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COMMERCE COMMISSION

Final Report

Part IV Inquiry into Airfield Activities at Auckland, Wellington, and Christchurch International Airports

On the 26 May 1998, the Minister of Commerce requested, pursuant to the then section 54(1) of the Commerce Act 1986, that the Commerce Commission report on whether control should be imposed over charges for airfield activities at any or all of Auckland, Wellington, and Christchurch International Airports. On 25 July 2001, the Minister withdrew the request made in 1998 and issued a new request under the new sections 54 and 56 of the Commerce Act (as amended by the Commerce Amendment Act 2001). This is the Commission's report to the Minister of Commerce.

The Commission: M Belgrave
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Date of Report: **1 August 2002**

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LIST OF ABBREVIATIONS

ACAM	Avoidable Cost Allocation Methodology
ACCC	Australian Competition and Consumer Commission
ACSA	Airports Company South Africa
ADC	Airport Development Charge
AFC	Average Fixed Cost
AIAL	Auckland International Airport Limited
AIC	Average Incremental Cost
Air NZ	Air New Zealand Limited
Airport Authorities Act	Airport Authorities Act 1966
Airport Authorities Amendment Act	Airport Authorities Amendment Act 1997
Airways	Airways Corporation of New Zealand
Amendment Act	Commerce Amendment Act 2001
ARA	Auckland Regional Authority
ARP	Accounting Rate of Profit
ASA	Air Services Agreement
ATM	Air Traffic Movement
Auckland	Auckland International Airport
Australian Airports Act	Airports Act 1996 (Aust)
AVSEC	Aviation Security Service
BAA	British Airports Authority (BAA Plc)
BARA	Board of Airline Representatives Australia
BARNZ	Board of Airline Representatives New Zealand Inc.
CAA	Civil Aviation Authority of New Zealand
CAPEX	Capital Expenditure
CAPM	Capital Asset Pricing Model
CAR	Civil Aviation Rule
CCMAU	Crown Company Monitoring Advisory Unit
Chicago Convention	Convention on International Civil Aviation
Christchurch	Christchurch International Airport
CIAL	Christchurch International Airport Limited
Commerce Act	Commerce Act 1986
Commission	Commerce Commission
Control	Control of Goods or Services under the Commerce Act 1986
Convention	Chicago Convention
CPI	Consumer Price Index
D	Demand
DCF	Discounted Cash Flows
Deed	WIAL Deed relating to airport charges and services dated 1/7/97
DHC	Depreciated Historic Cost
DRC	Depreciated Replacement Cost
Disclosure Regulations	Airport Authorities (Airport Companies Information Disclosure) Regulations 1999
Draft Report	Price Control Study of Airfield Activities Draft Report, Commerce Commission, 3 July 2001, A01/2
DTB	Domestic Terminal Building
DWL	Dead-Weight Loss
EBIT	Earnings Before Interest and Taxes
EC	European Commission
EIR Act	Electricity Industry Reform Act 1998
FAA	Federal Airports Administration (US)
FAC	Federal Airports Corporation (Aust)
GA	General Aviation
GAAP	Generally Accepted Accounting Practice
GDP	Gross Domestic Product
HC	Historic Cost
ICAO	International Civil Aviation Organisation
Infratil	Infratil Limited (formerly Infrastructure and Utilities NZ)

Inquiry	Price Control Study of Airfield Activities
IRD	Inland Revenue Department
ITB	International Terminal Building
LAX	Los Angeles International Airport
LECG	Law and Economics Consulting Group
London airport companies	Heathrow, Gatwick and Stansted Airports
MAF	Ministry of Agriculture and Forestry
Manchester	Manchester Airport Plc
MC	Marginal Cost
MCTOW	Maximum Certified Take-Off Weight
Minister	Minister of Commerce or Minister for Commerce and Enterprise
Minister's Request	Request from Hon Paul Swain, Minister of Commerce 25 July 2001 under sections 54 and 56 Commerce Act 1986 (amended)
Minister's 1998 Request	Request from Hon John Luxton, Minister of Commerce 26 May 1998 under section 54 of Commerce Act 1986
Ministry	Ministry of Transport
MMC	Monopolies and Mergers Commission (UK) now Competition Commission
MOT	Ministry of Transport
MOU	Memorandum of Understanding
MRP	Market Risk Premium
MSC	Marginal Social Cost
NECG	Network Economics Consulting Group
NERA	National Economic Research Associates
NOPAT	Net Operating Profit After Tax
NRV	Net Realisable Value
NZIV	New Zealand Institute of Valuers
OC	Opportunity Cost
ODRC	Optimised Depreciated Replacement Cost
ODV	Optimised Deprival Value
ORC	Optimised Replacement Cost
Prices Surveillance Act	Prices Surveillance Act 1983 (Aust)
Prospectus	AIAL Prospectus 1998
PSA	Prices Surveillance Authority (Aust)
Public Works Act	Public Works Act 1981
Qantas	Qantas Airways Corporation
Qantas NZ	Qantas New Zealand Limited (formerly Ansett New Zealand)
RC	Replacement Cost
Resource Management Act	Resource Management Act 1991
RPI	Retail Price Index
SACL	Sydney Airports Corporation Limited
TAMRP	Tax-Adjusted Market Risk Premium
Trade Practices Act	Trade Practices Act 1974 (Aust)
Travers Morgan	Travers Morgan Pty Limited
TSC	Terminal Services Charge
UK	United Kingdom
UK Airports Act	Airports Act 1986 (UK)
UK CAA	UK Civil Aviation Authority
US	United States of America
WACC	Weighted Average Cost of Capital
Wellington	Wellington International Airport
WIAL	Wellington International Airport Limited
WLU	Work-load Unit

LIST OF DEFINITIONS

Acquirer — In the context of Part IV of the Commerce Act, a person acquiring goods or services (directly or indirectly) from a person who faces limited or lessened competition for the supply of those services.

Aircraft and Freight Activities — Defined in the Airport Authorities Amendment Act 1997 as activities undertaken (including the facilities and services provided) to enable, within a security area or areas of the relevant airport, the servicing and maintenance of aircraft and the handling of freight transported, or to be transported, by aircraft, including:

(a) The provision within a security area or areas of the relevant airports, of any one or more of the following:
   - (i) Hangars.
   - (ii) Facilities and services for the refuelling of aircraft, flight catering, and waste of disposal.
   - (iii) Facilities and services for the storing of freight.
   - (iv) Security, customs, and quarantine services for freight.

(b) The holding of any facilities and assets (including land) acquired or held to provide aircraft and freight activities in the future (whether or not used for any other purpose in the meantime).

Airfield Activities — Defined in the Airport Authorities Amendment Act 1997 as activities undertaken (including the facilities and services provided) to enable the landing and take-off of aircraft, including:

(a) The provision of any one or more of the following:
   - (i) Airfields, runways, taxiways, and parking aprons for aircraft.
   - (ii) Facilities and services for air traffic and parking apron control.
   - (iii) Airfield and associated lighting.
   - (iv) Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft.
   - (v) Rescue, fire, safety, and environmental hazard control services.
   - (vi) Airfield supervisory and security services.

(b) The holding of any facilities and assets (including land) acquired or held to provide airfield activities in the future (whether or not used for any other purpose in the meantime).

Airfield Services — Services that fall within the definition of airfield activities.

Airport — Defined in the Airport Authorities Act 1966 as any defined area of land or water intended or designed to be used either wholly or partly for the landing, departure, movement, or servicing of aircraft; and includes any other area declared by the Minister to be part of the airport; and also includes any buildings, installations, and equipment on or adjacent to any such area used in connection with the airport or its administration.

Airport Company — Defined in the Airport Authorities Amendment Act 1986 as a company incorporated under the Companies Act 1955 that is for the time being authorised under section 3(3) of the Airport Authorities Act to exercise the powers of a local authority under that section. In other words, a company that is authorised to establish, improve, maintain, operate, or manage an airport.

Airside — The part of an airport inside the security boundary (area).

Allocative Efficiency	Resources are allocated (in both production and consumption) in such a way that no improvement in society's welfare can be made by reallocating those resources.
Apron	Defined in Volume I of Annex 14 to the Convention on International Civil Aviation as a defined are, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.
Apron Management Service	Defined in Volume I of Annex 14 to the Convention on International Civil Aviation as a service provided to regulate the activities and movement of aircraft and vehicles on an apron.
Assets	Defined in the Commerce Act 1986 to include intangible assets.
Avoidable Cost	Those costs that would be avoided (saved) if an activity were to cease.
Beta	A measure of the sensitivity of an asset to the market portfolio—systematic risk.
Brownfields	The progressive of incremental replacement of assets in the normal course of business, retaining the historical configuration of the assets, but replacing under-utilised and removing redundant assets.
Charge	Defined in the Airport Authorities Amendment Act 1997 as a fee or due and also rent payable under any lease.
Common Cost	A cost that relates to two or more facilities, activities, services, or users and remain unchanged despite changes in the relative proportion of the activities or services.
Direct Cost	A cost that can be identified separately with or traced to a given facility, activity, service or user.
Dynamic efficiency	Maintaining allocative and produtice efficiency over time. Making investments and innovating so that costs continue to be minimised and prices over time generally reflect this.
Greenfields	Involves the designing and building of an entirely new optimal network of assets, regardless of historical constraints that may have applied.
Historic Cost	The original cost of constructing or acquiring the asset recognised under generally accepted accounting practice.
Identified Airport Activities	Defined in the Airport Authorities Amendment Act 1997 as any one or more of the following, as the case may be: (a) Airfield activities. (b) Aircraft and freight activities. (c) Specified passenger terminal activities.
Identified Assets	Defined in the Airport Authorities Amendment Act 1997, in relation to a specified airport company, to be the assets of that airport company in relation to identified airport activities.
Incremental Cost	The additional cost imposed by an additional activity or output.

International Airport	Defined in the Civil Aviation Act 1990 as any airport designated as an airport of entry and departure for international air traffic where the formalities incident to customers, immigration, public health, animal and plant quarantine, and similar procedures are carried out.
Landing Area	Defined in Volume I of Annex 14 to the Convention on International Civil Aviation as that area of a movement area intended for the landing or take-off of aircraft.
Landside	All parts of an airport that are not airside.
Lease	Defined in the Airport Authorities Amendment Act 1997 as any form of tenancy and a licence to occupy or use any premises or appliance. The Airport Authorities Act 1966 provides that any airport authority may grant a lease of all or any part of any land, buildings, or installations vested in it for any purpose that will not interfere with the safe and efficient operation of the airport.
Marginal Cost	The additional costs imposed by another unit of output.
Market Risk Premium	The additional premium that investors require to hold the market portfolio (a diversified basket of risky assets) over and above the returns that can be obtained from investing in risk-free assets.
Opportunity Cost	The highest alternative use value of a resource.
Optimised Depreciated Replacement Cost	An estimate of the most-efficient, lowest-cost combination of assets (from an engineering perspective) that could replace the existing assets and offer the same utility.
Price	Defined in the Commerce Act 1986 to include valuable consideration in any form, whether direct or indirect; and includes any consideration that in effect relates to the acquisition or supply of goods or services or the acquisition or disposition of any interest in land, although ostensibly relating to any other matter or thing.
Productive efficiency	Meeting demand at the lowest possible costs, including minimising transaction costs resulting from exchange of products.
Ramsey pricing	A form of demand differentiated pricing. It covers costs by structuring prices according to demand characteristics. Specifically, the price for each user (or group of users) would be set by adding a percentage mark-up on marginal cost, with the size of the mark-up being inversely proportional to the price elasticity of demand of that user or group of users.
Replacement Cost	The cost of replacing an existing asset with a substantially identical new assets (based on current market values and technology).
Risk-Free Rate	The interest rate that an investor would earn on a riskless investment.
Runway	Defined in Volume I of Annex 14 to the Convention on International Civil Aviation as a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.
Runway Safety End Area (RESA)	Defined in Volume I of Annex 14 to the Convention on International Civil Aviation as an area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway.

Runway Strip	Defined in Volume I of Annex 14 to the Convention on International Civil Aviation as a defined area including the runway and stopway, if provided, intended: (a) To reduce the risk of damage to aircraft running off a runway. (b) To protect aircraft flying over it during take-off or landing operations.
Security Designated Aerodrome	Defined in the Civil Aviation Act 1990 as an aerodrome for the time being designated as a security aerodrome under section 82 of this Act.
Services	Defined in the Commerce Act 1986 to include any rights (including rights in relation to, and interests in, real or personal property), benefits, privileges, or facilities that are or are to be provided, granted or conferred in trade; and without limiting the generality of the foregoing, also includes the rights, benefits, privileges, or facilities that are or are to be provided, granted or conferred under any of the following classes of contract: (a) A contract for, or in relation to: (i) The performance of work (including work of a professional nature), whether with or without the supply of goods; or (ii) The provision of, or the use or enjoyment of facilities for, accommodation, amusement, the care of persons or animals or things, entertainment, instruction, parking, or recreation; or (iii) The conferring of rights, benefits, or privileges for which remuneration is payable in the form of a royalty, tribute, levy, or similar exaction. (b) A contract of insurance, including life assurance, and life reassurance. (c) A contract between a bank and a customer of the bank. (d) Any contract for or in relation to the lending of money or granting of credit, or the making of arrangements for the lending of money or granting of credit, or the buying or discounting of a credit instrument, or the acceptance of deposits. But does not include rights or benefits in the form of the supply of goods or the performance of work under a contract of service.
Specified Airport Company	Defined in the Airport Authorities Amendment Act 1997 as an airport company that, in its last accounting period, received revenue that exceeded $10 million, or such other amount of revenue that the Governor-General may from time to time prescribe for the purposes of this definition by Order in Council.
Specified Passenger Terminal Activities	Defined in the Airport Authorities Amendment Act 1997 as activities undertaken (including the facilities and services provided) in relation to aircraft passengers while those passengers are in a security area or areas of the relevant airport, including: (a) The provision, within a security area or security areas of the relevant airport, of any one or more of the following: (i) Passenger seating areas, thoroughfares, and airbridges. (ii) Flight information and public address systems. (iii) Facilities and services for the operation of customs, immigration, and quarantine checks and control. (iv) Facilities for the collection of duty free items. (v) Facilities and services for the operations of security and Police services.

(b) Any activities undertaken (including the facilities and services provided) in a passenger terminal to enable the check-in of aircraft passengers, including services for baggage handling.

(c) The holding of any facilities and assets (including land) acquired or held to provide specified passenger terminal activity in the future (whether or not used for any other purpose in the meantime); but does not include the provision of any space for retail activity.

Stand-Alone Cost	The cost incurred in providing only one service.
Stopway	Defined in Volume I of Annex 14 to the Convention on International Civil Aviation as a defined rectangular area on the ground at the end of a take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.
Substantial Customer	Defined in the Airport Authorities Amendment Act 1997 as, in relation to an airport company, any person that paid or was liable to pay, that airport company in relation to identified airport activities in that airport company's last accounting period or payable in that airport company's last accounting period an amount that exceeded 5% of the revenue paid or payable to that airport company during that accounting period in relation to those activities.
Sunk Cost	A cost that, once incurred, cannot be recouped.
Supply	Defined in the Commerce Act 1986 as follows: (a) In relation to goods, includes supply (or resupply) by way of gift, sale, exchange, lease, hire, or hire purchase. (b) In relation to services, includes provide, grant or confer.
Taxiway	Defined in Volume I of Annex 14 to the Convention on International Civil Aviation as a defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including (a) Aircraft stand taxilane – a portion of an apron designated as a taxiway and intended to provide access to aircraft stands only. (b) Apron taxiway – a portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron. (c) Rapid exit taxiway – a taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimising runway occupancy times.
Variable Cost	A cost that varies with changes in output.
Work-Load Unit	Equivalent to 1 passenger or 100Kg of freight.

EXECUTIVE SUMMARY

INTRODUCTION

1. The Commerce Act 1986 (the Commerce Act) is an Act to promote competition in markets for the long-term benefit of consumers within New Zealand. Where markets fail to deliver competitive outcomes and fail to operate efficiently, Parts IV and V of the Commerce Act contain provisions providing for the control of the prices, revenues and quality standards of goods and services. The Commerce Act is enforced by the Commerce Commission (the Commission).

2. Part IV of the Commerce Act provides for the imposition of control. Section 53 of the Commerce Act provides for the Governor-General to impose control over the supply of goods or services on the recommendation of the Minister of Commerce (the Minister). In considering whether to make a recommendation that goods or services be controlled, the Minister can seek advice from the Commission under sections 54 and 56 of the Commerce Act.

3. The administration of control is covered in Part V of the Commerce Act. Controlled goods or services can only be supplied in compliance with an authorisation made by (or undertaking accepted by) the Commission under Part V.

NOTICE FROM THE MINISTER

4. Pursuant to section 56 of the Commerce Act, the Minister has required the Commission to report as to whether it considers any of the airfield activities supplied by the three major international airports—Auckland, Wellington and Christchurch—should be controlled. These airports are the three biggest airports in New Zealand by total revenue and volume (aircraft movements, passenger numbers and freight volumes).

5. The Minister has asked the Commission to report on whether there is evidence that the requirements under section 52 of the Commerce Act are met for the airfield activities supplied by any, or all, of the three airport companies, i.e., whether:

   (a) The goods or services (in this case, airfield activities) are, or will be, supplied or acquired, in a market in which competition is limited or is likely to be lessened.

   (b) It is necessary or desirable to impose control in the interests of the persons acquiring (directly or indirectly) the goods or services.

6. The Minister has also asked the Commission to advise on conditions, tests or thresholds it considers useful in making that assessment.

7. If the requirements of section 52 are met, the Minister still has discretion as to whether to recommend control. In this regard, the Minister has asked the Commission whether market conditions are such that it considers that the Minister should recommend control of any of the airfield activities supplied by the three airport companies.

8. Airfield activities are one of a number of activities undertaken by airport companies. The Airport Authorities Act 1996 (the Airport Authorities Act) defines airfield activities as the activities undertaken (including the facilities and services provided) to enable the take-off and landing of aircraft. Airfield activities are specifically defined to include the following:

- Airfields, runways, taxiways, and parking aprons for aircraft.
- Facilities and services for air traffic and parking apron control.
- Airfield and associated lighting.
- Services to maintain and repair airfields, runways, taxiways, and parking aprons.
- Rescue, fire, safety and environmental hazard control services.
- Airfield supervisory and security services.

9. Under section 4A of the Airport Authorities Act, airport companies have the right, after consultation with substantial customers, to set whatever charges they think fit.

10. In conducting this Inquiry, the Commission considers that the Minister's request is confined to the airfield activities supplied only by the three airport companies—Auckland International Airport Limited (AIAL), Wellington International Airport Limited (WIAL) or Christchurch International Airport Limited (CIAL)—and it does not extend to any airfield activities that are supplied by other parties at any of the three airports (such as the airlines, Airways Corporation of New Zealand Limited or the Aviation Security Service). The Commission also focuses on those airfield activities supplied to aircraft operators—these being the bulk of the airfield activities supplied by the three airport companies—for which aircraft operators pay per tonne landing charges.

11. Chapter 1 outlines the full details of the Minister's Notice.

LEGAL FRAMEWORK

12. Sections 52 to 57 of the Commerce Act, read in conjunction with the Minister's request of 25 July 2001, require that the Commission address three key issues.

13. The first is to assess whether competition is limited or is likely to be lessened in markets in which airfield activities are supplied, as required by section 52(a) and paragraph 'a' of the Minister's letter. This requires an assessment of both structural and behavioural considerations within the context of the relevant markets.

14. The second issue is whether control is necessary or desirable in the interests of acquirers of airfield activities, as required by section 52(b) and paragraph 'a' of the Minister's letter. The focus here is on the benefits of control for the acquirers of airfield activities (both direct and indirect acquirers). This has involved an analysis of what would happen if the status quo were to continue (the counterfactual), contrasted with the potential benefits and detriments to acquirers if control were to be imposed.

15. In order to consider whether control is necessary or desirable, the Commission has examined the pricing behaviour of the airport companies, and compared this to what it considers to be appropriate pricing principles. An examination of the pricing of airfield activities requires the Commission to consider issues such as asset valuation, weighted average cost of capital (WACC) and cost allocation. Any effects that other airport activities may have on the pricing of airfield activities are considered in the analysis where appropriate.

16. The third issue is to make a recommendation on whether market conditions are such that the Minister should recommend control. In this assessment, the Commission addresses such discretionary considerations as may be relevant. It is for the Minister to consider whether to recommend to the Governor-General to declare control. The Minister has a broad discretion and can take into account a range of factors.

17. The framework for control of goods and services under Part IV of the Commerce Act is discussed in detail in Chapter 2.

LIMITED COMPETITION

18. If airfield activities were supplied in a market in which competition is limited or likely to be lessened, then section 52(a) would be satisfied. In considering this question, the Commission asked whether competition is currently limited. Finding that competition is limited for the airfield activities at each airport, the Commission did not need to consider whether competition is likely to be lessened. The Commission's analysis of competition in the supply of airfield activities is introduced generally in Chapter 3, and conducted separately for each airport in Chapters 8-10.

Relevant Markets

19. To provide a framework within which to analyse whether competition might be limited, the Commission defined the market(s) related to the supply of airfield activities. In defining the relevant market(s), the Commission took account of the relationships between airfield activities, which are the specific focus of the Inquiry, and the other activities conducted at the airports in question.

20. The Commission's conclusion is that, for the purposes of this Inquiry, the relevant product market is the airfield services market. Airfield services are services that fall within the definition of airfield activities, as defined in the Airport Authorities Amendment Act 1997.

Constraints on Market Power

21. The Commission investigated whether any of the three airport companies are able to exercise market power in the airfield services market, such that competition is limited (in terms of section 52 of the Commerce Act). In doing this, it considered whether or not sufficient constraints (including both structural and behavioural aspects) exist. The possible constraints on an airport's exercise of market power may include the following:

- The potential competition between airports or from other modes of transport.

- The potential for new entry.

- The potential countervailing power of airlines.

- The existing regulatory environment (which includes a requirement to consult on charges and a threat of further regulation).

- Competition from off-airport sources of supply.

22. The competition faced by the airfield activities at airports from those at other airports may be of two kinds: the *existing* competition from other airports already operating, and the *potential* competition from prospective new entrants. The Commission's conclusion is that the nature of the investment in a major airport facility, such as those at Auckland, Wellington and Christchurch, is such that barriers to entry are high, and hence that competition from potential entrants is very low. The extent of existing competition for airfield activities depends largely on the degree to which existing airports are substitutes for one another. The Commission's view is that there is some scope for supply-side substitution for general aviation aircraft given the presence of small airfields in the vicinity, but not for larger (commercial) aircraft. There are not substantial near entrants to compete effectively with the three large airports for domestic and international traffic. Alternative modes of transport are also unlikely to provide a constraint on the behaviour of airport companies.

23. The airfield services supplied by one airport are not seen on the demand-side as substitutable for another airport—demand is driven by the destination to which passengers want to go. The pricing of airfield activities appears to have little impact on demand. The Commission's estimate of the weighted average elasticity of demand for airfield activities at Auckland and Christchurch is [ ] and for Wellington [ ].

24. The current regulation of airports relies largely upon the countervailing power of airlines, the requirements on airport operators to consult with them before setting charges, and the threat of further regulation. However, analysis suggests that meeting demand for flights is the overriding factor determining which airport an airline flies to, rather than the costs of doing so, and that airlines' countervailing power is generally limited. Airport charges, while a significant cost for airlines, are unlikely to make the difference between an airline flying or not flying to a particular city, although there is some elasticity at the margin. However, there is some evidence that acquirers' behaviour constrains the airport companies at the margins, but it does not, by itself, prevent exercise or even abuses of market power.

25. The Commission's conclusion is that there are insufficient constraints on AIAL's, WIAL's and CIAL's ability to exercise market power in the supply of airfield activities compared to what would be found in a market where competition was workable or effective. Each operates largely within its own geographically distinct regional airfield services market, which are the greater population areas around the three airports (namely the greater Auckland, Wellington and Christchurch areas).

Acquirers of airfield activities at each airport do not see other airports as offering viable substitute services.

PRICING PRINCIPLES

26. The Commission is of the view that the outcomes achieved by competitive markets (where there is workable or effective competition) are a general benchmark against which to compare the outcomes in other types of markets, although additional issues have to be considered. In this regard, the Commission has developed pricing principles that provide a framework within which it can evaluate whether efficient outcomes and normal returns are being achieved.

27. The Commission considers that the following general pricing principles are appropriate for determining efficient prices and evaluating performance:

a) Prices should be as close as possible to their allocatively efficient level over the medium term. This requires that:

   - Prices are commensurate with the level of service quality demanded (subject to minimum legal safety standards).
   - Prices are based on appropriate costs (productively, and dynamically, efficient costs).
   - Prices encourage efficient use of a supplier's facilities and avoid cross-subsidisation.

b) Prices should allow for a normal return to be earned by suppliers over the medium term. This requires that:

   - Normal returns are calculated on an appropriately determined asset base and rate of return, and cover efficient operating costs, and no more.
   - Returns that are greater, or lesser, than the normal rate should reflect superior, or inferior, performance respectively.

c) Prices should be dynamically efficient over the medium term. This requires that over- or under-investment be avoided, and that appropriate price signals be sent for investment (or divestment).

28. A full discussion of pricing principles can be found in Chapter 4.

ASSET BASE

29. Asset valuation is relevant for the purposes of both determining the price for, and assessing the performance of, airfield activities at the three airports. The value of the asset base is, therefore, an input into the consideration of whether control of airfield activities is necessary or desirable in the interests of acquirers, and whether control is recommended. The higher the asset valuation, the higher the revenue needed to generate the required return on assets, and the higher that prices need to be.

30. In order to examine airfield activities, the Commission determined what it considers to be the appropriate principles to be used in arriving at an airport's asset base. In economic terms, the relevant costs on which to determine an asset base are generally opportunity costs. The opportunity cost of employing an asset in one use is what the owners forego in not receiving the returns that could be earned from the asset in its next best alternative use. However, applying the opportunity cost principle may not always be appropriate, because of dynamic efficiency considerations. In deciding its approach to determining the asset base, the Commission examined:

- An appropriate methodology for valuing land and non-land airfield assets.
- Optimisation of surplus assets.
- Timing issues regarding new investment.

31. A full discussion of issues regarding the asset base is contained in Chapter 5.

Valuation of Airfield Land

32. In most cases, land does not depreciate and is not subject to technological obsolescence. Furthermore, unlike some other airport assets, it has an alternative use and, consequently, has an opportunity cost greater than zero.

33. Valuing airfield land at opportunity cost provides appropriate signals either to continue operating the land in its existing use (as an airfield), or put the land to alternative use and relocate the airport. It also provides the appropriate incentives for new investment. Opportunity cost should be determined based on the highest alternative use value of airfield land, with that being the higher of the value with or without the sealed surfaces (the latter being after the costs of removing the sealed surfaces).

34. Land value should not include the cost of getting the land to a stage where it could be used as an airport. Any land holding, levelling, seawall construction and reclamation costs should be valued as specialised sunk assets at historic cost. In order to avoid double counting, these values should not include any portion that is already included in the opportunity costs of the land.

35. The relevant alternative use for land may differ from airport to airport, and may depend on the underlying zoning (or future rezoning) of the land. Potential alternative uses are residential, commercial, industrial and rural. The airports have made various assumptions regarding the alternative uses of their land.

36. In determining appropriate land values for inclusion in the asset base, the Commission made adjustments to the airports' values to optimise land as relevant, and to include land at its opportunity cost. In the case of AIAL, this results in downward adjustments to land values and, in the case of WIAL and CIAL, in upward adjustments to land value.

Valuation of Non-Land (Specialised) Airfield Assets

37. Non-land airfield assets are, on the whole, specialised assets as, for the most part, they have no alternative use. The most significant non-land assets are the sealed surfaces or civil works that have been developed on the land. Economically, these assets are sunk as the investment in them cannot be recovered by resale.

38. In the case of sunk assets, opportunity costs are zero. Such assets are being used in their best use, and there is no alternative use. However, valuing the assets at zero may affect the willingness of investors to invest in such assets. Airports need to be able to recover the costs of, and earn a return on, specialised airfield assets in order to preserve continuity of supply. Alternative approaches to deal with this issue are valuations at replacement or historic costs.

39. The Commission's view is that specialised airfield assets should be included in the asset base at historic cost, and depreciated as appropriate. Historic cost provides investors with a return on the amounts invested, and preserves incentives to invest in the future. Investors are compensated for inflation through the use of a nominal WACC.

40. In determining appropriate values of specialised assets for inclusion in the asset base, the Commission has adjusted the airports' values of specialised assets to exclude revaluations from historic cost to Optimised Depreciated Replacement Cost (ODRC). It should be noted that no airport optimised any of the Depreciated Replacement Cost (DRC) for these specialised assets.

Optimisation

41. A condition for efficient pricing is that the costs that should be recovered through pricing are those that reflect the least cost of production. Airports should be able to recover through prices the efficient costs of assets needed to provide airfield services. The Commission's view is that only those assets that are currently 'used and useful' should be included in the asset base on which a rate of return is calculated. All other assets should be optimised out.

42. Land and non-land assets that are surplus should not be included in the asset base—they should be optimised out. The Commission has optimised out a number of parcels of what it considers to be surplus land at the airports. Detailed discussion on this is found in the airport-specific chapters.

New Investment and Pre-Financing

43. Growth in aircraft movements will require investment in additional runway capacity at airports from time to time. It may not be desirable for airport companies to delay investment until demand exceeds capacity. Equally, it is not desirable from an efficiency perspective for airport companies to over-invest in facilities. Investment planning, therefore, should aim to ensure that there is an appropriate level of investment to support production, with no excess, or under, capacity.

44. Any new investment should be based on reasonably anticipated future demands. Excess capacity may be dynamically and allocatively inefficient.

45. The Commission considers that it is a matter of judgment as to when land should be acquired for future runway developments, given the inevitable uncertainties as to when relevant parcels will become available on the market, and to when development may actually occur. A judgement is required in each particular case. The Commission believes that it is important that incentives to invest in expansions to capacity in a timely fashion are preserved.

46. However, there is a danger that land could be acquired too far in advance of need if the airport were assured of being able to recoup the cost of holding it from users. Hence, the Commission considers that holding costs—based on the historic cost of the land, net of income generated and of revaluations—should be capitalised (and depreciated), and incorporated in the asset base as a specialised asset at historic cost for charging purposes only from the point at which construction commences. This means that although the airport has some discretion as to when land is purchased and net holding costs start to accumulate, it must bear the risk that the land may never be developed as planned prior to the development actually being initiated. From the point at which construction commences, the land would be valued in the asset base at opportunity cost.

47. The Commission excluded the land AIAL holds for its second runway from AIAL's asset base for determining allocatively efficient price and computing returns. It also considers a proportion of the second runway land to be dynamically inefficient, as this proportion of land is unlikely to be used by the airport for airfield activities even over the medium term, perhaps not even in the long-run. The rest of the second runway land is expected to be used at some time within the medium term, and is, therefore, not seen as leading to dynamic inefficiencies.

Appropriate Asset Base

48. The tables below show, for each airport, the current asset base for the pricing of airfield activities considered appropriate by the Commission, compared to the figures adopted by that airport.

AIAL Airfield Asset Base as at 30/6/01

	Amount ($000s)
Asset Base used by AIAL for Pricing Purposes	$ 311,042
Exclusion of Ground Handling Area Land	-2,070
Asset Base (Revised)	**308,972**
Optimisation of Seabed	-9,800
Optimisation of Seawall	0
Optimisation of Second Runway Land	-36,757
Optimisation of Wiroa Island	-2,825
Optimisation of Eastern Approaches Land	-11,957
Adjustment to Operational Airfield Land Value (ORC to OC)	-36,931
Addition of Seawall Construction Costs (DHC)	1,575
Adjustment to Non-Land Asset Values (ODRC to DHC)	-24,127
Associated Adjustment to Depreciation (ODRC to DHC)	1,849
Commission Airfield Asset Base	**$ 189,999**

WIAL Airfield Asset Base as at 31/3/01

	Amount ($000s)
Asset Base Adopted by WIAL for Pricing	$ 94,936
Optimisation of Leased Airfield Land	-2,619
Adjustment to Operational Airfield Land Value (ORC to OC)	7,684
Exclusion of Seawall from Civil Works	-20,500
Adjustment to Non-Land Asset Values (ODRC to DHC)	-34,615
Associated Adjustment to Depreciation (ODRC to DHC)	10,037
Commission Airfield Asset Base	**$ 54,923**

CIAL Airfield Asset Base as at 30/6/01

	Amount ($000s)
Asset Base used by CIAL for Pricing Purposes	$ 40,067
Optimisation of Development Land	0
Adjustment to Operational Airfield Land Value (ORC to OC)	16,483
Add back of Reseal Reserve	0
Adjustment to Non-Land Asset Values (ODRC to DHC)	-20,031
Associated Adjustment to Depreciation (ODRC to DHC)	1,568
Commission Airfield Asset Base	**$ 38,087**

TARGET RETURN (WACC)

49. Weighted average cost of capital (WACC) is the weighted average cost of each new dollar of capital raised at the margin. In the simplest terms, it is the cost of debt and the cost of equity weighted by the proportion of debt and equity. Like the asset base, it is relevant both for the purpose of determining prices and for the purpose of assessing performance. It is the element of the pricing models that allows for a required rate of return to be earned by debt and equity security providers.

50. The Commission has determined what it considers to be an appropriate WACC (target return) for the airfield activities of each airport. In formulating the views expressed on WACC in this Report, the Commission obtained independent advice from Dr Martin Lally on the appropriateness of the WACC estimates most recently adopted by the airports, and on the robustness of the airports' justification for those estimates. A copy of his report to the Commission is included in Appendix 18 to this Report. Full discussion of generic issues regarding WACC are contained in Chapter 6, and for each airport in Chapters 8-10.

51. Key determinants of WACC are the risk-free rate, debt premium, market risk premium, asset beta and leverage.

Risk-free Rate

52. The risk-free rate is the interest rate that an investor would earn, or an entity would pay to borrow, on a riskless investment. Rates for Government stock are usually used to approximate the risk-free rate.

53. In determining the appropriate risk-free rate, the Commission first considered what term (maturity) of the rate to use. Alternatives are to use the maturity corresponding

to the period for which prices are set, or the period of the life of airfield assets. The Commission's view is that the risk-free rate should match the revision frequency of pricing. Prices are set by the airports for upwards of five-year periods due to the requirement to consult with substantial customers every five years on charges. However, CIAL has recently set prices for a period of three years, and AIAL seven years.

54. Having determined the appropriate maturity date to use, the Commission then considered how to set the rate. Options include using the range over the relevant period, the midpoint, the endpoint, an average of the beginning and ending rates for the period, or the average over the period. The selection of the rate is important, as risk-free rates vary daily. The Commission elected to use an average on Government stock relating to the period in which an airport consults with its substantial customers (ending with the point at which any new prices come into effect) and with a maturity matching the point at which prices will again be reviewed (at maximum five years).

55. In analysing the efficiency implications of current prices for the airfield activities of AIAL, the Commission used a risk-free rate of 6.33%, being the five-year Government stock rate averaged for the six months April to September 2001. For CIAL, the Commission used a risk-free rate of 7.04%, representing the yields on three-year Government stock averaged over the six month period February to August 2000. For WIAL, the rate used is the average yield on five-year Government stock in the six months preceding 1 July 1997, when the current price formula was settled for the next five years. This figure is 7.62%.

56. For assessing historical performance on an annual basis (and on average over time), the Commission adopted the risk-free rate for the appropriate financial period, based on the last price reset. For example, the risk-free rate for the six months preceding 1 July 1997 (date on which WIAL set prices in the past) is used in assessing returns for the five years from 1 July 1997 to 30 June 2002 (the five-year period for which prices were set).

Debt Premium

57. The debt premium determines the premium over and above the risk-free rate that is required by investors for holding the debt. It reflects marketability and exposure to the possibility of default.

58. The Commission's view is that a debt premium of 1% above the risk-free rate is appropriate for all three airports.

Market Risk Premium

59. The Market Risk Premium (MRP) represents the additional premium that investors require in order to hold the market portfolio—a diversified basket of 'risky' assets—over and above the returns that can be obtained from investing in risk-free assets.

60. A number of approaches can be used to estimate the MRP. The common approach is to observe the difference between the ex-post risk-free rates and market returns and calculate an arithmetic average over a number of years. Other methods involve

examining market volatility changes over time (looking at variances and standard deviations), estimating growth in market dividends, and considering estimates of market risk premium for foreign markets.

61. The Commission's approach was to adopt a tax-adjusted MRP of 8%, within a range of 7-9%.

Asset Beta

62. Risk relates to the possibility that expected returns may not actually materialise. The total risk of an asset or business is made up of both diversifiable risk and undiversifiable risk. Beta measures the sensitivity of an asset to the market, its undiversifiable (or systematic) risk.

63. Looking at an entity as an asset in a portfolio, the beta of an entity measures the sensitivity of an entity's cash flows to changes in the economy that impact on asset values and returns (not the specific risk associated with investing in a particular company). It is a relative concept and specifically measures the sensitivity of returns to changes in the returns of the market. The higher the beta, the more volatile and risky the asset.

64. Beta may or may not be capable of being estimated directly. Betas can only be directly estimated for listed companies, and only with any degree of accuracy where there is data for a significant period and for a significant number of entities. Where a beta cannot be estimated directly, a proxy or surrogate beta can be estimated by making adjustments for differences in gearing to the betas of entities or assets with similar activities and risks.

65. Characteristics important in assessing the suitability of comparators include the nature of the firm's output, the nature of the customer, the duration of any contracts with customers, the extent of any regulation, degree of monopoly (e.g., as reflected in the price elasticity of demand), the nature of options for expansion, operating leverage, market weight, and capital structure.

66. The regulatory environment could significantly effect the performance of the airports and is, therefore, a key consideration in choosing appropriate comparators. The Commission adopted benchmarks for asset beta based on United States firms engaged in electricity generation and/or distribution that are subject to rate-of-return regulation (which almost guarantees them a certain rate of return), and firms in the United Kingdom subject to RPI-X price caps. Other airports are not used as comparators because there is not sufficient data to arrive at reasonable estimates.

67. The Commission considers that an appropriate asset beta for the airfield activities at all three airports is 0.5 (the mid-point), within a range of 0.4 to 0.6.

Leverage

68. If a company has no debt—it is entirely financed by equity—its asset and equity beta are identical. By adding debt to a company's capital structure, the shareholding becomes more risky, reflected in its equity beta becoming greater than its asset beta.

The level of systematic risk associated with equity (the equity beta) is magnified according to the proportion of debt in the funding mix. The greater the proportion of debt, the greater the systematic risk associated with the residual profits available for distribution to shareholders, and the greater difference between its asset and equity betas. For otherwise identical investments, a company with more debt in its capital structure will have a higher equity beta and a higher required rate of return on equity than one with less debt.

69. A leverage rate is used to determine the cost of equity, and also to weight the costs of debt and equity to derive WACC. The leverage (or debt) ratio reflects the proportion of total assets that are funded by debt (as opposed to equity).

70. A number of alternatives exist to determine the appropriate debt ratio. However, the Commission considers that the current leverage ratio based on the market values of debt and equity is most appropriate (given the debt premium used).

71. The appropriate market value weights of debt and equity can easily be computed for AIAL. Taking the book value of debt as a proxy for market value of debt, and dividing the number of issued shares multiplied by the current share price results in a debt ratio of 25% for AIAL. For the purposes of its analysis, the Commission also used a 25% debt ratio for WIAL and CIAL.

Appropriate WACC

72. For the purposes of this Report, the Commission chose to use a nominal post-tax WACC in order to be consistent with its approach to asset base, and its analysis of historical returns.

73. Each airport can have its own unique characteristics, which can result in a distinct risk profile and WACC. The Commission considers that the appropriate WACC for the airfield activities of each of the airports are as follows:

	Auckland	**Wellington**	**Christchurch**
Risk-free rate	6.33%	7.62%	7.04%
Corporate tax rate	33%	33%	33%
Tax rate on interest	33%	33%	33%
Post tax MRP	7 to 9%, point est. 8%	7 to 9%, point est. 8%	7 to 9%, point est. 8%
Debt premium	1%	1%	1%
Cost of Debt	7.33%	8.62%	8.04%
Weight for debt	25%	25%	25%
Weight for equity	75%	75%	75%
Asset Beta	0.4 to 0.6, point est. 0.5	0.4 to 0.6, point est. 0.5	0.4 to 0.6, point est. 0.5
Equity Beta	0.53 to 0.8, point est. 0.67	0.53 to 0.8, point est. 0.67	0.53 to 0.8, point est. 0.67
Cost of Equity	7.97 to 11.44%, point est. 9.57%	8.84 to 12.31%, point est. 10.44%	8.45 to 11.92%, point est. 10.05%
Nominal Tax-Adjusted WACC	7.21 to 9.81%, point est. 8.41%	8.07 to 10.67%, point est. 9.27%	7.68 to 10.28%, point est. 8.88%

ALLOCATIVE EFFICIENCY AND CROSS-SUBSIDISATION IN PRICING

74. In general terms, the price for each good or service should be set where the marginal cost of supply equals demand, so that the ensuing quantity produced maximises allocative efficiency. The Commission has assessed to what extent the structure of prices for airfield activities are allocatively efficient, and whether there is any cross-subsidisation. It notes that, in the airfield activities context, setting prices to maximise allocative efficiency potentially encounters a number of difficulties, as follows:

- Efficiency requires that separate products are priced separately according to the marginal cost of supply. However, the administrative cost of having separate charges has to be taken into account, especially when the cost of each service is small. It might also be commercially impractical to measure each user's marginal cost and to charge accordingly. Consequently, an approach commonly adopted by airports is to set prices for a limited number of groups of users. The airports work out their total costs of airfield activities, and then allocate the corresponding revenue requirements across users according to a series of cost drivers. The resulting landing charges are computed largely based on the weight (MCTOW) of each aircraft, with the cost per MCTOW increasing through weight classes. This may not necessarily generate efficient prices, as there appears to be no attempt to integrate information about demand elasticities into price-setting. The Commission notes that international agreements limit the extent to which airports can apply efficient pricing.

- A characteristic of the cost structure of an airport's airfield activities is the high proportion of fixed costs. As a consequence, average cost is likely to be greater than marginal cost. As a result, setting efficient prices at marginal cost would produce financial deficits. The Commission considers that airports should be able to recover the total costs of airfield activities (both fixed and common costs), and, as a result, 'first best' pricing would not be financially viable.

- Airports, because they offer a variety of services to a variety of users, have the potential through their charges to engage in cross-subsidisation. Cross-subsidisation can arise where individual users do not pay enough to cover the additional costs they impose on the provider, or where a service as a whole does not recoup its costs from users. Cross-subsidisation is economically inefficient, because some users contribute towards the cost of the services enjoyed by others, implying that prices diverge from marginal cost. A review by the Commission of the airports' pricing models and cost allocations has not identified any areas of cross-subsidisation.

75. A full discussion of issues regarding airfield pricing and cost allocation is provided in Chapter 7, and then these matters are discussed further in the airport-specific chapters.

NECESSARY OR DESIRABLE IN THE INTERESTS OF ACQUIRERS

76. After examining the asset valuations, WACCs and cost allocations of the airports, the Commission then assessed the consequences of any state of 'limited' competition in the airfield services market in the counterfactual to determine whether control is necessary or desirable in the interests of acquirers. The issue is whether control

would lead to an improvement in acquirers' economic welfare. Consequences of a lack of competition can manifest themselves in various ways, including excessive returns, inefficiencies (allocative, productive and dynamic), and inferior product quality. These may be reduced by control. A full discussion on these consequences is presented in Chapter 7, and these are detailed for each airport in Chapters 8-10.

Inefficiencies

77. The Commission evaluated the overall economic efficiency of the airfield services supplied by AIAL, WIAL and CIAL. This was done on the basis of 2001 year prices, as well as on expected future prices. It also fed into the net benefits analysis that was conducted in order to determine whether control is recommended. The analysis of inefficiencies in the supply of airfield activities is presented in Chapter 7, and detailed for each airport in the airport-specific chapters.

78. The Commission considered allocative, productive and dynamic efficiencies.

Allocative Inefficiency

79. Allocative efficiency concerns the overall level of prices, and whether they are too high, resulting in output below the optimal level (and also returns being excessive).

80. Based on its views on asset base and WACC, the Commission estimated the competitive price and level of output, which it then compared with the actual price and output. Allocative inefficiencies were estimated both for 2001 year prices and into the future. The allocative inefficiencies were measured by deadweight losses of consumer and producer surplus resulting from prices being above the competitive level. Negative values in the table indicate situations where price was below the assessed competitive level.

Estimated Allocative Inefficiencies ($000s)

	Over WACC Range	**At Point Estimate**
AIAL (2001-2007 Average)		
Consumer Surplus	1 to 24	9
Producer Surplus	-45 to 335	210
WIAL (2001-2003 Average)		
Consumer Surplus	0.4 to 6	2
Producer Surplus	-7 to 96	50
CIAL (2001-2003 Average)		
Consumer Surplus	-4 to 0.3	-2
Producer Surplus	-43 to 10	-13

Productive Inefficiency

81. Productive efficiency requires that the cost of any given output be minimised, so that resources are not wasted.

82. The Commission considered that there is likely to be some room for improvement in the productive efficiency of the airfield activities provided at all three airports. The Commission adopted a range of 1-3% of airfield operating expenses (excluding

depreciation) as a measure of productive inefficiency for AIAL, 0-1% for WIAL, and 1-2% for CIAL.

Dynamic Inefficiency

83. Dynamic efficiency occurs where firms adopt new products and processes in a timely fashion, and invest to ensure that capacity matches demand.

84. The Commission estimated the approximate extent of any dynamic inefficiencies in the airfield activities at each of the three airports. It only found evidence of dynamic inefficiencies in the case of AIAL.

Excess Returns

85. Airports should be able, on average over time, to earn a normal return on the optimised assets used in providing the services of airfield activities. An actual return in excess of the appropriate target WACC over time would suggest that the entity was earning an excessive or monopoly return, unless those returns reflect superior performance (e.g., superior productive efficiency improvements). Findings regarding productive efficiency were presented separately above.

86. The Commission estimated the distributional impact of any excess returns on airfield activities that AIAL, WIAL and CIAL may have earned historically, may be earning currently, or may potentially earn in the future. The analysis of excess returns is presented generically in Chapter 7, and detailed for each airport in Chapters 8-10.

Historical Excess Returns

87. The Commission conducted an analysis of the historical returns on the airfield activities of the three airport companies over the period since vesting. This involved adjusting the asset base, and comparing actual returns on that base with Commission-determined target (WACC) returns. The Commission's views on the relevant asset bases of the airports, and on their respective WACCs, were used in the analysis.

88. The Commission's estimate of the average historical returns earned by AIAL, WIAL and CIAL in respect of their airfield activities (relative to target) is shown in the following tables:

Returns on Airfield Activities Supplied by AIAL
Since Vesting ($000s)

	Over WACC Range	At Point Estimate
Average 1989-2001	-1,926 to 1,208	-239
Average 1997-2001	2,707 to 6,101	4,534
Present Value 1989-2001	-74,365 to -8,887	-39,107

Returns on Airfield Activities Supplied by WIAL
Since Vesting ($000s)

	Over WACC Range	At Point Estimate
Average 1991-2001	-2,123 to -941	-1,486
Average 1997-2001	632 to 1,891	1,310

	Over WACC Range	At Point Estimate
Present Value 1991-2001	-42,895 to -24,641	-33,066

Returns on Airfield Activities Supplied by CIAL Since Vesting ($000s)

	Over WACC Range	At Point Estimate
Average 1989-2001	-843 to 76	-348
Average 1997-2001	-1,525 to -479	-962
Present Value 1989-2001	-17,116 to 1,509	-7,087

89. After analysing possible reasons for the positive returns identified for each airport, the Commission concluded that both AIAL and WIAL earned excess returns historically. No excess returns historically were identified for CIAL.

90. In AIAL's case, there is a trend of increasing returns, moving from negative returns just after vesting (1998) to large positive returns per annum currently. This finding led the Commission to conclude that AIAL has used its market power in airfield activities by raising prices above the efficient level. This reinforced the Commission's finding that there are insufficient constraints on the exercise of market power by AIAL.

91. A trend of increasing returns is also apparent in the case of WIAL, but the level of excess returns is not as significant.

Excess Returns 2001 Year and Beyond

92. Averaged annual historical data are useful for evaluating the pricing behaviour of airports in the past, but the returns fluctuate considerably from year-to-year over the period, and may be a poor indicator of present and future behaviour. The Commission examined the results of each airport's most recent financial year (2001) in more detail. It endeavoured to quantify the potential excess returns and inefficiencies implied by prices for airfield activities at each airport's 2001 financial year.

93. The analysis of the 2001 year only provides a snapshot of the pricing of airfield activities by the three airports at one point in time. During this Inquiry, all three airports increased their prices for airfield activities (AIAL and CIAL in 2000, and WIAL at 1 July 2002). Incorporating the airports' forecasts of growth in aircraft movements, operating costs and the asset base, the Commission extended its 2001 year analysis for the airports to forecast future returns. Forecasts are produced to 2003 for WIAL and CIAL, and to 2007 for AIAL (matching the period of AIAL's agreements with airlines).

94. The following returns are projected:

Estimated Future Excess Returns ($000s)

	Over WACC Range	At Point Estimate
AIAL (2001-2007 Average)	816 to 6,494	3,873
WIAL (2001-2003 Average)	-88 to 1,346	684
CIAL (2001-2003 Average)	-758 to 246	-217

95. Excess returns of varying magnitudes are forecast for all three airports at the upper end of the estimated range. Only AIAL and WIAL display excess returns at the point estimate. The analysis does not take into account WIAL's proposed price increase of [ ], but does take into account its recent 10% increase.

BENEFITS AND COSTS OF CONTROL

96. In establishing that controlling airfield activities is in the interests of the acquirers of the goods or services, it is necessary to consider the net benefit to acquirers by assessing the benefits and costs of control.

97. In this Inquiry, the Commission considered that the relevant interests to be examined are those of acquirers of airfield activities. The Commission approached this question by assessing whether the imposition of control would benefit the interests of the acquirers of airfield activities—both the aircraft operators (as direct acquirers), as well as the ultimate consumers, namely aircraft passengers and those using air freight services (as indirect acquirers).

98. The Commission balanced the likely benefits of control to acquirers against the likely costs of control that would be borne by acquirers. Full discussion on the Commission's consideration of the likely benefits of control is conducted in Chapter 7, and detailed for each airport in Chapters 8-10.

Benefits of Control for Acquirers

99. Acquirers could only be said to benefit from control of airfield activities if they as a group were to be made better off, relative to their position in the counterfactual, after allowing for any off-setting costs that they would bear as a result of control being introduced. Transfers of wealth between suppliers and acquirers are relevant to assessing benefits for acquirers, even though from an efficiency perspective such transfers are treated as mutually off-setting.

100. The sources of potential benefits of control for acquirers are:

- Excess returns (if present) would be reduced or eliminated by control, through lower prices being set, which would lead to a transfer of wealth to acquirers.

- Lower prices would reduce or eliminate allocative inefficiency, further enhancing the benefit to acquirers (in respect of the consumer surplus). There may also be indirect or spill-over benefits from lower prices.

- Productive inefficiency (if present) would be reduced or eliminated by control, with the resulting cost savings likely to be passed on in still lower prices, to the benefit of acquirers.

- Dynamic inefficiency (if present) would be reduced or eliminated by control, with the resulting lower required revenue from landing charges (to cover costs) likely to lead to still lower prices, to the benefit of acquirers.

101. The Commission considers that all inefficiencies and excess returns identified in the counterfactual, if removed, would accrue to acquirers, other than those inefficiencies associated with producer surplus. The total potential benefits to acquirers of control are relatively large in the case of AIAL, and are much smaller at WIAL and CIAL.

Estimates of the Potential Benefits to Acquirers of Control on Airfield Activities Supplied by AIAL, 2001-2007 Average ($000s)

	Over WACC Range	At Point Estimate
Benefits		
Reduced excess returns	816 to 6,494	3,873
Reduced consumer surplus	1 to 24	9
Reduced productive inefficiency	141 to 425	212
Reduced dynamic inefficiency	0 to 350	0 to 256

Estimates of the Potential Benefits to Acquirers of Control on Airfield Activities Supplied by WIAL, 2001-2003 Average ($000s)

	Over WACC Range	At Point Estimate
Benefits		
Reduced excess returns	-88 to 1,346	684
Reduced consumer surplus	0.4 to 6	2
Reduced productive inefficiency	0 to 54	27
Reduced dynamic inefficiency	0	0

Estimates of the Potential Benefits to Acquirers of Control on Airfield Activities Supplied by CIAL, 2001-2003 Average ($000s)

	Over WACC Range	At Point Estimate
Benefits		
Reduced excess returns	-758 to 246	-217
Reduced consumer surplus	-4 to 0.3	-2
Reduced productive inefficiency	79 to 159	119
Reduced dynamic inefficiency	0	0

102. However, control provides an imperfect substitute for competition for dealing with the inefficiencies and excessive returns in markets caused by a lack of competition. The imperfect nature of control is reflected in the costs of control.

Costs of Control for Acquirers

103. In assessing the potential benefit to those who acquire airfield activities, the costs of control that fall upon those acquirers must be netted off from the benefits assessed above. It is the net benefits of control to acquirers that are relevant under section 52(b) of the Commerce Act. Hence, the concern is only with those costs of control that may be borne directly or indirectly by acquirers, and with those that are additional to the present situation (the counterfactual), which includes the costs of consultation and litigation. The extent of the costs borne by acquirers also depends upon whether they bear the cost of the control regime (or whether these are borne by suppliers), and on the design and nature of the regime itself. The Commission is of the view that, while acquirers are likely to receive most of the benefits of control, they could indirectly pay most of the costs.

104. The direct costs of control under the Commerce Act are likely to be greater than those of the current regulatory regime. In addition, there are indirect costs of control associated with the inefficiencies that control creates. Control cannot be relied upon to eliminate the entirety of any inefficiencies and transfer effects found to be present in airfield activities at the three airports.

105. The total costs of control (direct and indirect) to acquirers are estimated in the following table. In formulating its estimates of the costs of control, the Commission has assumed price cap regulation under Part V and has not considered other forms of control under Part V or regulatory intervention.

Likely Costs of Controlling AIAL, 2001-2007 Average ($000s)

	Over WACC Range	At Point Estimate
Costs		
Direct Costs	620 to 1,320	970
25% excess returns	287 to 1,623	968
43.75% consumer surplus	0.5 to 10	4
0-2% productive inefficiency	0 to 283	141
50-100% dynamic inefficiency	0 to 350	0 to 256

Likely Costs of Controlling WIAL, 2001-2003 Average ($000s)

	Over WACC Range	At Point Estimate
Costs		
Direct Costs	620 to 1,320	970
25% excess returns	47 to 336	176
43.75% consumer surplus	-0.1 to 2	1
0-2% productive inefficiency	0 to 108	54
50-100% dynamic inefficiency	0	0

Likely Costs of Controlling CIAL, 2001-2003 Average ($000s)

	Over WACC Range	At Point Estimate
Costs		
Direct Costs	620 to 1,320	970
25% excess returns	48 to 182	103
43.75% consumer surplus	-2 to 0.1	-0.9
0-2% productive inefficiency	-14 to -0.8	-7
50-100% dynamic inefficiency	0	0

106. In calculating the costs of control, the Commission has assumed price cap regulation, as this is one of the more common forms of regulatory control overseas. Use of this form of control, for the purpose of estimating the costs of control, should not be seen as predetermining the form of control that the Commission would employ if control were declared. The Commission notes that a wide range of regulatory controls are available under Part V, which are likely to be less intrusive or less costly than price cap regulation. It would also need to be determined, however, how effective different control mechanisms would be in achieving the benefits of control, i.e., the overall cost-effectiveness of control would need to be assessed for control mechanisms

besides price cap regulation. The Commission has not considered the efficacy of other forms of control.

