vehicle does not have permanent identification a CIAL approved temporary vehicle identification card shall be displayed in the front window of the vehicle (or an easily visible location where the vehicle has no front window) at all times while it is airside.

Temporary Vehicle Identity cards can be obtained from the CIAL Manager Airside Operations & Safety.

Temporary vehicles will not be issued an Authorised RFID Tag and must comply with the airside access procedure explained in Schedule B.

Exemptions

Non motorised equipment used for servicing aircraft and escorted vehicles are exempt from the vehicle identification requirements.

Enforcement

This Penalty Points System (**PPS**) is issued as an added section to the Airside Driving Pocket Book both categories one & two.

The **PPS** allocates a maximum penalty for a range of prescribed airside driving offences.

Authorised officers of CIAL have the authority to control drivers on airside and any warnings issued by them will be recorded on an Airside Driving Offence Notice Form (**ADON**)

The airside driver's Manager will be informed by the CIAL Manager Airside Operations & Safety of any **ADON**'s issued. The CIAL Manager Safety and Security in consultation with the airside drivers Manager will determine the outcome of any **ADON**'s issued.

No person shall receive demerit points or have their airside driving permit withdrawn as a consequence of a breach of the airside driving rules (unless it is a reckless breach or serious offence) without consultation between his or her manager and the CIAL Manager Airside Operations & Safety.

Airside drivers may challenge the individual **ADON** by writing to the CIAL Manager Airside Operations & Safety within 7 days of the ADON being issued and stating why it should be withdrawn.

Airside drivers who accumulate twenty penalty points within a twelve month period, will be advised of their offences and invited to show cause why their authority to drive airside should not be withdrawn for a minimum period of one (1) month but may be greater depending on the severity of the offence.

The driver will be advised in writing stating the reasons for the determination and the duration of the withdrawal.

The licence will automatically be reinstated after the expiry of the withdrawn time.

REF NO	TYPE OF OFFENCE	PENALTY POINT
1	**Breach of taxiway Lima**	
	Failure to stop prior to entering taxiway lima and ascertain that the way is clear.	**5 penalty points**
	Failure to give way to taxiing aircraft.	**10 penalty points**
	Failure to drive between the marked road crossing lines.	**5 penalty points**
	Driving on the manoeuvring area without ATS clearance	**10 penalty points**
2	**Speeding**	
Note: All speed offences will be determined with an approved radar or electronic speed testing device.	Exceeding the 8kph speed limit on the marked airside road and within 15 metres of an aircraft by more than 7kph and less than 12kph above the limit.	**3 penalty point**
	Exceeding the 8kph speed limit on the marked airside road and within 15 metres of an aircraft by more than 12kph above the limit.	**10 penalty points**
	Exceeding the 30kph speed limit on any other part of the apron/s by more than 15kph above the limit.	**6 penalty points**
	Exceeding the 65kph speed limit on the internal perimeter road by more than 15kph above the limit.	**6 penalty points**

3	**Parking**	
	Parking over marked airside road.	**3 penalty point**
	Parked over a pedestrian walkway.	**3 penalty point**
	Parking in an area that obstructs an emergency exit or equipment.	**5 penalty points**
	Parking in breach of appropriate signage, lines zones or markings.	**3 penalty points**
	Parked whilst servicing an aircraft without due consideration for other users.	**3 penalty points**
	Parking in an area that obstructs aircraft	**6 penalty points**
4	**Airside Driving Permits**	
	Driving without an authorised airside driving permit	**Immediate withdrawal from driving**
	No airside driving permit displayed	**3 Penalty point**
5	**Safety in Vicinity of Aircraft**	
	Failure to give way to taxiing aircraft.	**10 penalty points**
	Failure to give way to aircraft under tow.	**10 penalty points**
	Failure to give way to aircraft that has commenced pushback procedure.	**10 penalty points**
	Driving within 3 meters of a parked aircraft unless servicing it.	**3 penalty points**
	Driving in a manner dangerous to aircraft.	**Considered a reckless breach and withdraw of permit to be determined**
6	**Pedestrian Safety**	
	Failure to give way to pedestrians embarking/disembarking from an aircraft	**3 penalty points**
	Driving in a manner dangerous to pedestrians	**Considered a reckless breach and withdraw of permit to be determined**
7	**Equipment**	
	Failure to park equipment in the designated parking areas.	**3 penalty point**
	Parking of equipment without due consideration to other apron users.	**3 penalty point**
	Towing more than the allowable numbers of trailers/containers.	**3 penalty point**