107. In terms of other control mechanisms, section 70(2) enables the Commission to use formulas or other methods from which prices or revenues, or any part of a price or revenue, may be determined. One suggestion, from BARNZ, is that the parties could commercially negotiate, based either on the principles resulting from this report, or pricing principles established by the Commission as a form of control. In addition, the Commission notes there may be other policy options available to the Minister. Irrespective, the Commission is cognisant that any form of control utilised would need to be commensurate with the level of market power available to the controlled airport, the size of the anticipated excess return, and resulting net benefits to acquirers.

Net Benefits to Acquirers

108. In considering whether control is "necessary or desirable...in the interests of" acquirers, the Commission attempted to measure, at each of the three airports, the benefits that acquirers would be likely to receive if airfield activities were to be subject to control, net of the likely costs of such control that would be borne by those same acquirers (where the costs of control are additional to those already being incurred under the present regulatory regime). Only if the net benefits were positive could it be determined that the interests of acquirers would be served by control. The total benefits and total costs are an average of the 2001 year and the forecast years.

Estimates of the Potential Net Benefits to Acquirers of Control on Airfield Activities Supplied by AIAL, 2001-2007 Average ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	1,243 to 6,836	4,096 to 4,352
Total Costs	1,891 to 2,429	2,084 to 2,340
Net Benefits to Acquirers	**-647 to 4,494**	**2,011 to 2,139**

Estimates of the Potential Net Benefits to Acquirers of Control on Airfield Activities Supplied by WIAL, 2001-2003 Average ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	-34 to 1,352	713
Total Costs	959 to 1,475	1,201
Net Benefits to Acquirers	**-1,512 to 393**	**-488**

Estimates of the Potential Net Benefits to Acquirers of Control on Airfield Activities Supplied by CIAL, 2001-2003 Average ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	-604 to 326	-100
Total Costs	802 to 1,525	1,152
Net Benefits to Acquirers	**-2,130 to -476**	**-1,253**

109. On the balance of probabilities the Commission is satisfied it is necessary or desirable for the airfield activities supplied by AIAL to aircraft operators to be controlled in the

interests of persons acquiring the goods or services (whether directly or indirectly). Acquirers of airfield activities supplied by AIAL would be likely to benefit from the removal of excess returns and inefficiencies, and that benefit would not be outweighed by the likely direct costs and inefficiencies that administering control could create. The prospective net benefits to acquirers from control based on the Commission's assumed cost of control are about 4% of the total landing charges they pay to AIAL and 10% of AIAL's net profit from airfield activities.

110. In the case of the airfield activities supplied by WIAL and CIAL, on the balance of probabilities the Commission does not consider it necessary or desirable for airfield activities to be controlled in the interests of acquirers. The potential benefits to acquirers of controlling WIAL or CIAL are not sufficiently large to warrant control, given the costs associated with control. The Commission has not taken into account WIAL's proposed price increase of [ ] and has only taken into account its recent 10% increase.

VIEWS OF PETER J M TAYLOR AND DONAL CURTIN

111. Peter J M Taylor and Donal Curtin agree with the Commission in respect of the use of the opportunity cost methodology used to value airfield land, and with the values thus obtained, but do not accept the methodology used to value specialised assets. Their preferred approach is to value specialised assets using optimised depreciated replacement cost (ODRC). Using this approach alters the calculations of returns for the airports, and leads them to conclude that the likely net benefits to acquirers of control on AIAL are not significant. Consequently, they are not satisfied that control of airfield activities supplied by AIAL is necessary or desirable in the interests of acquirers, and do not consider AIAL, WIAL or CIAL may be controlled. Consequently, they have not considered whether market conditions are such that the Minister should recommend control. They express no view on the airfield activities that need to be controlled. Otherwise, they agree with the report.

RECOMMENDATIONS

112. Acting pursuant to the sections 54 and 56 of the Commerce Act, the Minister has required the Commission to report on whether airfield activities at Auckland, Wellington and Christchurch International Airports should be controlled under the Commerce Act. The Commission's recommendations and response to the Minister's Notice are presented below.

113. The Commission recommends that the Minister:

Question 1 – Whether Controls Should Be Introduced For Airport Activities?

Auckland International Airport Limited (AIAL)

(a) **Recommend** to the Governor-General that an Order in Council be made declaring that the airfield activities supplied by AIAL are controlled.

(b) **Note** that the Commission is satisfied that the airfield activities supplied by AIAL are supplied in a market in which competition is limited; and it is necessary or desirable for these services to be controlled in the interests acquirers and may, therefore, be controlled.

(c) **Note** that the Commission considers that market conditions are such that the Minister should recommend to the Governor-General that control be declared in respect of airfield activities supplied by AIAL.

(d) **Note** that the Commission has not considered the full range of control mechanisms available under Part V of the Commerce Act and that other less intrusive, and lower cost, forms of control than price cap regulation, which was used as a means of estimating the costs of control, are likely to be available. Irrespective, the Commission is cognisant that any form of control utilised needs to be commensurate with the level of market power available to AIAL, the size of the anticipated excess return, and resulting net benefits to acquirers.

Wellington International Airport Limited (WIAL)

(e) **Agree** to not recommend to the Governor-General that an Order in Council be made declaring that the airfield activities supplied by WIAL are controlled.

(f) **Note** that the Commission is not satisfied that the airfield activities supplied by WIAL may be controlled as it is not necessary or desirable for those services to be controlled in the interests of persons acquiring those goods or services.

(g) **Note** that if WIAL imposes a significant increase in charges as a result of its current consultation with the airlines, the Commission would likely be satisfied that it would be necessary or desirable for the airfield activities supplied by WIAL to be controlled in the interests of persons acquiring those goods or services.

Christchurch International Airport Limited (CIAL)

(h) **Agree** to not recommend to the Governor-General that an Order in Council be made declaring that the airfield activities supplied by CIAL are controlled.

(i) **Note** that the Commission is not satisfied that the airfield activities supplied by CIAL may be controlled as it is not necessary or desirable for those services to be controlled in the interests of persons acquiring those goods or services.

Question 2 – Specific Goods And Services To Control

(j) **Recommend** to the Governor-General that control be declared for the airfield activities supplied by AIAL listed in the following table:

Airfield Services Supplied by AIAL to be Controlled

Airfield Activities	Goods and Services Supplied by AIAL
Airfields, runways, taxiways, and parking aprons for aircraft	Airfields, runways, taxiways, and aprons.
Facilities and services for air traffic control	None.

Airfield Activities	Goods and Services Supplied by AIAL
Facilities and services for parking apron control	Apron control service at the international terminal apron.
Airfield associated lighting	Cable ducts and light pots for the entire airfield; cabling for light fittings for aprons and first taxiways; and apron lights.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft.
Rescue, fire, safety, and environmental hazard control services	Rescue, fire, safety, and environmental hazard control services.
Airfield supervisory and security services	Provides and maintains security fencing.
Facilities/assets held for future airfield activities	Holds land for second runway.

Question 3 – Conditions, Tests Or Thresholds

(k) **Note** the following conditions, tests or thresholds that the Commission has used for determining whether section 52 is met:

(i) Limited competition (52(a)) - To satisfy this requirement, there needs to be more than a nominal or de minimis restriction or impairment of workable or effective competition. The following non-exhaustive list of factors are relevant:

- The number and relative size of competitors in the market.
- The potential for entry and the significance of any barriers to entry that might exist.
- The nature of the good or service, and in particular the extent to which it is differentiated.
- The behaviour of airports, and the competitive constraint that one may have upon another.
- The extent of any countervailing power of acquirers.
- The effectiveness of the regulatory environment within which airports operate.
- Evidence of airports operating inefficiently or achieving excess returns.

(ii) Necessary or desirable in the interests of acquirers (52(b)) To satisfy this requirement, the Commission considers the likelihood, and magnitude, of net benefits accruing to acquirers. The following non-exhaustive list of factors is relevant:

- Evidence of any excess returns earned historically.

- Any forecast excess returns in the medium-term.
- Evidence of any superior performance by airports justifying excess returns.
- Evidence of any inefficiencies (allocative, productive and dynamic).
- The impact of any market power exerted in other related markets.
- Any other evidence of the exercise of market power.
- The likely benefits of control that would accrue to acquirers through the reduction or removal of excess returns or inefficiencies.
- The likely costs of control that would be borne directly or indirectly by those same acquirers.

Question 4 – Form Of Control

(l) **Note** that the question of what form of control should be imposed is a matter under Part V of the Commerce Act, and not a matter for Part IV and the determination of whether to recommend control, which is the focus for this Inquiry.

PART A – MAIN REPORT

1. INTRODUCTION

NOTICE FROM THE MINISTER

1.1. Section 53 of the Commerce Act 1986 (the Commerce Act) allows the Governor-General, by Order in Council, on the recommendation of the Minister of Commerce (the Minister) to declare that specified goods or services be controlled.

1.2. Section 56 allows the Commerce Commission (the Commission) to report to the Minister on whether or not an Order in Council under section 53 should be made. The Commission may report on its own initiative or following a request from the Minister. Where the Minister makes a request, it must be in writing and must specify the date by which the Commission must report.

1.3. Under section 54, the Minister may require the Commission to advise on thresholds that would assist in assessing whether goods or services should be controlled.

The Notice

1.4. The Commission initiated its Inquiry into airfield activities in response to a request from the Minister of Commerce dated 26 May 1998[1]. Since receiving that request, the Commerce Act has been amended by the Commerce Amendment Act 2001 (the Amendment Act). Parts IV and V relevant to this Inquiry into airfield activities were amended. The Amendment Act came into force on 26 May 2001.

1.5. On 25 July 2001 the Minister issued a new request replacing the previous request. The new request required the Commission to report under section 56 as to whether an Order in Council under section 53, controlling airfield activities at the relevant airports, should be made. The new request also included a requirement, under section 54, to advise the Minister on thresholds that would assist in assessing whether airfield activities should be controlled.

1.6. The Minister's letter of 25 July 2001[2] requested the Commission to report by 1 August 2002 as follows:

> a whether there is evidence that airfield activities, as defined in the Airport Authorities Amendment Act 1997, provided by the three major international airports (Auckland, Wellington and Christchurch) are supplied or acquired in a market in which competition is limited or is likely to be lessened; and it is necessary or desirable for these goods or services to be controlled in the interests of persons acquiring the goods or services (whether directly or indirectly) or as the case may be, suppliers; and
>
> b whether market conditions are such that the Commission believes that I should recommend to the Governor-General that she make an Order in Council under section 53 of the Act invoking controls over airfield activities at the three major international airports.
>
> Specific matters on which I require the Commission to consider and report to me on are:

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[1] Appendix 1 comprises the Minister's letter to the Commission of 27 March 1998, the Commission's letter to the Minister of 5 May 1998, and the Minister's letter to the Commission of 26 May 1998.

[2] Appendix 8 comprises the Minister's letter to the Commission of 25 July 2001.

1. Whether controls should be introduced for airfield activities at one or more of the three major international airports;

2. If the Commission is of the view that controls should be introduced, to which (i) components of the prices, revenues, or quality standards; (ii) regions, areas, or localities in New Zealand; (iii) quantities, qualities, grades, or classes; and (iv) different persons or classes of persons, should controls be applied?

3. What conditions, tests, or thresholds does the Commission consider would be useful in judging whether (i) airfield activities are or will be supplied in a market in which competition is limited or likely to be lessened; and (ii) it is necessary or desirable for airfield activities to be controlled in the interests of acquirers or suppliers of airfield activities.

4. If controls were introduced (i) what form of controls would the Commission apply; (ii) and why; (iii) how would the Commission operate these controls; and (iv) what time and/or in what conditions should controls end?

Goods and Services Covered by the Notice

1.7. The Minister's request covers the airfield activities provided by New Zealand's three major international airports (Auckland, Wellington and Christchurch). Airfield activities are defined in the Airport Authorities Amendment Act 1997 as follows:

> Airfield Activities means activities undertaken (including the facilities and services provided) to enable the landing and take-off of aircraft; and includes-
>
> (a) The provision of any or more of the following:
> (i) Airfields, runways, taxiways, and parking aprons for aircraft;
> (ii) Facilities and services for air traffic and parking apron control;
> (iii) Airfield and associated lighting;
> (iv) Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft;
> (v) Rescue, fire, safety and environmental hazard control services;
> (vi) Airfield supervisory and security services; and
>
> (b) The holding of any facilities and assets (including land) acquired or held to provide airfield activities in the future (whether or not used for any other purpose in the meantime).

1.8. In conducting this Inquiry, the Commission considers that the Minister's request is confined to the airfield activities supplied only by the three airport companies—Auckland International Airport Limited (AIAL), Wellington International Airport Limited (WIAL) and Christchurch International Airport Limited (CIAL)—and it does not extend to any airfield activities that are supplied by other parties at any of the three airports. The Commission also focuses on those airfield activities supplied to aircraft operators—being the bulk of the airfield activities supplied by the three airport companies—for which aircraft operators pay per tonne landing charges. The remaining airfield activities provided by the three airport companies are facilities provided (by way of leases or other commercial arrangements) to Airways Corporation of New Zealand Limited and the Aviation Security Service (AVSEC) to enable those parties to themselves supply airfield activities.

1.9. Table 1 summarises the goods and services supplied by AIAL, WIAL and CIAL that fall within the definition of airfield activities:

Table 1
Airfield Activities Supplied by AIAL, WIAL and CIAL

	Goods and Services Supplied		
Airfield Activities	**by AIAL**	**by WIAL**	**by CIAL**
Airfields, runways, taxiways, and parking aprons for aircraft	Airfields, runways, taxiways, and aprons.	Airfields, runways, taxiways, and aprons.	Airfields, runways, taxiways, and aprons.
Facilities and services for air traffic control	Land beneath Airways Control Tower (leased to Airways).	None.	Provision of Control Tower on top of terminal (leased to Airways).
Facilities and services for parking apron control	Apron control service at the international terminal apron.	Apron supervision vehicles.	None.
Airfield associated lighting	Cable ducts and light pots for the entire airfield; cabling for light fittings for aprons and first taxiways; and apron lights.	Stand lighting and nose in guidance units.	Apron flood lighting.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft.	Supervision of maintenance by independent contractors.	Day-to-day maintenance (grass moving, pavement sweeping, and patching). Major maintenance contracted out.
Rescue, fire, safety, and environmental hazard control services	Rescue, fire, safety, and environmental hazard control services.	Provides rescue fire service and airside services team. The airside services team monitor the safety of the apron, conduct runway checks, co-ordinate airside works, look after bird and hazard control, and monitor airside rules.	Rescue, fire, safety, and environmental hazard control services.
Airfield supervisory and security services	Provides and maintains security fencing and leases space to AVSEC.	Provides and maintains security fencing, perimeter patrols, and management of systems.	Provides and maintains security fencing and perimeter patrols.
Facilities/assets held for future airfield activities	Holds land.	Residential properties bordering airfield.	Holds land.

1.10. While the Commission makes recommendations only in respect of those airfield activities supplied by AIAL, WIAL and CIAL to aircraft operators, it notes that airfield activities are not the only activities undertaken by the airport companies. The Minister has made the following comment in this regard:

> …the Commerce Commission will not be able to ignore the other areas of the airport outside the scope of "airfield activities". This is because to thoroughly examine airfield activities the Commerce Commission will need to assess such factors as allocation of assets, revenues, and costs between airfield activities and other areas of the airport.[3]

[3] Minister's letter to Air New Zealand of 4 February 1999.

1.11. The integrated nature of airport activities has made it necessary for the Commission to gain an understanding of, and consider, the impact of other airport activities. The Commission, therefore, has considered airfield activities in the context of all airport activities. But, as noted above, in this Report, the Commission confines its recommendations to whether or not any of the airfield activities supplied by AIAL, WIAL and CIAL to aircraft operators should be controlled under the Commerce Act.

CURRENT REGULATORY ENVIRONMENT

1.12. The operation of civil aviation and airports in New Zealand is governed by a combination of international obligations and agreements, domestic legislation, and ancillary rules and regulations.[4]

1.13. The economic regulatory framework currently employed to promote efficiency in the operation of New Zealand's airports is summarised as follows:

- The requirement on airport operators to consult airline customers when setting charges under section 4A of the Airport Authorities Act 1966, and also when undertaking major capital expenditure. Section 4A allows an airport company—after consulting with substantial customers[5]—to set such charges as it thinks fit for the use of the airport and its services or facilities.

- The Airport Authorities (Airport Companies Information Disclosure) Regulations 1999 which require the specified airport companies (and hence AIAL, WIAL and CIAL) to disclose the following information:

  - Audited segmented financial statements for identified airport activities.

  - Passenger charges and charges for identified airport activities; and the methodology used to determine the charges.

  - The basis for allocating assets to identified airport activities.

  - Details of asset revaluations.

  - Operating costs of identified airport activities.

  - Weighted average cost of capital (WACC) and the methodology and calculations used to determine WACC.

  - Numbers of passenger and aircraft movements.

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[4] Supplement 1 in Part B of this Report contains details of the regulatory background, history and full details of other domestic and international regulations affecting the subject airports.

[5] The Airport Authorities Amendment Act defines a *substantial customer* to be a person who pays (or is liable to pay) more than 5% of an airport's annual revenues in relation to identified airport activities. In addition, a person who is authorised in writing to represent a number of persons who in aggregate pay (or are liable to pay) more than 5% of an airport's annual revenues in relation to identified airport activities (for example, the Board of Airline Representatives of New Zealand Inc. (BARNZ)) is deemed to be a substantial customer.

- Interruptions to services.

- Number of people employed in identified airport activities.

- The restrictive trade practice provisions of the Commerce Act 1986.

- The threat of control under section 53 of the Commerce Act 1986.

1.14. The Commission notes that the Ministry of Transport is reviewing aspects of the current airports' regulatory framework. The Ministry is building a picture of how the consultation process has worked in practice, and is assessing airport compliance with the information disclosure regulations. However, the Ministry's work is not sufficiently advanced to inform or influence the Commission's recommendations to the Minister of Commerce. The Ministry has advised that, after the completion of its preliminary work, and taking into account the Commission's recommendations to the Minister of Commerce, it will consider whether changes need to be made to the Airport Authorities Act or the Airport Authorities (Airport Companies Information Disclosure) Regulations.

1.15. The Commission notes that any monopolistic pricing or inefficiencies may be able to be removed by a form of regulation other than control under the Commerce Act; e.g., one that involves a requirement on the airports to negotiate on price and service (rather than merely to consult) subject to set pricing guidelines and a requirement to disclose information. However, this Inquiry is limited to two outcomes (for each airport company): a recommendation of control or no control under the Commerce Act. The Commission only considers whether or not control of any of the airfield activities supplied by AIAL, WIAL and CIAL is necessary or desirable in the interests of aircraft operators.

CONFIDENTIALITY

1.16. Some of the information obtained by the Commission during both the preliminary and formal phases of the Inquiry (and included in this Report) is confidential.[6] In this Report, the Commission conveys the thrust of the information in publicly available material, but without disclosing confidential details. Release of confidential material included in this report is subject to the Official Information Act 1982.

[6] Confidential information is included in square brackets [ ].

2. FRAMEWORK FOR CONTROL OF GOODS AND SERVICES UNDER PART IV OF THE COMMERCE ACT

INTRODUCTION

2.1. The Commerce Act is an Act to promote competition in markets for the long-term benefit of consumers within New Zealand.[7] It serves this purpose by:

- Restricting certain anti-competitive trade practices (Part II).
- Prohibiting certain business mergers and acquisitions (Part III).
- Providing for the imposition of control over the supply of goods or services when certain conditions are met (Part IV).
- Providing for the authorisation of restrictive trade practices and supply of controlled goods or services, and the authorisation or clearance of business acquisitions (Part V).

2.2. In enacting the control of goods and services provisions in Part IV of the Commerce Act, Parliament recognised that, for various reasons, a market can fail to deliver competitive outcomes, and that it is not always possible for markets to operate efficiently. The Privy Council discussed the underlying purpose of the Commerce Act's Part IV control provisions, and the role of Part IV in *Telecom Corporation of New Zealand Ltd v Clear Communications Ltd*[8]:

> Monopolies act to the detriment of the consumer by permitting the monopolist to charge higher prices than would be the case if there were a fully competitive market. This problem can be tackled in one or other or both of two ways, viz by a regulatory body artificially restricting the price chargeable or by introducing efficient competition. The introduction of efficient competition (by such anti-trust legislation as s 36) does not in itself instantly remove the evils of the monopolist's overcharging: it produces the conditions which, by market forces, eventually force the monopolist to operate efficiently (and therefore more cheaply) and to abandon policies of excessive charging. *Such legislation is neither effective nor apt to take the place of a regulatory proceeding which, after detailed investigation of the efficiency of the monopoly system, can set a maximum price for goods or services to be supplied having regard to economies that could be effected and a reasonable rate of return*. The Commerce Act, inter alia, directed itself to both these processes: s 36 is designed to produce the competition which will, it is hoped, in due course compete out monopoly rents; Part IV of the Act enables immediate price restriction to be imposed by regulation. (Emphasis added.)

2.3. There are no goods or services controlled under the Commerce Act at present. The Commission was last involved in price control in the late 1980s and early 1990s in applying the (then) Part IV price control provisions and authorising prices for the supply of natural gas, flour, wheat, and milk.[9] The Commission's decisions in these cases took over from authorisations of prices for goods that had previously been controlled under the Commerce Act 1975.

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[7] Section 1A of the Commerce Act 1986.

[8] (1995) 1 NZLR 385, at 407.

[9] Refer Commerce Commission website for copies of these decisions—www.comcom.govt.nz/price.

2.4. This is the Commission's first report concerning whether control should be imposed under the current Part IV of the Commerce Act.

THE CONTROL PROVISIONS—PART IV

2.5. The control provisions, as detailed in Part IV of the Commerce Act, provide for the imposition of control over the supply of goods and services by Order in Council.

2.6. The Commission, of its own initiative, or following a request from the Minister (section 56(3)), may report (to the Minister) on whether it considers that goods or services should be controlled (section 56(1)). In considering (making) such a report the Commission may have regard to all matters it considers necessary or desirable (section 56(2)).

2.7. The Governor-General may make an Order controlling the supply of goods or services on the recommendation of the Minister (section 53(2)). The Minister must not make such a recommendation unless satisfied that the requirements of section 52 are met (section 53(3)). Section 52 provides that goods or services may be controlled if they are, or will be, supplied or acquired in a market in which competition is limited or is likely to be lessened (section 52(a)), and that it is necessary or desirable to impose control, either in the interests of persons acquiring the goods or services (section 52(b)(i)), or in the interests of suppliers of the goods or services (section 52(b)(ii)).

2.8. The Minister may also request that the Commission advise on thresholds that it considers would assist in assessing whether the requirements under section 52 are satisfied (section 54).

2.9. Goods or services subject to control may be identified by a description of the goods and services, or by a description of the kind or class to which the goods or services belong (section 57A(1)). The control may apply to goods or services supplied in or for delivery within specified regions, areas, or localities in New Zealand; supplied in different quantities, qualities, grades, or classes; or supplied by or to or for the use of different persons or classes of persons (section 57A(2)).

2.10. Controlled goods or services cannot be supplied unless an authorisation (or an undertaking) has come into effect in respect of the supply of those goods and services, and the supply is in compliance with the authorisation (or undertaking) (section 55). The Commission is responsible for making such authorisations (sections 70 and 71), or accepting such undertakings (section 72).

THE FORM OF CONTROL—PART V

2.11. Part V of the Commerce Act provides for the administration of control. Section 70(1) empowers the Commission to make an authorisation of all or any component of the prices, revenues, or quality standards relating to the supply of the controlled goods or services, using whatever approach it considers appropriate.

2.12. In exercising its power under section 70(1) to authorise, the Commission is required to have regard to the following (section 70A):

- The extent to which competition is limited or is likely to be lessened in respect of the controlled goods or services.
- The necessity or desirability of safeguarding the interests of persons who acquire or supply the controlled goods or services.
- The promotion of efficiency in the production and supply or acquisition of the controlled goods or services.

SECTION 52—MAY CONTROL BE IMPOSED?

2.13. Section 52 of the Commerce Act provides:

> Goods or services may be controlled if-
>
> (a) The goods or services are, or will be, supplied or acquired in a market in which competition is limited or is likely to be lessened; and
>
> (b) It is necessary or desirable for those goods or services to be controlled either-
>
> (i) in the interests of persons acquiring the goods or services (whether directly or indirectly), if the goods or services are acquired from a person who faces limited or lessened competition for the supply of those goods or services; or
>
> (ii) in the interests of suppliers, where the goods or services are supplied to a person who faces limited or lessened competition for the acquisition of those goods or services.

2.14. Paragraph 'a' of the Minister's Request mirrors section 52, and requires the Commission to report (under section 56) on the following:

> a whether there is evidence that airfield activities, as defined in the Airport Authorities Amendment Act 1997, provided by the three major international airports (Auckland, Wellington and Christchurch) are supplied or acquired in a market in which competition is limited or is likely to be lessened; and it is necessary or desirable for the prices of these goods or services to be controlled in the interests of persons acquiring the goods or services (whether directly or indirectly) or as the case may be, suppliers.

2.15. In addition, the Minister's request specifically asks the Commission to report (under section 54) on:

> 3. What conditions, tests, or thresholds does the Commission consider would be useful in judging whether (i) airfield activities are or will be supplied in a market in which competition is limited or likely to be lessened; and (ii) it is necessary or desirable for the prices of airfield activities to be controlled in the interests of acquirers or suppliers of airfield activities.

Is Competition Limited or Likely to be Lessened?

2.16. The first aspect of paragraph 'a' that the Commission must address is whether competition is 'limited or is likely to be lessened' in the market for the supply of airfield activities at the three specified international airports.

Competition

2.17. 'Competition' is defined in section 3(1) of the Commerce Act to mean "workable or effective competition". The High Court in *ARA v Mutual Rental Cars (Auckland Airport) Ltd*[10] and *Fisher and Paykel Ltd v Commerce Commission*[11] approved the following formulation of workable competition:[12]

> Workable competition means a market framework in which the pressures of other participants (or the existence of potential new entrants) *is sufficient to ensure that each participant is constrained to act efficiently* and in its planning to take account of those other participants or likely entrants as unknown quantities. To that end there must be an opportunity for each participant or new entrant to achieve an equal footing with the efficient participants in the market by having equivalent access to the means of entry, sources of supply, outlets for product, information, expertise and finance. This is not to say that particular instances of the items on that list must be available to all. That would be impossible. For example, a particular customer is not at any one time freely available to all suppliers. Workable competition exists when there is an opportunity for sufficient influences to exist in any one market which must be taken into account by each participant and which constrain its behaviour.

2.18. As to the particular elements and principles that underlie workable and effective competition, the courts in New Zealand have generally approved the Australian Trade Practices Tribunal's discussion in *Re Queensland Co-operative Milling Association Ltd: Re Defiance Holdings Ltd*[13] (*QCMA*).

2.19. In *QCMA* the Australian Trade Practices Tribunal cited the United States Attorney-General's observation that "the basic characteristic of effective competition in the economic sense is that no one seller, and no group of sellers acting in concert, has the power to choose its level of profits by giving less and charging more" and that "the antithesis of competition is undue market power in the sense of the power to raise price and exclude entry".[14] The Australian Trade Practices Tribunal in *QCMA* stated:

> Competition expresses itself as rivalrous market behaviour.
>
> …
>
> In our view effective competition requires both that prices should be flexible reflecting the forces of demand and supply and that there should be independent rivalry in all dimensions of the price-product-service packages offered to consumers and customers.
>
> Competition is a process rather than a situation. Nevertheless, whether firms compete is very much a matter of the structure of the markets in which they operate. The elements of market structure which we would stress as needing to be scanned in any case are these: -
>
> (1) the number and size distribution of independent sellers, especially the degree of market concentration;

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[10] (1987) 2 TCLR 141, at 166.

[11] (1990) 2 NZLR 731, at 757.

[12] Contained in Heydon, *Trade Practices Law* Vol.1 (2nd Ed.) Sydney, Law Book Co., 1989, page 1548, paragraph 3.210.

[13] (1976) 8 ALR 481, 514-517. Refer the High Court decision in *Fisher and Paykel Ltd v CC* (1990) 2 NZLR 731, 759, and the Court of Appeal decision in *Tru Tone Ltd v Festival Records Retail Marketing Ltd* (1988) 2 NZLR 352.

[14] Report of the National Committee to Study the Anti-Trust Laws (1955).

(2) the height of barriers to entry, that is the ease with which new firms may enter and secure a viable market;

(3) the extent to which the products of the industry are characterised by extreme product differentiation and sales promotion;

(4) the character of 'vertical relationships' with customers and with suppliers and the extent of vertical integration; and

(5) the nature of any formal, stable and fundamental arrangements between firms which restrict their ability to function as independent entities.

2.20. The New Zealand Court of Appeal in *Telecom Corporation of New Zealand Limited v Commerce Commission*[15] confirmed the need to give weight to both structure and behaviour when examining a market environment, and confirmed that the weighting must vary according to the particular facts. Richardson J (as he then was) stated:

> …structures only function through people and at the end of the day it is how participants in the market behave that counts.[16]

2.21. The Court of Appeal endorsed the approach of the Commission of the European Community in *re Continental Can Co Ltd*[17], and said:

> That approach reflects the concern for how firms behave and eschews a total preoccupation with structure.[18]

2.22. The five elements from *QCMA* were used by counsel as the basis for analysing competition in the relevant market both before the High Court and the Court of Appeal in *Tru Tone Ltd v Festival Records Retail Marketing Ltd*. Counsel also referred to a sixth element—'behaviour in the market'. Both Courts implicitly accepted this basis of analysis.[19] In discussing this analysis the Court of Appeal stated: [20]

> The first five are the elements of market structure emphasised in the assessment of the competition process in *Re Queensland Co-operative Milling Association Ltd* (1976) 25 FLR 169, 189 and in such New Zealand cases as *Re Application by Visionhire Holdings Ltd* (1984) 4 NZAR 288. The sixth, behaviour in the market, reflects the reality that constraints on the operation of firms are a key indicator of market power.

2.23. In assessing the state of competition in the relevant markets in this Report, the Commission therefore takes into account both the structural elements of the market and the behaviour of market participants, as relevant considerations.

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[15] (1992) 3 NZLR 429.

[16] ibid at 444.

[17] (1972) CMLR D11.

[18] *Telecom Corporation of New Zealand Limited v Commerce Commission*, (1992) 3 NZLR 444.

[19] High Court *Tru Tone Ltd v Festival Records Retail Marketing Ltd* (1988) 2 TCLR 525, Court of Appeal *Tru Tone Ltd v Festival Records Retail Marketing Ltd* (1988) 2 NZLR 352.

[20] Court of Appeal *Tru Tone Ltd v Festival Records Retail Marketing Ltd* (1988) 2 NZLR 363.

Limited or Likely to be Lessened

2.24. The Commission must determine whether competition in the markets for airfield activities supplied by AIAL, WIAL and CIAL is limited or is likely to be lessened. The Commission focuses on the higher test of limited, and considers it need only look at the test of 'likely to be lessened' in circumstances where competition is not found to be limited.[21]

2.25. The ordinary meaning of the word limited applies as the term is not defined in the Commerce Act. Competition will be 'limited' where it is restricted. Consequently, the Commission views limited competition as denoting a restriction or impairment to workable or effective competition.

2.26. In applying the test of limited competition, the Commission considers the purpose of the Commerce Act, which is to promote competition in markets (for the long-term benefit of consumers within New Zealand). The control provisions of the Commerce Act are interpreted in the light of the objective of maintaining competitive and efficient markets, and also having regard to the meaning of competition in the Commerce Act as being workable or effective, but not perfect, competition.

2.27. The Commission's view is that a nominal or de minimis restriction or impairment of competition in a market is not sufficient to satisfy the limited competition requirement. There needs to be *more than* a nominal or de minimis restriction or impairment of competition.

2.28. In determining whether workable or effective competition is limited in the relevant markets for airfield activities, the Commission considers the structural and behavioural elements exhibited. This involves taking into account all of the relevant factors, including the following: the number and relative sizes of competitors in the market; the nature of entry and of any barriers to entry that may exist; the behaviour of incumbents, and the competitive constraint that one airport may have upon another; the existence of countervailing power of the airlines; and the regulatory environment within which market participants operate.

2.29. The analysis of competition in the markets in which airfield activities are supplied by AIAL, WIAL and CIAL is conducted in general terms in Chapter 3 of this Report, and in greater detail on an airport-by-airport basis in Chapters 8, 9 and 10.

Necessary or Desirable in the Interests of Acquirers

2.30. The second aspect of the Minister's paragraph 'a' is whether there is evidence to show that control of charges for airfield activities is 'necessary or desirable' in the interests of either the persons acquiring, or persons supplying, the specified goods or services. In this Report, the Commission concludes that the relevant interests to be examined are those of acquirers (whether directly or indirectly) of airfield activities at the three airports.

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[21] The Commission interprets the phrase 'likely to be lessened' as describing the situation where a future event or occurrence or set of circumstances is anticipated to have an effect on competition in a market in which workable or effective competition may or may not currently be "limited". It is forward looking.

2.31. The Commission considers that the reference to direct or indirect acquirers in section 52 requires an examination of the interests of aircraft operators (as direct acquirers), as well as the interests of ultimate consumers—aircraft passengers and those using air freight services (as indirect acquirers).

2.32. The term 'interests' is not defined in the Commerce Act and, therefore, the ordinary meaning of the word applies. Control will be 'in the interests of' acquirers (as asked in section 52) where it is to their advantage or benefit. Consequently, the Commission must determine whether the imposition of control would benefit the direct and indirect acquirers of airfield activities.

2.33. In assessing whether acquirers would benefit from control, the Commission assesses the consequences of any limited competition in the relevant markets. Consequences of lack of workable or effective competition can manifest themselves in various ways including allocative, productive and dynamic inefficiencies, and inferior product quality. Lack of workable or effective competition can also lead to suppliers earning excessive returns.

2.34. The Commission approaches the question as to whether control is "necessary or desirable...in the interests of" acquirers by measuring, at each of the three airports, the likely benefits of control that would accrue to acquirers of airfield activities, balancing against those the likely costs of such control that would be borne directly or indirectly by those same acquirers. Only then can it be determined whether the interests of acquirers would be met by control. The Commission considers that if the weighing of these benefits and costs demonstrates that an improvement in the economic welfare of acquirers would result, then control would be demonstrated to be necessary or desirable in the interests of acquirers. This analysis is conducted on an airport-by-airport basis in Chapters 8, 9 and 10.

Counterfactual

2.35. The benefits and costs to acquirers that would be likely to flow from control of airfield activities in the future are assessed against a counterfactual of what might otherwise happen in the future in the absence of control. Thus, a comparison is made between two hypothetical future situations, one with control and one without. The differences between these two scenarios are then attributed to the impact of control. In framing a suitable counterfactual, the Commission bases its view on a pragmatic and commercial assessment of what is likely to occur in the absence of control.[22] As with many business acquisitions, the most likely counterfactual may be a continuation of the status quo, with the airports operating under the present form of regulation, which includes information disclosure and an implied threat of control.

2.36. However, if this Inquiry were to lead to the recommendation that control should not be imposed, and that were to be accepted by the Minister, the status quo might be affected. The constraining impact of the threat of control may (at least for a time) be reduced. This might allow the airports somewhat greater latitude in behaviour, and

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[22] See the discussion in Commerce Commission, *Decision No. 277: New Zealand Electricity Market*, 30 January 1996, especially page 16.

could result in inefficiencies or excess pricing. Alternatively, that outcome could have the effect of providing a benchmark over which airports would not wish to pass, for fear of resurrecting the threat of control.

2.37. A further consideration is that it is not possible to anticipate how other circumstances may change in the future. For example, modifications may be made to the Airport Authorities Act or the Airport Authorities (Airport Companies Information Disclosure) Regulations.

2.38. Taking account of all of these considerations, the Commission takes the continuation of the status quo as the counterfactual, which includes an assumption that the current regulatory regime will remain, and will maintain its current level of effectiveness.

Acquirers

2.39. Earlier in this Chapter, the Commission stated that acquirers of airfield activities included not only direct acquirers (aircraft operators) but also indirect acquirers (aircraft passengers and users of air freight services). Section 52 provides no grounds for distinguishing between New Zealand and overseas acquirers, unlike the public benefit test in section 67 of the Commerce Act, where 'public' is interpreted as the public of New Zealand. This is an important consideration, given that the airfield activities at the three subject airports provide services to both domestic and overseas airlines, and to both domestic and foreign passengers. The Commission considers that it should treat all parties equally, and the interests of overseas residents are weighed equally with those of New Zealanders.

2.40. The Commission does not consider it necessary, for the purposes of section 52, to determine the relative shares of any net benefits received by direct acquirers, such as airlines, and indirect acquirers such as passengers. This would expand the analysis beyond what is required to determine whether there are net benefits of control to acquirers.

Thresholds for Judging 'Limited' and 'Necessary or Desirable'

2.41. Pursuant to section 54 of the Commerce Act, the Minister may require the Commission to advise on thresholds that would assist the Minister in assessing whether the requirements of section 52 are met. This is separate from section 56, which allows the Minister to seek advice from the Commission as to whether section 52 is satisfied for particular goods or services.

2.42. The Commission, in addressing question a of the Notice, gives consideration to thresholds that could indicate a market in which there is limited competition. However, the Commission is cautious about identifying absolute thresholds, and is mindful that a decision as to the state of competition in a market can only be made after a full examination of the characteristics of competition in that particular market.

2.43. To satisfy the limited competition requirement there needs to be *more than* a nominal or de minimis restriction or impairment of competition. In determining whether workable or effective competition is limited in the relevant markets for airfield activities, the Commission has regard to the following factors:

- The number and relative size of competitors in the market.
- The potential for entry and the significance of any barriers to entry that might exist.
- The nature of the good or service, and in particular the extent to which it is differentiated.
- The behaviour of airports, and the competitive constraint that one may have upon another.
- The extent of any countervailing power of acquirers.
- The effectiveness of the regulatory environment within which airports operate.
- Evidence of airports operating inefficiently or achieving excess returns.

2.44. The Commission gives consideration to thresholds that may assist in determining whether it is necessary or desirable to impose control in the interests of acquirers. In doing so, the Commission notes there are no absolute determinants of whether section 52 is met, but instead there are a range of factors that need to be addressed.

2.45. In considering whether it is necessary or desirable to impose control in the interests of acquirers of airfield activities, the Commission considers the likelihood, and magnitude, of net benefits accruing to acquirers. In the Commission's view the following factors are relevant:

- Evidence of any excess returns earned historically.
- Any forecast excess returns in the medium-term.
- Evidence of any superior performance by airports justifying excess returns.
- Evidence of any inefficiencies (allocative, productive and dynamic).
- The impact of any market power exerted in other related markets.
- Any other evidence of the exercise of market power.
- The likely benefits of control that would accrue to acquirers through the reduction or removal of excess returns or inefficiencies.
- The likely costs of control that would be borne directly or indirectly by those same acquirers.

RECOMMENDATIONS REGARDING CONTROL

2.46. Paragraph 'b' of the Minister's request asks the Commission to report on:

b whether market conditions are such that the Commission believes that the Minister should recommend to the Governor-General that she make an Order in Council under section 53 of the Act invoking price controls over charges for airfield activities at the three major international airports.

2.47. Paragraph 1 specifically asks:

1. Whether controls should be introduced for airfield activities at one or more of the three major international airports.

2.48. Paragraph 2 specifically asks:

2. If the Commission is of the view that controls should be introduced, to which (i) components of the prices, revenues or quality standards; (ii) regions, areas, or localities in New Zealand; (iii) quantities, qualities, grades, or classes; and (iv) different persons or classes of persons, should price control be applied?

2.49. The Governor-General can impose control (by Order in Council) on the recommendation of the Minister (sections 53(1) and (2)). In order for the Minister to make a recommendation for an Order in Council to be made to control the prices for airfield activities at any of the three international airports, the Minister must be satisfied that the two conditions under section 52 are met. However, even if the Minister is satisfied, the Minister has a discretion as to whether to recommend that goods or services be controlled under the Commerce Act.

2.50. The Minister has requested (under paragraph 'b' of his request) that the Commission report on whether it considers market conditions are such that the Minister should recommend control.

2.51. Pursuant to section 56(2), the Commission may have regard to "all matters it considers necessary or desirable". In determining the relevant considerations the Commission considers the wider scheme of the Commerce Act, and to the goals the Commerce Act is intended to promote. The Commission also considers whether any considerations broader than the section 52 test are relevant.

Section 52 Test

2.52. As noted above, the purpose of the Commerce Act is "to promote competition in markets *for the long-term benefit of consumers* within New Zealand". Yet the Commerce Act contains provision in Part IV for imposition of controls on goods and services. The fact that the provisions in Part IV exist is a recognition that markets do not always operate efficiently or, for whatever reasons, deliver competitive outcomes. For example, a market may be composed of only one supplier which may be able to exploit that position by raising prices above the competitive level, or by allowing costs to rise, or by being slow to innovate, without suffering any adverse consequences from competitors.

2.53. Provision exists for goods and services to be placed under control where (in terms of section 52, as discussed above) there is limited competition or competition in a market is lessened **and** it is necessary or desirable for goods or services to be controlled in the interests of acquirers. The Commission has to find positively on both aspects in order to satisfy itself that control of goods or services may be controlled. The Commission must then consider whether market conditions are such that the Minister should recommend control.

2.54. In the context of an Act designed to promote competition, control of goods or services may be seen as a measure of last resort to be introduced only where it is likely to achieve a better outcome than the uncontrolled and uncompetitive market is capable of producing. In making that assessment, account must be taken of costs that control itself will impose. It is generally accepted that, as a means of promoting competition-like outcomes, control imposes several costs: e.g., the costs of the regulator, the compliance costs on the regulated, and the market distortions flowing from imperfectly conducted control.

2.55. Section 52 provides that, in order to recommend control of goods or services, the Commission must satisfy itself that acquirers would benefit from control, compared to the status quo. The costs created by control (that acquirers bear) need to be outweighed by the benefits achieved by control (that flow to acquirers). The Commission considers that if the weighing of the benefits and costs demonstrates that an improvement in the economic welfare of acquirers would result, then control would be demonstrated to be necessary or desirable in the interests of acquirers. This, in turn, requires some evidence that suppliers of the relevant goods or services are actually taking advantage of the market power they possess by virtue of competition being limited. For instance, suppliers might be setting prices above the competitive level so as to earn excess returns, or operating inefficiently.

Public Benefits Test

2.56. The former long title of the Commerce Act stated that its purpose was to promote competition in markets in New Zealand. The report from the Commerce Committee on the Commerce Amendment Bill commented that:

> Currently the Act's long title implies that competition is an end in itself. This narrow view is not reflected in the body of the Act, which through such mechanisms as the 'public benefit test' takes a wider view of the impact of conduct on the wellbeing of New Zealanders as a whole. (page 5)

2.57. In respect of this wider view, it had been argued that, while the purpose was to promote competition in markets in New Zealand, competition should be seen as a means to an end, and that the underlying purpose of the Commerce Act was to promote economic efficiency. This approach was endorsed by the Court of Appeal in *Tru Tone Ltd v Festival Records* in stating that the Commerce Act:[23]

> ...is based on the premise that society's resources are best allocated in a competitive market where rivalry between firms ensures maximum efficiency in the use of resources.

2.58. The Commerce Act was amended in 1990, with the addition of section 3A, which placed greater emphasis on efficiency in the implementation of the public benefit test:

[23] (1988) 2 NZLR 358.

> Where the Commission is required under this Act to determine whether or not, or the extent to which, conduct will result, or will be likely to result, in a benefit to the public, the Commission shall have regard to any efficiencies that the Commission considers will result, or will be likely to result, from that conduct.

2.59. The current purpose of the Commerce Act (as amended on 26 May 2001) is to "promote competition in markets for the long-term benefit of consumers within New Zealand". The report from the Commerce Committee on the Commerce Amendment Bill discussed the intention of the Act's purpose and considered the relative weight given to 'competition' versus 'efficiency' implied by the purpose statement. It stated:

> The new purpose statement is intended to make transparent the existing policy of the Act by making clear that competition is not an end in itself but a means to increasing consumer welfare in the long-term. The ultimate goal is to facilitate effective competition to promote economic growth, while accommodating the unusual situation where competition does not improve the welfare of New Zealanders as a whole. (page 5)
>
> …it clarifies that it is the impact on the long-term welfare of consumers within New Zealand that should be the overarching goal when assessing market behaviour. (page 7)

2.60. In commenting on the Act's purpose, the explanatory note to the Commerce Amendment Bill (No. 2) also said:

> The purpose statement clarifies that competition is not an end in itself, but a means to promote the long-term benefit of consumers and New Zealanders as a whole.

2.61. The reference to 'long-term' benefit to consumers within New Zealand means that an efficiency-based analysis is consistent with the Commerce Act's purpose. In the long-term, New Zealand consumers in general will benefit from continuous improvements in the allocation of resources, the quality of products and production processes, all of which is usually encouraged by the competitive process.

2.62. The Commission's view is that the purpose of the control provisions is to address circumstances where markets, due to a lack of competition, are not delivering efficient outcomes for consumers. Any recommendation on whether a declaration of control should be made should consider an assessment of the likely long-term benefit to consumers within New Zealand.

2.63. When adjudicating on application for authorisations of business acquisitions and restrictive trade practices, the Commission conducts a public benefit (also referred to as a net benefit) test. In conducting such a test, and in assessing benefits and detriments, the Commission takes into account economic efficiency (under the headings allocative, productive, and dynamic efficiency) and product quality. In assessing the public benefit, the Commission assesses the potential net efficiency gains that the acquisition of practice will achieve. Such a test does not take account of distributional issues, i.e., welfare gains to suppliers and acquirers are considered the same.

Applicable Test

2.64. In the Draft Report, the Commission based its recommendations on the wider public benefits test—assessing the net efficiency gains from control—and did not take account of distributional issues. At the Conference, the Board of Airline Representatives of New Zealand Inc (BARNZ) submitted that the public benefit test in section 3A of the Commerce Act is a relevant consideration, but not the sole test; section 52 provides the key statutory criteria.[24] BARNZ argued that the practical effect of the Commission's decision to base its recommendations on the public benefits test (ignoring the transfer of any excess profits) would result in no credible threat of control, given that allocative and productive efficiencies in a market with relatively inelastic demand are likely to be minor.[25]

2.65. BARNZ submitted that, in exercising his discretion to recommend control, the Minister should take account of a number of factors:[26]

- The degree to which competition is limited, including market structure and behavioural factors.
- The degree to which current regulation has constrained (or failed to constrain) the behaviour of the monopoly supplier, and prevented (or failed to prevent) abuse of market power.
- The overall quantum of the monopoly pricing.
- How gross the abuse of market power has been (i.e., the level of excess returns and the length of time over which they have been earned).
- The likely impact on other users and consumers in the economy.
- The overall size of the benefits to the acquirers if control was imposed.
- The costs of the new regime versus the costs of continuing the current regime.
- The effect on users and consumers if control is not imposed.
- The disincentive to monopoly price in other markets that would result from a decision to impose control as a consequence of the monopoly pricing which has occurred in this market.
- The effect on the existing regulatory regime if monopoly pricing is found but no action is taken against it.

2.66. Mr Lyn Stevens QC, on behalf of Air New Zealand Limited (Air NZ), submitted that the criteria in section 52 were more significant than other matters that the Commission might consider 'necessary or desirable' for it to have regard to, and should be treated as such.[27] Mr Stevens stressed that, while the rest of the Commerce Act is directed

[24] *Conference Transcript*, pages 713-714.

[25] BARNZ Presentation Slides, Conference, 12 September 2001, page 33.

[26] BARNZ Submission on the Draft Report, 10 August 2001, pages 12-14.

[27] Lyn Stevens QC, *Submissions on Behalf of Air NZ in Relation to Legal Test Applicable to Control of Prices Under the Commerce Act 1986*, Conference, 13 September 2001.

towards making competition workable or effective, Part IV is designed for situations where there is no workable or effective competition and (per the Privy Council in *Telecom v Clear*) is directed at the elimination of monopoly rents.[28] Part IV contains its own distinct thresholds and tests that are the fundamental tests for control.

2.67. The airports, on the other hand, all submitted that the promotion of improved economic efficiency should be the key objective in determining whether control is necessary or desirable. They argued that the redistribution of wealth between airports and airlines was less relevant. AIAL submitted that control is only necessary or desirable where the existing regulatory environment is not functioning correctly, or cannot be made to function correctly.[29] AIAL argued that the only rationale for imposing control should be the redress of actual market failure.[30]

2.68. The Cabinet papers leading up to the Minister's 1998 request indicate that the Government wanted to ensure that it protected against abuses of monopoly power. In asking the Commission to conduct this Inquiry, the Government wanted to know whether there was any evidence of monopolistic pricing by any of the three airports such that control was warranted. On 4 November 1997, the Cabinet Committee on Industry and Environment considered a paper dated 3 November which noted the following:[31]

> There have been concerns that the {Airport Authorities Amendment} Bill does not go far enough to protect against abuses of monopoly power. In order to accommodate these concerns, it is recommended that the Commerce Commission undertake a pricing investigation on airport aeronautical revenues...

2.69. Section 52 contains two criteria for the imposition of control, focusing on monopoly pricing. However, wider considerations of economic efficiency may also be relevant to the Minister's discretion as to whether to recommend control. If greater weight is placed on removing monopoly profits, any recommendation of control would be based on the section 52 test. But, if greater weight is placed on achieving efficiencies, recommendations would be based on the wider public benefits test.

2.70. The Commission is reporting to the Minister under sections 54 and 56. It seems clear that the two conditions in section 52 over which the Minister has to be satisfied—first, that airfield activities are, or will be, supplied or acquired in a market in which competition is 'limited' or 'likely to be lessened'; and second, that it is 'necessary or desirable' to impose control in the interests of the persons acquiring airfield activities—are the conditions over which the Commission needs to be satisfied. The Commission must confine its consideration to the net benefits to acquirers (and the removal of monopoly profits). However, the Commission notes that the Minister in exercising his discretion may wish to take into account other factors including the Commission's analysis of net efficiency benefits.

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28 *Telecom Corporation of NZ Ltd v Clear Communications Ltd* (1995) 1 NZLR 385, at 408.

29 AIAL Submission on the Critical Issues Paper, 27 April 2001, Part A, page 17, paragraph 2.14.

30 Ibid, page 49, paragraph 8.1.

31 Cabinet Committee on Industry and Environment, *Airport Authorities Amendment Bill: Future Progress*, CIE (97) 148, 3 November 1997, page 1.

2.71. The discussion on whether the Commission considers that market conditions are such that the Minister should recommend that the airfield activities supplied by AIAL, WIAL and/or CIAL be controlled is contained in Chapter 11 of this Report.

THE FORM OF ANY CONTROL IMPOSED

2.72. The Minister's request posed a final question:

> 4. If price control was introduced (i) what form of price control would the Commission apply; (ii) and why; (iii) how would the Commission operate this form of price control; and (iv) what time and/or in what conditions should price control end?

2.73. Under section 70 of the Commerce Act, the Commission may make an authorisation in respect of controlled goods or services. This final question relates to the Commission's powers to authorise all or any component of prices, revenues, or quality standards of controlled goods or services, using whatever approach it considers appropriate. The approach may include the use of formulas or other methods from which prices or revenues may be determined. It is a Part V question regarding the administration of control, not a matter for Part IV and the determination of whether to impose control.

2.74. Under section 70B, the Commission is required to follow a particular process in reaching a decision as to the nature and form of any control. As part of that process, acquirers and suppliers have a right to be heard and the Commission must have regard to any submissions they make. This process must logically take place at some point after control has been declared, as the Commission's power to authorise applies only to controlled goods or services, and goods and services are controlled when an Order in Council declares them to be so. (Section 71 covers the transitional period directly after a declaration of control by allowing the Commission to make provisional authorisations pending the making of a final determination under section 70).

2.75. The Commission's view is that advising the Minister on how it would administer control, prior to any declaration of control, risks predetermining the processes associated with administering control under Part V. By answering this question, the Commission risks overstepping its jurisdiction wth any answer being held ultra vires. To avoid that risk, the Commission does not address this final part of the Notice.

2.76. Despite this, one form of control is considered on the basis that, and only to the extent that, consideration of at least one form of control that might possibly be imposed is necessary for the Commission to undertake a cost benefit analysis. In formulating its estimates of the costs of control, the Commission assumes price cap regulation under Part V, but does not consider other forms of control under Part V or regulatory intervention [32]

STRUCTURE OF THE REMAINDER OF THIS REPORT

2.77. Chapters 3 to 7 of this Report present generic analysis of issues and determine principles by which individual airports are analysed and recommendations regarding

[32] Supplement 3 in Part B of this Report contains a discussion on forms of control. Supplement 2 provides an overview of the regulation of airports internationally.

control made. The conditions, tests and thresholds for control are considered for each airport in Chapters 8, 9 and 10 respectively. Chapter 11 presents the Commission's conclusions. Chapter 12 includes the Commission's recommendations.

2.78. Part B of the Report contains appendices and supplements. Included in the appendices are the Commission's analyses of each airport, and copies of advice that it has received from independent experts in formulating this Report.

3. COMPETITION ANALYSIS

INTRODUCTION

3.1. An analysis of competition is a critical element of this Inquiry. As noted earlier, control can be introduced only where the Minister is satisfied that the goods or services to be controlled are supplied or acquired in markets where competition is limited or is likely to be lessened. Many of the tests established in Commission decisions and court judgements under Parts II and III of the Commerce Act on issues of market definition and competition analysis are applicable to the analysis required under Part IV.

3.2. However, the nature of airports presents special challenges in terms of market definition and competition analysis given the following considerations:

- The wide range of services, many of them of a complementary nature, provided by an international airport.
- The definitions of identified airport activities set out in the Airport Authorities Amendment Act, which do not necessarily equate with the concept of markets used in the Commerce Act.
- The relationships between airfield activities, which are the specific focus of this Inquiry, and other activities undertaken at the airport, that may need to be taken into account in defining the market(s).

3.3. The Commission considers that other commercial activities in which an airport company has an interest, but which otherwise are apparently unrelated to airfield activities, need not be examined here, as they are not directly relevant to this Inquiry. Hence, it is not necessary to define the possible markets for these other commercial activities. However, any impact that these activities may have on pricing of airfield activities is considered in the analysis of whether control is necessary or desirable in the interests of acquirers.

3.4. This Chapter contains a general assessment of the competition facing airports in the supply of airfield activities. The focus is on whether any of the three airports may operate in markets in which competition is limited such that they have the potential to exert market power.

3.5. For competition to be seen to be limited, there need to be insufficient constraints (including both structural and behavioural factors) on an airport's ability to exercise market power (compared to what would be found in a market where competition was workable or effective). The possible constraints that may limit an airport's ability to exercise market power include the following:

- On the supply-side of the market, the actual and potential competition from other airports.

- On the demand-side, the possible ability of airlines and their passengers and freight customers to switch to other airports, or of customers to switch to other modes of transport.

- The potential countervailing power of airlines.

- The present industry-specific regulatory regime applicable to airports.

3.6. It is also possible that, for certain limited functions, an airport may face competition from off-airport sources of supply. However, that would not apply to the markets of interest to the Inquiry (as airfield activities generally have to be provided on-airport), and so that source of competition is not considered further here.

3.7. It needs to be emphasised that the analysis here is only generic, although it is impossible to proceed without making references to the individual airports concerned. More airport-specific considerations are introduced in Chapters 8, 9 and 10 and conclusions are drawn there for each airport as to whether airfield activities are supplied or acquired in a market in which competition is limited.

MARKET DEFINITION PRINCIPLES

3.8. Section 3(1A) of the Commerce Act provides that:

> {T}he term 'market' is a reference to a market in New Zealand for goods and services as well as other goods and services that, as a matter of fact and commercial commonsense, are substitutable for them.