8	**Foreign Object Debris**	
	Failure to stop and pick up FOD	**3 penalty point**
	Failure to secure a load with a consequence of the load or part thereof falling onto the apron.	**5 penalty points**
9	**Other**	
	Driving under the influence of drugs or alcohol.	**Considered a serious offence and withdraw of permit to be determined**
	Carrying a passenger on equipment where there is no seat provided	**3 penalty points**
	Failure to comply with the directions of an Airport official.	**5 penalty points**
10	**Security / Entrance Exit**	
	Failure to stop after entering/exiting an auto gate to ascertain the gate has closed	**5 penalty points**
	Tailgating through an automatic gate.	**5 penalty point**
	Failure to close and lock a security gate after entry/exit	**5 penalty points**

Appendix 1 CAR Rule Part 19 Subpart G — Security

19.353 Restrictions relating to persons and aircraft subject to security control

No person shall deliver to any person who has been subject to security control, or place on board any aircraft that has been subject to security control in a location accessible to any person on board—

(1) any firearm; or

(2) any other dangerous or offensive weapon or instrument of any kind whatsoever; or

(3) any ammunition; or

(4) any explosive substance or device, or any injurious substance or device of any kind whatsoever that could be used to endanger the safety of the aircraft or of persons on board.

19.355 Prohibitions

No person shall, without lawful authority,—

(1) leave open or insecure or otherwise uncontrolled any door, gate, or other barrier provided at any aerodrome to control access to any security area or operational area; or

(2) deposit, park, or leave adjacent to or on any fence, barrier, or other thing being used to prevent unauthorised access to any security area or operational area any article that is capable of facilitating the evasion of control measures.

19.357 Airport identity cards

(a) The Director of Civil Aviation may issue or approve airport identity cards and other identity documents in accordance with this rule.

(b) Subject to paragraphs (c) and (g), no person shall enter or remain in any security area of any designated aerodrome or designated installation, unless that person—

  (1) wears an airport identity card on the front of his or her outer garment; or

  (2) has in his or her possession another identity document or other identity documents for the time being authorised under paragraph (a).

(c) Where the Director considers it desirable that the name of the holder of an airport identity card be not disclosed, the Director may approve the wearing of an identity card from which the holder's name has been deleted.

(d) A person who is authorised by this rule to enter a security area shall remain in that area only for the purposes of his or her duties.

(e) If required to do so by an authorised person, any person entering or in a security area shall produce for inspection his or her airport identity card or other identity documents for the time being authorised under paragraph (a).

(f) If the holder of an airport identity card ceases to be employed in a position for which the card is required, or for any other reason ceases to be entitled to hold the card, the holder shall forthwith return the card to the issuing authority.

(g) Nothing in paragraph (b) shall apply to—

(1) any member of the crew of an aircraft engaged in an international service who wears on his or her outer garment an official identity card issued by his or her employer or the government of the state in which he or she permanently resides; or

(2) any official of a New Zealand government agency who is required, by reason of his or her official duties, to remain incognito; or

(3) any passenger who enters or leaves a security area for the purpose of joining or leaving a flight, if he or she is in possession of a valid boarding pass for that flight or is being escorted by a crew member or a representative of the operator; or

(4) any pilot-in-command of an aircraft on private operations who enters or is within a security area for the purpose of embarking, disembarking, or servicing the aircraft, if the pilot has in his or her possession a valid pilot licence, or any person being escorted by the pilot.

- end of Schedule A -

Schedule B – Airside Safety and Security Procedures at Christchurch International Airport

Apron safety

- In any emergency, notify the AFS by the fastest available means (eg a direct line apron phone) or call 111 to contact the appropriate emergency service.
- Be familiar with your organisation's contingency plan for accident and incident handling.
- Call AFS in the event of any fuel, oil, effluent or hazardous material spill (there is no charge for this service).
- Don't smoke on the airside. Aprons are strictly NO SMOKING areas.
- Don't approach an aircraft if the anti collision lights are flashing or the engine(s) are running, unless you have had specific safety training.
- Pick up rubbish you see or come across. Don't leave it for somebody else to attend to. Put any rubbish you pick up in one of the FOD (Foreign Object Debris) bins on the apron.
- Be familiar with the location and use of spill kits, emergency fuel shut off valves, fire extinguishers and apron emergency phones.

Personal safety

- Wear personal reflectorised vests or jackets, as well as PPE (Personal Protective Equipment) when necessary, supplied by your company while working on the aprons or Manoeuvring Area.
- Call AFS by the quickest available means (eg a tarmac phone) in the case of an accident involving personal injury.