3.9. The purpose of defining a market under the Commerce Act is to provide a framework within which to analyse the extent of competition, or its antithesis, which is market power. The concept of a market is thus considered by the courts to be an instrumental one. The definition of a market is not an end in itself; rather, it is an exercise intended to assist with the analysis of the behaviour at issue. In *Queensland Wire* the Court stated:[33]

> In identifying the relevant market, it must be borne in mind that the object is to discover the degree of the defendant's market power. Defining the market and evaluating the degree of power in that market are part of the same process, and it is for the sake of simplicity of analysis that the two are separated...

3.10. The process of identifying the relevant market(s) should keep the objective in mind. In the present case, the objective is to determine whether any of the three airports operate in market(s) where competition is limited such that they have the potential to exert market power.

3.11. From a technical perspective, the process of establishing market boundaries can be seen as one of identifying the smallest area of product, geographic and functional space over which a hypothetical monopolist could exert a significant degree of market power. This approach focuses attention on any close substitutes that would prevent a hypothetical monopolist from exercising market power by raising its price or by other

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[33] *Queensland Wire Industries Pty Ltd v Broken Hill Pty Co Ltd* (1989) 167 CLR 177.

means, should they be present. Such substitutes must be included in the market, and be under the control of the hypothetical single firm, if it is to be a monopolist. Actual and potential substitutes on both the demand and supply sides of the market are to be included.

3.12. Note that the use of the hypothetical monopoly test to define a market's boundaries has the practical consequence that when the market so defined actually contains only one firm, that firm (absent the constraints that would result from entry or countervailing power) will have the market power attributed to the hypothetical firm. Hence, the inquiries into the nature of the market, and into the exercise of market power, become blurred in instances where markets are very highly concentrated. The emphasis then tends to shift, as in the present Inquiry, to considering what competition factors might constrain the firm that is the subject of the Inquiry. If there are no constraints from existing competitors, then the firm concerned potentially wields market power (subject to the other factors just mentioned), and the market in which it operates is the relevant market. This explains why, in most of what follows, the emphasis is more upon the constraints to market power of the three airports than it is about market definition by itself.

3.13. An appropriately defined market will include products that are regarded by buyers as being similar or close substitutes ('product' dimension), and in close proximity ('geographical' dimension), and are thus products to which they could switch if a single supplier were to attempt to exert market power. It will also include those suppliers currently in production who are likely, in that event, to shift promptly to offer a suitable alternative product even though they do not do so currently.[34]

3.14. One approach to identifying a significant degree of market power (in the context of market definition) is in terms of the ability of the hypothetical monopolist to increase profits by imposing a <u>s</u>mall but <u>s</u>ignificant and <u>n</u>on-transitory <u>i</u>ncrease in <u>p</u>rice (a 'ssnip') above the competitive level. In line with overseas practice, the Commission uses as a ssnip of five per cent, lasting for at least a year.[35] Starting from a small initial group of close substitutes, other potential substitutes are added to the group, until the hypothetical monopolist is able to profitably impose a ssnip. When this occurs, then all possible close substitutes must be encompassed by the proposed market definition.[36]

3.15. The fact that many airport facilities and services are operated under single ownership may indicate that integrated operation may be necessary for the efficient provision of airport services, in which case broader market definitions would be appropriate. This

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[34] These have been referred to by the Commission as 'near entrants', to be distinguished from 'new entrants'. See: *The Commission's Approach to Adjudicating on Business Acquisitions Under the Changed Threshold in Section 47 – A Test of Substantially Lessening Competition*, Commerce Commission Practice Note 4, 2001, page 19.

[35] *Ibid.*, pages 23-24.

[36] If, in response to the price increase, the reduction in sales of the product would be large enough that a hypothetical monopolist would not find it profitable to impose such an increase in price, then added to the group should be that good that is the next-best substitute for the good in question. This incremental process requires those goods considered the most likely to be close substitutes for the good in question to be added first to the group subject to the ssnip test. If this did not occur, there may be goods or services which are added to the group which are not close substitutes.

could reflect the presence of economies of scope, which would make the unbundling of some facilities or services from others, or their duplication, uneconomic. On the other hand, it may still be feasible for an airport to contract out for the supply of services, rather than to undertake them itself.

3.16. In addition to the product and geographical dimensions, markets can be defined in relation to functional level, in recognition of the fact that the production and distribution chain typically consists of a number of functional stages interlinked by markets. For example, the market between manufacturers and wholesalers might be called the ‘manufacturing market’, that between wholesalers and retailers is usually known as the ‘wholesaling market’, and that between retailers and end-customers the ‘retailing market’. With regard to airport activities, the functional levels of markets generally relate to the provision of intermediate services by airports to airlines and other users.

3.17. Finally, markets may be defined in relation to time. Some airports may experience peak periods of demand that may lead to congestion. If congestion pricing is used, this could result in prices being higher during peak periods, possibly justifying treating these peak periods as representing a separate, time-delineated, market for airport services. However, there are presently only limited congestion periods at Auckland and Wellington International Airports, and no form of congestion pricing is practised, suggesting that a separate market based on time of day need not be considered.

3.18. Despite the apparently clear-cut criteria discussed above, markets are not always easy to define in practice. Transactions in the economy do not always fall neatly into a series of discrete and easily observable markets. Hence, it may not be practical—nor, indeed, always necessary—to identify the precise boundaries of the activities included in a market. Moreover, as already noted, it is appropriate to tailor the definitions used to meet the requirements of the case in hand.

3.19. None of the parties at the Conference, or in submissions, questioned the above approach to market definition used by the Commission.

AIRPORT MARKETS

General Considerations

3.20. An airport exists to facilitate the interchange between surface and air transport of passengers and freight.[37] The facilities typically used include one or more runways (including taxiways and aprons); a terminal building or buildings where passengers are processed and retailing and servicing opportunities arise; freight handling facilities servicing imports and exports and domestic movements; and land-side roading and parking. However, the services provided internationally by airport owners vary widely. Some airport companies do little more than own infrastructure and provide facilities, with third parties obtaining access to those facilities to provide downstream services. Others are involved both in the provision of facilities and in the downstream and/or supporting services, such as ground handling, rescue fire, and air traffic control

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[37] Rigas Doganis, *The Airport Business*, London: Routledge, 1992, pages 7-10.

services. AIAL, WIAL and CIAL are mainly providers of infrastructure and facilities, but do supply some downstream and/or supporting services such as rescue fire services.

3.21. Markets can be viewed from both demand- and supply-sides. From the demand-side perspective, a number of airport services are often consumed together, regardless of who provides them. For example, to land a plane requires access to a number of facilities and services. The complementary nature of many of these services suggests that a broader market definition may be appropriate.

3.22. From a supply-side perspective, airports provide a variety of facilities and services to a range of different parties, including airlines, passengers (both New Zealand and foreign residents), freight forwarders and transporters, taxis and public transport, flight training operators, recreational pilots, aircraft maintenance and engineering businesses, and retailers and other concessionaires. Each of the facilities and services provided to each of these different users might conceivably fall within a different market.

3.23. The fact that many airport facilities and services are operated under single ownership suggests that integrated operation may be necessary for the efficient provision of services, in which case broader market definitions might be appropriate. It may be that a single supplier has lower transaction costs from organising its operations and co-ordinating activities internally, than would two or more independent suppliers attempting to do the same by interacting through the market.

3.24. On the other hand, it may be efficient for an activity to be provided by someone other than the airport company, suggesting that these activities could be supplied in unbundled form. However, even if it were efficient to do so, it does not necessarily follow that this will happen. Airport companies may be able to charge independent service providers higher than competitive rents (or other fees) to gain access to the airport, thereby discouraging them from doing so. Hence, the appearance of a lack of separate markets may conceal a potential for separate provision by non-integrated suppliers. There is legal precedent for markets to exist even in the absence of transactions occurring.[38]

3.25. In some previous cases involving the transport sector, the Commission has adopted broad market definitions where there were a number of very similar, geographically distinct, markets. For example, in *Air New Zealand/Ansett* the Commission stated, in connection with the definition of air services markets:[39]

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[38] In *Queensland Wire, op. cit.,* the High Court of Australia stated as follows: "...a market can exist if there be the potential for close competition even though none in fact exists...Indeed, for the purposes of the Act, a market may exist for particular existing goods at a particular level if there exists a demand for (and the potential for competition between traders in) such goods at that level, notwithstanding that there is no supplier of, nor trade in, those goods at a given time." (1989) 11 ATPR 50,013.

[39] Commerce Commission, *Decision No. 278: Air New Zealand Ltd./Ansett Holdings Ltd./Bodas Pty Ltd.*, 3 April 1996, page 21. A similar approach was also used subsequently in other cases, such as: *Decision No. 326: New Zealand Bus Limited/Transportation Auckland Corporation Limited*, Wellington: Commerce Commission, 15 May 1998, page 27.

> Air services markets comprise a number of city pair routes. From a demand perspective, each could be considered as a separate market as, in most cases, services on one city pair are not seen by users as a substitute for services on another city pair. Fares on one route are unlikely to act as a constraint on those for another.
>
> However, where a number of narrowly defined markets exhibit similar characteristics, they can be conveniently treated as a single class for the purposes of competition analysis. In this case, supply side substitutability and economies of scale and scope in operating route networks also suggest wider market definitions are appropriate.

3.26. In the decision just cited, a broad market approach was adopted, in which the various route markets were grouped together because of their similar demand characteristics and because of supply-side connections. This had the advantage of avoiding the potentially considerable duplication of the analysis relating to market definition and competition. A similar argument exists in favour of broad market definitions in the case of airports.

Review of Market Definitions Used in the Draft Report

3.27. With the above principles in mind, the following separate markets were put forward in the Draft Report:

- The aircraft movement market.
- The passenger aircraft access market.
- The freight aircraft access market.
- The airport access and utilities market.
- The commercial activities market.

3.28. The aircraft movement market came closest to matching the definition of airfield activities in the Airport Authorities Amendment Act. That market was defined as providing for the services and facilities for the movement of aircraft, and included: landing and take-off; aerodrome control; aircraft maintenance; and aircraft ancillary services. The last included aircraft refuelling and flight catering.

3.29. Although no parties at the Conference or in submissions had any fundamental concerns with the markets in the Draft Report, nor suggested that further markets ought to be considered, three parties did raise issues about them.

3.30. BARNZ agreed with the Commission's approach in the Draft Report. It noted that the aircraft movement market did not match exactly the definition of airfield activities in the Airport Authorities Amendment Act. BARNZ suggested that the statutory definitions needed to be reviewed.[40]

3.31. CIAL suggested that there was little practical relevance in distinguishing a freight aircraft access market from the aircraft movement market since freight is carried on

[40] BARNZ Submission on the Draft Report, 10 August 2001, pages 15-16.

most aircraft; the airfield services provided are the same for both passenger and freight aircraft; and the Commission did not suggest that the derived elasticities of demand and competitive conditions would be significantly different.[41]

3.32. AIAL broadly agreed with the Commission's approach and with its identification of segments within the broad market, but suggested that an in-depth analysis of these segments might have found that competition was limited in only some of them.[42]

3.33. The Commission has reconsidered the product market definitions set out in the Draft Report in the light of these comments. It now considers that the aircraft movement market was defined too broadly in the Draft Report, and that it should be re-defined to accord with the narrower definition of airfield activities in the Airport Authorities Amendment Act 1997. The justification for this revision is as follows:

- The purpose of this Inquiry is, in part, to test whether any of the three international airports operate in an environment of limited competition such that they have the potential to exert market power.

- It is unsatisfactory to define a market that differs significantly from that area of transactions that is the subject of the Inquiry. It should be noted that the Commission has no ability to review what activities are to be regarded as airfield activities in the Inquiry.

- Following competition law principles, markets should be defined with a view to highlighting the competition matter at issue.

- The price at issue for the Inquiry, and which could be subject to control, is the airport's landing charge, which is the charge that relates to airfield activities.

3.34. The details of the revised market definitions are set out below.

Airfield Services Market

3.35. Following the definition of airfield activities set out in the Airport Authorities Amendment Act, this market encompasses the provision of the following services and facilities for the landing, movement, parking and taking-off of aircraft:

- Airfields, runways, taxiways and parking aprons for aircraft ('sealed surfaces').

- Facilities and services for air traffic control.

- Facilities and services for parking apron control (if any).

- Airfield associated lighting.

- The maintenance and repair of airfield sealed services.

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[41] CIAL Submission on the Draft Report, 14 August 2001, Part B, page 7, paragraph 6.

[42] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 46, paragraph 3.8.

- Rescue, fire, safety and environmental hazard control services.
- Airfield supervisory and security services.
- Facilities and assets held for future airfield activities.

3.36. These facilities and services are generally demanded for the purpose of allowing aircraft movements, and share similar and complementary demand characteristics. They are also generally uneconomic to provide in unbundled form through different operators, although some (e.g., runway maintenance) may be contracted out by the airport. In addition, it is recognised that further complementary services (e.g., air traffic control) may be required for aircraft movements, and that these may be charged for separately.

Other Airport Activities

3.37. It is important to be aware of the other services (airfield and non-airfield) that the airports provide, especially given the potential scope for airports to cross-subsidise between airfield and other activities. However, the Commission considers that it is not necessary to go to the length of defining the relevant markets, since they are likely to be numerous, and in any case they lie outside of the scope of this Inquiry. Appendices 12, 14 and 16 provide details of the other services that AIAL, WIAL and CIAL provide.

Conclusion on Airport Markets

3.38. The Commission's conclusion is that, for the purposes of this Inquiry, the relevant product market is the airfield services market. Airfield services are services that fall within the definition of airfield activities, as defined in the Airport Authorities Amendment Act.

3.39. The three international airports under review each operate in that product market, as well as in a wide range of other potential markets that fall largely outside of this Inquiry. The issue of whether airports are in competition with each other in the airfield services market, or whether each operates in a geographically distinct market, is introduced below, and addressed further in the airport-specific chapters.

POTENTIAL COMPETITION

Introduction

3.40. Each of the three airports may face competition from other airports in the provision of airfield services. This competition may be of two kinds: the *potential* competition from prospective new entrants, and the *existing* competition from other airports already operating. The former is examined here, and the latter in the following section.

Entry Barriers

3.41. The nature of the investment required in an international airport facility is likely to mean that barriers to entry are high, and that competition from potential entrants is, therefore, unlikely. There are a number of considerations that lead the Commission to this view.

3.42. First, entry would require a large, long-term investment in land, runway, and other infrastructure. A substantial proportion of that investment would be sunk, meaning that it would not be recoverable upon exit, especially where exit was induced by excess capacity and inability to gain market share from an incumbent. Hence, the barriers to exit would be high, and that realisation would in turn discourage entry in the first place.

3.43. Secondly, even if land were available, the environmental and planning implications of a new airport would be wide-ranging and significant. Land-use consents would be time-consuming to acquire, especially given the likely resistance from adversely affected residents or others who would be likely to object to the proposal.

3.44. Thirdly, the time lag between a company considering the possibility of building a new airport and the airport coming into service is likely to be several years. This time lag would give an incumbent ample time to organise strategies to meet the prospective competition, including the building of a second runway if entry had been induced by constraints on its current capacity.

3.45. Fourthly, the building of a new airport would by no means guarantee that airlines would wish to use it. A new airport would probably have to be built further away from the main population centre than the existing one, imposing higher travelling times and costs on passengers, who may, in consequence, resist using the new facility. It may also lack connections to some other domestic and international centres, adding inconvenience for passengers making connecting flights.

3.46. Finally, incumbents are likely to benefit from economies of scale, at least until the point where full capacity is reached, so that few regional markets would be large enough to sustain more than one airport, or even more than one runway. In New Zealand, with even the major airports serving relatively small population centres by international standards, existing airports generally appear to have either significant excess capacity at non-peak times, or the ability to expand incrementally (e.g., by means of additions to existing terminals or by adding a new terminal or runway). This may enable them to meet or undercut the charges of a new entrant, especially given that its facilities would be likely to be under-utilised in the first several years of operation.

Conclusion on Potential Competition

3.47. The Commission's conclusion in the Draft Report was that the potential for airports to be constrained in the provision of airfields services by the threat of entry is weak. This continues to be the Commission's view. The factors listed above combine to suggest that barriers to the entry of new airports are likely to be very high, and hence that the potential competition in airfields services (from new entrants) is insignificant.

EXISTING COMPETITION

Introduction

3.48. The extent of competition between the airfield services provided by existing airports depends largely upon the degree to which airports are substitutes for one another. This depends on the following two kinds of substitutability:

- Supply-side substitutability – the extent to which different airports are technically capable of accommodating different plane types and airline hubbing requirements.

- Demand-side substitutability – the extent to which different airports are substitutable by passengers and other users, which depends largely upon their geographic proximity.

3.49. These two types of substitutability overlap to some extent, since the willingness of airlines to switch between airports depends in part on demand-side considerations. Each is introduced below, and discussed in more detail in the airport-specific chapters.

Supply-side Substitutability

3.50. Airport substitutability from a narrow supply-side perspective depends largely upon the size of aircraft. Smaller aircraft are more flexible as to where they can land, with a grass strip being adequate for small, general aviation (GA) aircraft. For such aircraft, it is possible that smaller airports are substitutes for international airports. Indeed, such substitution has to some extent been forced upon GA operators by operating constraints at the three international airports, and also by charges, as GA aircraft landing charges have seen the biggest increases in the last ten years. Although GA aircraft still use the major airports, and some operators have a preference to do so because of the better facilities and location, much of that traffic has been forced out at peak times.[43]

3.51. Although it is difficult to generalise, larger turboprop and jet aircraft tend to be confined to the larger regional airports. The issue as to which aircraft can use which airports is complex. The factors involved are predominantly aircraft wheel loadings ('weight') and performance, runway characteristics (including length, layout, local terrain, altitude and ambient air temperatures), and commercial viability. With respect to the last, it may be technically possible for a 'large' aircraft to use a 'small' runway, but its payload and operational range may be so restricted as to make it not commercially viable (as is the case with Boeing 747s at Wellington International Airport).

3.52. At the extreme, Boeing 747s are restricted to Auckland and Christchurch International Airports, so that no other airport in New Zealand could be a supply-side substitute. As long-haul international flights from New Zealand typically use B747s, those two

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[43] Major airports sometimes explain their tolerance of GA activity as being their contribution to pilot training, which ultimately benefits commercial aviation, within which are found their main customers.

airports are the only ones capable of servicing such flights. Boeing 767s use those two airports plus Wellington, while Boeing 737s and BAe146s (Whisper Jets) are also able to use several of the regional airports. The smaller aircraft used on regional services—including Dash 8s, Metroliners and Bandeirantes—are even more flexible as to airport availability and use.

3.53. From a supply-side perspective, and focusing only on domestic traffic which does not involve the use of the larger aircraft, there appears to be considerable scope for substitution between a number of airports. There is also some flexibility for trans-Tasman routes, as B737s are now commonly used. However, for long-haul international traffic, which typically uses larger aircraft, the scope for supply-side substitution is much reduced.

3.54. Hubbing advantages to airlines are likely to further reduce airport options. With deregulation, airlines internationally have found it economic to form networks around a base or 'hub' airport.[44] An airline's demand (and also its investment) at its hub is likely to be greater than at potential substitute airports, suggesting that it is less likely to shift from such a hub, even in the event of an increase in landing charges at that airport. It may also derive some degree of market power in its hub. In New Zealand, Auckland International Airport acts as a hub for international travel for Air NZ. Wellington International Airport claims to be a domestic hub, although it argues that it potentially faces competition in this role from direct flights to and from regional centres.

3.55. It is understood that plans have been aired at certain regional airports, such as Rotorua and Tauranga, to extend the runways to accommodate international flights. This would potentially increase the number of alternative suppliers of airport facilities for international flights. However, it is understood that the international airlines would resist using such additional airports for international traffic, given the extra costs of so doing. Nonetheless, the airports have acknowledged that there is scope for certain regional airports to compete for traffic at the margin.

Conclusion on Supply-side

3.56. From a narrow supply-side perspective, there appears to be considerable scope for substitution between adjacent airports for airfield services by the relatively 'footloose' GA aircraft. However, GA yields insignificant revenues for the major airports, and would not be expected to induce competition between them. Indeed, GA switching to another adjacent airport in response to a rise in landing charges may be considered beneficial by freeing up runway capacity at peak times.

3.57. At the other extreme, the largest civilian aircraft with the most restrictive airport requirements—B747s—can only be used at Auckland and Christchurch. This limits the range of possible substitute airports for flights requiring the use of those aircraft. Most other aircraft can use the three international airports and a number of the larger regional airports, opening up a range of possible substitutes on this narrow supply-

[44] J. Brueckner, N. Dyer, and P. Spiller, *Fare Determination in Airline Hub-and-Spoke Networks,* RAND Journal of Economics, vol.23, no.3, Autumn 1992, pages 309-333.

side view. However, as the discussion below will indicate, it is the demand-side issues that are critical in determining substitutability between different airports.

Demand-side Substitutability

Introduction

3.58. The question as to whether individual airports operate in airfield services markets where competition is limited or likely to be lessened depends upon the extent to which the airfield services they provide are substitutable from the viewpoint of users and consumers. Hence, the question of competition reduces to one of geographic market definition. Specifically, the issue is which of the following alternatives apply:

- *Either* do Auckland, Christchurch and Wellington each operate in their own regional geographic airfield services markets, in which case they are likely to be the only suppliers, with competition between them for users and customers being low?

- *Or* do they operate in a wider (perhaps national) market, in which case each would compete with, and be constrained by, one or both of the others?

3.59. WIAL commented that the Commission had, in the Draft Report, conducted a collective market analysis that had paid insufficient regard to its particular circumstances.[45] As a result, the constraints applied by other airports are considered here only in generic terms. The particular circumstances relating to each airport are considered in each of the airport-specific chapters, along with the Commission's assessment as to whether competition in each case is limited.

The Significance of Demand Elasticity

3.60. Each of the airports would have little market power in the airfield services market if users were able to switch readily to another airport in the event of a small price rise (a 'ssnip'). In this case, the services provided by each of the airports would be close substitutes in the eyes of users, and hence would be competing against each other in the same geographic market. Put another way, the airfield services supplied by each airport would face a relatively elastic (price responsive) demand curve. Technically, this would reflect the high values of the underlying cross-price elasticities for the substitute products (the airfield services of the other airports).[46] In such circumstances, the three airports would probably fall in the same geographic market.

3.61. On the other hand, were there to be no close substitutes for the airfield services of each airport, the cross-price elasticities of demand between the airports would be low,

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[45] WIAL Submission on the Draft Report, 14 August 2001, Vol. 1, page 8, paragraph 2.18.

[46] Demand theory shows that the price elasticity of demand for a good is the sum of the income elasticity and all of the cross-price elasticities. For the great majority of goods, the income elasticity is likely to be low. However, for 'superior' goods the income elasticity may be high. It is arguable whether airport services are a superior good, with air travel for many passengers now being a common experience. See: R. Bewley, *Using Elasticities to Define a Market*, Discussion Paper on Using Econometrics in Market Definition and Market Power Assessment, Discussion Paper No. 7, Prices Surveillance Authority, Melbourne, 1995.

and the demand curve of each would be unresponsive to changes in price, because users would have no alternatives to turn to in the event of a price increase. In this case, the individual airports would, by implication, be operating in their own regional geographic markets in which they would be able to exercise market power (given that the mere ability of airlines to switch aircraft between airports as a supply-side measure would not be a constraining factor if demand for the services of those aircraft were absent).

3.62. It is also important to note the distinction between demand from the traveller for airline travel, and demand of the airline for airfield services. Information on demand elasticities (of which there is little) relates to the former, whereas the interest in the Inquiry is with the latter. However, the price elasticity of the derived demand by airlines for airfield services can be inferred from the elasticity of the demand for airline travel, although this requires an assumption to be made about what portion of any change in landing charges, if any, is passed on to passengers by airlines in ticket prices. Landing charges make up a relatively small proportion both of airline total costs, and of passenger ticket prices (both domestic and international flights). Hence, even a substantial increase in that charge may have a very muted impact on the price of, and hence on the demand for, airline tickets, even if the charge were fully passed on. This means that the price elasticity of the demand for airline tickets is expected to be much lower with respect to changes in landing charges, implying that airline passengers are not likely to be easily provoked into switching to another airport by an airport raising its landing charge.

Competition Between Airports for Passengers

3.63. In considering passenger demand, it is customary to distinguish between leisure travellers (the latter including visiting friends and relatives) and business travellers, and between domestic and international travellers.

3.64. For leisure travel, it is sometimes claimed destinations compete. New Zealand airports might compete indirectly with other international airports as stop-over points and for the international tourism trade, and with Australian airports as regional hubbing points. International deregulation of airline routes (e.g., through a single trans-Tasman airlines market) may encourage further competition between airports, and in the future possibly lead to by-pass of current connection points. One example is the by-pass of Christchurch International Airport by direct flights from overseas to Queenstown. Another is the potential for passengers to transit at different hubs (e.g., passengers originating outside of Auckland could go through Syndey to Asia or Europe rather than through Auckland).

3.65. However, the ability of airports to influence travellers' ultimate destination choices through varying their airfield landing charges seems slight, as most travel seems to be destination-specific. This is especially the case for international travellers to New Zealand, because it tends to be a destination at the 'end of the line', and for business travel. Hence, it seems unlikely that competition between destinations will constrain airports' charging behaviour for these types of passengers.

3.66. For domestic services, there appears to be very limited competition between the three major airports, or between them and other regional airports. Passengers wishing to fly from one airport to another are unlikely to find a third airport a substitute either as a departure or arrival point. Domestic travel tends to be destination-specific. This suggests that for domestic services the three major airports are essentially regional monopolies, in that there are no substitutes for their services for travellers wishing to fly into or out of those centres.

3.67. International passengers potentially have more flexibility as to choice of airport for arrival and departure, and may be more price conscious than domestic travellers, due to the availability of substitutes and the higher costs of getting to New Zealand from many European and American countries. However, about 42% of arriving international passengers are New Zealand residents (the majority returning after short-term holidays overseas).[47] Of the remaining foreign arrivals, 63% come from Oceania (mostly Australia).

3.68. Auckland International Airport has by far the largest share of New Zealand's international traffic. In the year to 30 June 2001, about 70% of international passengers travelled through Auckland, 18% through Christchurch and 8% Wellington.[48] Auckland has advantages over the other two airports because of the larger population in its catchment area, its relative importance in air freight (Auckland carries most New Zealand-originating international freight), and its proximity to international aviation routes.[49] It also has the necessary infrastructure associated with servicing international airlines. It has a further advantage over Wellington in being able to handle the largest international jets needed for maximum flight distances. Apart from destinations in Australia (where all three airports host airlines with direct flights), the majority of New Zealand residents will have to go through Auckland airport to join connecting flights en route to their ultimate destination.

3.69. WIAL contended that airlines have the ability to influence demand for air travel through fare setting and promotion of particular destinations or events, and that this applies for both domestic and international destinations.[50] However, the airlines will only promote particular destinations where it is profitable to do so. Meeting demand for flights is the overriding factor determining which airports an airline flies to, rather than the costs of doing so. Airport charges, although not insignificant to airlines, are unlikely to make the difference between an airline flying or not flying to a particular city, although they may have some impact at the margin and on budget airlines. Although cut-price charter operations are an important feature of the aviation business in Britain, they are at present insignificant in New Zealand.

3.70. The above analysis suggests that, with respect to airfield services, each of the three major airports operates largely within its own geographically distinct regional market, which are the greater population areas around the three airports (namely the greater Auckland, Wellington and Christchurch areas). Each airport faces a demand from

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[47] By airport, the percentages are 42% at Auckland, 58% at Wellington, and 30% at Christchurch.

[48] Together Hamilton, Palmerston North, Dunedin and Queenstown airports handle the remaining 4% (1.7%, 1.2%, 0.8% and 0.3% respectively) of international passengers.

[49] Ministry of Transport, *Review of New Zealand Airport Regulation*: *Proposals for Consultation*, Wellington: MOT, 1995, page 10.

[50] WIAL Submission on the Draft Report, 14 August 2001, Vol. 1, page 28, paragraph 4.9.

acquirers who largely do not see other airports as offering viable substitute services. This is discussed in more detail for each airport in the airport-specific chapters.

Demand Elasticities

3.71. In assessing the elasticity of the demand for an airport's airfield services, the picture is complicated by the fact that the demand in question is a derived demand, i.e., the demand for an intermediate input. Such inputs have the characteristic that they are not wanted for themselves, but rather have value because they contribute to the production of the final good or service demanded by customers. Since estimates of price elasticities are easier to obtain for final rather than intermediate products, the question in principle becomes one of how to infer the elasticity of the one from that of the other?

3.72. At one level, the final service could be characterised as being the provision of passenger and freight transport services by aircraft operators. The demand for airfield services is thus derived from the demand for passenger and freight transport services. Arguably, however, the latter are themselves intermediate products, again not wanted for themselves, but as a means of satisfying some ultimate consumer want: the activities engaged in at the destination, either for business or leisure purposes in the case of a passenger, or the use of the item of freight by the recipient in the case of freight transport services.

3.73. A focus on the demand for air passenger and freight transport services is a useful starting point as these have been the subject of demand studies and elasticity estimates. A limitation of such studies is that they are country-specific and do not distinguish between the demands for air passenger and freight transport services provided at individual airports. Hence, the resulting elasticities have more to say about the substitutability between air travel and other transport modes, than between airports. Nonetheless, if the airports were in separate markets, so that the cross-price demand elasticities between them are low, then the country-wide demand for airport services would provide a reasonable estimate of the demands at each airport, at least after allowance is made for differences in traffic mix between them.

3.74. Where an airport serves various consumer groups, the derived demand for its services will be a weighted average of the demands from each of those groups. However, since the primary focus of commercial aviation is with passengers, and the great majority of air freight is carried in the belly-holds of passenger aircraft as a by-product of meeting passenger demand, attention can probably be limited to the demand from passengers.

3.75. On these assumptions, the price elasticity of demand for airfield services will be related to the price elasticity of demand for air travel by business and leisure passengers through standard factors that link intermediate and final product demand curves. These factors are:

- The price elasticity of demand for the final product (measuring the responsiveness of buyers of that product to changes in its price, reflecting in part the availability of substitute products).

- The relative cost of the input of interest in the total cost of the final product.

- The elasticity of input substitution (measuring the ease or difficulty with which that input can be substituted for by other inputs, in a given time period).

3.76. Although submissions appeared generally to agree with this approach, which appeared in the Draft Report, some raised concerns about how the Commission had applied the approach in practice. CIAL raised the following concerns:[51]

- The elasticity studies the Commission had referred to (see below) were for other countries and were not airport-based.

- The elasticities related more to substitutability between air travel and other discretionary expenditures, than to substitutability between airports by airlines.

- There was no mention of the time periods covered by the studies, nor the expected speeds with which higher landing charges would be reflected in higher ticket prices, and hence in passenger demand responses.

- Although the Commission noted in the Draft Report that there are likely to be differences in price elasticities of demand between business and leisure passengers, and between domestic and international passengers, it did not attempt to use these to compute airport-specific price elasticities of demand for each of the three airports to reflect their different passenger mixes.

3.77. AIAL considered that the Commission's approach to elasticity estimation was fundamentally flawed, mainly because it assumed that airlines pass on changes in airfield charges to ticket prices, which AIAL thought was unlikely, and because changes in landing charges bear no relationship to movements in airline ticket pricing. Nonetheless, whilst disagreeing with the approach, AIAL concurred with the ultimate finding that "the price elasticities of demand for the range of likely changes in airfield charges are small..."[52]

3.78. Each of the three factors listed in paragraph 3.75 is now examined in turn, in the light of these submissions.

Demand Elasticities for Air Travel

3.79. In some countries and regions air travel in general, and therefore airports as a group, may be constrained, at least in part, by competition from other transport modes serving the same routes. Possible examples include the high-speed trains in Europe, and leisure travel along the eastern seaboard of Australia. If such were often the case, the ability of airports to exploit any potential market power they might appear to have as input providers would be constrained by the contestability in the final product market for transport services.

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[51] CIAL Submission on the Draft Report, 14 August 2001, Part B, pages 9-10.

[52] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 49, paragraph 3.13.

3.80. However, although other transport modes may offer some limited competition at the margin (most likely for small aircraft on short flights, and for long-term pleasure travellers), air travel is much faster, which is a factor especially valued by business travellers. In addition, there tend to be fewer alternative modes of transport available to long-haul passengers, particularly when crossing a body of water. Hence, it would appear that airports are unlikely to be constrained in their pricing behaviour by competition to airlines from other transport modes to any significant degree. Put in economic terms, the demand for air travel is unlikely to be influenced much by the presence of other transport alternatives. There is no evidence that airlines in New Zealand compete directly with other transport modes, except possibly for some limited classes of freight.

3.81. The more elastic the demand for the final product, the more elastic (or less inelastic) will be demand for intermediate inputs used in its production, all else remaining the same. Overseas studies of the demand for air travel suggest the price elasticity is moderately high. One survey by Tretheway and Oum, which referred to studies published in the 1980s, mentioned a range of between -1.1 and -1.3 for Canada (based on a 10% drop in price), and figures of -1.15 and -1.5 for business and leisure travellers respectively in the United States.[53] The latter pair of figures reflect the established view that business travellers are less price sensitive than leisure travellers. The figures represent the percentage change to be expected in quantity demanded from a one per cent rise in price.

3.82. There are no comparable estimates for New Zealand. As a consequence, in the *Air New Zealand/Ansett Holdings* business acquisition authorisation application in 1996, the applicant recommended, and the Commission accepted, that for New Zealand the use of a price elasticity of demand of -1.5, averaged across all domestic air travellers, was appropriate.[54] This figure was said by Air NZ to reflect overseas experience of airline demand.

3.83. The time periods implicit in these estimates are not known. Although the estimates relate to demand for the final product—air travel—on a national basis, and no doubt reflect substitutability between air travel and other discretionary expenditures, they are an appropriate basis for estimating the associated demand elasticity for an input, airfield services. The lack of New Zealand-based estimates is not helpful, however.

3.84. One of CIAL's concerns can be addressed by recognising that the price elasticity of demand for international air travel is higher than for domestic air travel. This is because much more international travel is leisure related, and hence more discretionary and income sensitive, and because of the availability of substitute destinations. In addition, international travel is typically more costly than domestic travel, implying that a given percentage rise in price would have a relatively larger 'income effect'.[55] There may be other factors, such as exchange rate risks related to

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[53] Michael W. Tretheway and Tae H. Oum, *Airline Economics: Foundations for Strategy and Policy*, Vancouver: Centre for Transportation Studies, University of British Columbia, 1992, pages 14-15.

[54] Commerce Commission, *Decision No. 278: Air New Zealand Ltd/Ansett Holdings Ltd/Bodas Pty Ltd*, Wellington: Commerce Commission, 3 April 1996, page 84.

[55] The income effect of a change in price is that proportion of the change in the quantity demanded that is attributable to the consumers change in real income. The higher the initial price of a good, the greater the income effect generally will be, for a given percentage increase in price. For example, a

spending money, and possibly fears of international terrorist attacks, which may also make international travellers more sensitive to changes in the price of air travel.

3.85. The demand price elasticities for air travel at individual airports can then be estimated as the weighted averages of the differing demand elasticities of domestic and international travellers, where the weights used are the proportions of such travellers in the passenger mixes of each of the airports. The overseas studies quoted above suggest that for domestic passengers, a figure of about –1.3, being the rough midpoint of the range, might be appropriate. There are no demand price elasticity estimates for international passengers, although there are reasonable grounds (as explained above) for expecting that elasticity to be higher (in absolute terms). Support is provided by the extra demand created by cut-price airlines, such as Freedom Air and the former Kiwi International. Hence, a figure of –1.8 is used arbitrarily here.

3.86. Although the airports argued otherwise,[56] the results derived later in this Report are not, in fact, very sensitive to the value chosen for the final product demand price elasticity, given that, using all reasonable values, the input demand price elasticity is likely to be very low.

Relative Cost of the Input

3.87. The relative cost of the input in question (airfield services) in the price of the final product (air travel) is important. If, as is the case, the cost of the input contributes only a small amount to the cost of an airline ticket, then even if the price of that input were hypothetically to as much as double, the increase in the airline's costs, and hence in the prices of its tickets, would be relatively small. The combination of the large increase in the input price, and the resulting small fall in the quantity demanded, would generate a low price elasticity of demand for the input.

3.88. However, CIAL questioned how quickly a rise in the price of the input would, in fact, be fed through into ticket prices.[57] If there were a delay, caused by the airlines absorbing the extra cost themselves, there would be no passenger response, and so the input demand curve would be perfectly inelastic. Further, even if the extra charge were to be passed on in higher ticket prices, and there were a fall in passenger numbers, that might not translate into any reduction in the number or size of planes using the airfield. In this case, there would also be no change in the demand for the airfield services input, as the landing charge is levied on the fully-loaded weight of aircraft, not on seat-occupancy rates.

3.89. These comments can be interpreted as bearing on the speed at which changes in landing charges impact on the demand for airfield services. Although the immediate impact of a moderate increase in charges may be muted, the longer-term impact is likely to be more complete. This suggests that the Commission's estimates of the price elasticity of demand for airfield services at each of the three airports on the basis described here will, all else being the same, be an upper bound estimate of the short-

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10% increase on a $1,000 overseas ticket would amount to $100 extra, compared to $10 for a $100 domestic ticket.

[56] For example, AIAL Submission on the Draft Report, 14 August 2001, Attachment 2, pages 10-11.

[57] CIAL Submission on the Draft Report, 14 August 2001, Part B, pages 21-22, paragraph 99.

run (say, less than six months) figure, and be more representative of the position in the longer-term.

3.90. It is generally accepted that airport charges constitute a small proportion of the cost of an airline ticket. A figure of 3% for the proportion of aeronautical charges to airline operating costs has often been quoted. However, Doganis points out that this figure was a world average that concealed wide variations between airlines and between short- and long-haul flights.[58] For example, he found that for most European charter airlines, which generally operate on short hauls, airport charges represent about 15% of their total operating costs. The percentage costs are higher for such airlines, as they have lower operating costs (because of the lower costs of crew and catering).

3.91. The proportion of airfield charges in airline costs and prices varies between aircraft types and routes. Aircraft used by different operators vary widely in size, and consequently their sensitivity to airport charges is likely to vary. Long-haul flights tend to use large aircraft, and short-haul flights small aircraft. The former are less likely to be deterred from using airport facilities by an increase in charges, because the increase is likely to form a smaller proportion of their costs and of passengers' airfares.

3.92. In New Zealand, the indications are that airports' charges constitute less than 10% of the operating costs of airlines for domestic routes.[59] In consequence, in the Draft Report the Commission used an average figure of 7% as the proportion of landing charges to ticket prices. In contrast, CIAL had, as part of its December 2000 charging document, calculated figures of about 1.6% for domestic services and about 0.8% for international services. These figures seem unduly low. BARNZ submitted that the 7% figure was reasonable.[60]

3.93. The Commission asked Air NZ to provide estimates for domestic and international flights. Air NZ responded with the figures given in Table 2, which differentiated by airport and by type of passenger.[61]

Table 2
Average Percentages of Landing Charges to Ticket Prices for Air NZ at the Three Airports

Airport	International passengers	Domestic passengers
Auckland	[ ]	[ ]
Christchurch	[ ]	[ ]
Wellington	[ ]	[ ]

3.94. The Commission proposes to use the figures in Table 2 as the basis for its price elasticity calculations. The figures are based on local operating conditions, and are from a carrier whose activities cover the full range of provincial, main trunk and international services.

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58 Rigas Doganis, *The Airport Business*, London: Routledge, 1992, pages 62-63.

59 The more significant operating costs of an airline are maintenance, fuel and salaries.

60 *Conference Transcript*, page 623.

61 Air NZ Response to Section 98 Notice, 14 January 2002.

Elasticity of Input Substitution

3.95. In theory the demand for airfield services could be more price elastic than that of the final product if there were alternative inputs that could easily be substituted for airfield services. In this case, any attempt by airports to raise their landing charges would be met by airlines switching to alternative inputs, resulting in an elastic demand response from users and hence little market power on the part of airports. However, there appears to be no close substitutes for airfield services available currently or in prospect. This factor cannot, therefore, be expected to exercise a competitive constraint on the behaviour of airports, nor to significantly influence the price elasticity of demand for airfield services.

Estimating Demand Elasticity

3.96. The preceding discussion suggests that the elasticity of input substitution factor can safely be ignored in estimating the price elasticity of demand for airfield services. Only the first two factors—the final product price elasticity of demand and the relative cost of the input—need to be considered. The price elasticity of demand for airfield services is found by multiplying those two elements together. For example, if the final product price elasticity were -1.5 as suggested in the Draft Report, and airport charges were to amount to, say, 7% of ticket prices on average, then the price elasticity of demand for the airport services input on average would be: -1.5 x 0.07 = -0.105. As noted above, this will generate an upper bound estimate on the assumption that aircraft landings for various reasons, will not necessarily respond by falling in response to the increase in landing charges.

3.97. In Table 3, the price elasticities of demand for air travel for domestic and international passengers, and the proportions of landing charges to ticket prices for domestic and international flights at the three airports—the elements determined above—are multiplied together to generate separate estimates of price elasticity of demand for airfield services for domestic and international passengers at the three airports. In the case of Christchurch and Wellington, the derived demand of international passengers is less elastic than that of domestic passengers. While this may seem counter-intuitive, given that the air travel demand of international passengers is more elastic, this merely reflects the offsetting effect of the much lower average of landing charges to international ticket prices at those two airports.

Table 3
Estimates of Price Elasticity of Derived Demand of Domestic and International Passengers for Airfield Services at Each Airport

Airport	Passenger type	Price elasticity of demand for air travel	Proportion of landing charge in ticket prices	Price elasticity of derived demand for airfield services
Auckland	Domestic	-1.3	[ ]	[ ]
	International	-1.8	[ ]	[ ]
Christchurch	Domestic	-1.3	[ ]	[ ]
	International	-1.8	[ ]	[ ]
Wellington	Domestic	-1.3	[ ]	[ ]
	International	-1.8	[ ]	[ ]

3.98. The price elasticities of derived demand of domestic and international passengers for the airfield services at each of the three airports estimated in Table 3 are converted into a single weighted average for each airport in Table 4. The weights are provided by the domestic/international passenger number proportions at each of the airports for the year ending 30 June 2001 (or 31 March 2001 in the case of Wellington).

Table 4
Estimates of Weighted Average of the Price Elasticity of Derived Demand for Airfield Services at Each Airport

Airport	Domestic/international passenger split	Weighted average price elasticity of derived demand
Auckland	0.402/0.598	[ ]
Christchurch	0.739/0.261	[ ]
Wellington	0.872/0.128	[ ]

3.99. The revised estimates in Table 4 indicate, as did the estimates in the Draft Report, that the derived demand for airfield services at each of the three airports is very price inelastic.[62] The implication is that, in the absence of off-setting factors, airports have significant pricing power, since the exercise of that power would have little impact on the demand of users for the intermediate input.

Conclusion on Demand Elasticities

3.100. All parties agreed that the demand for airfield services was likely to be very inelastic, even though some questioned the way the Commission had quantified those elasticities in the Draft Report.[63] The Commission has now revised its approach to take account of the point that domestic and international passengers are likely to have significantly different elasticities of demand for air travel, and thus to produce different price elasticities of the derived demand for airfield services at each of the three airports. Although such estimates are only approximate, they do not have a large impact on calculations done subsequently in this Report.

Conclusion on Existing Competition

3.101. Although aircraft can be shifted between routes, implying substitutability of airports from a supply-side perspective, from the demand-side view, airlines supply their services to meet demand by passengers and freight for particular point-to-point routes. As passengers generally travel only from or to the most convenient airport, and most freight is carried in the cargo-holds of passenger aircraft, the ability of airlines to switch between airports is limited.

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[62] These elasticity estimates are somewhat lower than those calculated in Australia in the early 1990s by the Prices Surveillance Authority (PSA), where the elasticity of derived demand for aeronautical services (including passenger terminal use) for interstate flights was estimated to fall in the range of -0.1 to -0.225. Although the PSA appears to have used relatively high values for the relative cost of the input, no mention was made of the price elasticity of final demand used. See: *Inquiry into the Aeronautical and Non-aeronautical Charges of the Federal Airports Corporation*, Report No. 48, Melbourne: PSA (1993), pages 39-40. Efforts to obtain the information used to make these calculations were unsuccessful.

[63] For example, CIAL Submission on the Draft Report, 14 August 2001, Part B, pages 9-10.

3.102. In this Chapter, the Commission has broadly canvassed whether airports are in competition with each other in the airfield services market, or whether each operates in a geographically distinct market. The Commission's generic analysis suggests (subject to analysis on an airport-by-airport basis) that, for most traffic, none of the three airports faces significant competition either from the others, or from other regional airports. The constraints posed by existing competition are considered in more detail for each airport in the airport-specific chapters later in this Report.

COUNTERVAILING POWER AND REGULATION

3.103. As noted in Chapter 1, the current regulation of airports relies principally upon the countervailing power of airlines, and the requirements on airport operators to disclose information about their operations and to consult major customers.

3.104. At the Conference and in submissions, the views of the airlines and the airports on the strength of the countervailing power of the airlines differed markedly. BARNZ agreed with the Commission's preliminary finding in the Draft Report that none of the three airports is likely to be significantly constrained by countervailing power of airlines under the current regime, and that the airlines stand to lose greater amounts than airports from withdrawing custom.[64] In contrast, the airports considered that the Commission had not given sufficient weight to the regulatory regime, and to the countervailing power of the airlines.[65]

3.105. When the regulatory regime was being considered in the late 1980s, one argument was that the presence of three major independent airports lent airlines some degree of countervailing power in the event of a major dispute over airport charges for international flights. It was suggested that some flights might be switched between airports, with Wellington's Australia flights being suggested as being the most vulnerable, since they could be moved either to Christchurch or Auckland.[66]

3.106. As a matter of principle, the ability of airline buyers to exercise countervailing power against the airport suppliers of airfield services would seem to depend upon a number of factors, including the following:

- The level of buyer concentration.
- The ability to switch between alternative suppliers.
- The ability to retaliate by imposing costs upon suppliers.
- The ability to restrain suppliers through the consultation process.

3.107. Each is introduced below, and discussed in detail in the airport-specific chapters.

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[64] BARNZ Submission on the Draft Report, 10 August 2001, page 18, paragraph 8.2.

[65] For example, AIAL Submission on the Draft Report, 14 August 2001, Part A, Page 13.

[66] Travers Morgan, *Airports Regulatory Review*, 1989, page 49.

Buyer Concentration

3.108. A buyer must account for a substantial portion of a supplier's business before it has the potential to exert significant countervailing power against that supplier. The threat by a small buyer to switch its business elsewhere will have little impact on the supplier's behaviour. Thus, the size of the airlines and their collective efforts may assist them in exerting countervailing power against the market power of the airports. However, in some situations, it may be a breach of the Commerce Act for the airlines to act collusively.

3.109. The Commission notes that BARNZ does not make decisions for its members. BARNZ submitted that section 30 of the Commerce Act means members cannot act collectively in pricing matters. As a result, any countervailing power they have cannot be collectively acted upon or exercised. BARNZ presents a unified voice upon common issues, but does not direct or engage in unified action. This limits the airlines ability to act collectively.[67]

Ability to Switch

3.110. The ability to switch to alternative suppliers is a crucial underpinning required for the exercise of countervailing power. One factor favouring countervailing power is that airlines' capital (in contrast to that of airports) is relatively mobile, and hence has the potential to be deployed elsewhere. For example, overseas-based international airlines have the power to deploy their limited fleets to destinations in other countries, and some have withdrawn services to New Zealand, or resorted to code-sharing, when services proved to be unprofitable (or code-sharing more cost effective). Having said this, airlines do invest in costs that become sunk at particular airports (e.g., maintenance facilities), thereby reducing their ability (and hence the credibility of any threat) to move elsewhere, and undermining any countervailing power they might possess.

3.111. The earlier discussion on demand-side considerations in geographic market definition suggested that most domestic travel is destination-specific, and that the decisions of airlines to use particular airports reflects customer demand. Airlines respond primarily to the point-to-point demands, and as a result appear to have limited ability to divert traffic to other destinations as a way of putting pressure on airports that they consider to be over-charging. Hence, the attempt by an airline to exercise countervailing power by threatening to switch to another airport is likely to lack credibility, and therefore to be unsuccessful.

Ability to Impose Costs

3.112. Airports, especially the smaller ones, may be vulnerable to changes in airline schedules at short notice. For example, in 1995 Dunedin Airport found that in the space of a week the two major airlines using the airport—Air NZ and Ansett New Zealand—which previously had supplied their schedules for the year, both announced that they were switching from jets to mainly turboprop aircraft. These aircraft fell in a lower charging weight group, so that even with increased frequency total revenues

[67] BARNZ Submission on the Critical Issues Paper, 26 April 2001, page 31, paragraph 23.1.

fell. Other airports have made the same claim. Airports reliant on a very few airlines are susceptible to risks that aircraft will be downgraded. The downgrading of aircraft results in reduced revenue for airports until landing charges can be reset.

3.113. Landing charges can only be set after consultation with substantial customers. In addition to having to consult over charges, airport companies must also consult on all major capital expenditure decisions. This is often tied up with the setting of prices, as the key debate is generally how and when the costs of the investment will be recovered.

3.114. The consultation process required before charges are set typically lasts one-and-a-half to two years, which delays the implementation of any price increase, and imposes costs that may make airports think twice before proposing changes in the first place. However, under the Airport Authorities Act, the airports are required to consult on charges every five years, regardless of whether they increase (or decrease) charges.

3.115. In addition to the costs associated with consultation, the major airlines have demonstrated a willingness to withhold airport payments and to consider court action. The airports are unable (for safety reasons) to deny landing facilities to an aircraft. Litigation imposes substantial costs on an airport, both in terms of the expenses of lawyers and experts and in diverted management time. Both AIAL and WIAL have been involved in litigation with the airlines in recent years.

3.116. Clearly, airlines do have some power to impose, or to threaten to impose, costs on airport companies with whom they are in dispute.

Ability to Gain From Consultation

3.117. Airlines face the incentive, as users interested in minimising their costs in a competitive industry, to monitor airport charging and efficiency. The statutory consultation process provides an avenue through which this monitoring may take place. However, there has been dissatisfaction with the consultation process and its outcomes. This could reflect in part the existence of a single supplier, rather than airlines being able to choose between competing suppliers (in terms of a given destination).

3.118. Experiences and outcomes from recent consultation between the airports and airlines are discussed in the airport-specific chapters.

Conclusion on Countervailing Power and Regulation

3.119. The Commission considers that the potential countervailing power of the airlines cannot be ignored as a feature in the relevant markets. The current regulatory regime may provide some constraint on airports, the extent of which is considered in the airport-specific chapters. However, the Commission considers that, from a generic perspective, this constraint is unlikely to be sufficient to prevent competition in airfield services from being limited at each of the airports.

CONCLUSIONS

3.120. The purpose of this Chapter has been to consider the markets appropriate for this Inquiry, and to provide a general assessment of the competition facing (and constraints imposed on) the airports in the supply of airfield activities. In terms of the product dimension of the market, it was considered appropriate to define an airfield services market, which encompassed the range of functions included in the definition of airfield activities in the Airport Authorities Amendment Act. This had the effect of making congruent the definition of the market and the area of the airports' operations subject to the Inquiry.

3.121. In terms of the geographical dimension of the market, the generic analysis of passenger and airline demand suggested that, for most traffic, none of the three airports face significant competition from each other or from other regional airports. This suggests that there are geographically distinct regional airfield services markets. The lack of competition stems from passenger demand tending to be specific as to departure and arrival points, and from passengers being unlikely to switch to other airports. This is tested further in the airport-specific chapters.

3.122. This tendency is reinforced by the fact that, although passenger demand for air travel appears to be fairly price elastic, the associated derived demand for airfield services is highly inelastic because airfield charges make up a small proportion of the price of air travel. For these reasons, an airport that sought to exploit market power by raising its landing charges would not be prevented from doing so by passengers switching to another airport, since the increase in landing charges would have a very small impact on ticket prices, even if they were to be fully passed on by airlines.

3.123. The ability of another airport to be built is a potential constraint on the ability of the three airports to exert market power. However, the barriers to the entry of new airports are likely to be very high, and hence the potential competition from this source is weak at best. Among the entry barriers are the very large and mainly sunk investments involved, the stringent resource planning requirements, and the difficulty of gaining sufficient market share to spread the overhead costs thinly so as to be able to compete against a determined and well-established incumbent.

3.124. Another constraining factor is the possibility that certain regional airports might constitute 'near entrants' into the relevant markets, especially if they were to be upgraded to handle larger aircraft, or if new airlines were to set up and use them. However, while it is recognised that competition at the margin from regional airports may provide some constraint, the degree is limited by the geographical nature of demand, and by the apparent unwillingness of the major airlines to divert international flights to regional airports. Hence, existing competition from regional airports cannot be relied upon to be effective in preventing the airports from exerting market power.

3.125. A further possible source of constraint is the countervailing power of airlines, which is fostered by the airport specific regulatory regime, under which the large airports are obliged to consult with their major customers over pricing and major investments, and to furnish information about their operations. The airports have argued that they are indeed constrained to some degree by such countervailing power, and have cited instances where that seems to have been the case.[68] However, the Commission considers that, generically speaking, countervailing power provides a counterweight to the market power of the airports only to a limited extent. This is discussed in detail in each of the airport-specific chapters.

3.126. No conclusions are reached in this Chapter regarding whether airfield activities provided by the three major international airports are supplied or acquired in a market in which competition is limited or is likely to be lessened. This question is addressed separately for each airport in the airport-specific chapters.

[68] For example, CIAL Submission on the Draft Report, 14 August 2001, Part B, pages 11-12; Part C, pages 79-81.

4. PRICING PRINCIPLES

INTRODUCTION

4.1. The Commission considers that, as part of the process of determining whether the second statutory threshold for control (section 52(b)) has been met, and whether control should be recommended, it must judge the behaviour of the airports against an ‘efficient prices’ standard. The Commission considers the process of forming such a judgement makes the costs of the current situation and the potential benefits of control more apparent.

4.2. Submitters have expressed a general desire for pricing principles that can be used to determine efficient prices and evaluate airport behaviour.[69] However, submitters differed on the detail of such principles.

4.3. Submitters generally agreed with the Commission’s position in the Draft Report that a starting point for determining appropriate pricing principles is to look at the positive characteristics of competitive markets, as they create several important efficiency incentives.[70] However, some submitters suggested that it may not be desirable, or even possible, for the Commission to aim to replicate all characteristics of competitive markets. Some submitters also noted that competitive markets should be seen as ones where there is workable and effective competition, not a theoretical ideal of perfect competition.[71] Accordingly, the Commission has focused its discussion here on efficiency incentives.

FORMULATING PRICING PRINCIPLES

4.4. The following sub-sections consider the relevant pricing principles for promoting efficiency. These principles are developed within the three aspects of efficiency, namely, allocative, productive, and dynamic efficiency. The principles are developed, as far as possible, in generic terms, with their application to airports made in the second part of the Chapter.

Allocative Efficiency

4.5. The level and structure of prices are the key considerations in determining whether allocative efficiency is achieved.

Level of Prices

4.6. Allocative efficiency is achieved when the price paid by any user reflects the costs incurred in meeting their demand. ‘First best’ efficient pricing requires that users be charged a price equal to the marginal cost of supply. Marginal cost (MC) is the additional costs incurred when an additional unit of output is produced.

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[69] For example, BARNZ Submission on the Draft Report, 10 August 2001, page 2.

[70] Ibid, page 19, paragraph 11.1.

[71] For example, CIAL Submission on the Draft Report, 14 August 2001, Part C, page 74.