Security

IF YOU HAVE ANY CONCERN ABOUT SECURITY, FOLLOW YOUR ORGANISATION'S STANDARD REPORTING PROCEDURE, OR REPORT YOUR CONCERN TO ONE OF THE FOLLOWING NUMBERS:

	Direct dial	Ext.
NZ Police	3718070	
CIAL Safety and Security	353 7777	37777
CIAL Airport Fire Service	353 7700	37700
Aviation Security Service	353 1900	31900

General security rules

- Close all doors, gates and barriers used to gain access between landside and airside areas.
- Report any defect to one of the above named services.
- **DO NOT** allow other persons airside, who are not displaying a current airport identity card.
- Do not accept the presence of a stranger without questioning. Report the matter if you are in any doubt.

- Be alert for persons airside who are not displaying an airport identity card and notify Aviation Security Services, CIAL Safety and Security or the NZ Police immediately.
- Remain observant at all times and report any suspicious activity to the NZ Police, Aviation Security or CIAL Safety and Security immediately.
- Be aware of anything that seems to be out of place or suspicious, for example packages or briefcases left unattended, vehicles parked in remote areas, especially at night or equipment parked close to fences. Check and report to Aviation Security Service, CIAL Safety and Security or the NZ Police if not satisfied.
- **DO NOT** lend your access card or keys to anyone
- **DO NOT** label security keys you may have been issued with. Report any loss immediately to your supervisor or to a CIAL Safety and Security Officer.
- **DO NOT** talk about security systems on the airport to any person who does not need to know.
- Be familiar with your organisation's contingency plan for a security incident.
- Remove materials leaned up against or adjacent to a fence or gate providing a climbing opportunity for others. Materials or objects left airside must not be left within 1.5 metres of the base of any fence or gate. The 1.5 metres is to measured, in respect of the landside of the fence, from a vertical line extending down the extreme outer edge of the fence (including the outrigger).

Airside driving

Drivers must be familiar with the vehicle requirements and the apron driving rules detailed elsewhere in this document.

Drivers are responsible for the safe operation of vehicles and equipment they are operating.

Drivers shall promptly advise their employer of any defect or malfunction in the vehicle or equipment they are operating. Where such defect or malfunction is likely to cause damage to aircraft, other vehicles, equipment or personnel, or to the apron surfaces, the driver shall cease to operate that equipment until the problem has been rectified.

Comprehensive brochures containing airside driving rules can be obtained from the CIAL Manager Safety and Security (Phone 353 7071).

Apron driving requirements (Category 1 Airside Driving Permit)

Drivers with a category 1 airside driving permit may only drive on the Perimeter Road and apron areas. The boundary between the apron area and the Manoeuvring Area is marked by a solid white/red/white line.

Drivers MUST know where the Manoeuvring Area boundary is and remain on the apron side of this boundary at all times.

Drivers must know the restricted areas around the perimeter road. These areas are signposted.

Drivers **MUST NOT** enter the Manoeuvring Area unless they are escorted by another vehicle equipped with appropriate radio equipment, rotating/flashing beacon and the driver of the

escorting vehicle has a category 2 airside driving permit. The only exception to this is the marked vehicle crossing on Taxiway A15. Vehicles must stop at the marked entry point prior to crossing the taxiway, ensure the taxiway is clear and then proceed across staying within the marked roadway and not stopping on the taxiway.

Manoeuvring area driving requirements (Category 2 Airside Driving Permit)

The Manoeuvring Area is at all times under the control of ATS on frequency 121.9mhz (Christchurch Ground). The driver must be conversant with radio procedures and phraseologies used by ATS. The driver must also be conversant with light signals from the Tower which are to be used in the event that radio communications fail.

Drivers must be familiar with the vehicle requirements and the Manoeuvring Area driving rules detailed elsewhere in this document.

The driver must know the boundary of the Manoeuvring Area and the restricted areas within the airfield. The driver shall not proceed onto the Manoeuvring Area without clearance from ATS.

Clearance must be obtained and acknowledged and the controller's instructions followed at all times whilst the vehicle remains within the Manoeuvring Area. The driver must remain in contact with ATS at all times whilst on the manoeuvring area.

The driver must know and be familiar with the airfield layout, including the numerical and alphabetical designators for runways, stub taxiways and ground markings including taxiway holding positions.

Vehicle operations

General

- Smoking is prohibited airside at all times. This includes in vehicles airside.
- A person shall not drive or move any vehicle or piece of equipment unless he/she has been authorised to operate it, has an airside driving permit and a current NZ drivers licence for the class of vehicle.
- Only carry another person on any vehicle or equipment if there is a fitted seat for them – NO SEAT – NO RIDE.
- Leave equipment only in marked equipment parking areas unless that equipment is immediately required to service an aircraft on the apron.
- Use apron equipment only for purposes for which it is designed.
- Vehicles/equipment not under the immediate control of the driver must not be parked airside within 1.5 metres both inside and outside of any security fence line. The 1.5 metres is to be measured, in respect of the landside of the fence, from a vertical line extending down the extreme outer edge of the fence (including the outrigger).

Towing airside

- A tractor shall tow no more than a rake of either:
  a) Four fully loaded container trailers.
  b) Six fully loaded baggage trolleys.
  c) Three fully loaded cargo or flat top trailers.
  d) Four unloaded cargo or flat top trailers on any airport road.
- The speed of any tractor, trailer or trolley combination shall not exceed 15km/h.
- No tractor, trailer or trolley shall be on, or operate on, any road during the hours of darkness unless it is clearly visible at a distance of 50 metres by artificial street lighting.

Airside vehicles and equipment operations landside

Operation of all vehicles on public roads is subject to compliance with all statutory obligations and approved exemptions.

Vehicle Access into the Airside Environment

- Authorised vehicles approaching Auto Gate 1 & 5 (single seat vehicle during CCTV operation) pass over a RFID tag reader, the Aviation Security Guard will then verify by a visual check that the information displayed corresponds to Model, Colour and Registration and/or Fleet No of that vehicle. At the booth the driver presents their access card on the card reader to validate name and a visual check of the Drivers face and Name to their CAA ID Card is then performed after which the Aviation Security Guard will allow entry.

- Authorised vehicles requiring access through Auto Gate 5 (multi seat vehicles during CCTV operation) and Auto Gates 7, 9 & 16 may only do so after an escort has been arranged with an Aviation Security Officer by,
  a) Auto Gate 7 & 9 a call to Aviation Security Service on 353 1900 or extn 31900
  b) Auto Gate 5 & 16 an intercom with direct contact to Auto Gate 1 control room near the access card reader.
- Temporary Vehicles at Auto Gate 1 & 5 (excluding CCTV operation) will have a visual check of their vehicle to ensure there is a Temporary Vehicle Card displayed and the driver presents their access card on the card reader to validate name and a visual check of the Drivers face and Name to their CAA ID Card is then performed after which the Aviation Security Guard will allow entry.
- Unauthorised Vehicles to perform work duties are able to access the airside environment but will be escorted at all times by CIAL or Aviation Security Service.

Apron driving rules

- Only a person issued with an airside driving permit shall drive a vehicle airside.
- Aircraft have right of way at all times.
- Emergency vehicles when responding to an emergency have right of way over all other ground vehicles.
- Vehicles must use the airside road (where marked) except when directly servicing an aircraft.
- No vehicle may be driven within 3 metres of an aircraft except for vehicles actively engaged in servicing an aircraft.
- Do not drive between an aircraft and a loading gate when passengers are embarking or disembarking that aircraft.
- Keep well clear of an aircraft when the anti-collision lights are operating and remain clear of the engine intake and exhaust when the engines are running.
- Exercise extreme care when driving in the vicinity of or under any airbridge. Keep well clear of any moving or moveable airbridge. It is the responsibility of the driver to ensure that there is adequate clearance to undertake this manoeuvre.
- The following maximum speed limits apply (unless otherwise indicated by signage):
  - 8kph within 15 metres of an aircraft, under airbridges and on the marked apron roadway.
  - 30kph on any other part of the apron.
  - 65kph on the Manoeuvring Area and the perimeter road.
- No electrical device (including cell phones) shall be used within a radius of 8 metres of any aircraft that is in the process of being refuelled.
- Vehicles and equipment not required to service an aircraft, must not be left unattended on an active parking gate, or in a manner that will obstruct aircraft, other vehicles, airbridges or persons airside.
- Unattended vehicles and equipment must be parked in the designated areas.
- Equipment limit lines must be observed at all times.
- Do not use any electrical device (including handheld radios and cellular phones) within 8 metres of any refuelling vehicle in the process of refuelling aircraft.
- Do not load a vehicle or equipment in a manner likely to cause a hazard. All loads must be properly stacked or secured. All persons have a responsibility to recover any object dropped or encountered airside.
- Roadways (where marked) must be used.
- Taxiway A15 is an active taxiway under ATS control. Vehicles may cross this taxiway without radio clearance provided they:
  - Stop at the marked entry point prior to crossing the taxiway.
  - Ensure a safe crossing is possible.
  - Only cross at the marked road crossing.