4.7. Marginal cost as defined above is a private cost. However, production can give rise to 'externalities', which those costs and benefit that fall on third parties or society in general. Where there are significant externalities, MC pricing will not take account of all the costs and benefits to society. In such circumstances, marginal social cost (MSC) pricing should ideally be used, which would incorporate those externalities in prices. MSC equals the MC of production plus any costs borne by (or minus any benefits accruing to) third parties. Externalities can also be dealt with through administrative measures(e.g., resource management law and constraints), which may be more practical (and ultimately less costly) than trying to deal with them through MSC pricing. Accordingly, it is MC pricing which forms the basis for discussions here.

4.8. For suppliers with a high proportion of fixed costs, marginal cost is likely to be below average cost, which means MC pricing would yield insufficient revenue to cover all costs. This would not be sustainable for a business, so pricing above MC to cover a share of fixed costs may well be legitimate (further discussed below). Fixed costs are costs that are static and do not change as a result of changes in output. However, these costs may change in the long term as a result of future capital investments.

4.9. Further, natural monopolies typically provide more than one product or service. Significant common costs make marginal cost pricing unsustainable. Common costs are those costs incurred by the multi-product firm that are common to two or more outputs, and may change very little if one of those products is no longer produced.

4.10. As a result of fixed and common costs, marginal cost pricing may not comply with allocative efficiency requirements. This raises the question of what is the most appropriate second-best pricing alternative? Generally speaking, demand differentiated pricing that is 'second best' covers total costs (needed to ensure firm survival) while minimising the distortion to allocative efficiency by linking prices paid by different acquirers to their demand characteristics.[72]

4.11. One form of demand differentiated pricing is Ramsey Pricing, which covers costs by structuring prices according to demand characteristics. Specifically, the price for each user (or group of users) would be set by adding a percentage mark-up on marginal cost, with the size of the mark-up being inversely proportional to the price elasticity of demand of that user or group of users. The mark-ups are scaled up until revenues cover costs. By doing this, costs can be allocated more heavily to those with the greatest willingness to pay; i.e., those users least sensitive to price increases pay the highest mark-ups, and vice versa.[73]

4.12. An alternative 'second best' approach to pricing in circumstances where average cost exceeds marginal cost at the relevant output levels is the multi-part tariff. A two-part tariff (the most common form of multi-part tariff) combines a single fixed charge component that is paid by all users regardless of the quantity of output purchased,

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[72] Rigas Doganis, *The Airport Business*, London: Routledge, 1992. W.J. Baumol and R.D. Willig, *Pricing Issues in the Deregulation of Railroad Rates*, in: J. Finsinger (ed.), Economic Analysis of Regulated Markets, London, 1983, page 92.

[73] J. Vickers, *Regulation, Competition, and the Structure of Prices*, Oxford Review of Economic Policy, vol.13, No.1, 1997.

together with a variable charge component that increases (often proportionally) with the volume of output purchased. The fixed costs of the operator are recovered through the sum of the fixed charges received, while the variable (output-related) costs are reflected in the variable charge component. Two-part tariffs have often been used for pricing in access regimes involving natural monopolies, as they allow total costs to be recovered by charges, while at the margin allowing price to be equated with the marginal costs of supply. However, this form of pricing has not been used by the airports for their airfield activities, and it might be difficult to apply given the very low level of marginal cost and potential difficulties in determining the fixed charge for each customer.

4.13. Another possible ‘second best’ (or ‘third best’) pricing approach is average cost pricing. This approach would be used where demand differentiated pricing is preferred but impractical (e.g., there is a lack of information) or undesirable (e.g., significant administration costs can be involved with Ramsey Pricing). Average cost pricing is simpler in practice than demand differentiated pricing, but less effective, in terms of minimising departures from allocative efficiency. This is because it ignores potential gains that can be made from structuring prices to take account of differing demand characteristics.

4.14. Given that the approaches taken by the airports to pricing appear to approximate Ramsey pricing, this is the principle used here for evaluate their pricing structures. Ramsey pricing does, of course, rely on the ability to price discriminate between groups of customers and requires information on the demand characteristics of the customer groups. Those demand characteristics may be inferred to some degree from the plane weight and route characteristics of different flights.

Normal Returns

4.15. Underlying allocatively efficient pricing is an understanding that firms in competitive markets will earn normal returns. CIAL challenged the Commission’s standard for determining normal returns. It suggested that—in the Draft Report—normal returns were not evaluated against a standard of workable and effective competition, but against a higher standard of perfect competition.[74] The Commission considers that some wording in the Draft Report may have given this impression, but in its application, the approach taken by the Commission did apply a workable and effective competition standard. The Commission considers that normal returns means returns commensurate with the risks faced. The weighted average cost of capital (WACC) is thus used for determining the level of normal returns on the asset base and is consistent with a ‘workable and effective’ competition standard rather than a perfect competition standard (where returns would be based on marginal costs). This is further discussed in Chapter 7.

4.16. In competitive markets, any returns in excess of (or less than) normal returns would reflect superior (or inferior) performance. The airlines challenged the Commission’s position in the Draft Report of supporting this competitive market characteristic. They argued that in markets of limited competition it was not possible to judge

[74] CIAL Submission on the Draft Report, 14 August 2001, Part C, page 74.

superior performance, which they say are just excess returns.[75] Ideally, superior performance should be assessed through a cross company benchmarking exercise. However, this may not always be possible, and a company-specific historical analysis of such variables as operating costs may provide guidance on the direction of changes in efficiency over time and, therefore, whether companies face efficiency incentives.

4.17. In markets where there is limited competition, it can be difficult to distinguish superior performance from the attainment of monopoly (excess) returns. Allowance for any superior performance needs to be made when returns are assessed. To not do so would place an asymmetric risk on airports, because they would never be allowed above normal returns (for superior performance), but could receive below normal returns. Such an asymmetric risk would not promote efficiency.

Service Quality

4.18. For a price to be allocatively efficient, the quality of service demanded must be of a standard that reflects that price, and meets consumers' preferences. Over time, product quality is a material consideration in terms of both allocative and dynamic efficiency.

4.19. In markets with limited competition, a firm may seek to improve profits by lowering service quality. If there are limited substitutes for the service, consumers may have no choice but to accept the service quality offered (even though a higher quality would ideally be provided for the price paid). The possibility that consumers will stop buying the product may provide the only constraint to this behaviour, but this may be a limited option, particularly for necessities which have no or very limited substitutes.

4.20. Gold plating may also occur in markets of limited competition. Gold plating means that goods or services supplied represent a higher level of quality than what would be demanded by consumers. Because of the lack of alternatives, consumers are, as above, forced to pay the higher than efficient price.

Level of Costs and Assets

4.21. As operating costs are recovered through prices, they should be minimised for any given quantity of production. Whether prices are at their most efficient level will depend, in part, on whether the appropriate level of fixed assets is being used to support production. Where prices depend on the level of the asset base, a sub-optimal level of assets could result in prices above or below those necessary to meet demand.

Short-run and Long-run Perspectives on Pricing

4.22. In determining allocatively efficient prices, it is possible to take a short-run or long-run perspective. Typically, a more short-run perspective is taken given the uncertainties over the appropriate long-run costs that promote efficient outcomes. Nonetheless, there may be occasions where a more long-run perspective is desirable. For example, long-term contracts can provide certainty of future usage and costs for

[75] BARNZ Submission on the Draft Report, 10 August 2001, page 19.

both suppliers and consumers, and pricing on such a basis would promote efficiency in such circumstances.

4.23. The airports questioned the pricing perspective of the Commission, in particular the principle in the Draft Report that today's consumers should pay today's costs.[76] The airports suggest there is potential for confusion over the application of this principle. CIAL in particular asked that the Commission clarify its position, which it felt was overly short-run focused.[77]

4.24. CIAL argued that the Commission's principle that today's consumers should pay today's costs, strictly applied, would not allow (legitimately) suppliers to bring assets into the asset base before they are actually used. It suggested there may be planning reasons for assets to be brought in sooner, so as to facilitate smooth increments in capacity.[78] The airlines opposed bringing assets into the asset base that were not used.[79]

4.25. The Commission considers that, as a matter of principle, there may be occasions where future investments should be included in today's prices and accordingly, it does not include the statement that today's consumers should bear today's costs, as this is perceived as suggesting a overly short-run pricing perspective. This was not the Commission's intention. To include in prices the costs of such investments, the Commission considers it must be clearly demonstrated that such investments are efficient. Further discussion on the concept of used and useful is provided in Chapter 5 on asset base.

4.26. The Commission considers that the principle outlined in the Draft Report discussed above (that today's consumers should pay today's costs) is subsumed in the over-riding concern of determining the appropriate level and structure of prices and that, depending on the circumstances, this may involve taking either a more long-run or short-run perspective to pricing.

Structure of Prices

4.27. The structure of prices has implications for whether cost recovery is occurring in the most efficient way and whether there is cross-subsidisation, either between different users of a particular product, or between users of different products.

<u>Demand Differentiated Pricing</u>

4.28. Demand differentiated pricing can be practiced in a number of ways and using various differentiators (e.g., by time of day, by type of customer, etc). The implementation of Ramsey Pricing requires knowledge of, or good proxies for, price elasticities of

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[76] For example, AIAL Submission on the Draft Report, 14 August 2001, Part A, page 57, paragraph 4.9.

[77] CIAL Submission on the Draft Report, 14 August 2001, Part B, page 13, paragraph 37; Part C pages 37-39.

[78] Ibid, Part C, pages 37-43.

[79] BARNZ Submission on the Draft Report, 10 August 2001, page 25, paragraph 16.8.

demand.[80] It is recognised, however, that cost functions and demand elasticities are not perfectly known. Clearly airports should not be judged inefficient for not introducing demand differentiated pricing, if the information is not available or if it is clearly impractical (and administratively costly) to do so. However, the mere inconvenience of introducing demand differentiated pricing would not provide a sufficient reason to avoid introducing such prices. The Commission considers the efficiency of pricing structures must be judged in the light of the above considerations.

Cross-subsidisation

4.29. Cross-subsidisation can be said to exist where the incremental revenue earned from the sale of a given product is either below the incremental cost or is above the stand-alone cost of supplying that product. Incremental cost is the additional costs imposed by a product (or group of users) on a supplier. They include all the additional marginal, fixed and common costs created by supplying the product. Stand-alone costs are those costs incurred by a supplier in producing only the one product. They are the minimum costs that an efficient supplier would incur in providing the service. Two potential cross-subsidisation concerns can emerge:

- If a supplier charged a price lower than the incremental costs of supply, its revenues would not cover its cost. If, at the same time, the supplier is still cost recovering over all, this suggests that the consumers of one product are supporting the consumers of another product. This does not send appropriate signals for resource allocation and use. It may also be perceived as unfair by consumers.

- If a supplier charged a price above the stand-alone cost of supply, it would imply over-recovery. Once again, inappropriate signals for resource allocation and use are created. In addition, if the concept of stand-alone costs makes no allowance for the economies of scope that can be gained from providing several products together, and a monopolist charges for each product up to its notional stand-alone costs, with no adjustments to reflect economies of scope, it would also over-recover.

4.30. To prevent cross subsidisation, a cost allocation approach is often taken. Complicated cost allocation models may be developed. However, the avoidance of cross-subsidisation requires that administrative costs of having separate charges be taken into account. It might also be commercially impractical to measure the incremental cost of each user and to charge accordingly. Further, many products are marketed on the basis of a single price. To do otherwise could be costly for firms and confusing for consumers.

[80] Prices may also have to be adjusted where cross-elasticities are significant. There may also be demand complementarities between airports. For example, a domestic flight must involve two airports, so that the demand by aircraft operators for the use of one will be influenced, not only by the charge it levies, but also by the charge levied by the other. This may have to be factored into Ramsey-compliant charges.

Productive Efficiency

4.31. Productive efficiency means meeting demand at the lowest possible costs, including minimising transaction costs resulting from exchange of products. In the short-run, this involves choosing and making best use of the appropriate level of variable inputs. Over time, it involves making investments that ensure that costs can continue to be minimised.

4.32. In evaluating whether prices are efficient, it is important to assess whether firms can further reduce costs. This could be done by considering the mechanisms that could drive cost minimisation. Competition forces firms to minimise costs, subject to consumers' quality demands, or risk losing supply to other providers.

4.33. However, where competition is lacking, other factors would have to be considered to determine whether sufficient incentives for cost minimisation remain. A producer who faces limited competition in a market may lack the competitive pressures to remain efficient in production. Organisational slack may creep into its operations, bureaucracy may expand, principle-agent problems may arise, salaries may become inflated, and waste may occur, all because a satisfactory level of profit is assured even when the firm is less than fully efficient. As a result, costs in general may increase. The increase in costs is a measure of the value of the resources being wasted, which in turn indicates the value of the output foregone by the economy as a whole from those resources not being employed more productively and efficiently elsewhere.

4.34. Profit motivation can encourage cost minimisation, but the incentives it provides may not be sufficient. For example, a monopoly may be able to earn above normal returns even without being productively efficient. Costs would ideally be benchmarked in various ways to determine the true strength of the incentives facing firms to be productively efficient and whether cost minimisation has been achieved. Benchmarking has its own difficulties, however, and a judgement on the potential benefits of such exercises against the costs would have to be made.

Dynamic Efficiency

4.35. Dynamic efficiency means maintaining allocative and productive efficiency over time. In practice, this means making investments and innovating so that costs continue to be minimised and prices over time generally reflect this.

4.36. For industries where new and improved products and production processes could be expected to be introduced relatively frequently, dynamic efficiency is largely about ensuring such improvements are introduced in a timely fashion.

4.37. For industries characterised by large long-term investments, and slow innovation in 'new and improved' products and production processes, dynamic efficiency is largely about appropriate new investment management, particularly appropriate investment choices and the timing of those choices. Determining appropriate costs over time requires considering whether current, and prospective, investments are necessary. Over- or under-investment should be avoided.

Generic Pricing Principles

4.38. Given the above considerations, the Commission considers the following pricing principles are suitable for determining efficient prices and evaluating supplier performance:

a) Prices should be as close as possible to their allocatively efficient level over the medium-term. This requires that:

- Prices are commensurate with the level of service quality demanded (allocatively efficient, subject to minimum legal safety standards).

- Prices are based on appropriate costs (productively, and dynamically, efficient costs).

- Prices encourage efficient use of a supplier's facilities and avoid cross subsidisation.

b) Prices should allow for a normal return to be earned by suppliers over the medium-term. This requires that:

- Normal returns are calculated on an appropriately determined asset base and rate of return, and cover efficient operating costs, and no more.

- Returns that are greater, or lesser, than the normal rate should reflect superior, or inferior, performance respectively.

c) Prices should be dynamically efficient over the medium-term. This requires that over- or under-investment be avoided, and that appropriate price signals are sent for investment (or divestment).

4.39. The above principles should not be seen independently, but rather as inter-related considerations for evaluating efficiency.

4.40. Prices (and costs) can be susceptible to short-term fluctuations in market conditions. The principles above are expressed over the medium-term, so that such short-term fluctuations do not distort judgements on whether prices are efficient and suppliers have been behaving efficiently. The Commission considers this is desirable for evaluating whether the potential benefits (if any) of control could be realised.

APPLICATION TO AIRPORTS

4.41. This section discusses in general terms the pricing principles in the context of airports. Airport-specific issues are examined in the relevant airport-specific chapters.

Allocative Efficiency

Level of Prices

4.42. Airports are capital intensive with a number of large fixed assets, such as runways. In the short-run, marginal costs are very low, because of this. Given large fixed assets, prices set at marginal cost will be unlikely to cover the costs of airports owners, thereby threatening their survival. There are also common costs associated with various airport activities. As a matter of principle, all submitters to this Inquiry were supportive of the Commission's position that fixed and common costs be recovered. However, there was disagreement on what the appropriate level of fixed costs were, and how the common costs should be apportioned.[81]

4.43. The airport-specific chapters evaluate the appropriateness, or otherwise, of the airport specific fixed and common costs and whether the airports have set prices in excess of total costs: in short, whether they are earning above normal returns, or not, and the efficiency implications of this.

Service Quality

4.44. Evaluating whether desired service quality has been achieved at airports can be difficult. Service quality variables would ideally need to be benchmarked, although this can be complicated given interdependent factors that impact on service quality, such as terminal congestion (e.g., as a result of customs or check-in delays) causing airfield congestion. The disclosure obligations of airports include a requirement to disclose the number and duration of unplanned interruptions to certain airfield activities (e.g., runway services). The disclosures made to date seem to indicate that there are few service quality issues regarding airfield activities at the airports. Submissions also indicate that there is, in general, no concern over poor service quality at each of the airports.[82]

4.45. In markets of limited competition, there is the potential for gold plating by suppliers. The airlines suggested that gold plating may be an issue at the airports. They raised this issue mainly in the context of the new terminal building at Christchurch International Airport.[83] The pricing of terminal services is, however, outside the scope of this Inquiry. Given the nature of airfield services, it seems likely that the prospect for gold plating is limited. Runways and taxiways, for example, are usually designed to international requirements.

Level of Costs and Assets

4.46. Airfield operating costs are variable costs, in that they change as output volumes change. The maintenance costs of a runway are related to the wear and tear of the sealed surfaces, which is in turn directly related to the number of aircraft movements and the weight of aircraft. The costs of airport rescue fire services varies (at specified increments) depending on the number, mix and size of aircraft using the airport.

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[81] BARNZ Submission on the Critical Issues Paper, 26 April 2001, page 39.

[82] BARNZ Submission on the Draft Report, 10 August 2001, page 37, paragraph 35.1.

[83] BARNZ Submission on the Critical Issues Paper, 26 April 2001, page 38, paragraph 27.9.

4.47. There are numerous 'lumpy' investments needed for airfield activities, i.e., infrequent investments with large fixed costs. At each of the airports there are also assets held for future development and not currently used (at least not for airfield activities). The airlines objected to the inclusion of assets being held for future development in pricing.[84] They argued this raised prices beyond an allocatively efficient level.[85] Airports responded that the assets should be included in the asset base for dynamic efficiency, as prices would then reflect the congestion costs that (in their opinion) are expected to emerge over time. They believe their approach is just smoothing prices over time.[86]

4.48. AIAL presented comments from Professor Alfred Kahn, who said:[87]

> According to the Commission's pricing principles, "Prices should send appropriate signals for determining whether new investment …would be efficient." This is precisely the reason why inclusion of either short-term marginal congestion costs or their surrogate, the capital costs of additional investment to hold those costs within efficient limits, should be reflected in price currently. This principle clearly justifies AIAL's assertion that "land held for future use that is associated with current operations can be included in the asset base where there is an intention (and reasonable certainty) to use the land at a future date for operational purposes", and there is agreement from substantial customers on the prudency of that intention.

4.49. Kahn's starting point seems to be reliant on the principle in the Draft Report that prices should send appropriate signals for new investment and does not seem to be a criticism of this principle per se. But it does raise the issue of what costs should be considered as short-run costs.

4.50. Kahn highlights how MSC should include marginal short-run congestion costs where these exist and argues that capital costs "required to hold those costs within efficient limits" can be an appropriate surrogate for such costs. He does not, however, form a judgment on whether congestion costs are actually significant enough in the AIAL case for capital costs to be a reasonable surrogate for those costs. He also quotes AIAL's qualification that there must be 'reasonable certainty' that the land will alleviate such congestion. Kahn provides an additional qualification to his view, when he suggests there may have to be agreement from substantial customers on the prudence of the intended investments.[88]

4.51. In evaluating the level of prices for airports, the Commission considers it is appropriate to take a medium-term perspective to pricing. In its application to future investment this means the Commission errs on the side of taking a more short-run (as opposed to long-run) perspective to pricing, given the general nature of airfield investments where there is significant time between capital investments and formal contracts have not been entered into, although a medium-term perspective is aimed for overall. To do otherwise could result in excess returns being earned by the airports.

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[84] BARNZ Submission on the Draft Report, 10 August 2001, page 25, paragraph 16.8.

[85] *Conference Transcript*, page 629.

[86] For example, AIAL Submission on the Draft Report, 14 August 2001, Part A, pages 61-71.

[87] Ibid, Part A, pages 14-15.

[88] Ibid, Attachment 3, page 13.

Structure of Prices

Demand Differentiated Pricing

4.52. Airports typically determine charges on the basis of allocated costs, rather than according to demand differentiated principles. This probably reflects the difficulties inherent in calculating Ramsey prices in practice, and that it may be easier to justify the charging structure to users if it can be related to costs. Moreover, cost-based pricing is supported by the International Civil Aviation Organisation (ICAO), which has stated that, as a general principle, it is desirable that users ultimately bear their full and fair share of the cost of providing the airport.[89]

4.53. In addition, the current regulatory approach in New Zealand discourages certain forms of demand differentiated pricing by airports, such as charging various substantial customers differently. This is because of the incentive for substantial customers to negotiate collectively with airports. Bilateral agreements between countries also often prevent discriminatory pricing by airports between different international airlines (in that domestic airlines cannot be charged less than foreign airlines). Together, these factors seem to limit the potential for demand differentiated practices.

4.54. If an airport were to try and set Ramsey-compliant airfield (essentially, landing) charges, it would probably start from the recognition that the bulk of the airfield costs are invariant with the number of aircraft movements, and hence are not able to be allocated between movements in any sense that would be helpful to decision-making.[90] The marginal (or additional) cost of an additional aircraft movement would amount to the additional wear-and-tear on the runway pavement and associated taxiway and apron, and that would be small. As the other costs are incurred regardless of whether that aircraft uses the runway or not, they have to be recouped through Ramsey-based mark-ups.

4.55. As noted, the mark-up would depend upon the underlying demand elasticity of the user, which in turn would reflect the size of the aircraft making the movement and its purpose. For example, a given increase in runway charges would probably tend to have a much bigger impact on the demand from GA aircraft, at least in part because that charge would convert into a much higher levy per passenger, and hence reduced demand for seats. Hence, it can be inferred that operators of larger aircraft will probably have a more inelastic demand for runway use, whereas for smaller aircraft the demand will be more elastic. Therefore, as a general rule of thumb, Ramsey prices would be higher for larger aircraft, and lower for smaller aircraft.

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[89] *ICAO's Policies on Charges for Airports and Air Navigation Services*, 2001; ICAO Airport Economics Manual, 1991. Note that New Zealand is a contracting state.

[90] For example, W. J. Baumol, M. F. Koehn, and R. D. Willig (1987), *How Arbitrary is 'Arbitrary'? – or, Toward the Deserved Demise of Full Cost Allocation*, Public Utilities Fortnightly, vol. 120, September 3rd, pages 16-18; and I .N. Kessides and R. D. Willig, *Restructuring Regulation of the Rail Industry for the Public Interest*, in: Railways: Structure, Regulation and Competition Policy, DAFFE/CLP(98)1, Paris: Committee on Competition Law and Policy, OECD, 1998, pages 151-52, 154-55.

4.56. A practice frequently used by airports (including the subject airports) is to set runway charges in relation to the weight of aircraft, usually in exact proportion to the maximum certified take-off weight (MCTOW) of an aircraft—albeit weight bands are often used for administrative simplicity. A consequence of this approach is that larger aircraft bear a larger amount of the fixed costs (both in terms of the total charge per aircraft landing and in terms of the landing charge per tonne). In other words, it could be that the MCTOW acts as a rough proxy for the inverse of the price elasticity of demand for runway use. This suggests that, given the difficulty of estimating demand elasticities directly, airport cost-based pricing approaches may generate prices that are sufficiently close proxies to desired Ramsey prices (and any efficiency losses from divergence very small).

4.57. Morrison (1982) suggests that a more appropriate proxy for the underlying demand elasticities would also include the length of sector travelled. This is because, for a given type of aircraft, the elasticity of demand for a flight will be less sensitive to the landing charge for longer flights than for shorter ones.[91] This approach raises further practical issues, and the potential for disputes over sector lengths travelled. The Commission does not attempt to determine pricing structures based on Morrison's suggestion.

4.58. Airports can also practice price discrimination by time of day, which can be particularly important (and efficient) where there is constrained capacity at peak times. Flight scheduling may be a relevant consideration in determining whether such efficiencies could be achieved, although, in practice, peak pricing has not been applied at New Zealand airports to date. Airports and airlines in their submissions were generally not enthusiastic about peak pricing and preferred to deal with congestion issues through administrative approaches. The evidence put forward by both airports and airlines is suggestive of limited or no congestion problems, both in magnitude and by time of day.[92] If congestion were a significant issue, the Commission would expect to see solutions being put forward, including pricing approaches (which is not the case).

Cross Subsidisation

4.59. As airports are multi-product businesses, and serve a variety of customers, there is potential for cross-subsidisation to occur. The basis on which the different components of the cost of airfield activities are allocated between users varies by the subject airports. In general, however, the following approaches seem to apply:

- Airfield land is typically allocated to groups of users based on the number of aircraft movements and the runway area required.

- The costs of sealed surfaces (runways, taxiways and aprons), and the damage to them, are shared among users based on a variety of factors including the runway

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[91] S.A. Morrison, *The Structure of Landing Fees at Uncongested Airports*, Journal of Transport Economics and Policy, Vol 6, 1982, pages 151-59.

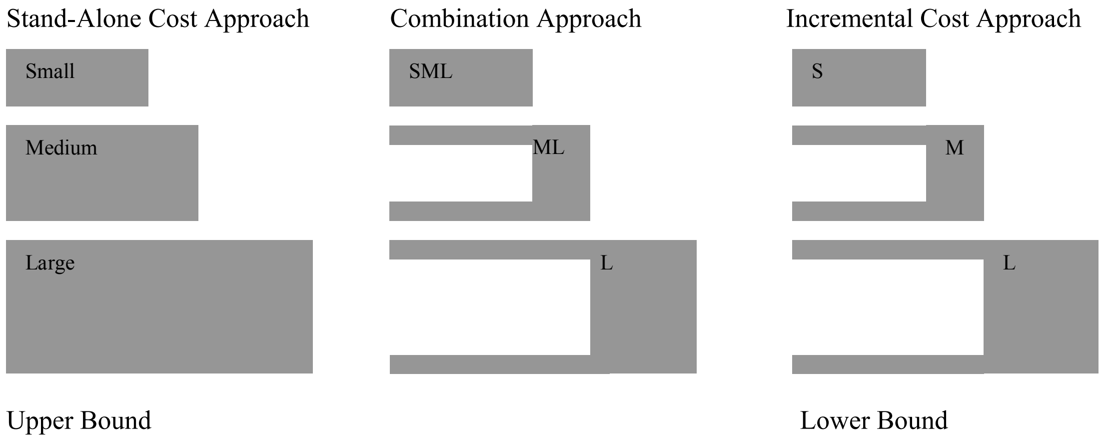
[92] For example, BARNZ Submission on the Critical Issues Paper, 26 April 2001, page 52.

area used, runway thickness required, number of landings, seats landed[93], tonnes landed[94], and equivalent annual landings of design aircraft[95].

- The costs of rescue fire services are allocated to users based on rescue fire category required[96] and the number of landings or seats landed.

4.60. Figure 1 illustrates three alternative approaches to cost allocation of airfield activities. The symbols S, M and L denote the three aircraft size classes, small, medium and large on which charges are levied. The shaded areas represent the areas of the runway used by, and hence the costs that are to be attributed to, each aircraft size class. Each approach adopts a different stance on which size class is considered to 'cause' which costs. The so called 'stand-alone cost' approach gives an upper bound on the total of costs that are attributed, whereas the 'incremental cost' approach gives the lower bound. The 'combination' approach represents an intermediate position.

Figure 1
Alternative Approaches to Cost Allocation



4.61. The stand-alone cost approach uses the existing scale of operations as a starting point, and treats each of the three aircraft sizes as representing different outputs. It involves asking, for each size class, what costs would be avoided by not supplying it with runway services. In the case of the large aircraft, no costs would be avoided since large aircraft use the entire length and width of the runway, and so they are allocated the cost of the entire runway. This gives the stand-alone cost of a runway specifically designed to service only large aircraft. In respect of medium-sized aircraft, the costs avoided (and deducted from total cost to arrive at stand-alone cost) are the incremental costs of providing landing services to large aircraft. For small aircraft, the costs avoided would be that of the increments of capacity required for medium-sized aircraft plus the further capacity beyond that for large-sized aircraft.

4.62. The upshot is that the stand-alone cost approach, by recouping all of the annual runway costs from the large aircraft, and then allocating further costs to the medium

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[93] Seat capacity of aircraft multiplied by the number of landings.

[94] Maximum certified take-off weight of aircraft (MCTOW) multiplied by number of landings.

[95] Calculated in accordance with Federal Aviation Authority (FAA) Advisory Circular AC150/5320-6C (an algorithm that reflects the wheel weights and required runway length of aircraft).

[96] Defined for each aircraft per ICAO and New Zealand Civil Aviation Authority (CAA) requirements.

and small aircraft, results in over-recovery unless the allocated costs are scaled back to equal the actual annual total cost of the facility. Without any scaling back, the resulting charges would neither be Ramsey-compliant—because of the over-recovery (regardless of the appropriateness of the relative charges borne by different sizes of aircraft)—nor would they be truly ‘stand-alone’, as the aggregate charge would exceed the minimum needed for an efficient entrant to replicate the supply of the same services to all aircraft classes. A further feature of this approach is that it may result in a proportionately higher charge for larger aircraft than in other approaches.

4.63. In contrast, the incremental cost approach begins by asking: what are the costs of the minimum size of runway needed to met the needs of small aircraft? All of those costs are then allocated to the small aircraft category. Starting with that small runway, the additional costs associated with the wider and longer runway needed to meet the needs of medium aircraft (over and above that used by small aircraft) are then calculated. Those incremental costs are then recovered in the charges for that aircraft size class. Finally, starting with the runway scaled for medium aircraft, the additional costs associated with the yet wider and longer runway needed to supply large aircraft are calculated, and those costs are recouped from the charges imposed on that aircraft size class. In other words, under the incremental cost approach, the costs allocated to medium and large aircraft include only the additional costs of supplying that increment. As a result, and in contrast to the stand-alone approach, the incremental cost approach allocates relatively little cost to large aircraft, and relatively more cost to small aircraft.

4.64. Under the combined approach (proposed by Travers Morgan in 1988[97]), the costs of the portion of the runway used by small aircraft are shared among all aircraft size classes, on the grounds that they all use it. The increment of runway needed by medium aircraft (but also used by large) is shared between both of those size classes. Finally, the further increment of runway needed by large aircraft is allocated only to that size class (as it is not used by the smaller classes).

4.65. This combined approach has tended to be the one used by the subject airports in determining their cost-based landing charges. The costs allocated to each aircraft size class are then charged out in relation to each aircraft’s MCTOW. Large, heavy aircraft pay more than small, light aircraft because they require longer, wider and more strongly engineered runway pavements, and take up more space on the aprons. It has been suggested that charges calculated in this way may result in a quasi-Ramsey pricing structure, with those aircraft having the greater ‘willingness to pay’ being charged more than those with less.

4.66. At each airport the dollar charge per MCTOW varies across a number of weight bands, the charge for each band being an average of the ‘actual’ charges for a particular weight band that would apply if the model-based charges were to be strictly adhered to. Hence, aircraft are actually charged a price based an allocated average cost, which may be greater or lower than the cost attributed to the aircraft by the cost model, implying cross-subsidisation.

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[97] Travers Morgan Pty Ltd, *Christchurch International Airport Limited: Allocation of Airport Charges*, Final Report, September 1988.

4.67. The bands adopted can significantly affect the landing charges paid by different types of aircraft at the margin. The top weight break for AIAL is 40 tonnes, but for WIAL and CIAL it is 30 tonnes, so any aircraft between 30 and 40 tonnes (e.g., the BAE 146 whisper jets which have a MCTOW of 39 tonnes) fall into a lower weight band at AIAL than they do at CIAL or WIAL. However, weight bands and the associated averaging of the bands are used to ease the administration of the charging system, and the possibility of cross-subsidisation is judged against this practical consideration.

4.68. The discussion above focuses on the possibility of cross-subsidisation between different users of airfield activities; however, cross-subsidisation can also occur between different airport activities. As previously noted, a feature of multi-product firms is that there may be costs that are "common" to two or more outputs. In the context of different airport activities, common costs appear to be limited to elements of the airport's corporate administration and overheads. This may suggest that cross-subsidisation may only be of minor concern.

4.69. Nonetheless, because of the throughput of passengers generated by airfield activities, airports typically undertake not only other integrated aeronautical activities (such as the provision of terminal facilities), but also significant complementary commercial activities (such as the provision of retail and commercial premises). If airfield activities provided by the airports are found to be subject to limited competition, there may be scope for any excessive profits earned in that activity to be used to subsidise other activities in which the airport faces more competition. Alternatively, it may be possible that airfield activities may be subsidised from an airport's earnings in non-airfield activities which may also face limited competition.

4.70. Cross-subsidisation between airport activities is often discussed in the context of single, dual or multiple tills.[98] The debate over the number of tills raises considerations that go beyond the scope of this Inquiry. However, the scope for cross-subsidisation is potentially minimised by the use of a multiple till approach, especially where that is reinforced by a ring-fencing framework (e.g., segment financial reporting), as is the case in New Zealand currently.

4.71. The airlines raised concerns over the potential for cross-subsidisation between different airport activities. For example, BARNZ said it had not received sufficient information from AIAL on apportionment of costs to commercial activities for it to be able to judge whether cross-subsidisation was an issue.[99] It believed disclosures could be enhanced to assist it in their assessment of appropriate cost allocations.[100] The Commission considers—in the airport-specific chapters—whether there is any cross-subsidisation between different airport activities. It is noted that the ability of airlines to change their schedules mitigates the potential for cross subsidisation by aircraft type, notwithstanding that airlines would generally prefer to use large over smaller planes, due to efficiencies in such things as fuel.

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[98] Under a single-till, an airport is treated (and regulated) as a whole. Under a dual or multiple-till approach, an airport is split into segments (e.g., aeronautical and non-aeronautical) and each part is treated differently. Under a single till, get reduced landing charges due to revenues earned in other (often commercial) activities. At present, a single-till approach is used in the United Kingdom, a dual-till approach in Australia, and a multiple-till approach in New Zealand.

[99] BARNZ Submission on the Critical Issues Paper, 26 April 2001, page 58.

[100] BARNZ Submission on the Draft Report, 10 August 2001, page 18, paragraph 11.10.

Conclusion

4.72. Allocative inefficiencies exist where price exceeds average cost. The Commission considers that these allocative inefficiencies are the direct responsibility of airports. Allocative inefficiencies also exist because of the imperfect nature of demand differentiated pricing that can be practised by the airports. The Commission considers that allocative inefficiencies emerging in this context are not the result of inappropriate airport behaviour and it does not include these inefficiencies in its calculations of the potential benefits of control. Each is further discussed for each airport in the airport-specific chapters.

4.73. The scope for cross-subsidisation between aircraft classes, such as between large and small aircraft classes, may be limited, with the cost allocation models adopted by the airports providing an allocation of cost that is likely to see only small, if any, divergence of costs to users outside the bounds of the incremental or stand-alone costs. Some allowance is also been given for ease of administration.

4.74. There appears to be more scope for cross-subsidisation between different airport activities. However, the multiple till systems, under which each activity recoups its costs from its own revenues, are likely at least to limit the scope for this to occur. The Commission considers cross-subsidisation between different airport activities to be within the scope of this Inquiry and it demonstrates the extent of any cross-subsidisation.

4.75. These issues are further discussed for each airport in the airport-specific chapters.

Productive Efficiency

4.76. The operating costs of airfields are not as large as their fixed costs. Nonetheless, the costs are significant and the operational efficiency of airfields, therefore, remains a key consideration in determining whether there are productive inefficiencies in airfield activities.

4.77. The cost of runway damage aims to take account of the wear-and-tear on the runway, and associated taxiway and aprons, caused by aircraft movements. The wear-and-tear has been thought to vary exponentially with aircraft weight, or more precisely, with the loading per wheel, and is considered to be greater on take-off when the plane has its full fuel load. However, the airlines have suggested that the relationship is actually linear. In any case, the cost per movement is likely to be very low.

4.78. Another major operating cost is fire rescue, which can vary depending on the volume of air-traffic. The minimum requirements for fire rescue are, however, governed by international agreements.

Dynamic Efficiency

4.79. Investment planning by airports represents a key criteria in evaluating their dynamic efficiency. Given the large, sunk, long-lived investments associated with airfield activities, and the fact that they often supply inputs into other industries, their investment behaviour is of critical importance. Over-, or under-, investment will have direct implications for congestion at airports.

4.80. Airports often hold land for future development. The Commission considers it is necessary for it to determine whether holding this land leads to efficient outcomes. This is addressed in Chapter 5.

CONCLUSION

4.81. The Commission considers that the generic pricing principles (set out in paragraph 4.41) are relevant for airports. There are certain characteristics of airports that require careful consideration in seeking to apply the principles. The principles nonetheless provide a benchmark against which the Commission determines the extent of inefficiency and/or excess returns, if any, at each of the three airports in Chapters 8, 9 and 10 of this Report. In applying these principles to airports, the Commission considers that:

- The level of landing charges at each of the airports is an issue that should be closely examined. This has direct implications for whether any airport is earning excess returns or creating allocative inefficiencies.

- The costs that are used to determine landing charges should be examined. The appropriate pricing of assets and the inclusion of assets in the asset base that may not be needed in the provision of airfield activities warrants particular attention. In this latter regard, there are issues over whether land held for future airfield development should be included in the asset base for charging purposes. These issues have implications for whether both allocative and dynamic efficiency are achieved.

- The operating costs of airfield activities are relatively less significant than the fixed costs, given the high proportion of fixed assets. They are nonetheless significant in themselves and warrant examination of their productive and allocative efficiency.

- The structure of prices has implications for allocative efficiency and warrants examination, as pricing structure could be altered by the airports. It is common international practice to structure prices around MCTOW bands, which reflects the differing demands of different sized aircraft. This is examined by airport. It is expected that the efficiency of peak pricing would be closely examined if congestion were an issue at any airport. The potential for cross-subsidisation between different airport activities appears to be limited by the multi-till approach and warrants limited examination.

- Although service quality is an issue that would generally need careful consideration, in the present case there seems limited scope for concern given that airfield activities are governed by international regulations regarding safety. For similar reasons, and because of the nature of airfield assets, gold-plating for this purpose is likely to require limited examination.

- Airports should earn a normal return calculated using an appropriately determined WACC for airfield activities, an appropriate asset base for airfield activities and efficient airfield operating costs.

5. ASSET BASE

INTRODUCTION

5.1. The value of assets is important to the determination of the revenue required by a regulated (or potentially regulated) firm for two reasons: first, it is the basis for determining the appropriate return *of* capital (depreciation charge); and second, the cost of capital is applied to the asset value to determine the amount of revenue required to earn an appropriate return *on* capital. The return of, and on, capital forms the firm's capital costs that it would hope to recoup, along with its operating costs, through its charges. Should the firm's revenues exceed its capital and operating costs, the firm will earn a return in excess of its cost of capital. Although this could happen in several different circumstances, a firm that persistently earns excess returns over time is likely to be doing so by exploiting a position of market power.

5.2. In competitive markets, prices are set independently of asset values, which means that the current value of a business or an asset can, in principle, be determined as the net present value of the cash flows it can generate. Here revenues, and therefore prices and volumes, determine the value of assets. However, where the output market is not competitive (as with airfield activities), and the assets are specialised to that output (so that no asset values can be taken from competitive asset market values), a circularity problem arises. The value attributable to the assets will depend upon the prices set for the final outputs, which themselves will not be constrained by normal competitive forces. The higher those prices, the greater the discounted cash flows received by the business, and consequently the higher the value of the business's assets. Hence, a monopolist might be able to justify almost any level of prices as being no more than a 'normal' or competitive rate of return on the assets committed to the business. This highlights the importance of ensuring that assets are valued appropriately. Only when assets are valued independently of prices can the efficiency of the company's pricing and returns on the value of its assets be assessed.

5.3. A further, related issue is that a firm operating in a market where competition is limited may be less efficient and, therefore, use a greater amount of assets (or assets of a higher quality) than necessary, or that it would employ were it to operate in a competitive market. Regulation may encourage this behaviour, especially if above-normal returns on capital are permitted. A regulator may require that excess capital assets be "optimised out" of the firm's asset base, so that the firm is permitted to earn a return of and on only an efficient level of assets.

5.4. The purpose of this Chapter is to derive the principles for determining the values of the relevant asset bases used by each of the three airports for their airfield activities. This involves discussing the following topics:

- Asset valuation concepts, including opportunity cost, market value existing use historic cost, replacement cost, and optimisation.

- The determination of the Commission's preferred approach to the valuation of assets used in airfield activities.

- The considerations that arise in the application of the chosen approach to airfield assets, namely the land and the sealed surfaces.

- The factors that need to be considered in determining the size of the permitted asset base.

5.5. Only generic asset base issues are discussed in this Chapter. Airport-specific asset base issues are considered in the airport-specific chapters, where the value of the relevant asset base for each airport is determined.

ASSET VALUATION CONCEPTS

Introduction

5.6. The asset valuation concepts raised by the Commission in the Draft Report, and discussed in submissions and at the Conference, were opportunity cost, market value existing use, historical cost, and replacement cost. In addition, the complementary concept of asset optimisation (notional removal of redundant assets for charging purposes) was also discussed, particularly in connection with replacement cost. Each of these concepts is briefly explained below, followed by a general discussion of their relative merits in the context of the regulation.

5.7. The Commission emphasises that, in its view, economic regulation is concerned with economic efficiency, or the efficient allocation of assets. The choice of asset valuation methodology must be made with this in mind. In addition, efficient prices are also likely to be consistent with the avoidance of income distribution effects associated with the exercise of market power. Hence, both efficiency and distributional effects must be considered.

Opportunity Cost Principle

5.8. From an economic perspective, the 'cost' of an asset (resource) is not necessarily the payment actually made for it, but rather its opportunity cost (although the two may be the same). Opportunity cost is defined in standard economics textbooks as:[101]

> ...the amount lost by not using the resource (labour or capital) in its best alternative use.

5.9. In decisions involving the efficient allocation of assets between alternative uses, the relevant costs are opportunity costs. By committing an asset to one use, all other possible uses are excluded. Some of these excluded uses may be more valuable than others. Since asset owners are assumed rationally to want to maximise the returns they get from the employment of an asset, its opportunity cost becomes the return they forgo from it not being employed in the next best alternative use. Opportunity cost is thus the highest alternative use value of assets used up or pre-empted.[102]

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[101] David Begg, Stanley Fischer and Rudiger Dornbusch, *Economics* (2nd edition), London: McGraw-Hill, 1987, page 118.

[102] D. Solomon, *Economic and Accounting Concepts of Cost and Value*, in: M. Backer (ed.), Modern Accounting Theor*y*, 1966, Chapter 6, page 127.

5.10. NERA (acting for AIAL) agreed both with the principle that opportunity cost valuations are necessary for price-setting to maximise economic efficiency, and with the general definition of opportunity cost used by the Commission, but argued that the "measure of opportunity cost will depend, in part, on what the identified 'second best' option is, as well as who is making the choice between the alternatives."[103] NERA considered that there are five different options, all consistent with economic theory under certain circumstances. These are historic cost, scrap value, replacement cost, optimised replacement cost and deprival value.[104] Others argued, in a similar vien, that the Commission had not defined with sufficient precision the meaning it attributed to the term opportunity cost.

5.11. Without here going into the details of each of the alternatives suggested by NERA (see below), the Commission does not agree that they all are measures of opportunity cost. For example, as opportunity cost properly conceived is a forward-looking concept, historic cost cannot be a measure of opportunity cost. Similarly, for sunk assets, replacement costs cannot be a measure of opportunity cost, as by definition such assets have no alternative uses once built.[105] The principle that the opportunity cost of an asset is its value in its next best alternative use is well established in economics. The next best alternative use is, by the ordinary meaning of the words, a use different from its current use. Thus, for airfield assets, the next best alternative use is a use outside of airfield use. The cost of the alternative foregone is borne by the current owner of the asset, who has the choice as to where it should be employed. By valuing assets at their opportunity cost, the owners of assets are forced to ensure that those assets are earning returns in their current use that are at least as great as that which could be earned in other uses. If assets are not earning their opportunity cost, returns would be greater—and efficient asset allocation would be enhanced—if those assets were transferred to their best alternative uses.

5.12. In competitive markets, an asset that is non-specialised, and which therefore has multiple uses, is likely to have a value (productivity) in its current use that will not be much greater, if at all, than that in its next best use. In these circumstance, the maximum amount of money that the user will be prepared to pay for the asset will not differ significantly from its opportunity cost, and so the amount paid will be a good measure of that opportunity cost. Put differently, the amount paid by the user will not differ much from the minimum amount needed to keep the asset employed in its current use. That 'minimum amount', called the asset's 'transfer earnings', is determined by its opportunity cost.

5.13. Any payment of less than opportunity cost will cause an asset to be moved to its best alternative use. Any payment above opportunity cost is an economic rent, a return over-and-above the minimum necessary to keep the asset in its current employment. A feature of competitive markets is that they tend to constrain existing use values to opportunity cost, at least at the margin, although rents may be earned on units below

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[103] NERA, *Options for Valuing the Land Assets of Airports*, Report for Auckland International Airport Ltd, September 2001, page i.

[104] Ibid.

[105] An oft-quoted saying in economics is that "bygones are forever bygones." See William Stanley Jevons, *The Theory of Political Economy* (3rd ed.), London: MacMillan, 1888, page 164.

the margin. However, when markets are not competitive, there may be potential for significant economic rents to be earned.

5.14. The situation changes significantly when an asset is so specialised that it has few, if any, alternative uses. This is often the case with airfield assets. Once the investment in creating the asset has been made, the outlay cannot be recouped by re-selling the asset for some other use. The asset, or that portion of its value that cannot be recouped, is 'sunk'. For a fully sunk asset, any residual value (net of the costs of disposal) is its net realisable value (NRV) as scrap. In these circumstances the opportunity cost of the asset is very low or even zero, as the owner forgoes very little (only its NRV) in its present use. Here, the opportunity cost of the asset will be far below its replacement, or even its historic, cost. The sealed surfaces at each of the three airports fall into the category of sunk assets. This was not disputed in any of the submissions.

5.15. The low opportunity cost of sunk assets is a very important regulatory consideration. If a regulator were to insist on a zero or low valuation for the asset in the course of setting prices—on the grounds that this would reflect its opportunity cost—the investors who had purchased the asset in the expectation of earning at least a normal (or competitive) return would not be able to do so. As a consequence, the asset would become 'stranded'—i.e., incapable of earning a normal return, and yet being so specialised as not to be employable productively in other uses—and investors, finding the value of their investments expropriated, would be unwilling to replace the asset when it wears out.[106] Continuity of supply would therefore be put in jeopardy, and dynamic efficiency would in consequence be jeopardised.

5.16. The usual solution to this issue over the valuation of specialised assets is to assign a value to them that exceeds their opportunity costs, on the grounds that continuity of supply and dynamic efficiency are very important in a capital-intensive, utility-type industry. Dynamic inefficiency losses from under-investment are likely to be large in respect of airports, and may extend to other industries. This is because any expropriation of investments is likely to have spill-over effects as investors react in a similar way in other similar industries, particularly those industries that are regulated, or have the potential to be regulated, in a similar way. There would also be an adverse signalling affect to other investors in the economy who were affected, or potentially affected, by Commission decisions.

5.17. In the Draft Report, the Commission used depreciated historic cost to value specialised assets, on the basis that investors would be able to recoup through charges what they had originally invested, and that this would ensure continuity of supply in the long-run. However, various submissions (including those from the three airports and two electricity lines companies) were critical of the Commission's use of depreciated historic cost for specialised assets and of opportunity cost for land, and

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[106] For example, Mark Armstrong, Simon Cowan and John Vickers, *Regulatory Reform: Economic Analysis and British Experience*, Cambridge, Mass.: MIT Press, 1994, pages 85-86, 186-87. Alternatively, if investors were aware of the regulator's intentions, the asset would never be built in the first place.

argued on other grounds that replacement cost valuations should have been used instead.[107] These arguments are considered below.

Historic Cost

5.18. Historic cost is the original money outlay involved in constructing or acquiring an asset, as recognised under generally accepted accounting principles. In the case of airports, historic cost might be given by the book value of assets prior to vesting (based on depreciated construction costs), or by the value attributed to assets at the time of vesting. The latter would overcome the objections raised by some at the Conference that the computation of historic costs for airports would require going back decades to the time when the assets were originally constructed.[108]

5.19. Vesting occurred, and vesting values were derived, in 1988 for AIAL and CIAL, and in 1990 for WIAL. Vesting values were determined by the Crown based on valuations derived on a discounted cash flow (DCF) basis. The assets were valued at the discounted values of their expected future annual net earning streams, with revenues being based on those earned prior to vesting (i.e., landing charges based on percentage of airline revenues) with an adjustment for growth. Hence, vesting values could, in principle, form the basis for the historic costs that would need to be returned to investors through pricing in order to preserve dynamic efficiency incentives. As the DCF calculations used to determine vesting values were based on revenue figures that were independent of asset value, there were no circularity problems in using vesting values to set prices from vesting.

5.20. In practice, the historic costs of assets are usually depreciated to reflect 'wear and tear' and obsolescence over their economic lives. Historic costs may also be indexed for inflation to allow for the return of the real amount invested. Alternatively, the use of a nominal interest rate for determining the return on the asset would achieve a similar effect, although possibly with a different profile of returns over time. Some optimisation may also be possible under an historic cost approach (see below), although this depends on information on alternative, more efficient asset bases being available.

5.21. As discussed above, for the purposes of determining efficient asset allocation, the relevant 'cost' of an asset is its opportunity cost, rather than the amount of money that was paid for it historically. For a new, non-specialised, asset, its opportunity cost will approximate its historic cost. The key factors that would cause historic cost and opportunity cost of a non-specialised asset to diverge (ignoring depreciation) are the rate of inflation, the rate of technological change and, in the case of assets such as land, the scarcity of the asset.

- In an inflationary environment, and in the absence of significant technological advance (such that an asset still has uses), it is likely that the opportunity cost of an asset will exceed its historic cost. In these circumstances, the historic cost can become misleading as a guide to asset allocation; the current valuation based upon opportunity cost should be used, although an indexed historic cost (assuming that

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[107] For example, WIAL Submission on the Draft Report, 14 August 2001, Expert Report 4.

[108] *Conference Transcript*, pages 115-116.

inflation is relatively similar across the sectors of the economy) may be an adequate proxy.

- Alternatively, in an environment where inflation is low and technological advance is sufficiently rapid to render the asset obsolete (and again ignoring depreciation), the opportunity cost of an asset is likely to fall below its historic cost. In this circumstance, the asset's historic cost is again likely to be a poor proxy for its opportunity cost.

- As noted above, an additional factor that would account for a divergence over time between opportunity and historic costs in the case of land is scarcity value. As the quantity of land in any particular locality is fixed (apart from any potential to make reclamations), increasing demand over time for the use of that land would increase its scarcity value, and hence its opportunity cost.

5.22. For specialised assets the position is different again. The opportunity cost of an asset becomes low or zero the moment an irreversible commitment is made to the investment, and so the opportunity cost is less (and usually much less) than historic cost. To avoid compromising dynamic efficiency, it is in these circumstances that historic valuations or some approach such as replacement cost, might be used in preference to opportunity cost.

Replacement Cost

5.23. Economic efficiency requires that prices should reflect marginal cost at the time the transactions are made. The appropriate way to measure this cost is as marginal social opportunity cost. In times of inflation (and ignoring other considerations such as technological change) the replacement cost of an asset tends to exceed its historic cost (when not indexed to inflation). Replacement cost generally reflects the opportunity cost of a non-specialised asset. This is because in competitive markets, prices will tend, over the long-run, to gravitate to the level that cover current, not historic costs. Investments in new capacity will happen as demand rises to the limits of existing capacity, and as old assets have to be replaced. Increasing demand will tend to push up price until investments based on replacement costs of assets become attractive to investors.

5.24. Recent attempts to apply the replacement cost approach, at least in Australasia, have included adjustments for optimisation. The methodology has been termed optimised depreciated replacement cost (ODRC)[109]. For example, in New Zealand, the Electricity (Information Disclosure) Regulations 1994 have mandated the use of the related optimised deprival value (ODV) valuations for information disclosure purposes by the electricity lines businesses.[110] The electricity sector was the first to adopt the ODRC/ODV approach, but other industries such as airports have followed suit.

5.25. The ODRC of the assets of a business is an estimate of the most efficient, lowest-cost combination of assets (from an engineering perspective) that could replace the

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[109] Referred to as DORC in Australia.

[110] ODV is defined as the lower of ODRC or Economic Value.

existing assets and offer the same utility or level of service. ODRC is calculated as the gross replacement cost of modern equivalent assets,[111] but allowing for the elimination (or optimisation out) of any over-design, over-capacity and redundancy in the existing assets. An appropriate deduction of depreciation to reflect the remaining useful life of the existing assets is also made.

5.26. The airports submitted that the use of ODRC valuations of assets is consistent with economic efficiency, in that such valuations are consistent with the investments that an efficient new competitor would make upon entering the market, if the market were hypothetically competitive.[112] Prices in such a market would tend to rise to the level at which a new entrant could enter.

5.27. ODRC valuations can be applied to all assets, including specialised ones with low or zero opportunity costs. Hence, the methodology provides an alternative way of addressing the dynamic efficiency issue discussed above, where the values of specialised assets need to be set above opportunity cost to prevent the expropriation of investor funds. However, unlike depreciated historic cost, it does not necessarily ensure that expropriation is avoided entirely.

Optimisation

5.28. In a competitive market, firms would not be able to recover in their prices the costs of assets that were not needed to meet customer demand. Excessive amounts of assets could reflect a variety of factors, including poor investment evaluations, unexpected market downturns and sheer bad luck. Firms that do not operate in a competitive market (and that might be subject to regulation) should be exposed to the normal risks inherent in competitive markets. To do otherwise would be to underwrite poor investment decisions, and to introduce moral hazards (lack of responsibility for poor decisions undermining incentives to invest prudently).

5.29. CIAL submitted that the purpose of optimisation is to replicate, at the lowest cost, the utility provided by existing assets. The need to optimise can arise for three reasons:[113]

- A market event subsequent to the investment that a reasonable person would not have anticipated when the asset was built.
- An unanticipated change in technology that results in a change in the cost of providing the required utility.
- A decision that was wrong when the asset was built and that a rational manager would not have made with the benefit of the available information.

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[111] The gross modern equivalent asset value is what it would cost to replace an old asset with a technically up-to-date new one with the same service capability, allowing for any differences both in quality of output and in operating costs.

[112] For example, AIAL Submission on the Draft Report, 14 August 2001, Part A, page 18, paragraph 1.45.

[113] CIAL Submission on the Draft Report, 14 August 2001, Part C, page 35, paragraph 26.

5.30. Optimisation involves the adjustment of asset valuations to reflect changes in the required deployment, modernity and scale of the assets to achieve the same level of services as supplied by the existing assets. Optimisation can range from only the elimination of surplus assets at one end of the spectrum, to the complete redesign of the operation at the other. Some of the possibilities are set out in Table 5.

Table 5
Degrees of Optimisation

Degree of Optimisation	Adjustment
Low	Surplus assets eliminated
↓	Technological obsolescence eliminated
↓	Over-design eliminated
↓	Site re-configuration – highest 'brownfields'
↓	Changed location
High	Complete or 'greenfields' approach

5.31. Greenfields optimisation involves the hypothetical designing and building of an entirely new, optimal collection of assets for the entity, regardless of historical constraints that may apply to the existing assets. In the airport context, this might involve a complete redesign of the airport, possibly at a different location. In contrast, lower levels of optimisation (brownfields) involves replacing under-utilised and removing redundant assets, but retaining the historical configuration of key assets. For an airport, this would be done in the context of the current site.

5.32. Optimisation, in practice, tends to incline towards the middle, brownfields, part of the spectrum. For example, CIAL quoted from the *New Zealand Infrastructural Asset Management Manual*, which states that for valuation purposes:[114]

> …the existing system configuration should be used, and only optimised in part where it is clear that those parts of the system would be reconfigured differently if replaced.