- Do not stop while on the taxiway crossing.

- Do not park in a position where the vehicle obstructs an emergency exit from the terminal, a fuel hydrant, stop switch or shut off valve, emergency telephone point of fire extinguisher on the face of the terminal building.
- Any unusual vehicle condition that might affect safety should be reported to your supervisor and/or the person or organisation responsible for maintenance of the vehicle. This particularly applies to any indication of leakage of fuel, oil or other fluid from a vehicle.

Fuel or other fluid spills should be immediately reported to the Airport Fire Service. Call ext 37700 or use an apron phone. There is no charge for calling the AFS to clean up a fuel/fluid spill.

Manoeuvring Area driving rules (additional)

Only a person with a Category 2 airside driving permit shall drive a vehicle on the manoeuvring area unless he/she is escorted by another vehicle, the driver of which has a Category 2 airside driving permit.

Vehicles on the Manoeuvring Area must remain under the control of ATS at all times. Before proceeding on to the Manoeuvring Area all drivers must:

- Know the radio procedures.
- Know the light signals.
- Be precise and patient in all radio communications.
- Comply with instructions from ATS.
- If unclear about any matter seek clarification before proceeding.

Clearance is required from ATS for ALL vehicular and pedestrian activity on the Manoeuvring Area. Clearance can be given by radio or by light signals.

- end of Schedule B -

Schedule C – Operator Specific requirements

Introduction

This schedule forms an attachment to an airside operations agreement between Christchurch International Airport Ltd ("CIAL") and:

("The Operator")

This schedule details matters specific to the Operator at Christchurch International Airport.

Insurance

The Operator shall effect the following insurances:

A. General and Product Liability Insurance for not less than $NZ5,000,000 and shall include:

   Cross Liabilities

   A special provision to state that the Operator's policy is of a primary and more specific cover and shall pay in priority to any policy effected by Christchurch International Airport Limited.

   Include liability arising from the use of plant except when being used as a motor vehicle as defined in the Transport Act 1962 and any amendments or replacing act.

   Include sudden and accidental pollution coverage.

B. Motor vehicle insurance inclusive of third party liability of not less than $NZ5,000,000.

C. Aviation insurance inclusive of, Legal Liability to third parties of not less than $NZ5,000,000.

D. Statutory liability insurance for not less than $250,000.

The Operator further agrees to provide evidence of this insurance when so requested by CIAL.

Participation in Airport Emergency Plan exercises

The Operator agrees to participate in planning for the annual emergency exercises and the allocation of staff for such exercises.

Authorisation for the Operator to train its own staff

The Operator is specifically authorised to train its own staff in the following:

- Safety and Security training
- Airside driver training
- Equipment use and operation training

The Operator agrees to provide CIAL's Manager Airside Operations & Safety with details of its training program as it affects the above training and to comply with any specific requirements CIAL may have or puts in place regarding the contents of such training programs.

The Operator agrees to provide CIAL's Manager Airside Operations & Safety, on a monthly basis with the names of persons trained by them.

The Operator agrees to cooperate with CIAL audits of their training activities carried out under this authorisation.

Aircraft operations on aprons / gate allocation

The Operator agrees to provide day to day administration of aircraft parking on and use of the following marked aircraft parking stands:

Eg:

Air New Zealand	
Domestic stands	1D & 5 – 14
International stands	24 – 35
Origin	
Domestic stands	1C & 1E
CIAL	
Domestic stands	1F & 1G
USAP	
Antarctic Operations Apron	Z1 – Z7B

The Operator agrees that all aircraft parking stands are common user and will cooperate with the reasonable requests from other operators to use specific parking stands administered by them.

The Operator agrees that in the event of a dispute between it and another operator over the use of an aircraft parking stand, CIAL will designate which aircraft may use a particular stand at a particular time and may issue written instructions to the operators involved to resolve such dispute.

Aircraft Parking

- Aircraft parking must be restricted to the area shown on the attached drawing.
- Where tie down cables are provided no pickets are to be used.
- In other areas pickets may be used but **MUST NOT** be left in the ground when not attached to an aircraft.

Staff Training

The Operator is specifically **required** to train its own staff in the following:

- Procedures for securing cargo and containers for safe transportation airside.
- Procedures for safe storage of containers and equipment not in immediate use.
- Procedures for the containment and disposal of rubbish on the apron.
- Use and operation and training of all equipment used by or serviced by the operator on the airside. This includes but is not limited to Baggage Handling System (BHS), Nose in Guidance System (NIGS), Airbridges and service lifts.
- Procedures for handling dangerous goods airside when contracted.
- Safety training and emergency procedure training for the operation of all equipment used by or serviced by the operator on the airside.
- The formal procedure for reporting damage to any aircraft, equipment or building structure on the airport.

The Operator agrees to provide CIAL's Manager Airside Operations & Safety on request with details of its training program as it affects the above training and to comply with any specific requirements CIAL may have or puts in place regarding the contents of such training programs.

The Operator agrees to cooperate with CIAL audits of their training activities carried out under this authorisation.

Safety of Work Areas

- Mobile equipment on the airside must be removed to a mechanical workshop for maintenance and repairs.
- Where work is performed on static equipment and plant on the airside the work area must be identified by the placement of barriers, ropes or cones and where appropriate lighting to prevent entry by persons other than the contractor.
- On completion of the work the site must be left in a safe condition, free of dirt and rubbish.

Aircraft engine testing

The Operator agrees to comply with CIAL's bylaw clause 52.

Low power engine runs are permitted on terminal aprons, provided the duration is limited to five minutes maximum. Power settings should not exceed normal engine start or that required by jet aircraft for 'breakaway thrust' from gate.

The Operator agrees to limit engine testing on other operational aprons and in the vicinity of maintenance hangars as follow:

Eg:

	Aircraft	Maximum power setting
Air New Zealand	B737	Ground idle
	B767	Ground idle
	B747	Ground idle
	ATR72	Ground idle
USAP	C130	Ground idle
	C17	Ground idle
	C130	Ground idle
Origin	ATR 72	Ground idle
	Dash 8	Ground idle
	Jetstream 31	Ground idle
	Jetstream 32	Ground idle
	Jetstream 41	Ground idle
	Metroliner	Ground idle

Conditions:

- Only one engine is run above idle at a time, unless required to do so by the Aircraft Maintenance Manual.
- The aircraft is located such that it does not blow debris onto the main taxiway.
- The aircraft is positioned such that noise nuisance to residents of Jessons Road and Harewood Road is minimised.
- The total test time is not to exceed five minutes for a test undertaken at a marked domestic or international terminal gate or 15 minutes elsewhere on the aprons or in the vicinity of a hangar.
- Testing is terminated on request from the ATS or AFS.
- Engine running on the No 1 Hangar taxiway is permitted but it not to exceed 80% N2 or equivalent power setting (caution: note position of shed on boundary fence).
- Engine running is permitted on the No. 3 hangar taxiway but not to exceed breakaway thrust.

All other aircraft engine testing in open spaces on Christchurch Airport will be carried out as follows:

a. All aircraft movements to and from the test area will be under the control of the ATS.

b. Whenever possible runups (excluding wide body) are to be carried out on Runway 11 between the threshold and the touchdown markers. The western end of Taxiway Echo short of runway 11 holding point is also available if it is necessary to keep runway 11/29 operational and this can be accomplished without the need to use the taxiway.

c. Preferred locations (in descending order of preference) for all ground running shall be:

- Threshold of runway 11/Taxiway Echo.
- Taxiway Alpha between Taxiway A2 and No 1 Hangar taxiway.
- Taxiway A2 (except wide body).
- No 1 Hangar taxiway (A11) (not above 80% N2 or equivalent power setting, wide body restricted to idle only).
- No 3 Hangar taxiway (A13) (not above breakaway thrust).
- Taxiway A7.
- Runway 02 holding bay (caution should be exercised to ensure jet blast is not directed at the private hangars).

d. Crews undertaking engine runups above idle power shall position where possible the aircraft on the centre line of the runway or taxiway and parallel to it to avoid damage to light fittings and the airfield surface.

e. A listening watch on ground frequency shall be maintained while carrying out runups.

f. Testing shall be terminated on request from ATS or the AFS.

Extreme caution must be exercised in undertaking wide body aircraft engine testing to avoid potential damage to aerodrome fences and navigation aids such as lighting, windsocks etc.

In addition, for wide body aircraft:

g. The aircraft will normally be positioned into wind (plus or minus 20 degrees) for high power runs.

h. When runway 02/20 is the runway in use, engine ground running by wide body aircraft shall be conducted on Taxiway Alpha at its intersection with the ANZ No 1 Hangar taxiway (A11) or on Taxiway Alpha between Taxiway A2 and the No 1 Hangar taxiway (A11) on the ground running pad provided.

i. When runway 29 is the runway in use engine ground running by wide body aircraft shall be conducted on Taxiway A2.

j. AFS will be requested to monitor the site for the duration of the high power ground runs and to check the site for debris and serviceability when the run is completed.