5.33. Optimisation in the context of the ODRC approach can span the wide spectrum of possible levels identified in Table 5. However, the scope for optimisation in the context of depreciated historic cost asset valuations is more limited. At most, optimisation can be applied to redundant and gold-plated assets, but the desirability of doing so is questionable if dynamic efficiency considerations are to be met.

AIRPORTS' USE OF ASSET VALUATION APPROACHES

5.34. It is useful at this point to indicate the asset valuation approaches used by each of the three airports since vesting. These are set out below.

5.35. AIAL's valuation methodologies since vesting have been as follows:

1988	Vesting valuation (DCF) representing HC to AIAL.
1988-99	Vesting value depreciated, with any new assets included at depreciated historic cost (DHC).

[114] Ibid, page 45, paragraph 73.

1999	Non-land assets revalued to ODRC (ODRC figures used in pricing) with any new assets included at DHC. Land valued at market value existing use (optimised replacement cost or ORC).

5.36. CIAL's valuation methodologies since vesting have been as follows:

1988	Vesting valuation (DCF) representing HC to CIAL.
1988-96	Vesting value depreciated, with any new assets included at DHC.
1996	Land revalued to current market value (and regularly since 1996), with other assets unchanged.
1999	Sealed surfaces and buildings valued at ODRC (for pricing only).

5.37. WIAL's valuation methodologies since vesting have been as follows:

1990	Vesting valuation (DCF) representing HC to WIAL.
1993	Assets revalued based on discounted cash flow (DCF).
1995	Non-land assets revalued based on ODRC (and again in 1996 and 2000). In between revaluations, any new assets included at DHC. Land valued at market value existing use (ORC).

5.38. Both AIAL and CIAL switched from DHC in 1999. WIAL made that switch in 1993. There was no regulatory compulsion for any airport to do so. This switching between the two approaches is an important element in the Commission's analysis below.

HISTORIC VERSUS REPLACEMENT COST APPROACHES

Introduction

5.39. The Commission considers that economic efficiency requires that assets should be valued at opportunity cost. However, for specialised assets whose opportunity costs are very low, setting prices on the basis of opportunity cost would harm dynamic efficiency. Consequently, some higher value has to be attributed to those assets. In principle, that higher value could be based upon either DHC or depreciated replacement cost (DRC). A further complication is that the latter may be optimised (ODRC) whereas the former normally is not.

5.40. The airports were of the view that all airfield assets should be valued on an ODRC basis, which meant that no correction was required for a 'low' opportunity cost valuation of specialised assets. In addition, they considered that the airfield land, like the sealed surfaces, should be treated as a specialised asset and valued at ORC.

5.41. This section discusses these points, and considers the relative merits of DHC and ODRC for the valuation of specialised assets, both in general terms, and in the context of this Inquiry.

Evaluation of Historic and Replacement Cost Approaches

5.42. Transpower submitted that all valuation methodologies have strengths and weaknesses. It considered that it was important for the Commission to adopt an explicit set of valuation principles that would both provide a sound basis for the selection of a valuation methodology, and send a clear signal to other industries regarding the merits of different methodologies in their circumstances. Transpower proposed the following eight criteria:[115]

- Efficiency: impact on the incentives faced by investors, customers and regulators, and the impact of those on economic efficiency.

- Separability: keeping separate the process of asset valuation from the setting of charges.

- Risks: the extent to which a valuation methodology creates risk for investors and customers.

- Breadth of scope: the valuation methodology should provide the most efficient outcome over the widest range of relevant assets or investments.

- Predictability: the methodology should be able to be applied by valuers without the need to refer to a regulator for interpretation.

- Feasibility: the methodology chosen should be capable of being applied readily.

- Stability: the costs imposed upon the firms and their customers should be factored in to any decision as to whether to change the methodology.

- Regulatory burden: other things being equal, the regulatory burden is less when the methodology is simple.

5.43. The Commission agrees that it is useful to bear these sorts of factors in mind in assessing alternative valuation methodologies. However, the Commission considers that several of the above factors can be condensed into a broad economic efficiency criterion covering allocative, productive and dynamic efficiency, transaction costs (e.g., feasibility, stability and regulatory burden) and risks. Hence, the Commission compares DHC and ODRC valuation methodologies under two broad groupings of ‘economic’ and ‘other’ factors.

Economic Factors

5.44. ‘Economic factors’ include the following: economic efficiency, risk-bearing, transaction costs and benchmarking. Each is now reviewed in turn.

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[115] Transpower Cross Submission, 31 August 2001, pages 7-8.

Economic Efficiency

5.45. A number of submissions contended that the use of ODRC valuations of assets is consistent with economic efficiency, given that such asset valuations equate with those of an efficient new competitor entering a hypothetical competitive market.[116] They argued that, as the Commission in the Draft Report had espoused an efficiency goal, it was inconsistent not to use the ODRC methodology to value airport assets.[117]

5.46. The valuation of the incumbent's assets on an ODRC basis is an estimate of the value of the assets that an efficient new competitor would need in order to replicate those of the incumbent, if it were to enter in a hypothetical competitive market. Put another way, in a contestable setting, ODRC provides the maximum or 'bypass' valuation of assets, in that, if the assets were valued more highly, and prices were set accordingly, the incumbent would invite an entrant to replicate the system. Hence, ODRC sets the maximum value under hypothetical non-monopoly conditions. However, the use of such an asset valuation standard may be questioned in a market where competition is limited, and entry is not feasible (see Chapter 3). Moreover, where there are barriers to entry, as would be expected in an infrastructure industry, prices would have to be higher still in order to encourage new firms to enter.

5.47. CIAL argued that "the holding of assets for future airfield activities is enabling the achievement of future economies of scale".[118] These implied extra costs suggest that the entry of new suppliers is not a concern, which seems incompatible with the underlying rationale of an ODRC methodology. Moreover, if entry were to occur, the available demand would have to be split between the incumbent and the entrant, in which case the incumbent would presumably become a much smaller operation. In short, the application of the hypothetical competition model seems a particularly abstract exercise in the case of airfield activities.

5.48. Some submitters equated ODRC with a measure of 'fair value', interpreted as the utility value of the asset in its existing use.[119] This applied particularly to airfield land, which was regarded as a specialised asset. AIAL defined specialised assets as those that "would not normally be sold or transferred except as part of the business itself, and in circumstances where few or no direct market comparisons exist."[120] It was also suggested that the use of DHC would result in an asset value, and therefore prices, based on age or acquisition date rather than asset utility.[121]

5.49. These comments require a number of responses, based on the prior analysis. First, 'fair value' is not a concept that has a counterpart in economic principles. Second, rational asset allocation decisions require that asset values should be based on opportunity cost, not on utility in existing use, at least for non-specialised assets. Third, assets are likely to be specialised to varying degrees. Fourth, it seems

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[116] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 83, paragraph 5.66.

[117] *Conference Transcript*, page 108.

[118] CIAL Submission on the Draft Report, 14 August 2001, Part B, page 8, paragraph 13.

[119] For example, CIAL Submission on the Draft Report, 14 August 2001, Part C, page 57, paragraph 124.

[120] *Conference Transcript*, page 207.

[121] CIAL Submission on the Draft Report, 14 August 2001, Part B, pages 13-14, paragraph 43.

reasonable to suggest that airfield land, unlike the sealed surfaces, is largely non-specialised; that it does, potentially, have alternative uses. The fact that the land is unlikely to be switched to other purposes, given the likely enduring nature of the demand for airfield services, is not relevant. For such non-specialised assets, opportunity cost is comparable to DRC. This is discussed further below.

5.50. Both replacement and historic asset valuations ignore the fact that specialised assets have no alternative use, and therefore have an opportunity cost of, or close to, zero. Hence, from an economic perspective, any return earned by such an assets is a 'rent'; i.e., a return over and above cost. From a short-run perspective, the asset should not contribute anything to marginal cost, because society loses nothing from keeping it in its present employment. Indeed, society benefits from that asset being used intensively, short of full capacity being reached, an outcome that is encouraged by its low or zero opportunity cost.[122]

5.51. However, as noted above, valuing specialised assets at opportunity cost would result in the expropriation of investor funds, and undermine the continuity of supply, thereby prejudicing dynamic efficiency in the longer term. Both DRC and DHC, by assigning a value above opportunity cost to specialised assets, would alleviate this problem to some degree. But DHC seems more suited for this purpose because it measures the funds actually committed by investors to the business, whereas DRC provides a notional value of the assets.

5.52. Proponents of ODRC would see this as a virtue, as it would mean that some assets in the business had been 'optimised out', or replaced by modern equivalent assets, resulting in consumers paying only for those assets (or their modern equivalents) that were actually being used to supply them, and no more. By the same token, they would argue that the more limited scope for optimisation with historic cost valuations—if, indeed, there is any at all—is a disadvantage for that approach, because it could involve consumers paying for assets that are not being used, and remove the risks that investors normally must bear. In short, there is a potential trade-off between avoiding the expropriation of investors on the one hand, and incorporating optimisation of assets on the other, with historic cost being stronger on the first and ODRC stronger on the second.

<u>Risk Bearing</u>

5.53. Transpower noted at the Conference the risks associated with using ODRC for new assets. A business could invest in a new asset after a rigorous investment analysis, and then subsequently find that in the event it was not needed, and had to be optimised out. The asset would become 'stranded'.[123]

5.54. Transpower suggested, that under some circumstances, it might be appropriate to treat vesting assets and new assets differently. In an environment where it was possible to have commercial negotiations with a user about a new investment and associated

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[122] For example, Stephen P. King, *Efficiency and Access: Analysing the Draft Access Code for Australian Electricity Transmission*, Australian Economic review, 3rd quarter 1996, especially pages 295-296.

[123] *Conference Transcript*, pages 880-881.

prices, and to reach agreement, it might then be appropriate to value that investment at DHC. To do otherwise would be to expose the supplier (but not the user) to the risk of downward optimisation in the value of that investment because of technological change.[124]

5.55. This suggests that optimisation potentially imposes an asymmetric risk: the (regulated) firm gets no credit (in terms of above-normal profit) for investments that turn out well, and is penalised through optimisation for those that turn out badly. This would not appear to reflect competitive market outcomes, thereby challenging an often claimed advantage for the ODRC methodology. In contrast, because DHC is limited in the amount of optimisation it could allow, ODHC reduces the potential for asymmetric risk. Yet to allow a firm to recover all investments, including those that turn out badly, may have the effect of underwriting poor investment decisions and thereby of encouraging moral hazard. For example, the risk of rapid technological change would be borne by users, rather than by their suppliers. ODRC is superior to DHC in this regard.

5.56. The choice between DHC and ODRC asset valuations thus has to bear in mind the trade-off between reducing asymmetric risks and avoiding moral hazards. That trade-off is likely to be most acute in respect of specialised assets, which have little resale value should an investment be unsuccessful. However, the specialised assets used in airfield activities appear generally not to be subject to rapid technological change, so the magnitude of the trade-off may be relatively small.

Transaction Costs and Practicality

5.57. Some submitters argued that a major problem with ODRC was the practical difficulties of applying it, which could lead to considerable transaction costs.[125] The methodology allows considerable discretion to companies in determining matters such as optimisation and asset lives. This could result in valuations being pushed up to bypass levels, or potentially even higher if barriers to entry exist. In supporting these contentions, Simon Terry and Associates cited Alfred Kahn, who wrote in the context of experience in the United states:[126]

> As we shall see, a strong economic case can be made for basing rate levels on “the present as compared with the original cost of construction,” as *Smyth v. Ames* suggested. But as it developed in practice it had a fatal flaw: it invited endless controversy over the proper valuation of sunk capital, in direct contradiction of the economic principle that sunk investment costs are prominent among the “bygones” that ought to be ignored in price making.

5.58. In a footnote he added:

> This does not mean that the returns permitted on past investments are irrelevant to the optimal pricing of public utility services. It means that endless controversies over the proper valuation and continual revaluation of capital investments made in the past are a deplorably inefficient and indirect way of approaching the task of devising economically efficient rates.

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[124] Ibid, page 881.

[125] Ibid, pages 807-808.

[126] Kahn, *op. cit.*, 1989, page 39.

5.59. Although the efforts to apply replacement cost methodologies in New Zealand have not met with the same controversy, it is noteworthy that the present ODV handbook for electricity lines companies—which was first issued on 23 June 1994—is already in its fourth edition.[127]

5.60. Practical issues in applying ODRC include the following:

- Optimisation may be done only on a partial (rather than a complete or greenfields) basis.

- The assessment of optimised capacity depends upon demand forecasting over a planning period of a number of years**,** which inevitably is subject to significant uncertainty.

- Guidelines are unlikely to cover all eventualities, and their recommendations can result in perverse or impractical outcomes.

- ODRC may be applied inconsistently, because it may estimate the hypothetical replacement cost of the existing plant, and then combine that with the actual operating costs of the existing plant. A consistent approach would require that the hypothetical operating costs of the replacement plant be used. However, application of the consistent approach would give rise to other problems: e.g., an entity's operating costs could be productively efficient when assessed against its existing assets, but could be less than fully efficient against the optimised assets.

5.61. All this suggests that the compliance costs of providing valuations of assets on an ODRC basis (including errors), and of monitoring those valuations, could be quite high.[128] Moreover, ODRC is but one stage of a full ODV methodology, under which assets that earn an insufficient return on the ODRC value—assets that are non-economic—have to be re-valued downwards to match that lower economic valuation. Application of this additional part of the methodology would add to the compliance costs.

5.62. DHC values are generally robust and relatively easily ascertained, and compliance costs are low. However, in some cases—e.g., former state-run business activities such as electricity lines businesses—asset registers at the time of vesting were incomplete, and incorporated inconsistent assumptions about depreciation. Nonetheless, this problem could largely be overcome by basing historic costs on vesting values and, in any case, vesting values might be preferred as a matter of principle (see below).

5.63. It was submitted that a firm could arrange to buy assets through intra-company transfers at inflated values so as to inflate the DHC valuation of its asset base.[129] However, it seems likely that this potential issue could be fixed by regulation.

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[127] *Handbook for Optimised Deprival Valuation of System Fixed Assets of Electricity Line Businesses* (4th edition), Wellington: Ministry of Economic Development, October 2000.

[128] For example, David Johnstone, *Asset Valuation and Regulation of Energy Infrastructure Tariffs in Australia: The Use and Deficiencies of DORC*, Department of Accounting and Finance, University of Wollongong, May 2001, pages 8-10.

[129] WIAL Submission on the Draft Report, 14 August 2001, Expert Report 4, page 14.

Moreover, for large, fixed assets such as those involved in airfield activities, it would be difficult for such behaviour to be concealed.

Benchmarking

5.64. By preventing inappropriate upward valuations of assets, and stripping out any redundant or over-engineered assets, an 'objective' ODRC measure of a company's assets to meet a required level of service can be estimated. This objectivity can lead to moderate to high consistency in the asset valuations across comparable companies, which explains why ODRC valuations are favoured for benchmarking and disclosure purposes. However, the Commission notes that this view is subject to the 'practicality' issue discussed above.

5.65. In contrast, historic cost valuations are considered to be inferior for benchmarking purposes because book values represent an accumulation of incompatible historical valuations of assets purchased at different times in the past. As a different time pattern of purchases would result in a different total asset valuation, a poor comparability between companies would result.

5.66. In this Inquiry, and regardless of the valuation approach used, benchmarking is not a practical exercise. Auckland, Wellington and Christchurch International Airports have some significantly different characteristics, and even if they did not, it is very unlikely that a sample of three would be of a sufficient size to make benchmarking useful. Although the sample size could be increased by adding overseas airports, it appears to be difficult to find ones that have similar characteristics to those in New Zealand (including operating costs). AIAL mentioned the use of benchmarking studies for management purposes at Auckland,[130] but no results of benchmarking studies in the context of asset valuations were presented at the Conference, suggesting submitters do not see it as useful. The Commission did not undertake such a benchmarking exercise in this Inquiry.

Other Issues

5.67. The remaining factors to consider are accounting standards and distributional issues.

Accounting Standards

5.68. Each of the airports has claimed that the Commission's approach to asset valuation in the Draft Report was out of step with accounting standards and with standard valuation practices.[131] The ODRC approach is supported by valuation standards for disclosure purposes. However, the Commission reiterates that the issue for this Inquiry is what is appropriate for judging asset allocation, and for setting economically efficient prices. As argued above, opportunity cost is judged to be the relevant economic standard.

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[130] *Conference Transcript*, page 973.

[131] For example, AIAL Submission on the Draft Report, 14 August 2001, Part A, page 72, paragraph 5.52.

5.69. Some submitters, such as CIAL, were critical of the use of opportunity cost to value assets on various grounds, including the following: that it is not a standard valuation approach; that it has a variety of interpretations; that it is unrealistic (because specialised assets would have a zero value the moment they are commissioned); that it is inconsistent with court precedents; and that it is not appropriate for valuing specialised assets like airport land, which have value in their existing use.[132] The Commission does not accept these assertions; indeed, the discussion in this Chapter suggests that opportunity cost appears to play a significant role in the valuation of airfield land by the three airports.

5.70. The court precedent referred to above was from the first Wellington airport case, where McKay J said:[133]

> ...value must mean its value as it is, enjoying its position as a sole provider of airport services in the capital,…

5.71. However, it should be noted that the judge was not ruling on the efficiency of prices, but rather on whether the airport company had adopted a reasonable approach to consultation with its substantial customers and the process by which the Government had determined WIAL's vesting value.

5.72. AIAL raised a concern over having assets valued in a company's statutory accounts at ODRC, and at a lower DHC level for pricing purposes. These concerns seemed to relate to possible misunderstandings on the part of different users of the information as to the purpose for which the information was developed.[134] Additional costs would also be incurred in adopting two approaches, although, having said that, airports would not be compelled to use different asset methodologies for their own purposes.

<u>Distributional Issues</u>

5.73. Simon Terry and Associates argued that, under New Zealand conditions, application of the ODRC methodology appears frequently to have resulted in steep upward revaluations of assets, early 'rate shocks' as charges have increased commensurately, and a consequent transfer of wealth from customers to the owners of monopoly assets.[135] The implication of this view is that ODRC is not to be favoured on distributional grounds.

5.74. In reviewing historical experience in the United States, Alfred Kahn notes the Supreme Court's support for the DRC approach in *Smyth v. Ames* of 1898, which came at a secular low point in the trend of the general price level, when replacement costs were probably below historic costs.[136] Fifty years later, the same Court overthrew that precedent in the *Hope* case in 1944, following a period of inflation in the two World Wars that had resulted in DRC being above DHC. By that time, the respective positions of the regulatory agency and regulated firm had reversed, with the

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[132] CIAL Submission on the Draft Report, 14 August 2001, Part C, pages 49-51.

[133] *Air NZ v WIAL* (CA) 73/92, 24/9/92 pages 9-10.

[134] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 19, paragraph 1.52.

[135] Simon Terry and Associates Submission on the Draft Report, 14 August 2001, page 2.

[136] Kahn, *op. cit.*, 1989, pages 37-38.

former then preferring DHC and the latter DRC. This suggests that, in the United States, distributional issues are an important consideration for industry-specific regulation. The same probably applies in other jurisdictions.

5.75. At the Conference it was argued by AIAL and BARNZ that, used correctly throughout an asset's life, with the return of capital being through straight-line depreciation, and a return on capital at a given rate of interest (and treating revaluations as income in the case of ODRC), both the DHC and ODRC approaches could generate the same return in present value terms over the life of the asset. Used consistently over time, both could potentially preserve incentives to invest.[137]

5.76. However, the returns (interest return plus depreciation) have different time profiles: both tend to be downward sloping over the asset's life, but that for DHC starts at a higher level than that for ODRC, crosses over at roughly the mid-life point, and thereafter is lower. This suggests, on the assumption that returns reflect asset values, that a mid-life change in valuation method from DHC to ODRC would raise returns above the normal (cost recovery) level over the asset's life, and result in a redistribution of wealth from customers to asset owners.[138] The efficiency implications would depend upon which of the asset valuation methodologies was considered to produce the 'correct' values.

5.77. It has sometimes been argued that use of DHC would subject users to a "rates (price) shock" when the assets reach the end of their economic lives and have to be replaced with more expensive new assets, and that this problem would be mitigated by using DRC because revaluations (and hence, rates shocks) would be introduced incrementally over the assets' lives. However, the weight of this argument would depend upon the circumstances: for example, it seems unlikely that an entity's assets would all reach the end of their economic lives at the same time, so that the rates shock stemming from DHC would be spread over time as individual assets were replaced; and revaluations under DRC may be conducted sporadically, resulting in significant rate shocks. Hence, there seems little in this argument to favour one approach against the other.

Conclusions on Asset Valuation Approaches

5.78. In the Draft Report, the Commission favoured the use of opportunity cost for all assets other than specialised assets. For specialised (sunk) assets, it preferred DHC because opportunity cost for those assets could damage dynamic efficiency over the long-run.

5.79. The submissions on the Draft Report were generally divided between the owners of the assets and the users, with the owners (the airports and electricity lines companies) favouring ODRC, and the users (including the Shipping Federation) favouring DHC. The exception was BARNZ, which was more concerned that the chosen method—whether ODRC or DHC—should be applied consistently over time, and in an internally logical manner, with respect to a given set of assets.[139] BARNZ feared that

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[137] *Conference Transcript*, pages 118 (AIAL) and 670 (BARNZ).

[138] In practice, making such an evaluation may be blurred where an entity has a variety of assets at different stages in its life cycles.

[139] BARNZ Submission on the Draft Report, 10 August 2001, Page 24, paragraph 15.1.

a mid-life change in valuation methodology could unfairly advantage one party or another, as could any scope provided by the valuation methodology to manipulate asset valuations.[140]

5.80. ODRC as a valuation tool for regulation purposes was developed in New Zealand in the early 1990s, and has since been used in both this country and in Australia. In both countries it appears to be popular amongst policy-makers and many utility businesses. Replacement cost-type approaches to asset valuation do not appear to be commonly used by regulatory regimes in other parts of the world. The Commission has examined the literature on the subject, which appears to be relatively limited, but it has yet to come across any independent academic support for the use of replacement cost-type approaches. Recent works that have been critical of the use of DRC are as follows: in Australia, King and Johnstone;[141] in New Zealand, Bertram;[142] and in the USA, Bonbright *et al*.[143]

5.81. From the various submissions, it can generally be inferred that DHC and ODRC valuations of assets will be the same when (a) inflation is zero and (b) technical change is zero, and (c) no optimisation is required. However, these requirements are unlikely to be met in practice, especially for the long-lived assets that are typically found in infrastructure industries. ODRC values will tend to exceed DHC values when inflation is high and technical change is slight, and the reverse when inflation is low and technical change is fast-moving. Nonetheless, when the revaluations associated with ODRC are treated as income, both DHC and ODRC valuations (when each is used over the entire life of an asset) generate a life-time revenue requirement stream that, when set against the initial outlay, and discounted at the same rate, equate to zero in net present value terms.

5.82. This suggests that, in theoretical terms, there may not be a lot to choose between the two methodologies, providing that both are implemented correctly and consistently over the lives of assets. WIAL submitted that requiring regulated firms to switch mid-life from one to the other would "increase perceptions of regulatory risk, discourage investment, and may be very detrimental to efficiency."[144] Yet, since their vesting, and taking vesting values as being the starting points for DHC valuations, all three airports have subsequently switched to the ODRC valuations: WIAL in 1993, and AIAL and CIAL in 1999. As noted above, a mid-life switch from DHC to ODRC would be likely (if charges were to be changed accordingly) to raise the lifetime earnings of the assets above a competitive return, without appearing to do so when set against the new asset values. A further important issue is the transaction and monitoring costs associated with the implementation of each methodology, which favours DHC.

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140 *Conference Transcript*, pages 671-672.

141 See: Stephen P. King, 1996, *op cit.*, pp. 292-98; and: David Johnstone, 2001, *op cit*.

142 Geoff Bertram, *The Optimised Deprival Value Methodology and the Objectives of Utility Sector Reform in New Zealand* (mimeo), August 2000.

143 J. C. Bonbright, A. L. Danielson and D. R. Kamerschen, *Principles of Public Utility Rates* (2nd edition), Arlington, Vir.:Public Utilities Reports, 1988, pp. 296-98.

144 WIAL Submission on the Draft Report, 14 August 2001, Expert Report 4, page 3.

5.83. The Commission has considered the presentations and submissions received from the various parties. It reiterates that, in making the evaluation, its underlying goal is one of promoting the efficient allocation of assets in the economy as a whole. As noted earlier, efficiency considerations include taking into account the costs and distributional effects of switching between methodologies. This means that the circumstances of the firms or industry under review must be considered, which raises the possibility of different valuation approaches being appropriate in different circumstances. Against this background, the Commission has to exercise its regulatory judgement. The Commission's conclusions may be summarised as follows:

- The goal is to generate prices that ensure that assets are allocated to their most efficient uses.

- To that end, assets should normally be valued at opportunity cost.

- For the particular category of specialised assets, whose opportunity cost is at or close to zero, the use of opportunity cost valuations could lead to an expropriation of investors' funds and undermine dynamic inefficiency (i.e., discourage appropriate investment) in the future.

- As a general rule, in infrastructure industries—including airports—the provision of adequate capacity to meet demand at a reasonable standard of service is of prime importance, and hence dynamic efficiency is of paramount concern.

- To circumvent this potential dynamic inefficiency, specialised assets need to be allocated a value in excess of opportunity cost, although the increase in value above opportunity cost (all else being the same) should be minimised so as to minimise the adverse impact on allocative efficiency.

- In principle, both DHC and ODRC—properly and consistently implemented at the start, and over the full life, of an asset—can meet this dynamic efficiency requirement.

- For this Inquiry, the choice between the two asset valuation methodologies is particularly influenced by the economic issues arising from actual—or potentially-mandated—switching, in terms of efficiency, wealth distribution and transaction cost effects.

- For specialised assets, DHC valuations, which allow for the recovery of the actual amounts vested (after depreciation), are favoured because of concerns about the economic efficiency and distributional impact of recent (mid-life) switches from DHC to ODRC in the case of all three airports. A consistent approach to valuation of specialised assets should be used over time.

- Lesser considerations bearing upon the Commission's view expressed in the previous bullet point are the following:

  - The considerable subjectivity involved in making ODRC valuations.

- The fact that the Commission has not independently verified the outcomes of the airports' applications of the ODRC methodology to non-land (specialised) assets.

- Concerns about the transaction costs associated with the use and monitoring of ODRC valuations.

- The Commission sees a potential, but limited, role for optimisation in the context of asset valuations using opportunity and DHC methodologies, in terms of eliminating excessive assets from the asset base.

5.84. The Commission emphasises that its preference for the use of DHC for the valuation of specialised assets in this Inquiry reflects the specific circumstances of this Inquiry, and in no way should be taken to indicate the Commission's position with respect to the valuation of the specialised assets in other industries of a utility nature, such as electricity transmission and distribution (and the Commission's work in respect of Part 4A of the Commerce Act). However, where firms have switched 'mid-life' to ODRC valuations, the new valuations may be acceptable providing that the issues of potential excess returns are addressed. The extent of adjustments to prices that this might entail is uncertain, but the Commission considers that such adjustments go beyond only incorporating revaluation gains.

APPLICATION TO AIRFIELD ASSETS

Introduction

5.85. The purpose of this section is to discuss the asset valuation principles arrived at above in the context of the assets used by the airfield activities at the three airports. The discussion at this stage is a generalised one only.

5.86. This section briefly outlines the approach to asset valuation of the airports' valuers. The application of the asset valuation principles to, and the various issues that arise in, the case of airfield land and non-land (specialised) assets are considered in turn.

Airfield Land

Airport Valuers' Approach

5.87. Mr Horsley (an expert for WIAL and AIAL) explained that the approach used to value airfield land followed the financial reporting standards for the valuation of fixed assets (including land) set out in *FRS-3: Accounting for Property, Plant and Equipment* prepared by the Institute of Chartered Accountants of New Zealand.[145] *FRS-3* requires assets to be valued at 'fair value', and defines that concept as follows:

> The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arms-length transaction. Fair value is deemed to be synonymous with market value, open market value and current market value.

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[145] Ibid, Expert Report 2, pages 10-11.

5.88. When assets are used in their best or optimal employment, fair value equates with the valuation objective formerly used, namely 'market value existing use'. Mr Horsley considered that as airfield land is generally employed in its 'highest and best use', it should be valued at its market value existing use.[146] This involves a replacement cost approach, based upon the land that notionally would have to be acquired (and the associated expenses that would notionally be incurred) by a new entrant replicating the existing land of the incumbent.

5.89. Professor Boyd (an expert for CIAL) contended that the existing use valuation approach meant that it was not necessary to consider alternative uses of the land. Having decided that the most probable use for the land is as an airport, the most likely potential buyer is another airport owner. The relevant scenario is one of existing use, not of alternative use.[147] Similarly, Mr Horsley stated that the market value existing use valuation of airfield land reflected "the opportunity cost...which is both the highest and best use and the optimal use of the land."[148] The Commission notes that neither of these statements are consistent with the economic principle of opportunity cost. Opportunity cost is not the value of the land in the same use in the hands of an alternative supplier, but its value in the next best alternative use.

5.90. However, the Commission considers that none of those valuations are necessarily appropriate for the purposes either of judging the efficiency of asset allocation between alternative uses, or for pricing. From an economic perspective, the owner of an asset that earns at least as much in its current employment as in its next best alternative employment will have no incentive to transfer that asset to that alternative use. Any return over-and-above that minimum amount—called the asset's 'transfer earnings'—is economically a 'rent', that is, a return beyond that needed to retain the services of the asset in its current employment.

5.91. Technically, the transfer earnings of an asset are shown unit-by-unit on the asset's supply curve. If the supply curve for an asset were upward sloping, the transfer earnings for additional units would be increasing. Assuming that the price for the asset is set at the intersection of the supply curve with the demand curve, the resulting price would reflect the transfer earnings of the last unit employed. The same price paid to all inframarginal units would result in their earnings being a varying mix of transfer earnings and economic rent. The price would indicate the opportunity cost of the asset at the margin.

5.92. A possible problem with airfield land is that a relatively large quantity (more than a marginal quantity) is required in a particular locality, and the land must exhibit certain characteristics (e.g., be capable of being made flat, proximity to city, etc.) that may be in relatively limited supply (as land is not of a uniform quality). As a result, the introduction of the demand for airfield land by an airport could result in an increase in the price of land relative to what it would otherwise be in the absence of the airport. In other words, a 'gap' may open up between the price with the airport and the price without, with the opportunity cost reflecting the latter figure, and the difference being

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[146] Ibid.

[147] CIAL Submission on the Draft Report, 14 August 2001, Expert Report Prof Boyd, page 4, paragraph 6.

[148] WIAL Submission on the Draft Report, 14 August 2001, Expert Report 2, page 5.

a measure of economic rent. If a controlled airport were to be required to value its land at opportunity cost, it would not be able to capture this economic rent, which it might otherwise do. In that event, there would be a transfer from the airport to its customers, in the form of charges being lower than would otherwise be the case. This transfer would have no impact on economic efficiency.

5.93. Although the airports have not raised this issue directly in their submissions, it is appropriate to consider it briefly here. The Commission feels that it may not be as significant as it may at first appear. Firstly, it is not obvious that the owner of an infrastructural asset possessing market power should be allowed to recoup through prices the additional economic rent that may be available. Secondly, even if there were such rent, it would be very difficult—if not impossible—to separate it from any monopoly rent that might be earned from the ability of the entity to exploit its market power. Finally, the amount of economic rent could be less, and perhaps much less, than might be implied. In the case of the two airports that are most likely to be affected by this issue—AIAL and CIAL—urban spread has tended to encroach close to the airport boundaries, or would do so if the airport were to cease to exist and the land's zoning were as a consequence to be changed. In addition, in the case of CIAL there would appear to be plenty of other sites that could have been utilised for an airfield, and so rents associated with the present site would not be significant. An opportunity cost valuation of the land would need to take into account such considerations, and not be restricted by present rural zonings.

5.94. WIAL and others submitted that the Commission's use of opportunity cost in the Draft Report ignored the advice that it had received from its own expert valuers, Telfer Young.[149] However, it should be noted that Telfer Young were employed by the Commission to check the appropriateness of methodologies adopted by the airports and/or their valuers for the valuation of land, the consistency of the methodology across the airports, and the robustness of the application of their valuation principles. It did not advise directly on the valuation approaches that the Commission should employ. They simply reviewed the values the airports had adopted.

5.95. In their report, Telfer Young outlined the four recognised approaches to determining and validating market value existing use of the airfield land. These are listed, with comments:

- Comparable sales (or market comparison) approach – estimates the market value of the airport's land by reference to the sales prices of parcels of unimproved land in localities around the airport. This approach can be used for AIAL and CIAL, but for WIAL it would yield distorted values, partly because of the negative impact of that airport on surrounding land values.

- Zonal approach – groups the land into zones according to location, physical characteristics and use, with each zone being valued by reference to market sales of land of equivalent size in similar (but not necessarily adjacent) locations where

[149] For example, WIAL Submission on the Draft Report, 14 August 2001, Vol. 1, page 7, paragraph 2.12.

sale prices are not negatively impacted by the proximity of the airport. This was the preferred methodology used by WIAL in its 2000 valuation.

- Hypothetical subdivision approach – aims to assess how much a developer would pay for the land, measured as the gross realisation from sales of lots less the sub-division and holding costs, together with an allowance for risk and a profit element. This was used by WIAL as a check on its zonal approach, backed by a discounted cash flow analysis. AIAL used this approach to derive a market value existing use for its operational airfield land.

- Civil works approach – treats land reclamation as a civil work (as could be relevant for AIAL and WIAL), and values the remaining airfield land in accordance with its original boundaries on an appropriate basis.

5.96. As indicated, some approaches may be suited to some contexts, but not others. Also, it appears to be accepted that different approaches may yield different valuations. For example, the hypothetical subdivision approach directly involves holding costs, while the zonal approach does not. All approaches require assumptions and judgements to be made, and these could differ to some degree from one practitioner to another.

5.97. Regardless of which, or which combination of, valuation techniques are used by the airport, the basic aim of the valuers is to determine what a new entrant airport could expect to pay to acquire the equivalent land in order to provide a similar service. This is argued to be consistent with the outcome in a competitive market. The value of airfield land is determined by calculating the amount that the airport companies would need to pay in the market to match the price that an independent purchaser could pay to acquire an equivalent parcel of land, plus the cost to get the land to airport usage.

Opportunity Cost

5.98. As noted above, the airports and their valuers considered that airfield land is being employed in its best use, and therefore it should be valued at market value existing use. However, opportunity cost principles require that land to be valued at its next best alternative use, other than as an airfield. The Airports' valuers argued that this opportunity cost value is land's 'scrap' (or net realisable, or exit) value.[150]

5.99. There is no legal obligation upon any New Zealand airport to remain an airport, unlike some overseas, such as Los Angeles Airport and the Australian airports.[151] The major impediments to any New Zealand airport company seeking to use airport land for alternative uses are the Public Works Act 1981, resource and planning restrictions, and shareholder approval. Thus, an opportunity does potentially exist for airfield land to be put to alternative uses, even though this is unlikely in the foreseeable future given that the present demand for airport services is likely to continue.

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[150] AIAL Submission on the Draft Report, 14 August 2001, Attachment 2, page 21.

[151] The operators of the former are forbidden from converting the airfield land to rental property, giving them no opportunity to use the land in any capacity other than as an airport. A condition of the leases of Australian airports and section 31(2) of the *Australian Airports Act 1996* is that airport land be used for an airport.

5.100. The opportunity cost approach would value the airfield land in its best alternative use. This valuation would take the higher of the alternative valuations with and without the sealed surfaces (see discussion below). The valuation would recognise that land does not depreciate and is not subject to technological obsolescence.

5.101. To determine opportunity cost, the following question can be posed: if the airfield (or part of it) were to be put to some alternative use, what would be the market value of the existing airfield land if it were to be disposed of to the highest bidder? That value would be influenced by the following factors: the size and location of the parcel of land; the presence of the airport; public works considerations; the land's zoning (and the potential for re-zoning); and the presence of the sealed surfaces. Each is now considered briefly in turn.

Parcel of Land

5.102. There might be a premium attached to the sale of a large parcel of land, should it be needed for another land-hungry development. Failing that, the market value might be depressed by the potential for a relatively large amount of land to come on to the market at the same time (and need to be sold within a short time horizon). The latter seems much more likely given the quantity of land involved. The location is also important. For example, land close to the central business district would be more attractive to buyers. Finally, there might be some holding costs (net of revaluations) incurred during the process of disposing of the land. The sale of such a large parcel of land would need to be managed so as to maximise returns.

Presence of the Airport

5.103. The implied closure of the airport might positively or negatively impact upon land values in the vicinity. This would depend largely on whether there were greater positive externalities (e.g., spillover commerce to surrounding regions), or negative externalities (e.g., noise pollution), created by the airport's activities.[152] The removal of negative externalities would tend to cause land values to rise, while the removal of positive externalities would tend to have the reverse effect, all else being the same.

5.104. The airports pointed out that the valuing of land at opportunity cost could have undesirable consequences for dynamic efficiency. If an airport were surrounded by land zoned rural that was being used for agriculture, it would have to pay more to acquire some of that land than it would for land with the same zoning at a distance from the airport. The very presence of the airport would tend to inflate the land's value. However, once acquired, the land could be incorporated in the airport's asset base at no more than its opportunity cost as rural land in the absence of the airport. They conclude that the airport would then suffer an immediate capital loss, which would discourage it from investing in land needed for future developments, and thus harm dynamic efficiency.

5.105. However, the argument is probably based on a false premise. The comparison between the values of adjacent and distant land may not be appropriate, as it assumes

[152] Airports are increasingly diversifying their activities (e.g., retail centres on the edge of the airport) to capture positive externalities.

that the next best use of the airfield land in the absence of the airport would be as rural land. Should the airport not exist—the assumption required in the evaluation of opportunity cost—its land might well be re-zoned to allow some higher value use. It could be expectations about this alternative use value that is causing the adjacent land values to be higher. The higher value could, in these circumstances, appropriately reflect opportunity cost.

Public Works Considerations

5.106. Historically, airfield land has often been compulsorily acquired as 'public works'. Some of the airfield land that was transferred to the airport companies from the Crown and local authorities in the late 1980s and early 1990s is, therefore, subject to the offer back provisions of section 40 of the Public Works Act. This means that, if an airport company were no longer to require any such land for use as an airfield, it must (before selling the land) offer the land back to the former owners (or to their successors), unless the land is transferred to another public work.

5.107. The offer back provisions are intended, in the interests of fairness, to restore an owner to his or her former position.[153] The land is required to be offered at the current (open) market value of the land (as determined by an independent valuer) unless grounds exist to make the offer at a lesser price. Other than this, the Public Works Act provides no guidance as to how market value should be determined. Court cases in connection with the offer-back provision suggest that the land should be valued on the basis of its underlying zoning at the time of offer back, but that due allowance can be made for the possibility that land may be re-zoned.[154]

5.108. It is noted that section 40 of the Public Works Act provides exemptions to the offer back requirement:

- The land may be sold to an owner of land adjacent to the airfield where the airport company believes on reasonable grounds that, because of the size, shape, or situation of the land, the land could not be expected to be sold to any person who did not own land adjacent to the airfield land.

- The land does not have to be offered back to the former owners (or to their successors) where the airport company considers either (a) that it would be impracticable, unreasonable or unfair to do so, or (b) that there has been a significant change in the character of the land for the purposes of its use as an airfield.

5.109. Where land has been compulsorily acquired under the Public Works Act, but is later to be sold, it must be offered back to the former owners of the land (unless an exemption is granted). The existence of the offer-back provisions may influence the alternative use of the airfield land and, therefore, its opportunity cost.

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[153] *McNicholl v Auckland Regional Authority* 10 TCL 13/6 (1986) BCL 266 CCA (2nd) H-15.

[154] *McLennan v Attorney General* M267/98 unreported; *Valuer General v Treadwell* (1969) NZLR.

Zoning

5.110. Mr Horsley (AIAL) said that the value of land should reflect the fair or market value, but noted that zoning or planning restrictions generally limited the alternative uses to which land could be put. However, in districts where land use was changing, which was having the effect of allowing it to be moved forward into higher valued uses, such as from rural to residential, the value should reflect the opportunity cost of that higher valued use.[155]

5.111. Like all land use restrictions, the designation may be able to be altered, and the land re-zoned. However, this would involve changing the current District Plan, a process that would take some time—given the need for public notification, submissions, hearings and appeals—though one that could be commenced immediately a decision to apply for a change was taken. This is further discussed in Chapters 8, 9 and 10.

Impact of the Sealed Surfaces

5.112. The application of the opportunity cost approach to valuing airfield land gives rise to the issue as to whether the land should be returned to its original state by the removal of the sealed surfaces. The removal work is likely to be expensive. The Commission's view is that the appropriate valuation would be the higher of the valuations with or without the sealed surfaces. The latter would be net of the removal costs, which would also incorporate the value of the material removed.[156] Alternatively, the sealed surfaces left intact may have some value as a foundation for whatever activities may be undertaken on the site. BARNZ suggested such surfaces might be used for vehicle parking or as the floor for warehouses.[157] A third option might involve the retention of some of the sealed surfaces and the lifting of other parts.

5.113. If sealed surfaces were to add to the intrinsic value of the land by serving as foundations for new construction, that additional value would be attributed as the residual value of those surfaces.

Land Holding Costs

5.114. The valuation of airfield land at market value existing use includes an allowance for holding costs on the current market value of the land.

5.115. The Commission notes that this involves the computation of notional holding expenses on the basis of the assumed replication of existing airfield land by an entrant at today's prices. Yet the three airports acquired their airfield land, and incurred the corresponding holding expenses, many years ago. Those holding outlays are sunk. However, the Commission accepts that holding expenses actually incurred to facilitate

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[155] *Conference Transcript*, pages 203-204.

[156] AIAL recently removed 440 metres of sealed surfaces, comprising 20,000 tonnes of concrete, of which 10,250 was lifted in a 24 hour period. AIAL estimated that the value of this material as crushed base-course for road construction would probably offset the cost of removal. See: *Response to Commerce Commission Document 'AIAL Airfield Land'*, 21 May 2002, page 10, paragraph 36.

[157] *Conference Transcript*, page 662.

prudent investment decisions should be recoverable, as otherwise investment would be discouraged. The Commission does not agree, however, that holding outlays should be notionally re-computed and charged for at today's prices. This is likely to result in the over-recovery of the actual holding outlays, potentially many times over. Rather, the actual holding expenses should be treated like other specialised assets for charging purposes, by being incorporated in the asset base at historic cost.

5.116. The Commission also considers that holding outlays, unlike the land itself (which does not depreciate), should be depreciated away over a relatively short period of time. This would allow the recovery of holding expenses, but would not permit it to be included in the asset base in perpetuity, which would distort prices. In the case of the airports, holding costs may already have been written off at the time of vesting, or may have been included in vesting values.

Levelling Costs

5.117. Levelling expenses are incurred when the land is being prepared for airport development. The question then is whether these expenses, like holding outlays, are sunk once incurred, or whether the level character of the land increases its value in its next best alternative use (and levelling is, therefore, encapsulated in the land's value). In short, the two extreme possibilities are as follows:

- The levelling outlays are fully sunk, meaning that the levelling does not add to the land's value in alternative uses. Here, the levelling expenses would be treated like the holding expenses as a specialised sunk asset, with the outlay actually incurred (i.e., historic cost) being recovered separately over a limited period of years.

- Alternatively, the levelling outlays contain no sunk element. In this case the level character of the land would be reflected by a premium in its market value, and hence in its opportunity cost, with the result that no separate charge would need to be added to the asset base to recover separately the levelling expenses.

5.118. The above are the two ends of a range of possibilities, which incorporate intermediate cases where there is some additional market value attached to the levelled land, but not sufficient to allow full recoupment of the levelling outlays. However, as the original levelling expenses were incurred by the three airports many years ago, they may have already been recouped. AIAL considered that, had the airport land been developed for residential or commercial uses, the earthworks and contouring part of the levelling costs would not have been much different.[158] This implies that levelling costs would be incorporated in the opportunity cost of the land. Otherwise, the Commission accepts that levelling costs actually incurred as part of prudent investment decisions should be recoverable, in order not to discourage investment.

Conclusions on the Valuation of Airfield Land

5.119. The outcome of the preceding discussion, in light of submissions, has led the Commission to the following general conclusions on the valuation of airfield land:

[158] *Conference Transcript*, page 250.

- Airfield land should be valued at its opportunity cost, namely its value in its best alternative use in the event that the airport were closed.

- The opportunity cost should be assessed at the highest alternative use value, with that being the higher of the value with or without the sealed surfaces (the latter incorporating the costs and benefits of removing the sealed surfaces).

- Any land holding and levelling outlays should be valued as specialised sunk assets at historic cost. These values should not include any amount associated with sunk assets that are already included in the opportunity costs of the land, in order to avoid double-counting.

5.120. Issues associated with land that are specific to individual airports (e.g., seabed, seawall) are addressed in the relevant airport-specific chapters.

Specialised (Non-Land) Airfield Assets

5.121. The important distinction was made earlier between specialised and non-specialised assets. Non-specialised assets (such as airfield land) can be valued at opportunity cost because they are economically mobile, and hence could be put to alternative uses. Specialised assets are those whose alternative uses are very limited or non-existent, and hence have low or zero opportunity costs, as the owners forgo little or nothing by employing them in their current uses. The key non-land airfield assets are the sealed surfaces and infrastructure that make up the airfield, and are largely specialised.

5.122. However, the inclusion of specialised assets in the asset base for pricing purposes at their opportunity cost would not enable the asset owners to recover their original investments, and would thereby discourage future investment in sunk assets. To overcome this harm to dynamic efficiency, a movement away from opportunity cost valuation of assets is required, but only when the following conditions apply:

- The assets concerned are specialised assets.

- The incentives to invest should be preserved, subject to minimising the divergence of values from opportunity costs.

- The use of the opportunity cost of the funds should be used to determine returns.

5.123. These points are now discussed in more detail.

Definition of Specialised Assets

5.124. The Commission's definition of specialised assets is based on whether the assets would have value in alternative uses, as explained earlier. Assets that have little or no value in alternatives uses are specialised, and hence have a low opportunity cost.

5.125. The New Zealand Institute of Valuers (NZIV) takes a modified view. In *Valuation Standard 2* it defines 'specialised assets' as follows:

> Specialised, special purpose or specially designed property...which...has utility restricted to particular uses/users, and is rarely, if ever, sold on the open market, except as part of a sale of the business in occupation,...restricted or no markets...

5.126. This definition reflects the approach of valuers discussed earlier. From an economics perspective, it is deficient in not emphasising sufficiently strongly the lack of alternative uses of the assets in question. Also, given the significant number of direct and indirect users of airfield facilities, including airlines, freighters, passengers and other commercial activities, it would appear to be difficult to argue that there are limited users of specialised airfield assets and that this is a good basis for judging whether an asset is specialised or not in the present case.

Airport Valuers' Approach

5.127. CIAL submitted that, for airports, it is generally not possible to determine fair market value based on comparable market evidence (airport sales), nor as a residual from the income stream likely to be generated (because of the circularity issue). The only remaining option is to use a cost-based approach.

5.128. Professional valuers using the cost-based approach for valuing specialised assets are required to use the replacement cost approach, and must qualify any valuations that deviate from that approach.[159] CIAL noted that Valuation Standard 3 of the New Zealand Property Institute (formerly the New Zealand Institute of Valuers) states:[160]

> All specialised owner-occupied properties and other specialised property shall be valued on the *Depreciated Replacement Cost* basis except when *Market Value* methods can be applied.

5.129. CIAL also noted that the use of ODRC to value specialised assets was recommended by *FRS-3*, by the valuation standards promulgated by the International Valuers Standards Committee, and in the New Zealand Infrastructural Asset Management Manual.[161]

Maintenance of Investment Incentives

5.130. On this issue, Simon Terry and Associates argued that present pricing arrangements, whatever they might be, would be fully compatible with incentives providing that two conditions were met:[162]

- That "the reasonable profit expectations of the asset owners at the time they acquired the assets have been met to date".
- That "future funds invested in the business...will be allowed to earn a competitive return".

5.131. The first condition invites the inference that vesting values (or any subsequent privatisation values) could provide the appropriate starting point for a depreciated

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[159] Ibid, page 380-381.

[160] CIAL Submission on the Draft Report, 14 August 2001, Report of Prof Boyd, page 5, paragraph 11.

[161] Ibid, Part C, page 52, paragraph 106.

[162] Simon Terry and Associates Submission on the Draft Report, 14 August 2001, page 4.

historic cost asset valuation, providing that a competitive return on the vesting values would meet investors' reasonable expectations at the time of acquisition. The validity of this approach is strengthened when it is noted that the vesting values for the three airports were apparently largely derived from the use of the discounted cash flow method, which values the assets largely by reference to the net income stream that the airport would likely generate.

5.132. Simon Terry and Associates argued that the assessment as to whether the use of vesting values for assets would maintain investment incentives would need to consider both the implicit and explicit nature of the 'regulatory compact' at the time of vesting (or of privatisation), and of any subsequent regulatory policy that may have affected that compact.[163]

5.133. Taking up the challenge put by Simon Terry and Associates is difficult because it entails assessing investor's expectations at the time of vesting. On one hand, given the likely inefficiency of the airport companies at that time, investors might have anticipated that efficiency improvements under new ownership might lead to the realisation of supernormal profits. On the other hand, it could be argued that, given the 'light-handed' regulatory regime in operation at the time of the vesting of the three airports, investors would not have expected to earn more than a normal competitive return on their investments. Under that regime, natural monopolies typically were to be constrained by the following:

- Industry-specific information disclosure requirements.
- The generic requirements of section 36 of the Commerce Act.
- The implicit threat of control under Part IV of the Commerce Act.
- Other factors, such as 'kiwi share' type obligations, which arguably constrain behaviour in other industries.

5.134. The intention of light-handed regulation was to achieve at least some of the benefits of regulation without suffering the disincentive and distortionary effects from heavier forms of regulation may manifest. Nonetheless, it has been argued that using control as a threat, bolstered by information disclosure, had an effect comparable to rate-of-return regulation.

5.135. Further, it might be argued that nothing happened subsequent to vesting to modify the reasonable expectations of investors formed at vesting. An assessment might canvass a number of factors:

- The basis on which prices have been set in the past, and the historical returns earned.
- The price paid for, and the circumstances surrounding, recent asset sales.[164]

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[163] Ibid, page 5.

[164] Recent sales evidence of airport assets includes the flotation price of AIAL, the sales price of the Crown's share in WIAL, and sales of long-term leases for Australian airports.

- The switching by the airports to ODRC asset valuations.
- Any government policy statements or actions with respect to other utility-type industries.[165]

5.136. If investors' expectations at the time of vesting and subsequently were that no more than a normal return could be expected from the ownership of the assets on vesting values, then investment incentives would not be harmed if specialised assets were now to be valued for pricing purposes at depreciated historic cost. While investors' expectations are difficult to ascertain with certainty, especially those existing some years in the past, the Commission considers that this assumption is a reasonable one in the circumstances. Accordingly, it does not see investors' expectations as an impediment to the use of the depreciated historic cost valuation of specialised assets.

Vesting Versus Privatisation Values

5.137. The Commission's approach to the valuation of specialised assets at depreciated historic cost has so far implicitly assumed that the same investor(s) would continue to own each airport company over time. However, this rationale has to be examined when a company's shareholders change. Where this happens, then what the new investors actually paid for their investment (which encompasses the expectations the new investors had at the time) is relevant for determining whether they recover their investment in specialised assets.

5.138. The experiences of the three airports in relation to shareholdings have varied. Each is now examined in turn.

CIAL

5.139. In the case of CIAL, there has been no change in shareholding since vesting. Using vesting values (with a nominal WACC) for specialised assets is consistent with the Commission's rationale for using depreciated historic cost. As the original investors at the time of vesting remain, they would receive a return of their funds without over-compensation.

AIAL

5.140. In AIAL's case, the shareholders did not change until 1998, when the Crown sold its 51.6% stake in the airport by way of public offer. On 28 July 1998, all shares in AIAL (including the other 48.4% owned principally by the Auckland local authorities) were floated on the New Zealand Stock Exchange, and have been freely tradeable subsequently. Since flotation, the North Shore, Franklin and Waitakere City Councils have sold their shares in the airport. Auckland and Manukau City Councils continue to hold significant shares in AIAL, although Auckland City has put it shares up for sale.

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[165] This might include the new regulatory regimes for electricity lines businesses and telecommunications, together with this Inquiry.

5.141. In the case of AIAL, the use of vesting values may at first sight suggest an inconsistency in the Commission's application of its approach, since it would appear that:

- all investors would earn a sufficient return on specialised assets up to 28 July 1998; but that
- after 28 July 1998, the new investors might not earn a sufficient return on specialised assets to recover their invested funds.

5.142. However, the Commission understands that, at the time of privatisation of AIAL, assets were carried over at their vesting values, and only revalued about a year later (at 30 June 1999). The share price of AIAL was determined after several assessments and issues were considered. The listing price undoubtedly reflected the value in the airports' various business activities, but also trading issues related to initial listing on the New Zealand Stock Exchange. Therefore, it seems difficult to make a close link between the share price and particular valuations of assets.

5.143. AIAL contended that it had been required by its shareholders to revalue its assets to ODV values, subsequent to privatisation.[166] The implication seems to be that new investors, in buying their shares, had such an expectation. AIAL suggest that following the Government's decision to sell its 51.6% shareholding through a public float, a shareholders' meeting was held on 22 May 1998 prior to privatisation, at which the AIAL Board was directed (by unanimous shareholder vote) to revalue the Company's assets, as follows:

> ...revalue assets in the books of the Company within one year after listing using the optimised deprival valuation concepts, credit the increased value so recognised to reserves and reconsider the capital structure of the Company at that point with the aim of maximising the use of debt in the Company's balance sheet consistent with sustainable development of the airport.[167]

5.144. AIAL further submitted that the revaluation directive was confirmed in the official Prospectus (May 1998) for the initial public offering of shares.[168] However, the Prospectus actually contained the following statement:[169]

> In addition, on May, 22 1998 the Shareholders requested the Board of Directors to carry out a revaluation of the assets of the Company within one year of the Shares being listed on the NZSE, credit the increased value arising from such revaluation to reserves and reconsider the capital structure of the Company at that point. *No revaluation methodology has been determined as yet by the Company*, but it is management's intent to address this request by presenting a revaluation to the Board of Directors for consideration prior to June 30, 1999... An upward revaluation of the Company's depreciable assets will result in an increase in the revenue charge for depreciation and amortisation and a consequent reduction in surplus after taxation. (emphasis added)

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[166] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 73.

[167] Minutes of a Special Meeting of Shareholders of AIAL 22 May 1998, paragraph 4.5, page 7.

[168] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 73, paragraph 5.48.

[169] *Offer of the Ordinary Shares of Auckland International Airport Limited, Prospectus* 1998, page 31.

5.145. At the 22 May 1998 shareholder's meeting, the Chairman of the Board agreed that ODV should be considered as an approach, but noted the following:[170]

> …while the Board was comfortable with the concept of revaluing within approximately one year of listing, the Board had not yet considered, and wished not to be constrained, as to which valuation policy should be applied for asset revaluation purposes,…

5.146. The public statement in the Prospectus only said that the assets were to be revalued, and did not specify the methodology to be employed. Nonetheless, a revaluation would imply a movement towards some kind of current valuation, and this is supported by the indication that an upwards revaluation was expected. The statement further indicated that such a revaluation would result in a decrease in the Company's surplus, implying that pricing would not necessarily be changed.

5.147. Given the public statement, the Commission considers that no new investors would have paid a higher share price based on a promise that the assets would be revalued using a certain methodology that would effectively increase the value of the company's underlying assets. Nonetheless, revaluations across the entire airport did subsequently occur.

5.148. Further, the Commission notes that, even after privatisation, there was no indication from AIAL that the revalued assets were to be used for the purpose of calculating charges. Indeed, the airlines claim that they received assurances from AIAL when the process started that this would not occur. In its submission on the Critical Issues Paper, BARNZ stated (para 47.2):[171]

> AIAL is the most egregious example of this conduct. It re-valued its assets in 1999, and in so doing inflated its asset base by $300m, which value was then used to justify its proposed aeronautical charges. This was despite the fact it had publicly represented to BARNZ members at a General Meeting in March 1999 that the revaluation *"did not automatically imply that landing charges will increase"* and that AIAL "*did not expect to increase landing charges in the immediate future i.e., the next few years"*. Most of the increase in value derived from land. The valuation approach used by AIAL was fundamentally flawed.

WIAL

5.149. For WIAL, the only change of ownership was the 1998 sale of the Crown's 66% share in the airport to NZ Airports Limited, which is 100% owned by Infratil Limited (Infratil). In the case of WIAL, the use of vesting values for specialised assets could arguably result in Infratil not recovering its investment in such assets. However, Infratil's investment and expectations should be seen in the context of the entire company it was acquiring, and the threat from this Inquiry, which was initiated only a few months before the sale (and was presumably at the forefront of their minds).

Summary

5.150. It would seem reasonable that no new investor at any of the three airports could have expected their investment to return excess returns for airfield activities (unless there

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[170] Minutes of a Special Meeting of Shareholders of AIAL 22 May 1998, third paragraph, page 6.

[171] BARNZ Submission on the Critical Issues Paper, 26 April 2001, paragraph 47.2.

was superior performance), given that all three airports were the subject of this Inquiry by the Commission at the time.

5.151. Given the above, the Commission considers that the use of vesting values at depreciated historic cost for specialised assets is appropriate for each of the three airports subject to this Inquiry. Such values are consistent with the underlying rationale aimed at evaluating airport performance from an efficiency perspective. Acquisitions since vesting are included at cost of construction or acquisition.

Opportunity Cost of Funds

5.152. Despite differences of view between the various parties about how assets should be valued, it was widely agreed that the return on those assets should be based on WACC. The WACC for firms in one industry may be interpreted as the opportunity cost of the funds were they to be used by firms in another industry with a similar level of risk. It does not represent the best use (or highest possible returns) of funds.

5.153. Some proponents of ODRC argued that the Commission was inconsistent, and therefore wrong, to combine opportunity and historic cost valuations of assets. For example, Mr Horsley (an expert for AIAL and WIAL) said that such a mixture would not meet reporting standards, and so there would have to be separate, and quite different, valuations for reporting and pricing.[172] The airports did not see any inconsistency in combining an opportunity cost valuation of return (in the form of WACC) with an ORDC valuation of assets. In any case, the purpose of this Inquiry is to decide whether to recommend control, and this may require assets to be valued in ways other than those required for other purposes.

Conclusions on Valuation of Specialised Airfield Assets

5.154. The Commission considers that, for reasons of economic efficiency, assets should normally be valued at opportunity cost, unless they are specialised, when some higher value is required in order to prevent investors' funds from being expropriated and dynamic efficiency being harmed. For this Inquiry, it considers that depreciated historic cost is appropriate. Hence, specialised airfield assets should be valued for this Inquiry at depreciated historic cost. Historic cost in this context means the vesting values determined at the time of the vesting of each of the three airports. Acquisitions since vesting are included at cost of construction or acquisition.

THE RELEVANT ASSET BASE

Introduction

5.155. The final major issue to be considered in this Chapter is what assets should be included in the asset base of the entity that might be regulated. It is common in overseas regulatory jurisdictions such as the United States to apply two criteria with regard to the acquisition and use of assets by a regulated business: those assets must

[172] *Conference Transcript*, page 241.

be 'prudently acquired', and must be 'used and useful'.[173] An example from the New Hampshire Supreme Court is as follows:[174]

> While prudence judges an investment or expenditure in the light of what due care is required at the time an investment or expenditure was planned and made, usefulness judges its value at the time its reflection in rate base is under consideration....{u}nder the 'used and useful' principle, the commission is not asked to second guess what was reasonable at some time in the past, but rather to determine what can reasonably be done now with the fruits of that investment.

5.156. Clearly, in the regulatory context, it would send poor signals to regulated businesses (and to potentially regulated businesses) if a regulator were to underwrite previous poor investment decisions by allowing those assets to be included in the asset base for charging purposes. It would also likely be regarded as unfair on users if a regulator were to allow in the asset base those assets that were not required to provide the service. Further, users might also question situations in which regulated businesses acquire assets, and include them in the asset base for charging purposes, unnecessarily far in advance of being needed. Against these considerations, it has to be remembered that, if regulation were to impose such costs but prevent upside benefits from investment being retained by the firm, the overall allowed return will be reduced. Regulated returns would be less than expected returns, thereby reducing incentives to invest. These issues are considered further below.

'Used and Useful'

5.157. Some parties criticised the Commission's use of the term 'used and useful' in the Draft Report as being merely a slogan, and lacking in defined content.[175] However, this term is a type of optimisation akin to that used as part of an ODRC valuation approach, although these two concepts of optimisation do differ significantly.

5.158. As discussed earlier, under the ODRC valuation approach, optimisation would result in a collection of assets that are the modern equivalents of those in the asset base, and that are necessary to supply the pre-existing level of service. Strictly applied, this could result in an asset base substantially different from that of the entity in question, especially in industries characterised by rapid technological advance. In contrast, the 'used and useful' approach does not attempt to recast the asset base into what a hypothetical new entrant might invest in, but rather takes the existing asset base as given, and seeks to eliminate those assets that are not used and useful. An example, which summarises United States practice in the energy sector, is the following:[176]

> In the United States, traditionally, plant must be both used-and-useful to be incorporated into rate base and hence into tariffs. Under the used and useful valuation method, one reason to remove an existing asset from rate base is that it represents excess or over-capacity and is not used or useful for either energy or reliability purposes. Some portion of the plant is considered used and useful, however, if it is needed to satisfy the targeted reserve margin.

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[173] Armstrong, Cowan and Vickers, *Regulatory Reform*, *op. cit.*, page 87.

[174] Public Service Company of New Hampshire, 1998, quoting from New Hampshire Supreme Court's decision in Appeal of Conservation Law Foundation, 127 NH 606 (1986).

[175] For example, *Conference Transcript*, page 360.

[176] Source: http://www.narucintl.org/CEE-NIS/directory_index.htm

> …when a plant represented excess capacity, there was sometimes a regulatory provision that allowed a phase-in. A plant could be phased into rate base either according to a set schedule (typically not to exceed five years) or as demand grew and the plant became needed. Some United States regulatory entities do not totally exclude a plant that is not used and useful from rate base. Instead, they allow a depreciation allowance on the plant and they often allow for a return on the debt portion of the cost of capital, even though no recovery is allowed on the equity portion of the capital. This approach is used in a majority of American state commissions.
>
> ... excess capacity issues and concerns relate to problems of demand growth decreasing from previous projections, bringing large and expensive, *newly completed* plants into service before they were fully needed, and the "rate shock" effect that immediately including those plants into rates would have.

5.159. As noted earlier, the scope for optimisation with the DHC approach to asset valuation is limited. Further, it may be counter-productive since, by expropriating the value of investments in specialised assets, optimisation with DHC may discourage future investment. Indeed, some might consider the quotation above to be a possible example of a government reneging on a 'regulatory bargain' when applied to stranded assets, as reflected inthe use of the 'phase-ins', and the allowance of depreciation on otherwise excluded plant, mentioned in the quotation.

5.160. The Commission applies the used and useful concept in considering whether there is any excess runway capacity or airfield assets at any of the three airports.

5.161. The Civil Aviation Authority's advisory circular AC139-06A states that runway length should have the following characteristics:[177]

- Be adequate to meet the operational requirements of the aircraft for which the runway is intended.
- Be not less than the longest length determined by applying the corrections for local conditions to the operations and performance characteristics of the relevant aircraft.

5.162. The Commission has found that the respective runway lengths of Auckland, Wellington and Christchurch International Airports are required for the largest aircraft using, and the longest routes currently operating from, each of those airports. There is generally little 'spare' runway length at any of the airports, and what might be considered 'spare' is needed in adverse weather conditions. No party disputed this view in submissions or at the Conference. The Commission concludes that a conflict with the 'used and useful' criterion does not arise in respect of any of the sealed surfaces currently being used at any of the three airports.

5.163. The question as to whether any other airfield assets (particularly land held for development) are not 'used or useful' (are surplus) is considered on a case-by-case basis in the airport-specific chapters.

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[177] Civil Aviation Authority, Advisory Circular AC139-06A, *Aerodrome Design: Aeroplanes Above 5700 Kg MCTOW*, 1 May 1993.

Future Investments

Introduction

5.164. Given this Report's focus on airfield activities, the issue of future investments centres on future runway expansions, and land needed for those expansions. Both AIAL and CIAL are holding land for future developments, and AIAL's second runway is expected to be built before 2010.[178] The need for land to support future runway developments gives rise to two issues: when should the land be purchased by the airport, and when should airport users start to pay for it through landing charges?

5.165. The first of these questions involves land planning issues, and the costs and restrictions that these impose in circumstances where large amounts of land in one locality are required to support a runway development, and runway use is incompatible with most other prior uses. The second question is an economic and regulatory one. Each is considered below following some further background.

The Background

5.166. Growth in traffic at an airport over time may require an investment in additional runway capacity. Future demand by users is uncertain and is not guaranteed. Airport companies must make decisions to invest in additional capacity despite these uncertainties. It is likely to be undesirable for airport companies either to delay investment until demand exceeds capacity, or to invest in additional facilities much before they are needed.

5.167. Decisions on future investment are important from a dynamic efficiency perspective. Ideally, investment planning should aim to ensure that there is an appropriate level of investment to support production on a year-by-year basis, with no significant excess or under capacity. Any new investment should be based on reasonably anticipated future demands. However, as several parties submitted, these ideals can be difficult or expensive to achieve in the context of expansions in airport capacity, such as runways or terminal buildings, because of their 'lumpiness', i.e., increments to capacity are normally proportionately large relative to existing capacity.[179] As a result, such increments will typically be more than sufficient to accommodate demand initially, but as demand grows over time, the additional capacity will gradually be used more intensively.

5.168. CIAL considered that capacity cannot be added smoothly and incrementally in a 'just in time' fashion. In a perfect world CIAL would prefer to ensure that capacity remains just ahead of demand, but it argued that this was not always possible for various practical reasons, such as the obligation to consult, the inconvenience to current users of capital works, and the difficulties and costs of raising capital. CIAL also suggested there is a trade-off between adding capacity in small increments, which

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[178] *Conference Transcript*, page 126.

[179] For example, CIAL Submission on the Draft Report, 14 August 2001, Part C, page 46, paragraph 81. Also AIAL Submission on the Critical Issues Paper, 27 April 2001, paragraphs 7.5 and 8.84.

better match demand growth but are proportionately more costly to build, and adding capacity in larger increments, which have the reverse characteristics.[180]

5.169. WIAL consider that both airports and airlines had the common dual objectives of bringing the investment into play as close to demand as possible in increments as small as possible, and of avoiding the costs of disruption that airside construction generally entails.[181] AIAL stated that it plans for its future development on the basis of future demands projected by the airlines, and invests to meet those demands. Mr Goulter said that its policy was to expand capacity just behind demand.[182]

5.170. The Commission accepts that increments to airfield capacity are likely to be large relative to existing capacity. A runway cannot be built incrementally, in that it must be of sufficient length to accommodate the largest planes that are to use it. With a second runway, however, it may be possible to build a relatively short one initially to take smaller planes only, thereby freeing the main runway for heavier traffic, as AIAL intends to do. Even then it may be economic initially to undertake all land preparation and drainage works required for the full-sized runway planned.

5.171. The key issue at the present time is the holding of land well in advance of the need for future runway development. This involves assessing first, the appropriateness of such land holdings, and second, when the costs of such land should enter the charging base.

Holding Development Land

5.172. A number of pieces of legislation impact upon the issue of the holding of development land by airports, primarily the Airport Authorities Act 1997, the Public Works Act 1981 and the Resource Management Act 1991. The impact of each of these is now considered.

5.173. The definition of airfield activities in the Airport Authorities Amendment Act 1997 includes "{t}he holding of any facilities and assets (including land) acquired or held to provide airfield activities in the future (whether or not used for any other purpose in the meantime)". AIAL considers that the land it holds for such purposes can be included in the asset base when there is an intention (and reasonable certainty) that the land will be used at a future date for operational purposes.[183] CIAL submitted that the extent to which land it holds for future development should be included in current pricing depends upon the current management of the land by the airport company.[184] It presently excludes its development land in determining its prices for airfield activities.

5.174. Section 5 of the Airport Authorities Act 1966 (as amended in 1986) states that any development or reconstruction of an airport deemed by the Minister of Finance to be of both national and local importance is covered by section 224 of the Public Works Act, which allows land to be taken or acquired. An airport company is able to

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[180] Ibid, page 39, paragraph 48.

[181] WIAL Submission on the Critical Issues Paper, 27 April 2001, paragraph 7.129.

[182] *Conference Transcript*, pages 33 and 163.

[183] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 64, paragraph 5.24.

[184] CIAL Submission on the Critical Issues Paper, 27 April 2001, Part B, page 28, paragraph 97.

approach the Minister of Lands seeking an order—and the Minister's agreement—that land be compulsorily acquired for the airport. Given this provision, the airports do not necessarily have to hold land for future development, but may make business decisions to do so if considered beneficial. Although the Public Works Act theoretically means that an airport can obtain land, it might in practice be risky to rely upon it when large quantities are required in a particular locality.

5.175. Although the statutory definition of airfield activities specifically includes land acquired or held to provide airfield activities in the future, it does not follow that such land should automatically be included in the asset base for determining current pricing of airfield activities. The Commission considers that airports should generally bear the risks of not anticipating future demand correctly. Nonetheless, it may be appropriate for airports to acquire land for development if the opportunity comes up to buy a block of land that may not come up again and could not easily be acquired under the Public Works Act. The Commission understands that most land for public works is acquired without resort to the compulsory provisions.

5.176. The third statute of relevance is the Resource Management Act 1991, on which a report was provided by Mr Nolan (an expert for AIAL).[185] The underlying purpose of this Act is to provide for the sustainable management of natural and physical resources. In terms of Auckland International Airport, the Resource Management Act places an obligation upon AIAL, the Auckland Regional Council and Manukau City Council—which have jurisdiction over the airport land—to use, develop and protect the physical resources involved in a manner that protects the well-being of people and communities. This includes meeting the reasonably foreseeable needs of future generations, and avoiding or minimising adverse effects on the environment.

5.177. Of particular importance for airports is New Zealand Standard 6805: 1992, which aims to protect communities located close to airports from excessive aircraft noise. This standard recommends that noise contours be established at each airport, based on noise levels that are likely to arise from future airport operations. The contours are then used to limit the total amount of noise generated by aircraft operations, and to restrict land uses that would be incompatible with airport operations within those contours. Such land uses include housing, schools and hospitals. These may be prevented from being built within the relevant noise contours, or built only with sufficient acoustic protection. All this is accomplished by the use of land use controls over the relevant land through the local District Plan.

5.178. The Commission recognises that, because of the adverse environmental effects of airports, particularly the noise they give rise to, they are subject to considerable planning controls under the Resource Management Act. These controls limit the uses to which land designated for airport use can be put, even before it is acquired by an airport. Those owners are under no obligation to sell their land to the airport, and many years may pass before the airport is able, through market transactions, to acquire all of the parcels of land needed for a planned development. Once the land is owned by an airport, the controls place significant obligations on the owner in the course of seeking consent to develop the land for airport use. Hence, significant

[185] AIAL Submission on the Draft Report, 14 August 2001, Attachment 5.

planning horizons appear to be involved in accumulating land and bringing it to the point where it can be developed for airport use.

Conclusion on Land Holding Issue

5.179. From an economic perspective, the appropriate criterion to apply to land acquisition is cost minimisation. In principle, this would involve choosing a time pattern of land purchases that would minimise the net present expected value of cost over time, where cost is measured as the purchase plus holding outlays, less revaluations and revenue generated from other interim uses. These costs would reflect the various statutory restrictions and obligations (which add to the airport's costs) discussed above.

5.180. Overall, the Commission considers that it is a matter of judgment as to when land should be acquired for future runway developments. Designation for airport use can prevent land that may be required in the future from being used for incompatible purposes. On the other hand, the accumulation of the large parcel of land required through market purchases can take some years. Further, there is uncertainty as to precisely when development land may actually be required. In short, a judgement is required in each particular case.

The Asset Base Issue

5.181. As noted above, the development land held by CIAL is not included in its asset base for charging purposes, whereas the second runway land held by AIAL is included. This may reflect the fact that AIAL expects to build a second runway during the current decade, whereas CIAL has no plans to build a further runway.

5.182. From a prudence perspective, it is important that incentives are preserved to invest in new capacity in a timely fashion. To that end, land should be acquired with prudent timing, in relation to expected future use. At the same time, it is important to avoid charges being used to cover imprudent or excessive investment in land, or land acquired prematurely, or to expect users to bear the risks associated with future developments. At the Conference, Simon Terry and Associates suggested that an economic criterion for when development land should enter the charging base would be from the point at which there is a contract between the airport owner and its substantial customers that recognises the need for a second runway.[186] However, there could be 'gaming' problems with this option; airlines might delay entering into any such contract if there were any doubts about whether development might proceed as planned. Transpower stated that its policy is to capitalise holding costs on developments until those developments become 'used and useful'. Indeed, the Commission notes that it is common accounting practice for interest costs of this kind to be capitalised.

5.183. The Commission considers that, given the judgmental nature of the decision to commence acquiring land, which falls largely to the airport concerned, and from which point net holding costs start to accrue, it is appropriate that the airport be subject to the risk of non-development. That risk should provide some incentive on

[186] *Conference Transcript*, page 820.

the airport not to acquire land imprudently. This would require that net holding costs be accumulated for a reasonable number of years, rather than charged out on an annual basis. The Commission further considers that the appropriate point for the capitalised net holding costs to enter the charging base is once construction has commenced, since from that point the risk of non-development largely ceases to exist. However, it is recognised that this might create an incentive for an airport to bring forward a development in order to begin charging sooner. The capitalised net holding cost to that point should be treated as a specialised asset, to be written off over the medium-term**.** From that point, the land would be valued at opportunity cost in the asset base.

5.184. The issue of holding land for development and the timing of its inclusion in the asset base is discussed further in Chapter 8, in connection with the land AIAL holds for a planned second runway.

Conclusions on Relevant Asset Base

5.185. Airports should be able to recover through prices the costs of assets needed to provide airfield services. Land and non-land assets that are surplus (in whole or part) should not be included in the asset base, but should be optimised out.

5.186. The Commission considers that it is a matter of judgment as to when land should be acquired for future runway developments, given the inevitable uncertainties as to when relevant parcels will become available on the market, and to when development may actually occur. Moreover, airports are reluctant to rely on compulsory powers of acquisition under the Public Works Act, and are aware of the interests of residents living in proximity to the airfield and its flight paths given the requirements of the Resource Management Act. In these circumstances, the acquisition of land significantly in advance of it being needed would be expected, and would be prudent, especially given the very large amounts involved. Nonetheless, a judgement is required in each particular case. The Commission believes that it is important that incentives to invest in expansions to capacity in a timely fashion are preserved.

5.187. However, there is a danger that land could be acquired too far in advance of being required if the airport were assured of being able to recoup the cost of holding it from users. Hence, the Commission considers that holding costs—net of income generated and of revaluations—should be capitalised, and incorporated in the asset base as a specialised asset at DHC for charging purposes only from the point at which construction commences. This means that, although the airport has some discretion as to when land is purchased and net holding costs start to accumulate, it must bear the risk (albeit likely quite small) that the land may never be developed as planned prior to the development actually being initiated. From that point, the land would be valued in the asset base at opportunity cost.

CONCLUSION

5.188. During the course of this Inquiry, the Commission has considered a large number of written and oral submissions from a variety of parties on the valuation of assets and the determination of the asset base for regulated firms. It has also reviewed a significant number of reports emanating from other regulatory regimes, together with academic and policy papers. The issues these have raised have been discussed at length in the body of this Chapter, and no attempt is made here to summarise those discussions.

5.189. The Commission considers that the following general principles should be applied in determining the asset base used for airfield activities at each airport:

- Airfield land should be valued at its opportunity cost, namely its value in its best alternative use in the event that the airport were closed.

- The opportunity cost should be assessed at the highest alternative use value, with that being the higher of the value with or without the sealed surfaces (the latter incorporating the net costs of removing the sealed surfaces).

- Any land holding and levelling outlays should be valued as specialised sunk assets at DHC. These values should not include any amount associated with sunk assets that are already included in the opportunity costs of the land, in order to avoid double-counting.

- Specialised (non-land) airfield assets should be valued at DHC. DHC is represented by vesting value plus any acquisitions since vesting at the cost of purchase or acquisition. Although, as noted above, two Commission Members dissent from this view and favour the use of ODRC.

- Any surplus airfield assets should be optimised out of the asset base.

- Land held for development of airfield activities should be excluded from the asset base, and the associated net holding costs should not be capitalised, until construction is commenced.

5.190. The airport-specific chapters apply these general principles to the determination of the appropriate airfield asset base for pricing purposes for each airport. The need for optimisation and other issues unique to each airport are considered in more detail in those chapters.

6. WEIGHTED AVERAGE COST OF CAPITAL

INTRODUCTION

6.1. This Chapter examines the second aspect relating to return on capital: weighted average cost of capital (WACC). WACC is relevant for determining prices and for assessing performance. It is the element of the pricing models that allows for a required rate of return to be earned by debt and equity security providers. As well as being compensated for bearing the entity's capital costs, operating and maintenance expenditure, and taxes, capital providers earn a rate of return that reflects what they *could* be earning by committing their funds to an alternative project of similar risk—their opportunity cost of capital.[187]

6.2. The Airport Authorities Amendment Act does not provide any guidance as to how airports should determine WACC.[188] However, guidance is provided by economic and financial theory.

6.3. In formulating its views expressed on WACC in this Report, the Commission has obtained independent advice from Dr Martin Lally. A copy of his final report to the Commission is included in Appendix 18 to this Report.

WACC METHODOLOGY

6.4. Companies are typically funded by a combination of debt and equity. WACC is the weighted average cost of each new dollar of capital raised at the margin. In the simplest terms, it is the cost of debt and the cost of equity weighted by the proportion of debt and equity. It is expressed by the following formula:

$$WACC = W_d R_d (1-t_c) + W_e R_e$$

where: W_d = proportion (weight) of debt funding
R_d = cost of debt
t_c = statutory corporate tax rate
W_e = proportion (weight) of equity funding
R_e = cost of equity

6.5. Determination of the elements of WACC is subjective and involves considerable uncertainty. Careful and detailed examination is required to ensure that figures used (and assumptions adopted) are reasonable. If WACC is too high, airport operators will be able to achieve excess returns, while if it is too low, it may discourage investment. For this reason, a range for WACC is estimated around a point estimate.

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[187] Australian Competition and Consumer Commission, *SACL Aeronautical Pricing Proposal*, Final Decision, 2001, page 170.

[188] The Secretary for Transport can issue guidelines for the completion of disclosure financial statements. Guidelines may be issued specifying methodologies to be used in calculating WACC. At present the Secretary has issued no such guidelines. The airport companies are free to select their own methodology as long as they disclose details of the methodology used.

Cost of Debt

6.6. The relevant cost of debt is the interest rate required by investors to earn their desired return. It can, in some instances, be observed directly as the yield on debt issued by a company (e.g., through a bond issue with specified return), but is typically determined by way of a margin over and above the risk free rate, which is assumed to reflect the cost for which a firm of similar credit risk with an efficient capital structure could be expected to obtain financing. Computed in this way, the cost of debt (R_d) is expressed by the following formula:

$$R_d = R_f + \text{Debt Premium}$$

where: R_f = risk-free rate
Debt Premium = β_d(MRP) + Expected Default Losses + Liquidity Premium
β_d = debt beta
Market Risk Premium (MRP) = $R_m - R_f$
R_m = expected rate of return on the market portfolio

6.7. The debt premium determines the premium over and above the risk free rate that is required by investors for holding the debt. It reflects marketability and exposure to the possibility of default. It represents the incremental cost of raising debt.

6.8. In determining the debt premium, the Commission has considered such factors as how the airports finance their assets (debt or equity), the actual premiums that the companies pay above the risk-free rate, their liquidity and cashflow situation, and their credit ratings. However, as noted above, the key consideration in determining the debt margin is the cost for which a firm of similar credit risk with an efficient capital structure could be expected to obtain financing.

6.9. The cost of debt is estimated for the same period as that used to determine the risk-free rate (the period for which prices are set) and not the duration of the airport's assets or its debt.

Cost of Equity

6.10. The cost of equity is the expected rate of return just compensating for risk. While the cost of debt can often be observed directly as the yield on debt issued by the company, the cost of equity cannot, and must be estimated. A number of methods are available to estimate the cost of equity. However, the Capital Asset Pricing Model (CAPM) is the most popular, due to its intuitive appeal and relative ease of application.

6.11. The CAPM develops a relationship between the non-diversifiable risk of an asset (measured by its beta) and the opportunity cost of investing in that asset.[189] The essential principle underlying the CAPM is that risk-averse investors will not hold risky assets unless they are adequately compensated for the non-diversifiable risks that they bear and, therefore, the greater an asset's non-diversifiable risk, the greater

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[189] Ramesh Rao, *Financial Management: Concepts and Applications*, Maxwell McMillan Publishing, Second Edition, 1992, page 327.

the expected return. The CAPM links the risk-free rate, the asset's non-diversifiable risk, and the expected return on the market portfolio. Given the non-diversifiable risk of an asset, it provides the premium that investors can expect in terms of expected rate of return (over and above the risk-free rate)—it determines non-diversifiable risk adjusted expected return on equity.[190]

6.12. The standard CAPM model for return on equity (R_e) was developed by Sharpe and Lintner and is expressed by the following formula:[191]

$$R_e = R_f + \beta_e(MRP)$$

where: β_e = equity beta

Taxes

6.13. In developing the costs for the different capital components, issues regarding taxes arise. The standard CAPM does not take personal taxation incurred by investors explicitly into account and, therefore, does not adjust for the effect of any imputation credits attaching to dividends. Building on the work of Brennan, Lally has developed a version of the CAPM that explicitly takes account of personal tax rates that differ across both investors and sources of income, and which is applicable to the New Zealand tax regime. However, the resulting cost of equity is still an expected rate of return before personal taxes.[192] This model has been adopted by the airports.

6.14. The Brennan-Lally model can be expressed as follows:

$$R_e = t_{div}Div + R_f(1\text{-}t_{int}) + \beta_e(TAMRP)$$

where: t_{div} = excess of personal tax on dividends over capital gains tax
Div = dividend yield of the company
t_{int} = excess of personal tax on interest over capital gains tax
Tax-Adjusted Market Risk Premium (TAMRP)
$= R_m - R_f(1\text{-}t_{int}) - t_{divm}Div_m$
t_{divm} = weighted average of t_{div} over the individual companies in the market portfolio
Div_m = dividend yield of market portfolio

6.15. Assuming fully imputed dividends (and that investors have the ability to fully utilise them), the average investor faces a 33% marginal tax rate on interest, and capital gains are not taxed. It follows that t_{div} and t_{divm} are zero and t_{int} is 33%. These assumptions result in a simplified Brennan-Lally model expressed as follows:

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[190] Ibid, pages 330-331.

[191] Sharpe W F, *Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk*, , Journal of Finance, Vol 19, 1964. Lintner J, *The Valuation of Risky Assets and the Selection of Investments in Stock Portfolios and Capital Budgets*, Review of Economics and Statistics, Vol 47, 1965.

[192] Brennan M (1970), *Taxes, Market Valuation and Corporate Finance Policy*, National Tax Journal 23, pages 417-427. Lally M (1992), *The CAPM under Dividend Imputation*, Pacific Accounting Review, Vol 4, pages 31-44.

$$R_e = + R_f(1 - 0.33) + \beta_e(TAMRP)$$

where: $TAMRP = R_m - R_f(1 - 0.33)$

6.16. While there has recently been a change in the top marginal personal tax rate, the assumption that the average investor faces a 33% marginal tax rate is still valid.

6.17. The Commission's view is that WACC should be computed using the tax-adjusted Brennan-Lally CAPM.

Risk-Free Rate

6.18. The risk-free rate is the interest rate that an investor would earn on a riskless investment. However, there is no such thing as the risk-free rate in reality. Governments are typically the only entities in the market for funds considered to have such a low level of risk. Therefore, rates for Government stock are usually used to approximate the risk-free rate.

6.19. The risk-free rate is used in calculating both the cost of debt and the cost of equity. The choice of risk-free rate significantly impacts on the resulting WACC and should be determined carefully.

6.20. A question that has to be resolved in determining the appropriate risk-free rate relates to the term (maturity) of the rate used. Alternatives are to use the maturity corresponding to the period for which prices are set, or the life of airfield assets—the former leads to the use of three to five year rates, and the latter 10 year rates or longer. The Commission's view is that the risk-free rate should match the revision frequency of pricing on the basis that landing charges should reflect expected costs and risks over the period prices are set, but not be affected by the expectations of rates beyond that period. Prices are typically set by the airports for upwards of five-year periods due to the requirement to consult with substantial customers every five years on charges. The Commission acknowledges, but does not accept, submissions from WIAL[193] in support of using a 10 year rate.

6.21. Having determined the appropriate maturity date to use, debate revolves around how the rate is set. Options include using the range over the consultation period, the midpoint, the endpoint, an average of the beginning and ending rates for the period, or the average over the period. The selection of the rate is important, as risk-free rates vary daily.

6.22. The Commission notes that the Australian Competition and Consumer Commission (ACCC) supports the use of short-term averaging of yields in order to smooth out the effects of financial markets volatility. In its recent decision regarding Sydney

[193] WIAL Submission on the Draft Report, 14 August 2001, Expert Report 5, page 9. Note that this decision does not have a significant impact on WACC currently, as at present there is little difference between three, five and 10 year rates.

Airports Corporation Limited (SACL), the ACCC decided to use the 40 day moving average of the five year rate.[194]

6.23. There is nothing inherently significant about the date on which an airport makes a decision on new prices (or on which the new prices take effect), and the date is largely controlled by the airport. This suggests that the risk-free rate at that particular date should not be used. The Commission's approach is to use an average yield on Government stock over the period in which an airport consults with its substantial customers (ending with the point at which any new prices come into effect) and with a maturity matching the point at which prices will again be reviewed (at maximum five years).

6.24. The Commission agrees with WIAL that the risk-free rate should reflect compounding interest.[195]

Market Risk Premium

6.25. Market Risk Premium (MRP) represents the additional premium that investors require to hold the market portfolio—a diversified basket of 'risky' assets—over and above the return that can be obtained from investing in risk-free assets. It is not affected by firm specific factors. Continuing debate exists about the appropriate size of the MRP.

6.26. A number of approaches can be used to estimate MRP. The common approach is to observe ex-post risk-free rates and market returns, and calculate an arithmetic average over a number of years. Other methods involve: estimating the relationship between MRP and market volatility changes over time; estimating the MRP consistent with the current value of shares and expected growth in market dividends; and considering estimates of the MRP for foreign markets. Whatever approach is used, it is important to ensure that current estimates of investors' expectations are incorporated.

6.27. In estimating the MRP from averaging historical returns, a time period for the analysis has to be chosen. The choice involves a trade-off between using more data (which potentially improves the statistical precision of the MRP estimate), and using potentially less relevant data (by using data that is too historic). Whatever period is used, there will always be some statistical uncertainty surrounding the estimate.

6.28. The Treasury's handbook on cost of capital recommends the use of a 9% tax-adjusted market risk premium in the tax-adjusted version of the CAPM (denoted TAMRP), equating to 6.4% in the standard version of the CAPM.[196] In its recent SACL decision, the ACCC adopted a similar pre-tax MRP of 6%. In reaching its decision, the ACCC commented that empirical evidence suggests a declining MRP.[197]

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[194] Australian Competition and Consumer Commission, *SACL Aeronautical Pricing Proposal*, Final Decision, 2001.

[195] WIAL Submission on the Draft Report, 14 August 2001, Expert Report 5, page 9.

[196] Treasury, *Estimating the Cost of Capital for Crown Entities and State-Owned Enterprises*, October 1997, page 10.

[197] Australian Competition and Consumer Commission, *SACL Aeronautical Pricing Proposal*, Final Decision, 2001, page 194.

6.29. Consistent with the version of the CAPM used, the airports have adopted a 9% TAMRP based on the Treasury handbook. However, the airlines consider that, while a TAMRP of 9% was appropriate in the 1980s, more recent studies have indicated lower figures should be used. The airlines' position of a 8% premium is based on work by PricewaterhouseCoopers.

6.30. The recent work by PricewaterhouseCoopers referred to by the airlines arrives at an estimate of 8% to 9% for TAMRP (6% to 7% MRP in the standard CAPM), but suggests that there is evidence to support the use of an estimate of 8%.[198] The 8% figure is arrived at using data from 1925, while the 9% is based on data from 1956. The choice between 8% or 9% comes down to a trade-off between determining the TAMRP based on more data (and improving the statistical significance of the results) and including potentially less relevant data in the calculation. Other approaches to estimating the MRP are discussed by Dr Lally in Appendix 18, and they generate estimates in the 7% to 9% region.

6.31. None of the various approaches to estimating MRP is considered by the Commission to be necessarily better than any other. Having considered the various submissions received, the Commission's view is to adopt a TAMRP of 8%, within a range of 7% to 9%, in recognition of the uncertainty surrounding the estimate.

Beta

6.32. Risk relates to the possibility that expected returns may not actually materialise. The total risk of an asset or business is made up of both diversifiable risk and undiversifiable risk.

- Diversifiable (or unsystematic) risk is unique to the asset or firm and can be eliminated by diversification. The risk of obsolescence of its technology, the risk of reduced revenues caused by increasing competition, and the risks associated with patent approval, antitrust legislation, labour contracts, management styles, geographic location are all examples of unique risks.

- Undiversifiable (or systematic) risk is market risk, which is not unique to the firm. Such risk cannot be eliminated by diversification. It is related to, and dependent on, the state of the economy as a whole. The more systematic risk that is inherent in the operations of a company, the higher will be the cost of any debt and equity used to fund its operations.

6.33. A common misconception is that all variability and uncertainty in the returns accruing to an asset are included in the computation of WACC. Only the undiversifiable risk is relevant in determining the cost of equity. Investors are not compensated through CAPM for diversifiable risk. The CAPM implies that investors hold a diversified portfolio and, accordingly, diversify away this risk.

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[198] PricewaterhouseCoopers, *New Zealand Equity Market Risk Premium*, March 2000, page 6.

6.34. Beta measures the sensitivity of an asset's return to market returns—it's systematic risk.[199] It is probably the most contentious of the WACC components. It also significantly affects the resulting WACC.

Asset Beta

6.35. The asset beta (β_a) measures the sensitivity of a company's return to market returns when the company has no debt.

6.36. Airport revenues are affected by changes in passenger and aircraft movements. To the extent that these changes are correlated with Gross Domestic Product (GDP), they are likely to give rise to airport revenue that is highly correlated with GDP variation, and hence, systematic risk. The greater the extent of this systematic risk, the greater the asset beta.

Equity Beta

6.37. Equity betas reflect both operating and financial risk, while asset betas reflect only operating risk.[200]

- Operating (or business) risk is solely related to the risks associated with the firm's operations and the industry or sector in which it operates.

- Financial risk is the incremental risk (difference between the equity and asset betas) that arises when a firm takes on debt. Leveraged firms are more risky than firms without debt, as interest is a fixed cost that must be paid before shareholders receive anything.

6.38. The equity beta is determined by the following formula:

$$\beta_e = \beta_a(1 +(W_d/W_e))$$

6.39. If a company has no debt—is entirely financed by equity—its asset and equity beta are identical. By adding debt to a company's capital structure, the shareholding becomes more risky, such that its equity beta is greater than its asset beta. The level of systematic risk associated with equity (the equity beta) is magnified according to the proportion of debt in the funding mix. The greater the proportion of debt, the greater the systematic risk associated with the residual cashflows available for distribution to shareholders, and the greater difference between its asset and equity beta. For otherwise identical investments, a company with more debt in its capital structure will have a higher equity beta and a higher required rate of return on equity than a company with less debt.

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[199] Non-systematic risks necessarily have no effect on beta. However, they may affect the expected cashflows and should, therefore, be dealt with there. For example, the expected cashflows may incorporate no allowance for the possibility of an adverse event, such as an earthquake. If this has a probability of 1% and will lower cashflows by $100 million in the event of it occurring, the expected cashflows should be reduced by $1 million.

[200] *Weighted Average Cost of Capital for Christchurch International Airport*, Crighton Seed and Associates, June 1999, page 8.

Pure Play Comparisons

6.40. Beta may or may not be able to be estimated directly. Betas can only be directly estimated for listed companies. Where a beta cannot be estimated directly, a proxy or surrogate beta can be estimated by making adjustments for differences in gearing to the betas of similar entities or assets that are 'pure play'—comparable companies with similar activities and risks. While such an approach is useful, it is often difficult to find a 'pure play' comparison.[201] It is acknowledged that estimation of betas invariably involves an element of judgement of what is most appropriate. Even if a beta can be estimated directly, one should still seek comparators because the statistical reliability of beta estimates for single companies are poor, due to uncertainty.

Factors

6.41. Differences in betas across companies rise from differences in the sensitivity of returns to unexpected changes in the economy. In his report to the Commission, Dr Lally (Appendix 18, pages 462-464) stated that the sensitivity of equity returns to such changes are potentially dependent on a number of factors. First, we outline the factors, and then—as part of the consideration of potential comparators—consider the appropriate weight given to each.

- **Industry, i.e., the nature of the product or service**. Firms producing products with low income elasticity of demand (necessities) should have lower sensitivity to unexpected changes in the economy than firms producing products with high income elasticity of demand (luxuries), because demand for their product is less sensitive. In respect of airfields, much of the demand is recreational travel, for which betas are particularly high.

- **Nature of the customer**. There are a number of aspects to this.
  - The split between private and public sector demand. Firms producing a product whose demand arises exclusively from the public sector should have lower sensitivity to unexpected changes in the economy than firms producing a similar product demanded exclusively by the private sector, because demand should be less sensitive. This has no apparent implications for airfields or any suggested comparators.
  - The residency mix. Demand for air travel by New Zealanders should be sensitive to unexpected changes in the New Zealand economy, while demand from foreigners should be sensitive to unexpected changes in the world economy. The changes in the New Zealand economy should be more closely related to the performance of the New Zealand market portfolio. Consequently, airfields with a larger proportion of New Zealand customers should have higher betas.
  - The personal/business mix, with the former being more sensitive to unexpected changes in the economy.

[201] Beta estimates in New Zealand are further complicated by the relative thinness of the New Zealand Stock Exchange.

- **Pricing Structure**. Firms with revenues comprising both fixed and variable elements should have lower sensitivity to unexpected changes in the economy than firms whose revenues are entirely variable.

- **Duration of contract prices with suppliers and customers**. The longer prices are fixed (by contract, for example), the more exposed a firm is to unexpected changes in economic conditions, and the higher is beta.

- **Presence of price or rate-of-return regulation**. Firms subject to **rate-of-return** regulation should have lower sensitivity to unexpected changes in the economy, because the regulatory process is geared towards achieving a fair rate of return. Price regulation will have a similar effect, providing prices are frequently reset. However, as the reset interval increases, such a firm tends to resemble one with an output price contractually fixed for a long period. This is likely to increase the beta of an airfield.

- **Degree of monopoly, i.e., price elasticity of demand**. So long as firms act to maximise their cash flows, theory offers ambiguous results. By contrast, if monopolists do not optimise their cash flow, in the sense of reacting to unexpected changes in demand by varying the cushion provided by suboptimal pricing and cost control more than do non-monopolists, then their returns should exhibit less sensitivity to demand, and hence to unexpected changes in the economy. In respect of airfields, their monopoly power may be diluted by the extent of countervailing power of airlines.

- **Nature of the firm's real options**. The existence of options permitting expansions of the firm (adopting a new product, expanding existing operations etc) should increase the firm's sensitivity to unexpected changes in the economy, as the values of these growth options should be more sensitive to such changes than equity value exclusive of them, and these two value components should be positively correlated. By contrast, the existence of options permitting contractions of the firm should reduce the firm's sensitivity to unexpected changes in the economy, because the option value should be negatively correlated with equity value exclusive of it.

- **Operating leverage**. If firms have linear production functions and demand for their output is the only random variable, then firms with greater operating leverage (higher fixed to total operating costs) should have greater sensitivity to unexpected changes in the economy because their cash flows will be more sensitive to demand. This implies that the high operating leverage of airfields should magnify their betas.

- **Market weight**. Increasing an industry's weight in the market proxy against which its beta is defined will draw its beta towards 1, although not necessarily in a monotonic fashion. Even for a market weight as low as 5%, the effect can be substantial. Airfields and possible comparators have limited weights in market indexes and, consequently, this point is not relevant in this case.

- **Capital structure**. Firms with greater financial leverage will have greater sensitivity of equity returns to unexpected changes in the economy, because cash flows to shareholders will be more sensitive to demand. In addition, firm leverage only matters in relation to market leverage. Thus, for a given level of firm leverage, firms in different markets that have different market leverages will have different betas.

6.42. Comparators ideally should be similar in the above respects. However, so long as differences can be corrected for, this is not strictly necessary (and will therefore expand the set of comparators, with resulting improvement in the statistical reliability of the beta estimate).

Potential Comparators

6.43. Both the airports and airlines support their views on beta by reference to estimated betas of what they consider are comparable companies. There is considerable latitude when using comparable firm data to assess the appropriate asset beta for airports. The question as to which firms are most comparable and which factors should receive the most weight in the assessment is open to debate.

6.44. Airports generally consider other utilities to be less preferable as 'pure play' comparators, as they exhibit less risk than airports:[202]

- Airports are likely to be more susceptible to downturns in economic circumstances than other utilities (such as electricity networks), particularly in respect of leisure travel.

- Airport earnings are becoming increasingly volatile as airlines increase flexibility through alliance arrangements, fleet evolutions and the relaxation of international air services agreements.

6.45. However, there are limited estimates of airport betas available. As a result, the airports have provided the Commission with possible alternative comparators. CIAL submitted that port companies were comparable to airports, given that they were in the transport industry, were regional monopolies, and had a mix of contestable and non-contestable business activities.[203] Dr Lawriwsky (an expert for CIAL) also presented arguments for using airlines and electric utilities as comparators.[204] Dr Marsden (an expert for AIAL) suggested that selected United States gas and electricity companies might be useful comparators.[205]

6.46. The airlines disagree with using other airports as comparators. They consider that there are considerable differences between Australian and New Zealand airports such that the ACCC's betas are not necessarily applicable in New Zealand, and that, all other things being equal, lower asset betas are appropriate in New Zealand. They argue that New Zealand airports have lower systematic risks than Australian airports

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[202] Sydney Airport, *Revised Draft Aeronautical Pricing Proposal,* 2000, page 92.

[203] CIAL Submission on the Critical Issues Paper, 27 April 2001, page 49, paragraph 201.

[204] CIAL Submission on the Draft Report, 14 August 2001, Expert Report Dr Lawriwsky.

[205] AIAL Submission on the Draft Report, 14 August 2001, Attachment 4.

due to the following differences (the same reasoning applies to other overseas regulated airports):[206]

- The regulatory arrangements. New Zealand airports have an explicit legal right to set prices (in contrast to Australian airports) and can establish pricing arrangements that—to a significant extent—insulate them from systematic risk, either mechanistically, or by deciding to amend their prices at some future date.[207]

- Revenue stability and variation. The current pricing arrangements for AIAL and CIAL fix prices for a shorter period than the Australian airports.

6.47. During recent consultations conducted by AIAL and CIAL, Air NZ argued that Airways Corporation was the best comparison. Air NZ considered airports to be 'low revenue risk' for the following reasons:[208]

- The regulatory environment is light-handed and allows airports to match prices with anticipated volume changes and to adjust quickly for unexpected changes.

- Given this, airports have the power to set prices and insulate themselves from systematic (i.e., non-diversifiable) risk.

- The geographic position of an airport leaves it subject to minimal competition from other New Zealand airports.

- Once consultation is completed to the satisfaction of minimal legal requirements, prices can be immediately changed.

6.48. In its submission on the Draft Report, BARNZ argued for United States rate-of-return regulated electric utilities as a comparator. BARNZ submitted that such entities would be better comparators for airfield activities than United Kingdom price-capped firms, because the New Zealand regulatory environment allows airport companies to set prices as they see fit, and therefore replicate the almost guaranteed returns available to United States rate-of-return regulated firms.[209]

6.49. The Commission considers that the comparators offered by the airports and the airlines have a number of limitations. It disagrees with arguments made by the airlines that the airports have the ability to amend prices in response to adverse unexpected changes in the economy (in the absence of pricing agreements providing mechanisms for this). Averages of airport betas are also statistically unreliable due to the small number of entities averaged. Furthermore, the comparators' betas suggested have not been adjusted (or have been incorrectly adjusted) for non-aeronautical

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[206] S Lovick, *Commentary on the WACC assumptions adopted by CIAL*, Network Economics Consulting Group, October 2000, pages 3-4.

[207] New Zealand airports cannot set or modify charges without first consulting with their substantial customers.

[208] For example, Air New Zealand, *Draft Interim Consultation Response to AIAL*, 22 December 1999, page 63. Also refer to S Lovick, *Commentary on the WACC assumptions adopted by CIAL*, Network Economics Consulting Group, October 2000.

[209] BARNZ Submission on the Draft Report, 10 August 2001, page 30, paragraph 22.3.

activities, market leverage differences, or differences in regulation. Some of the other industries suggested as comparators are also markedly different in respect of their monopoly power and regulatory regimes.

6.50. In the case at hand, the Commission considers that the regulatory environment is fundamental to the performance of the airports and is, therefore, the dominant factor considered in choosing comparators. Useful benchmarks for an asset beta for airfield activities are, therefore, as follows:

- United States firms engaged in electricity generation and/or distribution that are subject to rate-of-return regulation (which almost guarantees them a certain rate of return).
- Electricity firms in the United Kingdom subject to CPI-X price caps.

Weights

6.51. A number of options exist with respect to selection of the weights used to determine WACC. They include:[210]

- Proportions present in the company's financial structure.
- Target or long-run proportions of the company.
- Proportions present in the financial structure of comparator private sector companies (used to estimate β_e).

6.52. All these ratios involve market values rather than book values.

6.53. It is inappropriate to use the actual weights from the statement of financial position of the company (book value weights). Current ratios are useful only if they reflect the manner in which the company will finance its investments in the long-term. An alternative is target weights, which are suggested to avoid the bias which may occur from one accounting period to the next as actual debt and equity levels change over time.[211] However, it is difficult to determine an optimal (target) gearing level. As a result, the Commission considers that actual leverage ratio—based on the market values of debt and equity at the time prices are set—is most appropriate (and is consistent with the debt premium used). The risks associated with any changes in financial structure between price re-sets are, therefore, borne by airport operators.

Nominal v Real WACC

6.54. WACC can be expressed in real or nominal terms. The relationship between the real and nominal WACC—between any real and nominal rate—is defined by the Fisher equation:

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[210] Treasury, *Estimating the Cost of Capital for Crown Entities and State-Owned Enterprises*, October 1997, page 33.

[211] *Weighted Average Cost of Capital for Christchurch International Airport*, Crighton Seed and Associates, June 1999, page ii.

$$(1 + R_{nom}) = (1 + R_{real})(1 + i)$$

where: R_{nom} = nominal rate
R_{real} = real rate
i = rate of inflation

6.55. A decision must be made over whether WACC should be computed in nominal or real terms. The choice of real or nominal doesn't matter *provided* there is consistency in the application—in particular in the parameter estimates and cashflow estimates. Consistency is particularly important where WACC is used in pricing, valuing assets and comparing actual rates of return. Three options are available:[212]

- Apply a nominal rate to the depreciated historic cost of assets.

- Apply a nominal rate to revalued assets and include any revaluation amounts as income.

- Apply a real rate to revalued assets, but don't include any revaluation amounts as income.

6.56. For the purposes of this Report, the Commission has chosen to use a nominal WACC in order to be consistent with its approach to asset base and analysis of historical returns. Any asset revaluations in the past and any expected revaluation gains in the future are, therefore, included in income.

CONCLUSION

6.57. After asset base, WACC has the next most significant impact on the calculation of excess returns. The Commission's approach to determining WACC can be summarised as follows:

- WACC is computed using the tax-adjusted Brennan-Lally CAPM.

- The cost of debt is estimated for the same period as that used to determine the risk-free rate (the period for which prices are set) and not the duration of the airport's assets or its debt.

- The period of the risk-free rate should match the revision frequency of pricing on the basis that landing charges should reflect expected costs and risks over the period for which prices are set, but not be affected by the expectations of rates beyond that period. In determining the rate used, the Commission's approach is to use an average yield on Government stock over the period in which an airport consults with its substantial customers (ending with the point at which any new prices come into effect) and with a maturity matching the point at which prices

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[212] *Treasury, Estimating the Cost of Capital for Crown Entities and State-Owned Enterprises*, October 1997, page 18.

will again be reviewed (at maximum five years). The rate also reflects compound interest.

- The Commission does not consider any of the various approaches to estimating MRP to be better than any other. The Commission adopts a tax-adjusted MRP of 8%, within a range of 7-9% in recognition of uncertainty surrounding the estimate.

- The Commission uses a tax rate of 33% in computing the cost of equity, but the statutory corporate tax rate (which in the late 1980s was 28%) in computing the after-tax cost of debt.

- In selecting comparators to determine beta, the Commission considers a number of factors. In the case at hand, the regulatory environment is fundamental to the performance of the airports and is, therefore, the dominant factor considered in choosing comparators. Benchmarks for an asset beta for airfield activities are, therefore, United States firms engaged in electricity generation and/or distribution that are subject to rate-of-return regulation (which almost guarantees them a certain rate of return), and electricity firms in the United Kingdom subject to CPI-X price caps.

- A firm's actual leverage ratio—based on the market values of debt and equity at the time prices are set—should be used (consistent with the debt premium used).

- The Commission uses a nominal WACC in order to be consistent with its approach to asset base and analysis of historical returns. Any asset revaluations in the past and any expected revaluation gains in the future are, therefore, included in income.

6.58. Estimates of WACC for each airport based on the above approach adopted by the Commission are determined in the separate chapters on each airport.

7. BENEFITS AND COSTS

INTRODUCTION

7.1. Submitters to the Inquiry were unanimous in support of the Commission's approach in the Draft Report of identifying the benefits and costs of control. However, the airports considered these should be specifically applied to each airport, which the Commission accepts (the application occurs later in Chapters 8, 9 and 10). The purpose of this Chapter is to highlight the types of benefits and costs that should be used in the airport specific analysis. It also states how those benefits and costs should be determined.

7.2. WIAL raised concerns that any forms of control evaluated by the Commission should only be used for assessing the costs of control, and should not signal a preferred approach to control.[213] The Commission emphasises that any evaluation of different forms of control here is only intended to help it reach a decision as to whether to recommend control or not, and does not imply that a particular form of control would necessarily be used were control to be introduced.

7.3. The Commission considers that the benefits and costs of control are those that are additional to the counterfactual. The Chapter proceeds by considering the appropriate counterfactual, which forms the basis for considering the benefits and costs of control in the rest of the Chapter.

THE COUNTERFACTUAL

7.4. The benefits and costs of control of airfield activities in the future have to be assessed against a counterfactual of what might otherwise happen in the future in the absence of control. Thus, a comparison has to be made between two hypothetical future situations, one with control and one without. In framing a suitable counterfactual, the Commission bases its view on a pragmatic assessment of what is likely to occur in the absence of control.[214]

7.5. The preliminary view taken by the Commission in the Draft Report was that the most likely counterfactual would be a continuation of the status quo, with the airports operating under the present form of regulation, which includes information disclosure, consultation on prices and major investments, and a threat of control under Part IV of the Commerce Act.

7.6. In the Draft Report, the Commission considered that, if this Inquiry were to lead to the recommendation that control should not be imposed, and if that were to be accepted by the Minister, the status quo might be affected. Specifically, the constraining impact of the threat of control could (at least for a time) be reduced. This might allow the airports somewhat greater latitude in behaviour, leading to an increase in inefficiencies or excess pricing. Alternatively, the outcome of this Inquiry could have

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[213] WIAL Submission on the Draft Report, 14 August 2001, Vol. 1, page 20.

[214] See the discussion in Commerce Commission, *Decision No. 277: New Zealand Electricity Market*, 30 January 1996, especially page 16.

the affect of providing a benchmark over which airports would not wish to pass for fear of a further Part IV inquiry.

7.7. A further consideration in setting the counterfactual in the Draft Report was that it is not possible to anticipate how other circumstances may change in the future, e.g., any modifications to the Airport Authorities Act or the Airport Authorities (Airport Companies Information Disclosure) Regulations by the Ministry of Transport.

7.8. Submissions on the Draft Report did not raise any new reasons for diverging from the counterfactual of the status quo. However, AIAL referred to the possibility of further refinements in the disclosure obligations of airports, given the Ministry of Transport's pending review.[215] WIAL emphasised refinements to the consultation process that had already occurred as the result of court decisions, and which were likely to be extended as a result of (then) proceeding legal action by Air NZ against AIAL.[216] Subsequent to the Conference, this legal action has been settled out of court. Broadly speaking, the airports suggested the regime might be tightened in the future.

7.9. CIAL argued that the Commission had underestimated the countervailing power of airlines and the counterfactual was therefore flawed.[217] AIAL made a similar argument and suggested the counterfactual had implicitly assumed competition was limited, as "if competition was not limited then you would no longer need to test for excess returns."[218] WIAL suggested that (for it) the countervailing power of airlines was greater than the Commission had assessed in the Draft Report.[219]

7.10. The Commission considers that countervailing power of airlines forms part of the status quo. The relevance of this issue for the counterfactual was whether the extent of countervailing power would change over time. The airports offered no reason why it would. Nonetheless, their arguments may have relevance for the competition analysis and are duly considered in Chapters 8, 9 and 10. The counterfactual does implicitly include an assumption that competition is limited.

7.11. AIAL argued that the Commission, in using the counterfactual to assess whether inefficiencies existed, had made 'bland assumptions' about its future costs and asset base. It argued that costs would rise in the future. It also said the introduction of control would compel AIAL to dispose of the land held for "the imminent development of the second runway."[220] The Commission considers that, while these arguments could be relevant to the evaluation of whether control should be introduced at AIAL, they are not factors that directly affect what the situation would be without control in the counterfactual. The cost referred to by AIAL would seem to occur with or without control, and would, therefore, be part of the status quo. Clearly, AIAL's decision of whether or not to hold the second runway land would not be affected if control was not recommended and the status quo continued.

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[215] *Conference Transcript*, pages 11-12.

[216] Ibid, pages 463-464.

[217] CIAL Submission on the Draft Report, 14 August 2001, Part A, page 2, paragraph 1.

[218] *Conference Transcript*, page 106.

[219] Ibid, pages 449-452.

[220] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 119, paragraph 10.7.

7.12. On the other hand, the airlines, through BARNZ, argued that, if the Commission did not recommend control, the threat of control would be diminished. They argued for temporary control in the case of AIAL and CIAL to add credibility to the threat of control, given that the Draft Report had found excess returns at these airports. BARNZ suggested in its written submission that landing charges could rise by as much as 9.6% at Auckland International Airport if control were not recommended, because of the reduction in the threat of control.[221] At the Conference, BARNZ noted AIAL's own claim that prices may need to rise by 6% if it applied the approach used in the Draft Report, after making adjustments AIAL felt appropriate.[222] The airlines' view implied that the regulatory regime might become less tight.