The attached drawings should be used as a guide for positioning a wide body aircraft on the above locations. CIAL assistance is available if required.

A report of every engine test conducted between the hours of 2300 and 0600 will be provided to CIAL attention Manager Airport Planning by fax to 353 7730 by 0900 the morning immediately following the engine test.

Dangerous Goods

The Operator agrees to advise CIAL Manager Airside Operations & Safety of any shipment of explosives to be transported airside. The Operator also agrees to provide CIAL with the procedures in place for handling dangerous goods when requested.

Livestock Control

Where the Operator is involved in road/air transportation of stock and the transfer of the stock is airside, the Operator must ensure that the fencing or other arrangements made by the Airline or agent for the loading and containment of stock are in his/her opinion adequate to contain the animal(s) from escape.

Rubbish on the apron

The operator agrees to establish a regular procedure for physical inspection of the apron and for the containment and removal of rubbish (commonly known as FOD – Foreign Object Debris) likely to be ingested into aircraft engines or cause other damage to aircraft.

Authorisation for the Operator to operate a vehicle airside

The Operator may be specifically authorised to bring his/her vehicle airside for the purpose of loading/unloading goods and servicing the aircraft subject to the following:

- Only vehicles under the direct control for the operator may enter airside.
- Only vehicles that comply with the requirements detailed in Schedule A of this agreement may enter airside.
- The vehicle(s) must be removed from the airside immediately on completion of the delivery of goods or services.

Authorisation for the Operator to park a vehicle airside

The Operator is specifically authorised to bring his/her vehicle airside for the purpose of loading/unloading goods and servicing the aircraft subject to the following:

- Only a authorised vehicle under the direct control for the operator may enter airside.
- Access to airside is restricted to the specific gate for which a card is issued.
- Vehicle operations must be restricted to the area shown on the attached drawing.

Exemption from airside driving permits

The Operator and staff employed by the Operator are exempt from the need to hold an 'airside driving permit' if they are driving the operator's equipment on the apron immediately adjacent to the distribution premises at Wairakei Road as shown on the attached plan. Any departure from this area without an 'airside driving permit' will be a breach of this agreement.

Airside driving permits

The Operator agrees to supply the CIAL Manager Airside Operations & Safety with a list of names of all those that are required to drive airside.

The Operator will make arrangements with the CIAL Manager Airside Operations & Safety for Airside Driving training (inclusive of Safety and Security Awareness) and understands that no staff may drive airside unless they have passed an Airside Driving training course pursuant to Schedule A of this agreement.

Authorisation for persons to be airside

- Only the driver of the vehicle and any employee assisting him/her is permitted airside. All persons must wear an approved airport identity card. Passengers are not allowed.
- The driver must be the holder of an airside driving permit pursuant to Schedule A of this agreement.
- The operator agrees not to allow any media, press or commercial publisher into airside areas without the permission of CIAL Manager Marketing & Communications.

Safety/Security Incidents

The Operator will provide to CIAL Manager Airside Operations & Safety within 24 hours of the accident or incident a report on any serious safety or security accident or incident occurring airside.

ACNZ Advise

The Operator agrees that information provided by the ACNZ to any person concerning operations on the apron area is advisory in nature and does not involve control responsibility.

Transfer of Hazardous Substances

Christchurch International Airport agrees to hazardous substances being transferred on airport land.

The organisation undertaking the transfer must nominate a **person in charge** of the transfer.

The transfers must be undertaken in accordance with the **Hazardous Substances (class 1-5 Controls) Regulations 2001.**

Christchurch Airport has two designated transfer zones. Each zone has limitations with respect to isolation distances. Transfers must be undertaken only on the dispersal point that can accommodate the calculated required isolation distance (see attached plans).

For each shipment of hazardous substance where applicable, the **approved handler** where possible will give seven days notice to CIAL, but in all cases where there is a requirement to use any exclusion zone 48 hours notice must be given, so that appropriate arrangements for loading/unloading can be made.

Where the transfer is to be undertaken on the main taxiway (Dispersal Point One), as much advance notice as possible shall be given so that runway closure can be planned if required.

[NAME OF ORGANISATION] agrees to submit to independent audit of procedures from time to time by a CIAL nominated approved test certifier.

- end of Schedule C -

Appendix F

AIR NEW ZEALAND
ENGINEERING SERVICES

Mr K. McAnergney
Christchurch International Airport Limited
PO Box 14001
CHRISTCHURCH INTERNATIONAL AIRPORT

FAX NUMBER: 353-7730

SUBJECT: AIRCRAFT ENGINE TESTING

Please be informed that engine testing was carried out as follows:

Aircraft Registration: NCF		*Aircraft Type:* A&L 72		*Date:* 10/08/10	
Aircraft Heading During Test: S		*Time:* 0430		*Location of Test:* A	
Reason for Test: WASH WASH					
Duration of test: 5 MINS		*Weather Conditions:* CALM		*Wind Speed & Direction:* NIL	
Ground / Flight Idle Time per Eng (mins)	*# 1 Engine*	*#2 Engine*	*#3 Engine*	*#4 Engine*	*Total All Engines (Mins)*
Medium Power Time per Eng (mins)	*# 1 Engine*	*#2 Engine*	*#3 Engine*	*#4 Engine*	*Total All Engines (Mins)*
High Power (>90%N1) Time per Eng (mins)	*# 1 Engine* 2	*#2 Engine* 2	*#3 Engine*	*#4 Engine*	*Total All Engines (Mins)* 4
Time First Engine on: 0430		*Last engine off:* 0445			
Date of departure: 10/8/10		*Scheduled Departure Time:* 0700			

Aircraft Registration:		*Aircraft Type:*		*Date:*	
Aircraft Heading During Test:		*Time:*		*Location of Test:*	
Reason for Test:					
Duration of test:		*Weather Conditions:*		*Wind Speed & Direction:*	
Ground / Flight Idle Time per Eng (mins)	*# 1 Engine*	*#2 Engine*	*#3 Engine*	*#4 Engine*	*Total All Engines (Mins)*
Medium Power Time per Eng (mins)	*# 1 Engine*	*#2 Engine*	*#3 Engine*	*#4 Engine*	*Total All Engines (Mins)*
High Power (>90%N1) Time per Eng (mins)	*# 1 Engine*	*#2 Engine*	*#3 Engine*	*#4 Engine*	*Total All Engines (Mins)*
Time First Engine on:		*Last engine off:*			
Date of departure:		*Scheduled Departure Time:*			

This letter is issued to comply with Christchurch International Airport By-Law 1989 / 405 Clause 52 / 3.

V de Beus
AIRCRAFT MAINTENANCE MANAGER

Appendix F: Figure 1

87 Jessons Road
Harewood Golf Club Dwelling
7 Whitchurch Place
733 Harewood Road
655 Russley Road
560 Russley Road (north)
560 Russley Road (south)
75 Stanleys Road
750A Wairakei Road
117 Savills Road
50 Savills Road
559 Memorial Avenue
148 Grays Road
609 Avonhead Road
565 Avonhead Road
70 Grays Road

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

MARSHALL DAY Acoustics

Figure 1 - Engine Testing Noise Assessment Receiver Locations

Client: CIAL
Path: J:\JOBS\2010\2010059A\Drawings
Filename: 1209 Figure R1.SGS Result File: n/a
Prepared by: sjp Date: 07/09/2012

Scale 1:20000

0 100 200 400 600 800 m

N

Appendix G

Christchurch International airport Limited

Noise Complaint Form

Personal Details *(all fields mandatory):*

What date did this incident take place?	
What time did this incident take place?	
Full name:	
Address: (Street name or nearest cross-intersection)	
Phone:	Email: Confirm Email:

Complaint Type: Please select

Low flying aircraft ○ Light aircraft ○ Turbo Prop ○ Jet ○

Helicopter ○ Other aircraft movement ○ Engine runs ○ Not Sure ○

More Details

Would you like to receive a follow-up email from Christchurch Airport?

Yes ☐ No ☐

When submitted, display this message:

Thank you for your feedback, it is important to us.

Appendix H - Infield Monitoring– In-field Measurement Site Selection and Duration Site Selection (page 18)

Neighbourhood Friendly Practices

Introduction

The process of noise minimisation over the Christchurch metropolitan area is detailed in this section.

Overview

These practices have been adopted to self-manage noise nuisance over Christchurch City.

They have been requested by CIAL and are supported by Airways.

They do not absolutely prevent aircraft from being lower when there is a significant operational reason.

Minimum Altitude over the City Sector

Aircraft should not operate over the City Sector below the Minimum Level in the table below:

LMT	Minimum Level
0700 - 2200	3000ft
2200 - 0700	4000ft

Exceptions

Aircraft exempt from Minimum Levels over the City Sector are:

- light aircraft, **and/or**
- aircraft arriving duty Runway 29, **and/or**
- aircraft departing duty Runway 11.