7.13. Since the Conference, Air NZ and AIAL have reached an agreement over landing charges until 2007. This agreement is open to all other airlines and is without prejudice to any views submitted by either party to this Inquiry. These developments mean the rises in prices suggested by the airlines above are unlikely to eventuate in AIAL's case in the immediate future. This situation does not apply to CIAL or WIAL. WIAL has recently commenced consultation on future charges, as the current five-year deed with users expires on 30 June 2002.

7.14. Having regard to the above matters, the Commission considers that, in general, the counterfactual is a continuation of the status quo. The conclusion made is (as in the Draft Report) that the current regulatory regime will remain, and will maintain its current level of effectiveness. However, there are some airport specific qualifications, that must be considered, e.g., in AIAL's case, the Commission considers the status quo includes the recent agreements with airlines. Such issues are discussed further in the airport-specific chapters. The Commission notes that there is always the possibility that a further inquiry may occur in the future, if behaviour at any of the airports were to warrant this.

BENEFITS

7.15. The potential benefits of control relate to reducing any inefficiencies (allocative, productive and dynamic) and/or excess returns in a market. An analysis of performance in the counterfactual compared to an efficiently operating market could be used to measure these benefits. However, it cannot be assumed that *all* of the potential benefits would actually be realised in practice through the imposition of control. Clearly, different forms of control may be more or less effective. Further, control can create additional costs to those emerging from lighter forms of regulation, as discussed below.

7.16. A useful starting point for the analysis of the benefits of control remains the inefficiencies that may be present in the counterfactual. Chapter 4 presented the pricing principles and explained the three aspects of economic efficiency (allocative, productive and dynamic efficiency). The sources of potential benefit include:

- Allocative inefficiency being reduced or eliminated by control (with the resulting lower prices passed on to consumers). Inefficient levels of service quality for the

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[221] BARNZ Submission on the Draft Report, 10 August 2001, page 10.

[222] *Conference Transcript*, page 710.

price charged could also be addressed through control. There may also be indirect or spill-over benefits from any lower prices to related markets.

- Excess returns being reduced or eliminated by control, with a transfer of wealth from suppliers to consumers (being a net benefit to acquirers). The increase in consumers' wealth is matched by a reduction in suppliers' wealth (resulting in zero net public benefit).

- Productive inefficiency being reduced or eliminated by control (with resulting cost savings likely to be passed on to consumers in lower prices).

- Dynamic inefficiency being reduced or eliminated by control, because of better utilisation/allocation of resources. This would benefit New Zealand and potentially lower required revenue from landing charges (to cover costs) likely leading to lower prices for consumers.

7.17. The sources of potential benefits are now discussed below. The models used in the airport-specific chapters to quantify the potential benefits of control over time are also introduced.

Allocative Efficiency Gains

7.18. Allocative inefficiencies could exist in the past, present or future. The evaluation of allocative inefficiencies at the airports would require a calculation of the efficient price at each airport over time. The total revenue and cost for airfield activities could be used to do this. Cost would be measured by the sum of appropriate airfield expenses and a normal return on investment, the latter being calculated by multiplying the appropriate asset base by an appropriate WACC. Revenue would be measured by multiplying airfield charges by the level of output.

7.19. Where revenue exceeds cost, or equivalently, where the airport's actual returns on airfield activities (after allowing for expenses) are greater than normal returns, prices would be above the efficient level. From this, the potential benefits to acquirers can be estimated, if control were to have the effect of reducing price at each airport to the efficient level.

7.20. CIAL was critical of the building blocks approach taken by the Commission. CIAL's preferred approach was a DCF approach, which it argued could produce a smoother price trend.[223] The implication was that 'apparent' over-recovery at one point in time may be matched by 'apparent' under-recovery at other times. The Commission considers that, properly applied, either a building blocks or a DCF model should produce similar results over the medium-term.

7.21. The Commission has undertaken current, forecast and historical analysis for each airport, based on both actual data and forecast information. The models used for these purposes are described in the sub-sections that follow.

[223] CIAL Submission on the Draft Report, 14 August 2001, Part C, page 32.

The Models

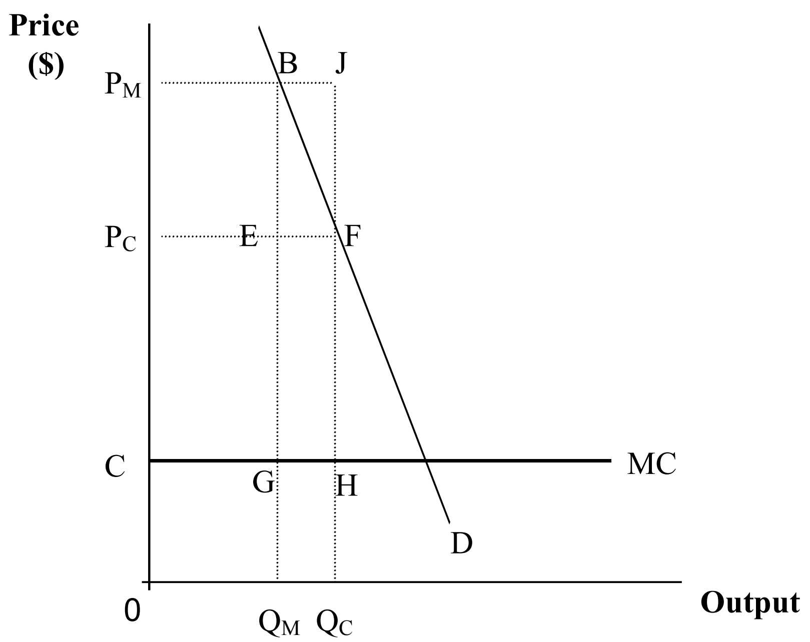
Analysing Current and Future Performance

7.22. In the Draft Report, the Commission presented a model for measuring present and future allocative inefficiencies and excess returns. In light of submissions, the Commission has adjusted its model, as explained below.

7.23. Given the inelastic demand for airfield services, large price increases would likely have minimal adverse impact on demand by consumers. Deadweight losses (DWL) associated with inefficient pricing would emerge in the airfield services market, but these would be likely to be small relative to the size of the distribution effects (i.e., the wealth transfer from consumers to suppliers through the higher prices). These effects are explained in Figure 2, which shows a stylised demand and cost structure of a typical, single runway, airport.

7.24. The vertical and horizontal axes of the figure are scaled in terms of the average price per tonne, and the number of tonnes landed, respectively. The cost structure of the airfield activities is such that fixed costs make up a large proportion of total costs, while marginal costs are very low so long as excess capacity exists. The point at which the demand curve (D) meets the price axis is not shown on the chart, but is termed point A. The demand curve is assumed to be linear for simplicity.

Figure 2
Estimating Allocative Inefficiency in the Airfield Services Market



7.25. An airport must cover all of its costs, including fixed and overhead costs, so the competitive average price is assumed to be set above marginal cost (MC) at P_C, with output at Q_C (P_C includes an appropriate level of normal returns reflecting an appropriate asset base and WACC). In other words, if the airport's average cost curve were to be drawn on Figure 2, it would slope downward and intersect the demand curve at point F, the downward slope reflecting the spreading of overheads over the larger landed tonnage. At this position, gross surplus would be represented by the area $OAFQ_C$, from which variable costs of $OCHQ_c$ would have to be deducted. The remaining net surplus (or net benefit from production) is split between consumers' surplus of P_CAF, and suppliers' surplus—covering fixed costs and normal returns—of CP_CFH.

7.26. Inefficient pricing would be reflected in the price being raised above the competitive level to, say, P_M, with output in consequence shrinking to Q_M. This would result in:

- A loss of net surplus equal to the area BFHG. This loss is shared between acquirers' (consumer) surplus of BFE and the supplier's (producer) surplus of EFHG.

- Resources no longer required because of the reduction in output, represented by the area GHQ_CQ_M, which are assumed to be absorbed elsewhere in the economy, with no impact on welfare.

- Additional surplus gained by the supplier at the expense of acquirers, depicted by area P_CP_MBE, which is a wealth transfer from acquirers. In efficiency terms, this transfer is assumed to have no direct effect, since one party gains at the expense of the other.

7.27. Hence, the detriment arising from the loss of allocative efficiency in the airfield services market is represented by the area BFHG. The supplier earns excess returns equal to the value of area P_CP_MBE.[224]

7.28. An alternative possibility is that the actual price could be *below* the competitive price. To generate that outcome using Figure 2, the M subscript can now be treated as indicating the competitive position, and the C subscript the actual position. In this case, acquirers of airfield services benefit at the expense of the service provider, who earns less than normal returns. The total revenue produced by the service is represented by the area OP_CFQ_C, and the total cost is equal to OP_MJQ_C, leaving a loss to the airport of P_CP_MJF.[225] The deadweight loss from the over-production by Q_MQ_C is shown by the triangular area BJF. In this scenario, as in the previous one, the deadweight loss is likely to be very small relative to the wealth transfer from, in this case, suppliers to consumers/acquirers.

7.29. The low price elasticity of demand for airfield services suggests that the output decrease between Q_M and Q_C could be quite small. This would suggest that the transfer of wealth from suppliers to acquirers, as represented by the area P_CP_MBE, associated with monopoly pricing would be likely to greatly exceed the loss of allocative efficiency, denoted by area BFHG. Applying the same logic, an attempt to

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[224] This analysis assumes for simplicity that the AC curve is actually horizontal, rather than downward sloping, in the range between points E and F. In any case, given the price inelastic demand curve, the output difference between the two points is unlikely to be significant, so that the average costs at those two points are likewise not expected to differ significantly.

[225] This statement is subject to the same qualification as given in the previous footnote.

return prices to the competitive level through the use of control would, if successful, reverse these changes. The wealth transfer of P_cP_mBE would revert back to acquirers, and allocative efficiency would improve by BFHG. From a narrow acquirers' perspective, they would benefit from the lower prices by the gain in consumers' surplus P_CP_MBF.

7.30. NERA argued that the marginal costs of airfield activities were not zero as the Commission has assumed in the Draft Report.[226] They did not have their own assessment of marginal costs.[227] If marginal costs are not zero then the potential producer surplus gains estimated by the Commission may be overstated.

7.31. To determine a marginal cost figure for the purpose of analysis, the Commission has looked at the repairs and maintenance costs on the runways and dividing this by tonnes landed. A figure so derived, however, is likely to be an average, rather than marginal, figure unless the two are the same because all costs are variable and increase in a linear fashion with tonnes landed. This being unlikely, the estimated marginal cost is likely to exceed the actual marginal cost. In addition, the Commission considered fluctuations over time caused by sporadic maintenance on the runways. Based on all the information available to it, the Commission considers a marginal cost of 50 cents per tonne landed is appropriate for all three airports for the purpose of analysis and should be treated as constant over the period of analysis.

7.32. CIAL objected to the model in the Draft Report on the grounds that the demand curve was a stylised portrayal of a derived demand. It contended that the link between output and final prices passengers faced was what determined the slope of the demand curve. It considered this would be invariant and no output change would occur.[228] The Commission considers that the airlines are not likely to be completely invariant to price changes, and that output could adjust because of price changes that affected their overall costs. The calculation of the price elasticity of demand recognises that there is a marginal effect for both intermediate and final consumers. Even marginal effects can be significant, in principle, and change behaviour.

7.33. WIAL argued it was given no credit in the model in the Draft Report for the efficiency of its pricing structure.[229] The Commission accepts that, the above model (Figure 2) cannot deal with the structure of prices. In preparing the Draft Report, the Commission considered there might be scope for more efficient pricing structures, and the airports are not penalised for this.

7.34. At the Conference, Kerrin Vautier (an expert for CIAL) questioned whether the model was appropriate, because it appeared to be a model based on perfect competition and not one of workable and effective competition.[230] As noted in Chapter 4, the Commission considers that wording in the Draft Report may have given this impression, but in its application, the approach taken by the Commission did apply a workable or effective competition standard. Using WACC to determine the level of

[226] Ibid, pp. 178-179.

[227] Ibid, page180.

[228] Ibid, pages 285-288.

[229] Ibid, page 564.

[230] Ibid, pages 272-273.

normal returns on the asset base is consistent with a workable and effective standard rather than a perfect competition standard (where returns would be based on marginal costs).

7.35. Dr Lattimore (an expert for Christchurch City Council) suggested a bilateral monopoly model was appropriate for evaluating the behaviour of airports and airlines, which suggests prices are negotiated between two parties of equal power.[231] The Commission considers that the situation for airfield services does not involve a single buyer and seller of airfield services, as there are a number of airlines buying airfield services (notwithstanding there are a few key buyers). The Commission also notes Scherer and Ross' argument that: "The theory of bilateral monopoly is indeterminate with a vengeance." It adds that, even if buyer and seller collaborate to establish a joint profit-maximisation output, the "price is indeterminate over a potentially wide range."[232] In contrast to the bilateral monopoly model, which relies on prejudging the relative power of both parties, the outputs of the Commission's model reveal the relative power of both the airlines and airports. The Commission considers that, the bilateral monopoly model, regardless of whether it has merit, does not mean the approach the Commission has taken is inappropriate.

Analysing Historical Performance

7.36. The above model can best be applied in a current setting where the variables required to calculate prices and quantities are known. The year 2000 was the first year airports were required to disclose segmented financial accounts. Segmented forecast figures are also available. However, for prior years this is not always the case.

7.37. In preparing the Draft Report, the Commission considered that data availability limited its historical analysis to an examination of whether excess returns existed. Determining efficient prices for each of the years was not possible, only rates of return were computed historically.

7.38. As a general principle, rate-of-return figures must be used with care when assessing efficiency, as the returns reflect changes in both revenues (pricing) and costs. A firm with market power may earn high returns by raising prices rather than lowering costs. Excess returns might be present, but be absorbed in higher costs, so that allocative inefficiency is both obscured, and augmented by a further loss in the form of productive inefficiency. For these reasons, the efficiency with which resources are being used should ideally be assessed. However, the Commission is not able to do so in any detailed way.

7.39. In the Draft Report, the Commission had to extrapolate certain historical expense data. Both AIAL and CIAL criticised the Commission's estimation of historical airfield expenses.[233] They suggested expenses were higher in earlier years than estimated by the Commission, because of the greater proportion of total revenues generated by airfield activities in those years (than present). This is certainly true.

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[231] Ibid, page 576.

[232] F M Scherer and David Ross, *Industrial Market Structure and Economic Performance* (3rd edition), Boston: Houghton Mifflin, 1990, page 519.

[233] For example, AIAL Submission on the Draft Report, 14 August 2001, Part A, page 33.

Airfield activities are a smaller part of AIAL's and CIAL's business now than they were at vesting (1988).

7.40. The Commission has reconsidered the data on which it conducted its analysis of historical performance in the Draft Report. This Commission has also reviewed the methodology and formulae used.[234] A representation of the Commission's methodology follows, as well as discussion of revisions to any of the estimates of expenses that were made. It should be noted that the analysis is an economic one, not an accounting one. The results from the historical analysis, including data revisions, are presented in the airport-specific chapters.

7.41. In the Draft Report, the Commission computed percentage rate-of-return figures for historical years using the Accounting Rate of Profit (ARP) formula. The figures presented in this Report are not returns based on the ARP formula. Instead, the Commission has calculated dollar excess returns for each year according to the following formula:

Excess Returns ($) = Net Earnings – (Asset Base x WACC)

7.42. The first part of the formula, net earnings, represents an airport's actual earnings from airfield activities. Net earnings is computed as earnings before interest after tax, depreciation and operating expenses plus any revaluation gains or loses. In accordance with the principles on asset base determined by the Commission, the revaluations included are only those relating to revaluations of land to opportunity cost. The second element of the formula (Asset Base x WACC) represents the target returns. The asset base and WACC numbers used are those determined by the Commission. As with the Draft Report, interest is still excluded. The asset base used is 'beginning year' (i.e., as at the start of the financial year).

7.43. The returns are computed annually for each airport for each financial year from vesting to 2001, separately for the lower bound, upper bound and point estimates of WACC (relevant to that financial year, based on the last price reset).

7.44. As in the Draft Report, revaluations are spread back over time to the last revaluation or vesting. However, the basis by which revaluations are spread has changed. Revaluations are now spread entirely based on the Housing Group of the Consumer Price Index (CPI) for each airport's region. In the Draft Report, the Commission used the New Zealand-wide all groups CPI, with a wash-up based on revenue. The change in approach has been made in light of submissions from AIAL which questioned the relevance of the calculations in the Draft Report.[235] Use of regional Housing Group CPI figures is likely to be more reflective of changing land values than the All Groups CPI used in the Draft Report.

[234] In reconsidering the methodology, inputs and assumptions regarding its analysis of historical performance, the Commission has obtained advice from Dr Martin Lally. A copy of Dr Lally's advice on measuring excess returns is included in Appendix 19.

[235] AIAL Submission on the Draft Report, 14 August 2001, Attachment 1, page 10.

7.45. The operating revenue, expense and asset-base figures for each airport are based on a combination of data sourced from the published financial statements of the airports, recent disclosure financial statements, and additional information supplied by the airports to the Commission during consultation. Where gaps still existed in data, the Commission extrapolated from the data available to derive estimates for the missing figures. Submissions on the Draft Report have helped refine these estimates. Explanations of the calculations and figures used for each airport are detailed in the airport-specific chapters.

7.46. In the Draft Report the Commission assumed that profits on airfield activities were taxed at 33%, even though an airport company as a whole could have paid a different effective tax rate. AIAL submitted that its effective tax rate on airfield activities was between 42-36% (between 1989 to 1996), due largely to the non-deductibility (or lower deductibility rate) of depreciation on certain airfield assets.[236] At the Conference, AIAL explained that the higher effective tax rate claimed by AIAL in its submission could largely be explained by different treatment by AIAL and the Inland Revenue Department (IRD) of depreciation on sealed surfaces. AIAL believed depreciation of the runway should have been over 16 years, roughly matching the useful life of the runway. However, AIAL claimed the IRD allowed depreciation claims on the runway based on a 40-year period. There was, as a result, a significant difference in tax expense under the two approaches, with AIAL's approach leading to a much higher actual tax expense.[237]

7.47. In cross submissions, the airlines argued that "proper consideration of the useful lives of assets" could see a reduction in difference between AIAL's and IRD's depreciation expenses. They conclude that "given the uncertainties surrounding tax rates it is considered that the use of the 33% rate provides the most logical approach to the issue."[238]

7.48. The Commission considers that, for consistency in the treatment, if it accepts an airport's expenses, it should also use its effective tax rate.[239] Where the Commission does not accept the airport's expenses (e.g., if it does not accept the airport's depreciation expense, compared to that of the IRD), or if effective tax rates are not available, then the 33% statutory rate should be used (although, the latter is not necessary in the context of this Inquiry).

7.49. In terms of taxation, the Commission now uses an effective tax rate in its analysis of returns. The effective tax rate is unlevered to fit with the way returns are computed (i.e., before interest). In recent years, the unlevered effective tax rate and the statutory corporate tax rate are the same. The statutory tax rate continues to be applied in the forecast return analysis beyond 2001.

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[236] AIAL Submission on the Draft Report, 14 August 2001, Attachment 1, page 9.

[237] *Conference Transcript*, page 26.

[238] BARNZ Cross Submission, 31 August 2001, Appendix 2, page 4, paragraph 4.4-4.5.

[239] Given the Commission's analysis is unlevered (excluding interest), the effective tax rate is adjusted to take account of the interest tax shield effect.

Spill-Over Effects

7.50. The presence of excess returns and allocative inefficiency losses in the airfield services market is likely to lead to some further inefficiencies in the form of spill-over effects to other markets. These could arise in two different ways:

- The additional profits accruing to the airport could be spent on relatively inefficient new investment spending or inflated operating costs.

- Outcomes in downstream markets related to the aircraft movement market will be distorted. Such markets could include those servicing domestic passenger travel, international passenger travel, domestic freight, and international freight. Where these are competitive, even small rises in costs may have significant output effects, creating dead weight losses in both those markets, and in other markets associated with them. The effects may be smaller in the associated markets, and more dispersed, but could potentially create a significant cumulative effect.

7.51. Although these effects are difficult to measure, they should ideally be incorporated into the assessment of the effects of monopoly pricing. The Commission did not try to quantify these effects in the Draft Report. Airlines submitted that these effects should be qualitatively considered in the Commission's report to the Minister.[240]

Service Quality

7.52. The primary focus on price implicitly assumes that service quality is maintained at the level consumers desire and are prepared to pay for. The airports currently provide information on interruptions to their services, pursuant to the disclosure requirements in the Airport Authorities (Airport Companies Information Disclosure) Regulations 1999. The number and duration of interruptions disclosed cover those relating to runway services, stand position services, airbridge services, and baggage handling systems.

7.53. Of the above disclosures, runway interruptions are a relevant indicator of the service quality of airfield activities. Such interruptions appear to have been infrequent, and do not appear to suggest inferior service quality. BARNZ submitted that inferior service quality for airfield activities is not an issue at any of the airports at present.[241] The Commission considers no allocative efficiency benefits could be attained from control in this regard.

Excess Returns (Wealth Transfers)

7.54. As discussed in Chapter 4 on pricing principles, airports should be able, over the medium-term, to earn a normal return on the assets used in providing the services of airfield activities. An appropriate WACC and asset base can be used to determine the normal return on airfield activities at each airport.

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[240] *Conference Transcript*, pages 771-772. BARNZ Submission on the Draft Report, 10 August 2001, page 49.

[241] BARNZ Submission on the Draft Report, 10 August 2001, page 39.

7.55. An actual return in excess of a normal return over the medium-term would suggest that the entity was earning excess returns, unless those returns reflected superior performance (assuming costs are minimised). These excess returns represent a transfer of wealth from consumers to producers, and imply a loss of allocative efficiency.

7.56. From an efficiency perspective, wealth transfers between different groups within the economy are ignored. The efficiency standard is concerned with increasing welfare overall, regardless of who benefits directly. Therefore, any reduction in excess returns would not be considered a benefit from an efficiency perspective, although the presence of excess returns is indicative that allocative inefficiencies may exist and may also have other spill-over efficiency effects, as described above.

Summary

7.57. The preceding section has highlighted the potential benefits of control emerging from allocative inefficiencies and excess returns. The Commission uses two models for determining these benefits, one is a current/forecast analysis, while the other is a historical analysis.

Productive Efficiency Gains

7.58. A productively efficient operation is one that meets demand at the lowest possible cost. The impact of productive inefficiencies in the airfield activities of an airport can be modelled by further developing Figure 2, as shown in Figure 3. The further assumptions built into the model are:

- The competitive price and output is assumed to be found, as before, at the point where the existing average cost (AC) curve intersects with the demand (D) curve.

- All productive inefficiency is assumed to be felt in fixed costs, so that average fixed costs are inflated, and the AC curve is 'too high'. This assumption is made to simplify the graphical illustration of the effects of productive inefficiency.[242] The level of the average cost curve when costs are minimised is at AC'.

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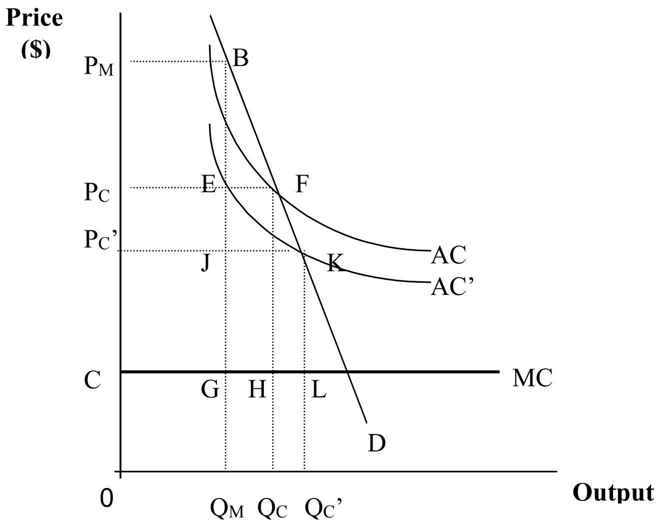
[242] Similar effects would be seen if it were assumed that productive inefficiency were felt in variable costs, although an additional shift of the MC curve downward would have to be shown in addition to the AC curve shift.

Figure 3
Productive Inefficiency in the Airfield Services Market



7.59. The inefficiently high level of costs results in welfare effects that can be analysed at two levels. First, as a productive inefficiency, the wastage of resources is an outright loss, as their transfer to other productive employments would lead to no loss of output in airfield activities. In terms of Figure 3, this loss is measured at a given output by the vertical distance between AC and AC', multiplied by that output.

7.60. Second, in an efficient setting the inflated costs would not be present, so that the competitive average cost curve would be AC', not AC as assumed so far. This, in turn, would mean that the efficient price and output would be P_C' and Q_C' respectively, not P_C and Q_C as assumed in Figure 2. As a consequence, the allocative inefficiency loss and wealth transfer flowing from price at P_M being above the efficient level is larger than previously estimated. The allocative efficiency loss increases from BEF to BJK, and the transfer increases from P_CP_MBE to P_C'P_MBJ.

7.61. In summary, the model used in Figure 3 shows that, if productive inefficiency in the counterfactual were found in the costs, and if those inefficiencies were to be eliminated under control through the pressure of lower prices forcing greater efficiency, this would allow a further reduction in prices beyond that described in Figure 2.

7.62. However, without a precise measure of the slope of the AC' curve, it is not possible to calculate the additional allocative efficiency effect (or those proportions that reflect consumer, and producer, surplus gains respectively). Accordingly, a conservative approach is taken, with only wasted resource measured as a potential benefit of control. This is the same approach as in the Draft Report.

7.63. A difficulty lies in estimating the extent of productive inefficiency (if any) in practice. In the Draft Report, the Commission wanted to get a feel as to how significant those inefficiencies might be by assuming they amounted to 1% of relevant operating costs. This approach was intended (and so stated) to elicit comments from interested parties.

7.64. The airports were critical of the Commission's approach of applying a blanket 1% across all airports. They argued that the evaluation should be done separately. The airlines equally argued that different amounts of inefficiency existed at each airport.

7.65. AIAL argued in submissions that the 1% efficiency figure on operating costs used by the Commission was in effect a 4% efficiency figure on variable costs. To determine this 4% figure, AIAL assumed 75% of operating expenses (including employee costs, which is the greatest expense) were fixed.[243] However, the Commission applied the 1% figure only to operating costs. Depreciation expenses were considered fixed and were deducted from operating costs before the 1% figure was applied. It is arguable, however, that some costs classified by AIAL as being fixed are also variable to some extent, particularly if a longer-term perspective were taken. Nevertheless, the Commission conservatively assumed that these were all fixed.

7.66. The measuring of historical productive inefficiencies is complicated by data availability. Nonetheless, the airports claim to have made improvements in productive efficiency in the past. However, the airlines suggest that CIAL and AIAL should have been able to achieve cost savings commensurate with WIAL and that CIAL and AIAL should achieve 3% productivity improvements into the future. BARNZ also referred to an ACCC decision in 2001 that cost savings of 4% were possible at Sydney Airport.[244] It believed 3% for New Zealand airports was not unreasonable.

7.67. The potential productive inefficiencies argued in submissions, therefore, ranged from 0% to 3% of operating costs.

7.68. The Commission considers it desirable to evaluate each airport separately in terms of productive efficiency; however, this is difficult in practice. For example, declining costs over time may simply reflect increasing output in the presence of economies of scale, rather than any improvement in productive efficiency per se. Nonetheless, an assessment for each airport is presented in the airport-specific chapters.

Dynamic Efficiency Gains

7.69. In the Draft Report, dynamic inefficiencies were evaluated by considering whether surplus assets earned a return commensurate with what could be earned in that next best alternative use. This was evaluated in the context of the relatively high valuations given to such assets by the airports.

7.70. AIAL objected to the Commission's assessment of dynamic inefficiency on the grounds that optimising the land from the asset base for charging purposes, and evaluating the efficiency of the investment itself, constituted double counting.[245] CIAL argued along similar lines. As they had removed the land for charging purposes, CIAL argued that it would be inappropriate for the Commission to evaluate the efficiency or otherwise of its current use of the land.[246]

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[243] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 110.

[244] BARNZ Cross Submission, 31 August 2001, page 21.

[245] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 35, paragraph 2.9.

[246] CIAL Submission on the Draft Report, 14 August 2001, Part B, pages 23-24.

7.71. In the Draft Report, the Commission did not consider the calculation of allocative inefficiencies and dynamic inefficiencies as double counting, but merely taking account of all efficiency effects. Given submitters comments, however, the Commission has re-evaluated whether land held for future airfield activities should be seen as forming part of the airfield services markets over the medium-term.

7.72. It seems clear that both CIAL and AIAL see a certain amount of the land they hold for future development as forming part of the airfield activities (even if the land is excluded for charging purposes in CIAL's case). Accordingly, it may indeed be relevant for the Commission to evaluate the efficiency of holding such land which may not be used over the medium-term.

7.73. The Commission considers that, where it is reasonable to hold land for future airfield activities (e.g., because it is prudent and efficient to do so over the medium-term), then no dynamic inefficiencies should be included as potential benefits of control. However, such land could still be excluded for pricing purposes, as discussed in Chapter 5 on Asset Base.

7.74. Where it is not reasonable to hold such land (or a proportion thereof) for future airfield activities over the medium-term, then the dynamic inefficiencies associated with holding such land could be a potential benefit of control. The approach taken by the Commission in the Draft Report for measuring these dynamic inefficiencies, although not perfect, does provide a relevant approximation. No alternative approach was raised in submissions. The mathematical approach to measuring dynamic inefficiencies involves:

- Determining the annual returns on the optimised land that is not presently used or useful.

- Treating the annual return on this land as a perpetuity (since land does not depreciate), allowing a valuation for the land in its current use to be derived.

- Comparing the value of the land in its current use to the opportunity cost value of that land. If the opportunity cost value exceeds the value derived from its current use, then dynamic inefficiencies exist, otherwise they do not. To determine an annual figure for any dynamic inefficiencies, the difference between the two values is converted into an annual figure by calculating the perpetuity which, when discounted at the risk free rate of return, equals the difference.

7.75. The above approach is largely the same as in the Draft Report, although rather than using the airports' value of the optimised land (which is not used or useful), the Commission uses the opportunity cost valuation of such land, as the Commission considers this best reflects what could be earned from the land in its next best alternative use.

COSTS

7.76. The first step in evaluating the costs of control is recognising that there are already significant costs arising from the present regulatory regime, which are expected to persist into the future (in the counterfactual situation). These costs include costs to the airlines and airports (e.g., legal, management, administration) during consultation; costs incurred by airports in meeting the Airport Authorities (Airport Companies Information Disclosure) Regulations; and costs incurred by airlines in monitoring that information. There have been three court cases arising from consultation, two initiated against WIAL, and one initiated against AIAL but subsequently settled out of court. There are also costs incurred by the Ministry of Transport in developing and monitoring the current disclosure regulations. For the purpose of this Inquiry, it is the additional costs of control over and above those currently incurred that are relevant to determining whether control should be introduced.

7.77. The regulatory costs already incurred by participants in the airfield services market may increase or decrease if the present regime were to be augmented by one of control under the Commerce Act. For example, the Commission considers that the additional costs of addressing service quality issues under control are likely to be minimal, given the current disclosure requirements regarding service quality. Secondly, consultation costs could also be avoided if control were to replace such requirements.

7.78. In general, the costs of control comprise direct and indirect costs. The direct costs of control include:

- The compliance costs of the regulated entities and other market participants involved in the regulatory process (e.g., the cost of staff time, the information supply costs, the diversion of time of senior executives).

- The administrative costs of the regulatory body.

7.79. The indirect costs of control are related to the inefficient forms of behaviour stimulated by control, and can theoretically include:

- The distortions to behaviour caused by the potential for poor, or uncertain, regulatory decision making (in terms of allocative, productive and dynamic inefficiencies).

- The scope given for opportunistic behaviour on the part of the regulator and the regulated firm.

- The potential for regulatory capture (with the regulator coming to serve particular groups' interests), and a subsequent movement away from efficient outcomes.

7.80. The costs of control have to be viewed in a dynamic setting. For example, costs may increase over time if there is a succession of poor decisions, or costs could decline over time as the entities involved become more familiar with the regime. Costs will also be dependant on how enlightened, transparent and consistent are the regime and the actions of the regulator. The effectiveness of the regime is likely to be greater the more information is available to all parties.

7.81. The Commission considers that the costs of control can only be assessed when the nature of that control is made explicit. However, the Commission does not wish to prejudge the form that control might take, in the event that it were to be introduced. Supplements 2 and 3 to this Report contain summaries of some approaches used to regulate airports internationally and common price control methods. One suggestion, from BARNZ, is that the parties could commercially negotiate, based either on the principles resulting from this report, or pricing principles established by the Commission as a form of control.

7.82. The Commission has chosen price cap regulation to evaluate the costs of control, as it is the most often form of control used overseas. Given overseas experience, this form of control can be applied in either a heavy-handed or light-handed way.

7.83. Submissions indicated there could be significant uncertainty over the costs of a price constrained negotiation approach, which the Commission had suggested as a possibility in the Draft Report. Submissions noted the experience in Australia for telecommunications where a similar approach was tried. The costs of this regime were much more than expected and created significant uncertainty for industry participants.[247]

7.84. Direct and indirect costs are further discussed below. The Commission considers that the direct costs of control can be evaluated more generically, although reference to price cap forms of control are made as necessary. The indirect costs of control are more dependent on the form of control used and how it is applied, and price cap forms of control are evaluated more closely in this regard.

Direct Costs

7.85. The direct costs of control fall on market participants (compliance costs) and the regulator (and ultimately on the public). The direct costs of control for all parties occur largely at the time of price reviews and price-resetting. At these times, the costs may be substantial. At other times, the regulatory body largely has a monitoring role, while the regulated entity must ensure that compliance is maintained.[248] Users may also engage in monitoring activity.

7.86. The intention of price cap regulation is that price reviews are infrequent, and at pre-set intervals, when compared to rate-of-return regulation.

7.87. WIAL argued that the Commission's approach to measuring direct costs in the Draft Report ignored the opportunity costs of resources used in control, and also "implicitly assumes that raising tax revenue is costless".[249] It did not, however, provide any estimates of these effects or any suggestion on how to account for them.

7.88. The Commission has estimated the costs of collecting the funds it may need to regulate an airport. According to Freebairn,[250] most studies of this issue put the

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[247] For example, *Conference Transcript*, page 552.

[248] Costs between reviews may be higher if the regulator has to consider application for cost pass-throughs in respect of new investment.

[249] WIAL Submission on the Draft Report, 14 August 2001, Expert Report 1, page 14.

[250] For a review of the literature see Freebairn, *Reconsidering the Marginal Welfare Cost of Taxation*, The Economic Record, Vol 71, June 1995, pages 121-131.

marginal welfare cost of an extra dollar of taxation at 20 cents or more. The Commission considers, however, that these costs could be minimised through alternative collection vehicles such as industry levies, which incentivise parties to keep the costs of collection down. Nonetheless, for the purpose of this analysis, each dollar of funds raised to support the regulator in carrying out control is assumed to generate an additional 20 cents of cost.

Compliance Costs

7.89. Submitters noted the significant compliance costs incurred with the present regime. In 1994, Air NZ estimated that the regulation of airports in New Zealand over the preceding four years may have cost in the order of $10 million to administer, or $2.5 million per annum.[251]

7.90. BARNZ submitted that the costs of the status quo were significant, and higher than the costs that BARA members incurred in connection with the regulation of airports in Australia. BARNZ argued that, if control was not imposed as a result of this Inquiry, even higher costs may be imposed on acquirers.[252] As such, BARNZ submitted that there were no additional costs of control to acquirers (relative to the status quo). However, BARNZ also disagreed with the Commission's view in the Draft Report that all of the additional costs of control would be borne by acquirers.[253]

7.91. The airports presented figures of their costs for this Inquiry, which, although arguably forming part of the present regime, they considered could be indicative of the additional direct costs of control.

7.92. AIAL submitted that the Draft Report under-estimated the additional costs of control. It argued that there would be significant costs associated with setting up the framework for control and, subsequently, with reviewing prices and monitoring performance.[254]

7.93. The main parties affected by control are likely to be the airports and the airlines (including their association, BARNZ). It is, therefore, useful to get an understanding for the average cost per annum for airports and airlines respectively. This was done by looking at the costs of disclosure, consultation, and this Inquiry, to get an appreciation of the potential size of compliance costs of control. These direct costs are presented in Table 6.

7.94. The Commission understands that it is a convention in the international airline industry that the national carrier takes the lead in domestic regulatory matters. Accordingly, while other airlines, such as Qantas, incur costs in regulatory compliance in New Zealand, it is suggested by the airlines that Air NZ has borne the bulk of the compliance costs. Air NZ's costs are included in Table 6.

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[251] Quoted in Price Surveillance Authority, *Regulation of Airport Pricing-Is the New Zealand Approach Applicable to Australia?*, Discussion Paper No. 8, May 1995, page 24.

[252] BARNZ Submission on the Draft Report, 10 August 2001, pages 43-44.

[253] Ibid, page 38, paragraph 36.6; page 45, paragraph 41.2.

[254] AIAL Submission on the Draft Report, 14 August 2001, Attachment 2, pages 39-41.

Table 6
Direct Compliance Costs of the Status Quo

<table>
<tr><th></th><th colspan="3">Direct Costs</th></tr>
<tr><th>Parties</th><th>Disclosure</th><th>Consultation</th><th>Commission's Inquiry</th></tr>
<tr><td>AirNZ</td><td>[ ] initial review.
Not clear whether this has to be done annually</td><td>AIAL Consultation: [ ]
AIAL Litigation: [ ]
CIAL Consultation: [ ]
Costs relate only to consultants and external research.</td><td>Total [ ]
Costs relate only to consultants and external research.</td></tr>
<tr><td>BARNZ</td><td>$10,000 (initial consultation with MOT), estimated $12,000 pa monitoring cost ($4,000 per airport).</td><td>Consultation with AIAL and CIAL: $39,200. This includes estimate of the costs of BARNZ management time.
Costs of current consultation with WIAL being shared between Air NZ and Qantas.</td><td>Total $306,900. This includes estimate of the costs of BARNZ management time.</td></tr>
<tr><td rowspan="2">AIAL</td><td rowspan="2">Est. $69,000 pa.
The one off cost of a new accounting system was not included.</td><td>Consultation over 1999 and 2000 $619,826. Litigation costs over 2001 and 2002 $1,025,251 (2002 costs less than anticipated as case settled).</td><td>$1,302,995 over three years 1999-2002.</td></tr>
<tr><td colspan="2">Senior management's time not included in these figures. AIAL have estimated that consultation and this Inquiry would have cost around $1.25m in personnel time over 1999-2002.</td></tr>
<tr><td>CIAL</td><td>$64,432 in 1999 (presumably one-off cost of system modifications).
$48,986 for disclosures in 2000, $35,737 in 2001.</td><td>$466,281 in consultant costs in respect of consultation process.
A further $331,671 in consultant costs over 1997-2001 associated with preparation of pricing model and valuations.</td><td>$377,345 in consultant costs.</td></tr>
<tr><td>WIAL</td><td>$10,700 for disclosures in 2000, $3,500 in 2001.</td><td>Total $684,920 for 1992-97 consultations.
Court costs: $756,023 (1992-93), $238,875 (1997-98).
Cost over 2001 and 2002 for current consultation estimated at $887,618 (including traffic forecasting and arbitration).
These are consultants costs only, excluding senior management time.</td><td>Total $1,107,928 spent over 2001-2002. Plus $530,000 budgeted for 2003. These are consultants costs only, excluding senior management time.</td></tr>
</table>

7.95. As a benchmark, Melbourne airport (including Melbourne and Launceston airports) submitted to the Productivity Commission that its annual compliance costs were A$500,000 per annum.[255] The Ansett Australia/Air NZ group contributed [ ] to the Board of Airline Representatives of Australia's costs associated with consideration of Sydney Airport's recent pricing proposal (BARA's total costs were [ ]).[256] It should be noted that these costs relate to regulated airport services, of which airfield activities forms part.

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[255] *Melbourne Airport Submission to the Productivity Commission Review of the Price Regulation of Airport Services*, Australia, March 2001, page 40.

[256] Air New Zealand/Ansett Australia, *Submission to the Productivity Commission – Price Regulation of Airport Services Inquiry*, July 2001, page 43.

7.96. Based on the above figures, the Commission considers the additional cost of control to market participants per airport would be about $0.5 to $1 million in a review year, and up to $0.5 million in other years. To these figures are added the costs of collecting the required funding for the regulator, which means the total costs of the regulator would be $0.6 to $1.2 million in a review year, and up to $0.6 million in other years.

The Regulator's Costs

7.97. The Commission's costs to produce the Draft Report were approximately $1 million. It has incurred an estimated additional $0.5 million to complete this Report. Together, these figures may be indicative of administration costs of control in a review period, although this Inquiry has been over a number of years. The calculation of the Commission's costs was based on the direct investigation/Inquiry costs, the costs of Commission Members and staff time, and an allocation of overheads. The cost of administering any regime would be roughly equivalent to the average employee cost multiplied by the number of employees plus direct investigation costs.

7.98. The Commission has received one independent estimate in relation to electricity work undertaken that the costs of administering control might be about $500,000 per review. This is based on an initial estimate of the costs of administering price cap regulation of an electricity company. The estimate was very informally provided by advisors to the Commission on the proposed electricity threshold regime. There is no *a priori* reason to believe that the administration costs estimated for price cap regulation of an electricity company should be significantly different for an airport.

7.99. In terms of data on the costs of controlling airports overseas, it is understood that the cost of Monopolies and Mergers Commission in undertaking the last review of the three London airports of the British Airports Authority (BAA) was about £800,000, and that BAA incurred costs on its own behalf of about £0.5 million per year in non-review years, and about £2 million plus the absorption of senior management time in the five-yearly review year. Of course, BAA is very much larger than any of the New Zealand airport companies. In addition, there were the costs of the Civil Aviation Authority in the United Kingdom. In Australia, the ACCC gets A$0.9m per annum to administer the CPI-X cap on airports (through a levy on passenger ticket prices). The ACCC suggested to the Commission that one to two full-time staff would be needed to regulate one airport under CPI-X (although additional resources would be needed in a review year).

7.100. AIAL argued that in the Draft Report the Commission had not made an allowance for the initial costs of establishing a regulatory framework.[257] Simon Terry and Associates argued that the Commission had already incurred and sunk most of the direct costs of controlling airports.[258] It also argued that there could be expected to be economies of scale in the regulation of two or more entities.[259] It argued that the additional regulatory costs would be marginal between controlling one or two airports. While the Commission considers that there may be some merit in this

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[257] *Conference Transcript*, page 188.

[258] Ibid, page 837.

[259] Ibid, page 839.

argument, the Commission has made its recommendations for each airport on a stand-alone basis.

7.101. The Commission considers that its costs will be of the order of \$0.5 to \$1 million in a review year, and up to \$0.5 million in other years, per airport.

Summary

7.102. Based on the above, the Commission considers the direct costs of control (including compliance costs of market participants and the regulator's costs) for a single airport to be \$1.1-\$2.2 million in a review year, and \$0.5-\$1.1 million in other years. Over a five-year period, with one review, this suggests an annual average of between \$0.62-\$1.32 million per year for one airport, although economies of scale may mean that the further costs of regulating a second airport would be less.

Indirect Costs

7.103. Given the lack of recent experience of price control in New Zealand, the indirect costs of such a regime are particularly difficult to estimate. Nonetheless, there is a substantial body of research overseas on price cap regulation.[260]

7.104. Some submitters questioned the Commission's approach in the Draft Report of measuring indirect costs arbitrarily as 50% of the potential benefits. They noted that, under such an approach, the indirect costs could never exceed the benefits, although total costs (including direct costs) could. No submitter offered an alternative approach to that taken by the Commission, but rather were inclined to argue over the size of the appropriate percentages. AIAL argued that the indirect costs should be closer to 75% of the potential benefits.[261] Airlines, on the other hand, suggested indirect costs should be only 25% of the potential benefits.[262]

7.105. The Commission considers that ideally it would be desirable to estimate indirect costs independently of the benefits of control. However, this cannot be done in the present case, as there is no historical data for New Zealand that would allow such an estimation. Accordingly, the Commission believes it is most appropriate (and pragmatic) to largely persist with its approach in the Draft Report, although further consideration as to the appropriate percentages has been given.

7.106. AIAL argued that, if indirect costs were measured in terms of control achieving less than a 50% reduction in the current price, then as the consumer surplus is measured by a triangle this would suggest only 25% of potential benefits could be achieved, not 50% as suggested in the Draft Report. In other words, AIAL argued that indirect costs should be 75% of potential benefits of control.[263]

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[260] For example, I. Viehoff, *Evaluating RPI – X*, Topics, NERA, London; B. Williamson, *Incentives and Commitment in RPI-X Regulation*, Topics, No. 20, NERA, London, Oct. 1997; and Price Surveillance Authority, *Price Capping: Design and Implementation Issues*, Discussion Paper, Melbourne, 1994.

[261] *Conference Transcript*, pages 182-183.

[262] BARNZ Submission on the Draft Report, 10 August 2001, page 11.

[263] AIAL Submission on the Draft Report, 14 August 2001, Attachment 2.

7.107. WIAL argued at the Conference that the indirect costs of control should be examined by looking individually at the different aspects of efficiency and excess returns and asking whether control can achieve any benefits for each of these.[264] The Commission considers that control can be a blunt instrument that may require trade-offs to be made. The Commission considers its approach to calculating indirect costs recognises such trade-offs.

7.108. As suggested above, submissions on the indirect costs of control suggest a possible range for these costs of 25-75% of the potential benefits of control. This range is extremely wide. The Commission considers it desirable to look more closely at generic forms of price cap regulation to determine the appropriate range, and whether such a range could be narrowed. The discussion proceeds by considering the different aspects of efficiency under price-cap regulation.

Price Cap Forms of Regulation

7.109. The features of a price-cap regime, and the generic costs and benefits associated with it, are considered in Supplement 3 to this Report. Prices are usually set for a period of three to five years ahead, with prices generally incorporating compensation for inflation and any exogenous cost increases (cost pass-throughs), less anticipated reductions in costs greater than the expected economy-wide average (an X factor).

7.110. A 'pure' form of price cap would set the initial price with regard to an efficient and comparable benchmark, rather than based on an assessment of the regulated firm's costs. As it may be quite difficult in practice to find an efficient and comparable benchmark, in practice, internal cost factors have generally been used. This injects a rate-of-return element, making this form of regulation, in practice, an intermediate between pure price cap and rate-of-return regulation.

<u>Allocative efficiency and excess returns</u>

7.111. The setting of the initial price, and the ensuring flexibility of pricing, would be important for allocative efficiency under price cap regulation. If the current price is used it may allow the company to continue to earn monopoly rents for some time into the future.[265] The regulated firm is usually free to adjust individual prices within the price cap, allowing some price flexibility, which could improve allocative efficiency. In addition, the firms are not constrained from lowering price well below the cap if it would benefit them to do so.

7.112. The Commission considers that control is relatively better at dealing with excess returns and allocative inefficiencies, than dealing with productive and dynamic inefficiencies.

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[264] *Conference Transcript*, page 556.

[265] It may be that a price that diverges from an allocatively efficient level is tolerable at the start, if the method adopted allows for adjustment to an allocatively efficient price over time. Kaufmann and Lowry argue that a gradual adjustment mimics how, in a competitive market, excess profits are gradually eroded towards the long-run level by new entry and the capacity expansions of existing firms. L. Kaufmann and M. Lowry, *Updating Price Controls for Victoria's Power Distributors: Analysis and Options*., Laurits R. Christensen Associates, Wisconsin, pages 16-19, September 1997.

<u>Productive efficiency</u>

7.113. In their submissions, the airlines suggested that there were benefits to be had in building in an incentive for an airport to improve productive efficiency.[266] These benefits relate to the entity having incentives to reduce costs through the X factor to maintain profitability, and further, that between reviews additional costs savings would increase profits.

7.114. However, the advantages to productive efficiency brought by price capping may be limited by the following considerations:

- In some industries, it is claimed that the underlying rate of productivity improvement is low, or that a high proportion of costs are fixed capital costs, which are difficult to reduce.

- Price resetting can cause incentive problems because it typically involves passing on to customers a proportion of any unanticipated cost savings (i.e., over-and-above those anticipated through the value of X in the cap). To the extent that such sharing is expected, the prior incentive to reduce costs below the originally anticipated level will be impaired because the firm gets to keep only a proportion of the savings.[267]

- If the price cap is not firm-specific, it could possibly advantage firms that have yet to introduce cost saving measures relative to those who have already done so. It could also have an uneven impact generally across differing firms.[268]

- The financial viability of the enterprise may be affected by exogenous shocks, when adjustments through an additional cost pass-through factor (sometimes called a Z factor) are not made. A right of appeal before the next review is due may mitigate this risk. However, if firms find it relatively easy to get Z adjustments, they will have less incentive to constrain costs. They may also expend significant resources trying to influence the regulator, raising both direct and indirect costs.

7.115. Those who believe that control worsens these efficiencies base their view on the argument that the unregulated monopolist will have a strong profit incentive to be efficient. Hence, attempts to eliminate monopoly profit by control will generate distributional benefits for consumers, and improve allocative efficiency, but erode the incentives to maintain productive efficiency. Accordingly, price caps may attempt to minimise such losses by only gradually clawing back excessive profits through reducing charges.

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[266] BARNZ Cross Submission, 31 August 2001, pages 20-21, paragraphs 94-101.

[267] One estimate of the optimal 'sharing' of extra profits realised by the controlled firm between the firm and its customers found that a 50:50 split was best, implying that significant excess profits would be necessary to maintain incentives for the firm to improve productive efficiency. See: B Williamson, *Incentives and Commitment in RPI-X Regulation*, NERA Topics, 20, 1997.

[268] In Australia, discussions on extending price surveillance to price capping in oligopolistically-structured industries has raised this issue. Prices Surveillance Authority, *Discussion Paper on Price Capping: Design and Implementation Issues*, Discussion Paper No. 5, 1994, page 11-13.

7.116. The contrary view is that the unregulated monopolist, although a profit seeker, may become slack because of assured profits and a lack of competition. The underpinning for this approach comes from the X-inefficiency literature, and is the approach the Commission has taken in the past with merger authorisations.[269] On this basis, it is possible to argue that a steadily reducing price cap could not only reduce excessive profits, but also gradually squeeze out excessive costs, albeit imperfectly.

7.117. A further factor in the mix is privatisation. In the UK, price controls typically were introduced as industries were privatised, and so it is difficult to separate out the effects of the two. While typically X factors have been positive, implying often-substantial productive efficiency gains over time, it is difficult to discount the argument that these gains (and perhaps larger gains) would have been realised anyway through the incentives operating on the privatised entities (albeit with market power exerted). These incentives include stock market and shareholder pressures.

7.118. The difficulty with measuring indirect costs of regulation is that if such costs exist, and no submitters argued they did not, they are unlikely to be proportional to the benefits. Thus, control would actually be expected to reduce productive efficiency for a firm that was already fully efficient.

7.119. As mentioned above, no submitter provided an alternative way of determining indirect costs independent of the benefits of control. Given the preceding argument, the Commission has decided to take a cautious view as to whether the productive efficiency benefits could be realised by control.

<u>Dynamic efficiency</u>

7.120. It has been suggested that under-investment may occur with price caps. This possibility arises because the period between price reviews is often much shorter than the life of, and the payback period for, long-lived investments. Hence the regulated firm runs the regulatory risk that, having committed itself to a major investment, the regulator may act opportunistically by cutting prices to allow consumers to usurp the sunk costs. The firm may then be discouraged from undertaking new investment in the future, thereby harming dynamic efficiency.[270]

Summary

7.121. The indirect costs associated with regulation are difficult to quantify, and made more so by a lack of data on the costs of control in New Zealand. Any approach to measuring indirect costs can be done, at best, only on a fairly arbitrary basis. Nonetheless, the indirect costs of price-cap regulation can, in principle, be modelled by scaling down the size of the benefits likely to be realised. There are no studies,

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[269] The label 'X-inefficiency' was first used by Harvey Leibenstien to describe the inefficiencies emerging from a lack of motivation to maximise profits. H. Leibenstein, *Allocative Efficiency Vs. 'X-Inefficiency'*, American Economic Review, vol. 56, June 1966.

[270] In the UK, it is said that regulators look beyond the price review period in setting the value of X to take into account foreseeable investment needs. For example, in the case of water, X was given a negative value so as to allow for increasing real prices to provide funds for environmental improvements.

however, that have measured the share of potential efficiency gains that could be achieved through control.

7.122. The Commission considers the ranges for indirect costs for each airports will depend on the relative weightings of allocative inefficiency, productive inefficiency and dynamic inefficiency and excess returns identified, if any, at each airport.

7.123. From the preceding discussion, the Commission considers that price cap regulation may be better at achieving allocative efficiency and eliminating excess returns than it would be at achieving productive and dynamic efficiencies. The Commission considers that control would result in a 75% reduction in the difference between the actual and efficient price. This means that the indirect costs of control related to the price level can be measured as the non-attainment of a portion of the total potential benefits, caused by a failure of control to lower price all of the way to the efficient level. In the case of the excess returns (area PcPmBE in Figure 2) and producer surplus (area EFHG in Figure 2), 25% of the potential benefits are assumed not to be attained, and therefore to constitute the indirect costs of control. For the deadweight loss of consumer surplus (measured by the area BEF in Figure 2), the fact that the price is reduced by only 75% of the difference between the actual and efficient levels means that 43.75% of the potential benefit is not attained, and is therefore treated as an indirect cost.

7.124. The indirect costs associated with dynamic inefficiencies would be from 50% to 100% of those potential benefits. The range adopted above recognises considerable uncertainty surrounding the benefits of control with regard to dynamic efficiency. It is conceivable that it may be difficult for control to realise any dynamic efficiency benefits, so indirect costs could be 100% of the potential benefits. At the lower end of the range, indirect costs may be 50% of the potential benefits of dynamic inefficiency, which are still greater then those anticipated for excess returns or allocative inefficiencies under price cap forms of regulation.

7.125. The productive efficiency costs of control are best estimated as up to 2% of operating costs less depreciation. This figure will be offset against the range of productive inefficiency benefits found at each airport. The Commission considers that adopting this approach for productive efficiency will allow for the possibility that control may deliver no net benefits with regard to productive efficiency.

7.126. In practice the relative size of the potential benefits will vary at each airport, given that allocative inefficiency (consumer and producer surpluses), productive inefficiency, dynamic inefficiency and excess returns may be more or less of an issue at one airport compared to another. Accordingly, a specific range for indirect costs for each airport is calculated in the airport-specific chapters.

CONCLUSION

7.127. The Commission considers that the benefits and costs of control can be determined by comparing outcomes in the counterfactual against the likely outcomes under control. The Commission considers that the counterfactual at each airport is likely to resemble the status quo. However, there are airport specific issues that have to be considered, which may modify this general view. These issues are addressed further in the airport-specific chapters.

7.128. This Chapter has presented a number of models to be used in measuring the potential benefits of control. However, the quantification of the benefits of control is deferred until the airport-specific chapters.[271] This Chapter has also discussed the costs of control, and some quantification was provided.

7.129. The costs of control are not easy to estimate. There is uncertainty surrounding the factors to be considered in measuring them, and there is a lack of data for New Zealand, which has not had any price control for almost two decades.

7.130. The costs of control are those that are additional to the counterfactual and can be seen as being both direct and indirect in nature. The Commission considers the direct costs of control (including both the regulators' and market participants' costs) for a single airport might be $1.1-$2.2 million in a review year, and $0.5-$1.1 million in other years. Over a five year period, with one review, this suggests an annual average of between $0.62-$1.32 million per year at each airport

7.131. The Commission considers that, in the absence of any superior alternatives, the indirect costs of control can largely be measured by considering how much of the benefits of control can be realised by control. The Commission considers that the indirect costs of control as a proportion of potential benefits will be 25% of any excess returns and producer surplus, 43.75% of any consumer surplus, and from 50% to 100% of any dynamic inefficiencies.

7.132. Productive efficiency costs of control are estimated at 0 to 2% of operating costs (less depreciation), and are offset against the range of possible benefits of control regarding productive inefficiencies at each airport.

7.133. Airport specific ranges for the indirect costs of control are presented in the airport-specific chapters.

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[271] Appendices 13, 15 and 17 present the detailed numerical analysis of the airfield activities of AIAL, WIAL ands CIAL. Appendix 20 provides an explanation of the models used to quantify the potential benefits of control.

8. AUCKLAND INTERNATIONAL AIRPORT

INTRODUCTION

8.1. The preceding chapters of this Report outlined the framework the Commission uses to arrive at its recommendations to the Minister. Chapter 3 introduced the competition issues associated with airports, coming to views on market definitions. This Chapter builds on Chapter 3 and includes a detailed assessment of competition in terms of the airfield activities supplied by Auckland International Airport Limited (AIAL) to aircraft operators. In addition, the principles established in Chapters 4 to 7 for determining whether control of the airfield activities is necessary or desirable in the interests of acquirers are applied to AIAL.

AUCKLAND INTERNATIONAL AIRPORT LIMITED (AIAL)

8.2. AIAL was incorporated on 1 April 1988 and is the owner and operator of the Auckland International Airport. Its shares trade on the New Zealand and Australian stock exchanges. Substantial shareholders are Auckland City Council (25.8%), Manukau City Council (9.6%), and Colonial First State Investments (5.03%).[272]

Operational Details

8.3. Auckland International Airport is New Zealand's largest and busiest airport for passengers and for air freight (both domestic and international). Sixty per cent of passenger movements are international—much higher than at the other airports—accounting for 70% of New Zealand's international travellers. The airport operates 24 hours a day and is not subject to noise-based operational restrictions, although the Manukau City Council has required that AIAL offer to fund acoustic insulation to residents within the noise control boundary.

8.4. AIAL currently operates a single runway that can handle all current aircraft, including the largest international jets on maximum flight distances. Auckland's existing peak hour capacity is between 45 and 50 aircraft movements. Because of the number and broad mix of aircraft, the airport experiences a small amount of runway congestion for limited periods during some days. However, the Airport operates within total airport capacity levels in terms of runway (aircraft) movements. There is limited ability to extend the length of the current runway, as it is bounded by water at each end. A second runway is proposed for the future. When and if a second runway becomes viable, it would expand the airport's capacity and ease peak hour congestion. Before then, though, the existing runway is being rehabilitated and reconstructed.

8.5. Key operational statistics for the year ended 30 June 2001 are detailed in Table 7.

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[272] On 18 December 2001, Singapore Changi Airport sold its 7.1% shareholding to various institutions. The Auckland City Council has signalled its desire to sell its shareholding.

Table 7
Auckland International Airport Operational Statistics

Size:	Land area (hectares)	1,600
	Runway length (metres)	3,635
	ICAO category[273]	9
Aircraft Movements:	Domestic	96,055
	International	29,557
	Other (incl. GA)	22,256
	Total	147,868
Passenger Numbers:	Domestic	3,383,242
	International	5,040,922
	Total	8,424,164
Freight Volumes:	Total (tonnes)	186,954
MCTOW Landed (tonnes)[274]		4,659,701

Activities Undertaken

8.6. AIAL is largely a facilities provider—providing land or buildings from which third parties operate their business. However, there are some exceptions. AIAL provides a rescue fire service, meteorological services, and international apron management at the Airport. The company also has one wholly-owned subsidiary, Waste Resources Limited, which operates the quarantine waste disposal facility at the airport. In addition, AIAL and its joint venture partner, Host Marriott, provide food and beverage services in the international terminal. AIAL has also in recent years invested in substantial commercial development.

8.7. AIAL's assets include the runway, aprons, three terminal buildings, a substantial retail precinct, car parking, and commercial and office buildings. Both major domestic airlines—Air NZ and the former Qantas New Zealand (Qantas NZ)—lease domestic terminal buildings from AIAL and handle the operation of the terminals themselves. The international terminal is shared by all the international airlines and contains a substantial shopping centre, with 55 shops operated as concessions by AIAL.[275]

8.8. Air traffic control at Auckland is currently handled by Airways Corporation of New Zealand Limited (Airways), which owns and maintains the navigation lighting and aids. Airways provide and bill the airlines directly for air traffic control services.

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[273] The International Civil Aviation Organisation (ICAO) imposes airport operation and safety requirements on airports. The requirements for rescue fire services, for example, differ depending on the size of the airport. Airports are differentiated by ICAO by assigning them categories. The category represents the size of aircraft that operate at the airport. While Christchurch can handle the same aircraft as Auckland, it has a lower category, as the largest aircraft that services the airport is smaller than at Auckland.

[274] Sum of the maximum certified take-off weight (MCTOW) of each aircraft multiplied by the number of landings of that aircraft during the year.

[275] Concessions for airport shops are tendered by AIAL on a regular basis. Concession operators generally pay AIAL a monthly fee equal to the greater of a fixed monthly rental, or a set percentage of their sales revenue.

AIAL does not provide ground handling services at the Airport, instead it is provided by third parties—principally by Air NZ and Ogden Aviation Services.

8.9. In total, AIAL owns a significant amount of land in and around the Airport, with 965 hectares relating to airfield activities. Around 262 hectares of the airfield land is held for future development of a second runway, the rest pertains to the current runway. AIAL already has a sizeable commercial precinct at the Airport, and has the opportunity to expand both its aeronautical and commercial operations in the future.

Airfield Activities

8.10. The activities undertaken by AIAL can be classified and grouped in terms of the three identified airport activities (defined in the Airport Authorities Amendment Act) and an additional grouping, other airport activities.[276] This Inquiry focuses only on airfield activities.

8.11. Airfield activities at Auckland International Airport, and those undertaken by AIAL, are as follows:

Table 8
Airfield Activities at Auckland International Airport

Element of Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Airfields, runways, taxiways, and parking aprons for aircraft	Most.	Airways own and maintain runway and taxiway paint markings.	Land and land improvements (including drainage storm water, roads and other infrastructure – both airside and some apportionment for landside) associated with the main runway, taxiways, international apron, domestic apron, grassed areas and roads within the airfield or otherwise supporting it.	Aircraft landing charges. Sundry income from hay sales.
Facilities and services for air traffic control	AIAL leases land to Airways.	Provided by Airways, who own the Control Tower building, as well as owning, operating and maintaining navigational assets.	Land on which Airways' Control Tower sits.	Rent from land leased to Airways.
Facilities and services for parking apron control	AIAL provides apron control service at the international terminal apron.	Air NZ and Eagle Air provide apron control at the domestic apron on behalf of AIAL.	Land and buildings for the International Apron Tower, together with land for the Domestic Apron.	Terminal Services Charge (TSC).

[276] Refer to Appendix 12 for full details of activities undertaken by AIAL.

Element of Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Airfield associated lighting	AIAL has apron lights only.	Airways owns cables and light fittings for main taxiway and runway. It operates and maintains this airfield lighting as well as AIAL's assets.	Cable ducts and light pots for entire airfield; cabling for light fittings for aprons and first taxiway.	Aircraft landing charges.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	All.	None.	Runway maintenance equipment.	Aircraft landing charges.
Rescue, fire, safety, and environmental hazard control services	All.	Airport Noise Committee (council, airlines, Airways and AIAL).	Land and buildings associated with the rescue fire service (Public Safety Response) as well as vehicles.	Rescue fire component of aircraft landing charges.
Airfield supervisory and security services	AIAL provides and maintains security fencing and leases space to Aviation Security Service (AVSEC).	AVSEC provides airside security, security between airside and landside, international passenger control, and perimeter patrols.	Security fencing and office space leased to AVSEC.	Rental from ground lease to AVSEC.
Facilities/ assets held for future activities	Holds land.	None.	Land held for the second runway.	Rental from current users of land (e.g., farmers).

8.12. As noted in Chapter 1, the Commission has focused on those airfield services supplied to aircraft operators—being the bulk of the airfield services supplied by AIAL, for which aircraft operators pay per tonne landing charges. The remaining airfield activities provided by AIAL are facilities provided (by way of lease or other commercial arrangements) to Airways and the Aviation Security Service (AVSEC) to enable those parties to supply airfield activities themselves.

Airfield (Landing) Charges

8.13. AIAL's revenue from airfield activities is principally derived from landing charges levied on aircraft operators based on aircraft weight. In addition, AIAL charges non-scheduled flights (itinerants) that park for more than six hours a *parking charge*. However, revenue from aircraft parking charges is insignificant relative to landing charge revenues. The Commission has focused on determining whether landing charges need to be controlled.

8.14. Since vesting (1988), landing charges have changed eight times. Table 10 summarises the charges since vesting. In 1992, the international charges for the over 40,000 kg class rose 3% to help fund development of the international terminal building (ITB). Upon completion of the ITB, charges were reduced by 3%. 1997 saw an increase in both domestic and international landing charges for small aircraft. Effective 1 September 2000, AIAL increased all its landing charges by 8.5%. AIAL also determined that landing charges would further increase by another 5% in each of the next two years.

8.15. The new landing charges, announced 22 August 2000, were the outcome of consultation between AIAL and its substantial customers as required by the Airport Authorities Amendment Act 1997. Table 9 summarises AIAL's proposals and decision on charges (in terms of percentages increases in charges). The same percentage increases applied to all MCTOW weight breaks.

Table 9
AIAL Consultation Proposals

		2000	2001	2002
29/10/99	Proposal	25.09%	5.74%	4.71%
21/12/99	Proposal	33.88%	3.59%	2.61%
7/4/00	Proposal	24.73%	4.90%	4.82%
17/5/00	Proposal	18.14%	5.26%	4.71%
22/8/00	**Decision**	**8.50%**	**5.00%**	**5.00%**

8.16. Subsequent to AIAL's decision in August 2000, it has reached commercial agreements with a number of major airlines. As part of these arrangements, AIAL agreed to forgo the second 5% increase on 1 September 2002 and to reduce the 1 September 2000 increase in charges to 7.5% (providing a 1% rebate). As a result of the agreement, landing charges have been fixed through to 30 June 2007.[277] The agreement between AIAL and Air NZ (dated 8 November 2001) resulted in Air NZ discontinuing litigation against AIAL on whether AIAL had met its consultation obligations.

8.17. Landing charges at Auckland International Airport since vesting are summarised in Table 10.

Table 10
AIAL Landing Charges

		Charge Effective From							
MCTOW	**# Landings**	**1/07/88**	**1/11/88**	**1/04/90**	**1/04/92**	**1/07/96**	**1/07/97**	**1/09/00**	**1/09/01**
<1.5 tonnes	< 25	$5.00/L	$ 5.00/L	$ 8.89/L	$ 9.16/L	$ 9.16/L	$25.00/L	$26.88/L	$28.22/L
	≥ 25	$5.00/L	$ 5.00/L	$ 8.89/L	$ 9.16/L	$ 9.16/L	$12.50/L	$13.44/L	$14.11/L
1.5-3 tonnes	< 25	$5.00/L	$10.00/L	$ 8.89/L	$ 9.16/L	$ 9.16/L	$25.00/L	$26.88/L	$28.22/L
	≥ 25	$5.00/L	$10.00/L	$ 8.89/L	$ 9.16/L	$ 9.16/L	$12.50/L	$13.44/L	$14.11/L
3-6 tonnes	< 25	$9.00/T	$ 4.00/T	$ 4.20/T	$ 4.30/T	$ 4.30/T	$25.00/L	$26.88/L	$28.22/L
	≥ 25	$9.00/T	$ 4.00/T	$ 4.20/T	$ 4.30/T	$ 4.30/T	$ 4.30/T	$ 4.63/T	$ 4.85/T
6-40 tonnes	all	$9.00/T	$ 6.00/T	$ 6.30/T	$ 6.50/T	$ 6.50/T	$ 6.50/T	$ 6.99/T	$ 7.34/T
40+ tonnes	all	$9.00/T	$10.00/T	$10.50/T	$10.80/T	$10.50/T	$10.50/T	$11.29/T	$11.85/T

Landing charges for aircraft under 3 tonnes, and between 3 and 6 tonnes with less than 25 movements per month, are a dollar charge per landing, not a charge per tonne (shaded in

[277] If control is imposed by the Minister, this would override the prices and terms of the agreement. Charges would have to be authorised by the Commission.

table). Note that the 1/7/88 domestic charges for aircraft over 3 tonne were 5.65% of an airline's revenue. Domestic 40+ tonne charge in 1996 and 1997 unchanged – still $10.80. 2000 charge $11.61, 2001 charge $12.19. Charges for 2000 and 2001 are based on agreements as opposed to August 2000 announcements (includes 1% rebate).

Acquirers of Airfield Activities

8.18. The direct acquirers of the airfield services supplied by AIAL (that are being examined) are the aircraft operators—the commercial airlines and other aircraft operators that land and take-off aircraft at/from Auckland International Airport. The indirect acquirers are the aircraft passengers and persons sending freight by aircraft. Table 11 details the acquirers.

Table 11
Acquirers of Airfield Services Supplied by AIAL

Class or Grouping	User
Direct Acquirers: Aircraft operators	• International—Aerolineas Argentinas, Air New Zealand, Air Pacific, Air Tahiti Nui, Air Vanuatu, Aircalin, Cathay Pacific Airways, China Airlines, EVA Airways, Garuda Indonesia, Korean Air, Malaysia Airlines, Polynesian Airlines, Qantas Airways, Royal Tongan Airlines, Singapore Airlines, Thai Airways International, United Airlines • Domestic—Air New Zealand, Freedom Air, Origin Pacific Airways, Qantas Airways • Commuter – Air National, Great Barrier Airlines, Mountain Air, Eagle Air, Mount Cook Airlines • Cargo Only – Airfreight NZ, Airwork, Ansett Airfreight, DHL, Emery Worldwide, Federal Express • General Aviation and Auckland Helicopter Trust
Indirect Acquirers	Aircraft passengers, persons sending freight by aircraft (including freight forwarders)

8.19. AIAL's substantial customers, in their own right, are Air NZ, Qantas Airways, Singapore Airlines and United Airlines. The Board of Airlines Representatives of New Zealand Inc (BARNZ) represents these substantial customers in consultation.

COMPETITION ANALYSIS

Introduction

8.20. The Commission must determine whether the airfield services supplied by AIAL are supplied in a market in which competition is limited (or is likely to be lessened).

8.21. In Chapter 3, the Commission came to the conclusion that, for the purposes of this Inquiry, the relevant product market is the airfield services market, as defined by the airfield activities in the Airport Authorities Amendment Act 1997. The issue of whether airports are in competition with each other in the airfield services market, or whether each operates in a geographically distinct market, was also broadly canvassed. The Commission came to the preliminary view in Chapter 3 that, in terms of the geographical dimension of the market, its generic analysis of passenger and airline demand suggested that, for most traffic, none of the three airports faced significant competition either from each other, or from other regional airports.

8.22. In assessing AIAL's ability to exercise market power, the following considerations, which are further addressed below, are important:

- On the supply-side of the market, the actual competition from existing airports, or potential competition from new airports.
- On the demand-side, the possibility of airlines and their passengers and freight customers switching to other airports.
- The potential countervailing power of airlines.
- The present regulatory regime.

Demand Characteristics

8.23. The weighted elasticity of demand determined for Auckland International Airport in Chapter 3 was [ ].

Competition and Substitutes

8.24. In Chapter 3, the Commission noted that the nature of the investment in international airport facilities (with very large sunk costs), such as those at Auckland International Airport, is likely to mean barriers to entry are high and, that in consequence, competition from potential entrants is low. It was noted that Auckland, like the other international airports, may face competition from other airports in the provision of airfield services. This competition may be the *potential* competition from prospective new entrants, and the *existing* competition from other airports already operating. The specific circumstances of Auckland International Airport are now examined.

8.25. In response to the Draft Report, AIAL submitted that the relevant market constituted a number of different segments for international flights, commercial domestic flights, and general aviation flights. AIAL argued that the Commission's finding of limited competition could differ for the various segments such that only a subset of the airfield services market could have limited competition.[278] The analysis of competition in airfield services at Auckland International Airport is separated into these three segments.

General Aviation

8.26. Airport substitutability from a supply-side perspective depends largely upon the size of aircraft. Smaller aircraft are more flexible as to where they can land. For small, general aviation (GA) aircraft, Ardmore Airport is a possible substitute for Auckland International Airport in the Auckland region.[279] AIAL has endeavoured to encourage GA operators to use alternative airports like Ardmore through the setting of landing charges (GA aircraft landing charges have seen the biggest increases in the last ten years). Although much of the GA traffic has been forced out of Auckland

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[278] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 46, paragraph 3.8.

[279] Ardmore is the country's busiest airport in terms of number of aircraft movements.

International Airport at peak times, GA aircraft still use Auckland International Airport, and some operators have a preference to do so because of the better facilities and location.

Domestic Aircraft

8.27. From a supply-side perspective, and focusing only on domestic traffic, which does not involve the use of the larger aircraft, there appears to be considerable scope for substitution between a number of airports in large centres and regional areas.

8.28. However, while there are many airports capable of servicing domestic aircraft, domestic travel tends to be destination specific. Other airports are, therefore, unlikely to be a substitute for Auckland when passengers wish to go there. For example, most people wishing to travel to Auckland—whether business people on a day return trip, leisure travellers making international connections, or commuter travellers who are interlining (who would suffer the inconvenience of having to transfer between airports if they were delivered to one airport but making a connection at another)—would find Ardmore or Hamilton a poor substitute because of the time delays and the extra costs imposed.

8.29. Even if AIAL imposed a substantial increase in airport charges, competition between the domestic airlines would probably ensure that Auckland remained the destination. If an increase in charges were to cause an airline to stop servicing Auckland International Airport, another airline would likely start operating as demand for air travel to and from Auckland would still exist, or, alternatively, remaining airlines would probably increase flight frequencies to fill the gap. Further, airport charges are not the most significant operating cost for an airline, so airlines would likely accept an increase in costs, rather than fly to an alternative airport and lose to a competitor the business generated from servicing Auckland International Airport (given the additional loss of losing connecting international flights or not being a person or entity's preferred airline because all airports are not serviced). This suggests that, for domestic services, Auckland International Airport has essentially a regional monopoly, in that, in the majority of cases, there are no substitutes for its services for travellers wishing, and freight needing, to fly into or out of Auckland.

8.30. AIAL suggested that a second domestic airport might be developed in the Auckland region using the air force base at Whenuapai, if and when it is decommissoned.[280] This might obviate the lengthy gestation period needed for the building of a wholly-new airport. However, AIAL dismissed Whenuapai as a possible competitor because of the need to completely rebuild its runway and add new land-side facilities.[281] Further, AIAL indicated that the planning ramifications of a new domestic airport at Whenuapai would be substantial.[282] It also stated that reports commissioned by the

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[280] The possibility of converting Whenuapai is being promoted by the Waitakere and North Shore City Councils.

[281] The runway at Whenuapai is built on octagonal slabs. The tidal impact seeps through the base of the runway and impacts on the stability of the slabs. To use Whenuapai in any real commercial capacity would require rebuilding of the existing runway. See *Conference Transcript*, pages 148-149.

[282] *Conference Transcript*, pages 147 and 149.

Auckland Regional Council confirmed that the military base was unsuitable.[283] This suggests that entry is unlikely to be made significantly easier by the adaptation of an existing airforce facility.

International Aircraft

8.31. As noted above, Auckland International Airport is New Zealand's largest and busiest airport for passengers and freight. Sixty per cent of passenger movements are international. Christchurch International Airport is the only other airport in New Zealand that is also capable of handling the largest jets. As such, in the supply of airfield services to long-haul international flights, Auckland only faces competition from Christchurch International Airport (in terms of point of entry or exit from New Zealand). However, Christchurch is very much a secondary airport for such flights, with flights to and from Christchurch often being reduced and/or stopped as demand and other circumstances change. In addition, hubbing by the airlines[284] is likely to further reduce the potential for competition. In New Zealand, Auckland International Airport acts as a hub for international travel for Air NZ.

8.32. While Auckland International Airport faces little competition in the supply of airfield services to long-haul international flights, there is potential for more competition in shorter distance international routes such as Australia and the South Pacific. A number of airports can, and currently do, service the smaller Boeing 737 and 767 aircraft that are operated on these routes. In Auckland's case, Hamilton Airport is the most likely competitor in terms of outbound flights by New Zealand residents, with Air NZ operating its discount Freedom Air services from there to Australia. The discounted fares currently offered by Freedom Air are unlikely to be low enough that Auckland residents would be prepared to drive to Hamilton to fly. While 80 minutes travel to an international airport is not much by international standards, the presence of lower 'cut price' airfares are likely to be required before Aucklanders will travel to Hamilton (rather than just going to Auckland International Airport). As such, the Commission considers that Hamilton does not provide sufficient competition to be viewed as a close substitute for most travellers.[285] In terms of inbound tourists, their choice of airport is likely to be driven by destination.

8.33. Auckland International Airport has the largest share of New Zealand's international traffic. AIAL seems to have advantages over the other two major international airports because of the larger population in its catchment area, its relative importance in air freight (Auckland carries most New Zealand-originating international freight), and its proximity to international aviation routes.[286] It also has the necessary infrastructure associated with servicing international airlines. It has a further

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[283] AIAL Submission on the Draft Report, 14 August 2001, Attachment 5, page 6, paragraph 21.

[284] Hubbing is where airlines construct route schedules around one airport so as to minimise the number of flights but maximise passenger numbers on any given flight. Hub airports are often those in geographically key or central locations.

[285] While Hamilton Airport is capable of handling Boeing 737s, larger jets are not able to operate from the airport on a commercially viable basis. A Boeing 767 can only land at Hamilton under significant load restrictions. Hamilton Airport is understood to have plans to extend its runway so that it can handle 767s.

[286] Ministry of Transport, *Review of New Zealand Airport Regulation*: *Proposals for Consultation*, Wellington: MOT, 1995, page 10.

advantage over Wellington (and other airports) in being able to handle the largest international jets needed for maximum flight distances. Apart from destinations in Australia (where all three airports host airlines with direct flights) the majority of New Zealand residents go through Auckland airport to join connecting flights en route to their final destination.

8.34. It is understood that plans have been aired at certain regional airports, such as Rotorua and Tauranga, to extend the runways to accommodate international flights. This would potentially increase the number of alternative suppliers of airport facilities for international flights. However, the international airlines have said they would be reluctant to use such additional airports for international traffic, given the costs they would incur in putting on extra international flights (costs of aircraft, crew and fuel) for little or no benefit to them. Nonetheless, AIAL noted there is scope for certain airports to compete for traffic at the margin.

8.35. AIAL also mentioned plans being promoted by the Palmerston North City Council for Ohakea to be established as an international airfreight gateway[287], although the likelihood of this happening is not known. This might provide competition for Auckland in respect of freight services, particularly in respect of exports. However, for it to happen, the Government would need to approve Ohakea for combined civilian-military use and Ohakea's runway would need to be reconstructed (at a reported cost of $20m).

Conclusion

8.36. The Commission considers there are generally no significant supply side substitutes for the airfield services supplied by AIAL. The potential or existing competition faced by AIAL in supplying airfield services is low.

Constraints on Exercise of Market Power

8.37. As noted in Chapter 3, the current regulation of airports relies principally upon the countervailing power of airlines, and the requirements on airport operators to disclose information about their operations and to consult substantial customers.

Countervailing Power

8.38. At the Conference and in submissions, views of the airlines and AIAL on the strength of countervailing power of airlines differed markedly. BARNZ agreed with the Commission's preliminary finding in the Draft Report that AIAL is unlikely to be significantly constrained by the countervailing power of airlines under the current regime, and that the airlines stand to lose greater amounts than AIAL from withdrawing custom.[288] In contrast, AIAL considered the Commission had not given sufficient weight to the regulatory regime and countervailing power of the airlines, although AIAL stated it had never denied that competition is limited in its market for airfield activities.[289] AIAL noted that six airlines had ceased business in recent times

[287] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 23.

[288] BARNZ Submission on the Draft Report, 10 August 2001, page 18, paragraph 8.2.

[289] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 20, paragraph 1.57.

leaving over $1.5m owing and unpaid to AIAL. Further, while Air NZ and AIAL were in litigation, the Air NZ group withheld $1.63m in additional landing charges. AIAL also submitted that it had limited ability to enforce payment of landing charges.[290]

8.39. AIAL argued that, on the basis of its corrections to the Commission's preliminary figures, there was no evidence of excess returns being earned and, hence, that no market power had been exercised by AIAL. AIAL also said the current regulatory regime had not yet been fully tested, and it was premature to draw conclusions about its effectiveness. AIAL also emphasised that the existing regime includes provisions which allow for its modification and for further direction and control by way of the powers given to the Secretary of Transport under regulation 17 of the Disclosure Regulations.[291] AIAL suggested that any excessive returns (due to actual aircraft movements being higher than forecast) might feed into lower charges over time, whereas it did not expect to be able to recoup any sub-normal returns caused by unexpectedly low levels of activity.[292]

8.40. AIAL considered that the strength of the countervailing power of airlines is shown by their representation on numerous airport planning and operational committees, their collective strength through BARNZ and the international aviation alliances, and their demonstrated willingness to resort to expensive legal and payment-withholding tactics.[293] Moreover, although airfield charges are low in relation to an airline's total costs, the airlines seek to minimise all costs given their thin profit margins. Hence, AIAL argued that, although competition is likely to be limited, the limitation is not absolute, and there are significant factors constraining the Airport's ability to abuse its market power.[294]

8.41. The Commission notes that, in general, a buyer must account for a substantial portion of a supplier's business before it has the potential to exert significant countervailing power against that supplier. The threat by a small buyer to switch its business elsewhere will have little impact on the supplier's behaviour. Thus, the size of the airlines and their collective efforts are an important determinant of any countervailing power against the market power of the airports.

8.42. The number of airlines operating at Auckland International Airport is quite small, and fewer than five (the key ones being Air NZ and Qantas) provide the bulk of AIAL's revenues from landing charges. In addition, there is a growing tendency for international airline alliances. Airlines have also demonstrated capability to act collectively, as through BARNZ, and to engage in lobbying, in pursuit of common interests. This suggests that the buyer concentration needed as a prerequisite for the exercise of countervailing market power exists at Auckland International Airport, at least in principle. The question is whether it is effective.

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[290] Ibid, pages 52-53.

[291] Ibid, page 127, paragraph 12.6.

[292] *Conference Transcript*, pages 77-78.

[293] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 24, paragraph 1.72.

[294] Ibid, page 44, paragraph 3.5.

8.43. The ability to switch to alternative suppliers is crucial to the exercise of countervailing power. The behaviour of a supplier with market power is likely to be moderated where a significant buyer can credibly threaten to switch its custom elsewhere.

8.44. One factor favouring countervailing power is that the capital of airlines (in contrast to that of AIAL) is relatively mobile, and hence has the potential to be relatively easily deployed elsewhere. For example, overseas-based international airlines have the power to deploy their limited fleets to destinations in other countries, and some have withdrawn services to New Zealand, or resorted to code-sharing when this proved more cost-effective than providing a direct service. Having said this, airlines do invest in costs which arguably become sunk at particular airports (e.g., maintenance facilities), thereby reducing their ability (and hence the credibility of any threat) to move elsewhere, thereby undermining any countervailing power they might possess. It is difficult to see how Air NZ, for example, could withdraw from providing international air services to this country, or move its international hub from Auckland. Air NZ has a strong position in New Zealand and relies on the country to some extent for its marketing and brand image. The airline also has significant maintenance facilities at Auckland International Airport.

8.45. The major airlines have demonstrated a willingness to withhold airport payments and to consider court action. This indicates that the airlines do have some power to impose, or to threaten to impose, costs on AIAL.

Consultation

8.46. Airlines, as users interested in minimising their costs, want to monitor airport charging and efficiency. The statutory consultation process provides an avenue through which this monitoring may take place. However, the airlines have been dissatisfied with the consultation process and its outcomes to date.

8.47. In October 1999, AIAL initially proposed a cumulative increase in landing charges of 35.54% over the following three years (2000-2002). During consultations with the airlines, the proposed increase fell. In August 2000, AIAL announced a total increase of 18.5% in its landing charges over the three years.

8.48. In October 2000, Air NZ initiated court proceedings against AIAL in respect of the increases and AIAL's obligation to consult, and as part of this action refused to pay the increases in charges until the matter was resolved. AIAL could do little, being unable to deny access to aircraft, nor impound them in cases of non-payment. When the case was settled in November 2001 (a little over a year after it commenced), Air NZ paid the outstanding charges (less the agreed 1% rebate).

8.49. However, while the Air NZ experience was contentious and protracted, AIAL stated in its submission on the Draft Report that the Commission had overlooked the successful conclusion of its consultation process with its second largest customer, Qantas Australia. AIAL reached agreement with Qantas on the level of price increases to apply for five years; terms which were also available to other airlines. AIAL argued this illustrated that a reasonable commercial approach could emerge under the current regulatory regime.

8.50. AIAL's recent consultation suggests that the airlines may have some power to moderate prospective increases in charges, at least in some circumstances. However, the results of the recent consultation may have to some extent been influenced by the existence of this Inquiry.

Conclusion

8.51. There are clearly widely disparate views on the effectiveness of countervailing power of the airlines, as augmented by the regulatory requirement for AIAL to consult with its substantial customers, and to publish information under disclosure requirements.

8.52. The Commission considers that the countervailing power of the airlines cannot be ignored as a feature of the relevant markets. The current regulatory regime appears to provide some constraint on AIAL. However, the Commission is of the view that there are not sufficient constraints on the exercise of market power by AIAL. While AIAL is required to consult with substantial customers before setting charges, AIAL ultimately has the power to set whatever charges it thinks fit. There is no requirement to negotiate or reach commercial agreement. Airlines do have some power, but their ability to effectively exercise that power is limited.

Assessment of Whether Competition is Limited

8.53. AIAL has relatively high market power in the market for airfield services due to the lack both of supply side substitutes and adequate countervailing power of airlines. It is not economical, and often not possible, to duplicate many of the assets associated with facilitating aircraft movement in a particular region, and demand tends largely to be region-specific. The lack of alternative airports to meet customer-driven origin and destination demand, means airlines cannot credibly threaten to remove sufficient custom to produce an undesirable consequence, and thereby discipline an airport's pricing decisions. Any reduction in use by one airline will tend to be replaced by increased use by another airline, as that second airline moves to meet the customer-driven origin and destination demand in the competitive market.

8.54. The structure of the market, and the impact of a regulatory approach designed to encourage countervailing power, provide a counter-weight to the potential market power of AIAL. However, the presence of such a regulatory framework indicates a concern about possible market power. The evidence of litigation also indicates there is dissatisfaction with the outcome of AIAL's consultation process, although, as mentioned above, an agreement has recently been reached. However, the commercial agreements that were reached between AIAL and a number of airlines in 2001 may not necessarily be indicative of countervailing power, but may be due to other factors such as the presence of this Inquiry or, in the case of Air NZ, the airlines' financial position.

8.55. The Minister's Notice requires the Commission to report to the Minister on whether "airfield activities provided by the three major international airports are supplied or acquired in a market in which competition is limited or is likely to be lessened". The airfield services supplied by AIAL to aircraft operators form the bulk of the airfield services market at Auckland International Airport and are, in the Commission's view, subject to limited competition. The goods or services (falling within the definition of airfield activities) provided by AIAL to aircraft operators that are subject to limited competition are set out in Table 12.

Table 12
Airfield Services Supplied by AIAL Subject to Limited Competition

Airfield Activities	Goods and Services Supplied by AIAL
Airfields, runways, taxiways, and parking aprons for aircraft	Airfields, runways, taxiways, and aprons.
Facilities and services for air traffic control	None.
Facilities and services for parking apron control	Apron control service at the international terminal apron (note: these costs are currently recovered through the international terminal services charge).
Airfield associated lighting	Cable ducts and light pots for the entire airfield; cabling for light fittings for aprons and first taxiways; and apron lights.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft.
Rescue, fire, safety, and environmental hazard control services	Rescue, fire, safety, and environmental hazard control services.
Airfield supervisory and security services	Provides and maintains security fencing.
Facilities/assets held for future airfield activities	Holds land for second runway.

8.56. The Commission has reached the conclusion that the airfield services supplied by AIAL are supplied in a market in which competition is limited (or is likely to be lessened). The first requirement of section 52 is, therefore, satisfied. The remainder of this Chapter considers whether it is necessary or desirable for the prices, revenue, or quality standards of any of the goods or services identified above to be controlled in the interests of acquirers; and whether airfield activities should be controlled.

ASSET BASE

8.57. In Chapter 5, the Commission established principles for determining the appropriate asset base for airfield activities. The asset base for AIAL is now determined.

8.58. The airfield assets of AIAL can be separated into land and non-land assets. Non-land assets are considered first. The most significant non-land assets are the runways, taxiways and aprons that sit on that land (the sealed surfaces) and supporting infrastructure.

Non-Land (Specialised) Assets

8.59. In Chapter 5, the Commission concluded that, for reasons of economic efficiency, assets should normally be valued at opportunity cost, unless they are specialised, when some higher value is required in order to prevent investors' funds from being expropriated and dynamic efficiency harmed (as the opportunity cost of specialised assets is likely to be at or close to zero). In the case of airports, the Commission considers that depreciated historic cost should be used for the specialised airfield assets.

8.60. The starting point for determining the value attached to AIAL's non-land airfield assets in the asset base are the values attributed to those assets by AIAL. Up until 30 June 1999, AIAL valued all its non-land assets at vesting value depreciated, with any new assets included at depreciated historic cost (DHC). On 30 June 1999, AIAL revalued buildings, infrastructure and sealed surfaces assets to optimised depreciated replacement cost (ODRC), and since then has included any additions to these assets at DHC. Vehicles and Plant (the remaining non-land asset grouping) were not revalued and continue to be included at vesting value depreciated, with any new assets included at DHC.

8.61. To arrive at an airfield asset base for AIAL that includes non-land assets at DHC, only one adjustment is required—removal of revaluations above DHC. The 30 June 1999 revaluations of buildings, infrastructure and sealed surfaces have been removed from the Commission's analysis, and associated adjustments have been made to the depreciation of those assets from 2000 onwards.[295]

8.62. In Chapter 5, the Commission noted that the dimensions and structure of AIAL's sealed surfaces were largely determined by Civil Aviation Authority requirements and international standards, and that the current runway length was necessary to meet the operating requirements of the aircraft using the airport. As such, the Commission does not optimise any sealed surfaces. The Commission similarly does not optimise any buildings, infrastructure, or vehicles and plant assets.

Land

8.63. Compared to other utilities and infrastructure providers, land is a significant asset for airports. In Chapter 5, the Commission reached the following general conclusions on the valuation of airfield land:

- Airfield land should be valued at its opportunity cost, namely its value in its best alternative use in the event that airport were closed (highest alternative use value).
- The opportunity cost would be the higher of the value with or without the sealed surfaces (the latter incorporating the net costs of removing the sealed surfaces).
- Any land holding and levelling outlays, and seawall and reclamation outlays, should be valued as specialised sunk assets at depreciated historic cost. These values should not include any amounts associated with such assets that are already included in the opportunity cost of the land, in order to avoid double-counting.

AIAL Land Valuation

8.64. As with non-land assets, the starting point for determining the value attached to AIAL's airfield land in the asset base are the values attributed to that land by AIAL. Up until 30 June 1999, AIAL valued all its land at vesting value, with any new assets

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[295] Depreciation figures when the assets are valued at DHC will be lower than when the assets are included at ODRC, so depreciation figures are reduced (amounts are added back to the asset base).

included at cost. On 30 June 1999, AIAL revalued all land to optimised replacement cost (ORC), with any acquisitions since being included at cost.

8.65. At 30 June 1999, AIAL attributed the following values to airfield land:

Table 13
30/6/99 Valuation of AIAL Airfield Land

	Area (Ha)	Value per Ha	Amount ($000s)
Operational Airfield	278.4692	$305,000	$84,933
Wiroa Island	40.3600	115,000	4,641
Eastern Approaches Land	170.8081	70,000	11,957
Seabed (titled and untitled)	430.1800	70,000	30,113
Ground Handling Area	3.1851	650,000	2,070
Seawall			9,787
Second Runway Land	449.0700	140,000	62,870
Total	**1372.0724**		**$206,371**

8.66. During the consultation on charges between AIAL and its substantial customers over 1999 and 2000, the airlines made a number of submissions on the area and value of land included by AIAL in its 30 June 1999 valuation (which it proposed to use for pricing purposes). As a result, AIAL made adjustments to the area and value of airfield land included in its final prices determined on 22 August 2000. The adjustments were as follows:

- Approximately 73 hectares of reclaimed seabed were reclassified as operational airfield land.
- Wiroa Island was included at a lower per hectare value of $70,000.
- All untitled seabed was removed, with only the unreclaimed seabed at the western end of the runway remaining.
- The seawall was removed (as it was included as part of civil works).
- The area of second runway land was reduced to only that part relating to airfield activities.

8.67. The Commission considers that one further adjustment is necessary. The land described as ground handling area in Table 13 does not fall within the definition of airfield activities, so should be excluded. The revised figures are summarised in Table 14. These figures are the Commission's starting point for determining the appropriate value for AIAL's airfield land.

Table 14
22/8/00 Value of AIAL Airfield Land used for Pricing

	Area (Ha)	Value per Ha	Amount ($000s)
Operational Airfield	351.7205	$305,000	$107,274
Wiroa Island	40.3600	70,000	2,825
Eastern Approaches Land	170.8081	70,000	11,957

	Area (Ha)	Value per Ha	Amount ($000s)
Seabed (titled)	140.0000	70,000	9,800
Second Runway Land	262.551	140,000	36,757
Total	**965.4396**		**$168,613**

8.68. The largest parcel of airfield land is the operational airfield (the land that the current runways, taxiways and aprons sit on). AIAL's $305,000 per Ha valuation of operational airfield land incorporated the following three components (making up the market value—existing use):

- The current purchase price of the land ($140,000 per Ha) based on a hypothetical satellite city development.
- The interest costs of holding the land until developed into an airfield ($133,000 per Ha).
- The costs of levelling the land before the runway is laid ($32,000 per Ha).

8.69. The second largest parcel of land is that held for development of a possible second runway. AIAL valued this land at $140,000 per Ha with no adjustments for holding or levelling costs, which AIAL considered appropriate given the land is covered by an airport designation and has an underlying rural zoning (but acknowledged future urban potential).

8.70. The remaining parcels of airfield land were all valued at a discounted figure of $70,000 per Ha by AIAL for pricing purposes. This value reflected the fact that the eastern approaches land was more limited in its next best use (the land was zoned for rural purposes and urban uses were specifically prohibited), as well as the current function and utility of Wiroa Island and the seabed.

Zoning and Designation

8.71. All AIAL airfield land is covered by a specific airport designation. The designation permits some commercial activity, but it is limited to that which is 'ancillary to' or 'connected with' aeronautical type activity. The underlying zonings of the various parcels of airfield land at Auckland International Airport, and the permitted activities, are summarised as follows:

- The operational airfield land, second runway land and Wiroa Island are zoned **Airport**, in recognition of the likely continued use and development of Auckland International Airport (even without an airport designation). The Airport zone permits a range of activities that are appropriate in association with the Airport and do not give rise to significant adverse effects on the Airport itself or the resource management strategy for Manukau City.
- The eastern approaches land is part of the **Mangere-Puhinui Heritage zone**. The zone encompasses those rural areas which, in addition to the general values of the Mangere-Puhinui area, have high landscape values and significant natural and/or cultural heritage values. The zoning protects against encroachment on airport activities by urban uses. Non-farming activities are subjected to a more rigorous

assessment of adverse effects than in the Mangere-Puhinui rural zone, due to the greater potential for such effects.[296]

Estimates of Opportunity Cost

8.72. For each of the various types of airfield land owned by AIAL, the Commission has derived an estimate of opportunity cost—the highest alternative use value (excluding holding and levelling costs). In deriving its estimates, the Commission has considered:

- Whether the values attributed to the land by AIAL constitute an opportunity cost valuation.

- Any submissions made by the airlines as to the appropriate opportunity cost figure for AIAL's airfield land.

- Any submissions made by AIAL as to the value of AIAL's land in its next best use (other than as an airfield).

- The permitted uses of the land, as dictated by its zoning and designation (outlined above), indicating possible alternative uses. The likelihood of changes in zoning is also considered, as it has implications for the next best alternative use.

- The impact of existing infrastructure at, and adjacent to, Auckland International Airport on the appropriate opportunity cost value of AIAL's airfield land.

- Advice obtained from Telfer Young on the appropriate opportunity cost values (or range of values) for AIAL's airfield land.[297]

8.73. Opportunity cost estimates derived are based on an assessment of the proceeds that would be obtained from an orderly sale of the land (in economically manageable parcels) over such time period as would likely be needed to achieve the highest and best alternative use value of that land. They are not estimates of the proceeds that would be obtained by the sale of AIAL's airfield land in a single parcel tomorrow (this would be akin to 'scrap' value).

<u>Second Runway Land</u>

8.74. The second runway land is zoned airport in recognition of the likely continued use and development of Auckland International Airport (even without an airport

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[296] Other non-airfield activities land falls within the **Mangere-Puhinui Rural zone**. The zone is intended to protect the rural character of the Mangere-Puhinui area, avoid adverse affects on amenity and landscape values, and protect the resources of the area from the potentially adverse effects of development. Farming activity is the main land use in the area (given the high quality of soils), and such use of the area is encouraged. Housing development in association with farming is permitted, but controlled to ensure maintenance of open spaces. A limited range of non-farming activities, which cause only minor adverse effects on the environment, are controlled in the zone. The extent of such activities is limited.

[297] Telfer Young's advice to the Commission is included in Appendix 21.

designation). AIAL has valued the second runway land at a value of $140,000 per Ha on the basis that the land has acknowledged future urban potential.

8.75. During consultation with AIAL in 2000, Air NZ argued that the alternative use of AIAL's second runway land was rural. The airline submitted to AIAL that a land value of $70,000 per Ha, based on comparable sales of undeveloped land within the airport designation, would be consistent with that produced by a rural land comparison.[298]

8.76. In the opinion of Manukau Consultants Limited—who provided advice to the airlines during their consultation with AIAL—the current zoning of the land would be similar in nature to the Mangere-Puhinui Rural Zone if the airport had never existed on the site.[299]

8.77. The Commission considers that the airlines' argument has some merit, given the surrounding land is all part of the protected Mangere-Puhinui Rural and Heritage zones within which urban development is severely restricted. The Manukau City Council's goal with the surrounding land is to retain the general rural nature of the land to ensure major adverse effects on the ecological, recreational, cultural, spiritual and landscaped values of the Manukau Harbour are avoided and protected. In the Mangere-Puhinui area there are volcanic craters, a significant wildlife area, a kauri forest, and historic Maori pa sites. The Manukau City Council is co-ordinating a heritage project regarding the land north of the proposed second runway.[300]

8.78. However, the Commission considers that the airlines' argument may not necessarily apply to all of the second runway land. The argument is also based on the premise the airport never existed, not that it ceases to operate (after having existed). Parts of the second runway land may potentially be suitable, and allowed to be used, for residential or commercial uses. The restrictions that currently exist in the Mangere-Puhinui Rural zone may be reduced if the airport where to cease to operate. Whether or not residential or commercial uses would be permitted would depend on how the land would be re-zoned in the absence of the airport, which is unknown. Although, Telfer Young have advised that it is unlikely that all of the land would be rezoned for residential or commercial uses, instead the majority of the land is likely to retain its rural characteristics.

8.79. Given the uncertainty over alternative use, the Commission considers it appropriate to adopt a range as the estimate of the opportunity cost of second runway land. The value adopted by AIAL should be changed from $140,000 per Ha to a range of $70,000 to $140,000 per Ha. In principle, the Commission would like to be able to identify the potential alternative use of each parcel of hectare of the second runway land individually, and derive a single estimate of the opportunity cost of the land. However, the use of a realistic range is a practical alternative.

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[298] Air New Zealand, *Draft Interim Consultation Response to AIAL*, 22 December 1999, pages 67-70.

[299] Manukau Consultants Limited Report to BARNZ Valuers, 4 November 1999, page 5.

[300] Manukau City Council Media Release, *New Push to Create "Gateway" Tourism Plan for Mangere and Puhinui*, 1 May 2002, at http://www.manukau.govt.nz/latest/2002/may/gateway.htm.

Eastern Approaches Land and Wiroa Island

8.80. The eastern approaches land is part of the Mangere-Puhinui Heritage zone, which essentially gives it an underlying rural zoning. Valuers advising BARNZ have noted that "should the designations which provide for the continued development of the airport be removed, the underlying rural type purpose of the land will remain" and the key strategic element of containing urban development for the Mangere-Puhinui area continue.[301] AIAL has recognised this in its valuation of the eastern approaches, which, as noted above, it has valued at $70,000 per Ha reflecting the value of the land in its next best use (the land being zoned for rural purposes and urban uses being specifically prohibited).

8.81. While Wiroa Island is actually zoned Airport, AIAL has treated it in the same way it has treated the eastern approaches, and valued the land at $70,000. AIAL's rationale was that the utility of Wiroa Island was closer to that of the eastern approaches land than operational airfield land.

8.82. During consultation with AIAL in 2000, Air NZ argued that, in applying the $70,000 per Ha rural value (for the second runway land) to the eastern approaches and Wiroa Island, it should be discounted by 50%, giving a value of $35,000 per Ha.[302] As noted later, the airlines went on to argue that these assets should be optimised out altogether.

8.83. At the Conference, AIAL advised that land within the rural heritage zone had been purchased historically at prices ranging between $60,000 and $65,000 per Ha. Also, similarly zoned land of this nature outside the airport designation was recently purchased for $75,000 per Ha.[303]

8.84. The Commission considers that the $70,000 per Ha value attributed to the eastern approaches land is a reasonable estimate of the land's opportunity cost. A $70,000 per Ha value reflects an alternative rural use of the land. The Commission also considers that AIAL has appropriately used this value for Wiroa Island, as the function and utility of the land is essentially the same as that of the eastern approaches. These land parcels and the seabed are discussed (in more detail) below.

Operational Land

8.85. As noted above, AIAL's valuation of operational land includes a base value of $140,000 per Ha, being the current purchase price of the land based on a hypothetical satellite city development. AIAL submitted that this was "the price that an independent purchaser could afford to pay to acquire an equivalent parcel of land in order to undertake a hypothetical highest and best use alternative development".[304] This could be interpreted as an estimate of the land's opportunity cost. However, AIAL made the statement before the release of the Draft Report, in which the Commission suggested that land should be valued at opportunity cost. AIAL subsequently submitted that it was a value derived "based on a presumption that the

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[301] Rushton Australia Pty Limited Report to BARNZ on AIAL Valuation, 2 February 2000, page 2.

[302] Air New Zealand, *Draft Interim Consultation Response to AIAL*, 22 December 1999, page 85.

[303] *Conference Transcript*, page 215.

[304] AIAL Submission on the Critical Issues Paper, 27 April 2001, Part A, page 82, paragraph 9.38.

airport did not exist, not on the presumption that it exists and has ceased operating".[305] Given this, and considering advice from Telfer Young, the Commission regards the statement as having been directed at the cost involved in acquiring land and establishing an airport, not the alternative highest and best use value that might eventuate should the airport cease to operate.

8.86. To derive an estimate of the opportunity cost of AIAL's operational airfield land, the Commission first needs to determine the next best alternative use of the land. As with the second runway land, the operational airfield land is zoned Airport in recognition of the likely continued use and development of Auckland International Airport (even without an airport designation). For the alternative use to be anything other than rural, the land would need to be rezoned.

8.87. Telfer Young have advised the Commission that they expect that (were the airport to close) the existing and potential planning of all of AIAL land would come under intense scrutiny by at least the Territorial Local Authority and Auckland Regional Council in addition to AIAL. The implications on Auckland's infrastructure of rezoning the land from Airport to an alternative use would become an issue of regional significance. The effect of urban development on the Manukau Harbour would become a key environmental issue. Some parties would want to retain the land as a "green belt" outside the Metropolitan Auckland Urban limits, others would seek to develop the land in a manner that complements the existing commercial and industrial activity already in place.

8.88. AIAL has submitted that, because of the extent of land involved, the Manukau City Council would initiate zoning changes, rather than AIAL having to request changes. They acknowledged that the process would attract significant opposition, lead to hearings in the Environment Court, and take two years or more to be resolved.[306] However, AIAL submitted that an zoning change would eventually occur and that an alternative urban use was likely given the nature of surrounding land uses, the proximity of the land to the City, the pressure for land, and the physical ease of developing the land for that purpose.[307]

8.89. Had Auckland International Airport not been built at Mangere, the land would probably have been zoned and utilised years ago for urban uses. Land surrounding the airport has progressively been developed for urban, commercial and industrial use (as indicated by the series of photographs provided by AIAL). While small parts of the operational airfield land may not be suitable, or allowed to be used, for residential or commercial uses (possibly that land bordering the Mangere-Puhinui Rural and Heritage zones), the Commission considers that the majority of the land is likely to have a best alternative urban use. This being the case, and given the uncertainty as to what amount (if any) land might be restricted in its use, the Commission adopts a best alternative urban use for all of AIAL's operational airfield land. The infrastructure needed to support urban development already exists at the airport.

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[305] AIAL Submission on Estimates of Opportunity Cost, 21 May 2002, page 6, paragraph 24.

[306] Ibid, Attachment 2 - R L Demler Report page 7.

[307] *Conference Transcript*, page 214.

8.90. Having determined that the best alternative use for all of AIAL's operational airfield land is urban (with a mix of residential, commercial and industrial activities), the second step is to determine the value of the land in that alternative use.

8.91. AIAL submitted that, for the operational airfield land, a figure of $273,000 per Ha ($140,000 plus holding costs of $133,000) represented opportunity cost. AIAL argued this would be the land's value in its next best use as a residential subdivision. The figure excludes the $32,000 of levelling costs on the basis that any developers would benefit from the easy contour of the land (already having been levelled for use as an airport). The $273,000 figure was supported by sales evidence for similar land in East Tamaki, Henderson and Long Bay.[308] Including levelling costs, AIAL subsequently suggested a range of $279,000 to $307,000 per Ha.[309]

8.92. Air NZ argued during consultation with AIAL that, for the operational airfield land, a value (before the addition of holding and levelling costs) of $70,000 per Ha based on comparable sales of undeveloped airport designated land was appropriate, and consistent with what would be produced by a rural land comparison (the alternative use being rural).[310] If AIAL's methodology of valuing the land at market value existing use were adopted, the airlines suggested that the addition of holding and levelling costs would increase the value to $107,000 per Ha.[311]

8.93. In its submission on the Draft Report, BARNZ submitted an alternative urban use value of $90,000 per hectare and an alternative small rural block value of $32,000 per Ha, and on that basis argued that the $140,000 per Ha adopted by AIAL was at the upper end of the range. BARNZ seemed to argue for a value of $90,000 per Ha.[312]

8.94. The Commission, in principle, would like to be able to identify the potential alternative use of each parcel of hectare of the operational airfield land individually, and derive a single estimate of the opportunity cost of the land. However, the use of a realistic range is a practical alternative, and also takes account of the uncertainty over alternative use. Having taken advice from Telfer Young, and considered submissions, the Commission considers that the value adopted by AIAL should be reduced from $305,000 per Ha to $200,000 per Ha. The Commission notes that the estimate of opportunity cost does not include holding or levelling costs associated with the development of the airfield.

8.95. The $200,000 estimate does not take into account the costs of removing sealed surfaces that sit on the operational airfield land. Depending on what the best alternative use was, the sealed surfaces might have to be removed (in order for the land to be put into that use). The costs of removing the sealed surfaces could be significant. AIAL has submitted that much of the sealed surfaces could be utilised as roading or carparks in an alternative use, but should they be removed the cost/benefit would be neutral (as the removed sealed surfaces can be recycled as crushed base-

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[308] AIAL Response to Section 70E Notice, 4 February 2002.

[309] AIAL Submission on Estimates of Opportunity Cost, 21 May 2002, page 12, paragraph 43.

[310] Air New Zealand, *Draft Interim Consultation Response to AIAL*, 22 December 1999, pages 67-70.

[311] Ibid, page 83.

[312] BARNZ Submission on the Draft Report, 10 August 2001, page 22.

course used in roads).[313] However, as noted earlier, the Commission takes the higher of the value with or without the sealed surfaces.

Adjustments for Holding and Levelling Costs

8.96. In the revised assessment of AIAL's asset base contained in this Report, the Commission has considered whether it needs to include estimates of the DHC of the holding and levelling costs associated with the development of operational airfield land. As noted above, amounts associated with such assets should only be included where they are **not** already included in the opportunity cost of the land, in order to avoid double counting. Amounts should not be included where the holding and levelling costs have no separate value to AIAL.

8.97. Vesting documentation indicates that no separate amounts were attached to these costs as part of AIAL's vesting value. The Commission considers that this may have been because the costs had already been almost fully (if not entirely) depreciated at vesting. Any value that did remain may have been implicitly included within the vesting value of the land. The fact that the land had been levelled may have added to the value of the land at vesting. As no value was specifically attributed to holding and levelling costs at vesting, investors would not have expected to recover, and earn a return on, such costs.

8.98. The levelling costs associated with the development of AIAL's operational airfield add to the opportunity cost value of the land. Many potential alternative uses would require levelled land. As such, the Commission considers that levelling costs (the value attached to the fact that the land is level) are captured in its estimates of the opportunity cost of the land. No additional value needs to be allowed for levelling costs.

8.99. In terms of holding costs, the Commission considers that the costs originally incurred when the Airport was developed were almost fully (if not entirely) depreciated at vesting, with low or no value to AIAL remaining. As such, no additional value needs to be allowed in the asset base for holding costs associated with AIAL's operational airfield land.

Seabed

8.100. As noted above, AIAL's 30 June 1999 asset valuation (and its financial accounts) attributes a value of approximately $30 million to 430.18 Ha of seabed. This is a mix of titled (AIAL owned) and untitled seabed. In its value of airfield land included in its asset base for pricing purposes, AIAL removed all the seabed except for 140 Ha of titled unreclaimed seabed at the western end of the runway, which it included at a value of $70,000 per Ha.[314] In the Draft Report, the Commission excluded the remaining 140 Ha of seabed from its assessment of AIAL's appropriate asset base.

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[313] AIAL Submission on Estimates of Opportunity Cost, 21 May 2002, page 10, paragraph 36.

[314] Seabed in Pukaki Creek (although owned by AIAL) was excluded from the asset base for pricing. AIAL argues the Creek is used for drainage, and has allowed the building of access roads without going through lengthy planning processes, thereby giving the Creek value.

8.101. The western sea approaches at Mangere are flown over by aircraft using the airport when landing or taking off. Despite excluding significant amounts of seabed from its asset base in setting prices, AIAL has argued that the relevant areas of seabed, the great bulk of which it owns, should be included in the asset base for the following reasons:[315]

- Given the opportunity, it would have been reasonable for AIAL to acquire seabed in order both to protect aircraft access, the ability to place navigation lights in the water and for the added flexibility that such land holdings offer for future reclamations, if required.

- If the seabed had not been available to AIAL, it may have had to acquire additional land of an equivalent value to protect the operational areas of the airport.

8.102. The airlines have argued that the western approaches seabed should be excluded from AIAL's asset base as it is not strictly required for operational purposes.[316] They regard the approaches at Auckland International Airport as being no different in principle to those over the sea at Wellington International Airport. The only difference is that AIAL happens to own part of the seabed (WIAL does not).

8.103. The Commission considers that ownership of the seabed is not needed for operational purposes. Existing statutory planning provisions provide adequate protection for aircraft to fly over the area, without the need for AIAL to own the seabed. Moreover, even accepting the airport's ownership of the seabed, it is questionable as to what value is appropriate. The Commission notes that the airport's holdings of seabed were included as one of the vesting assets, but that, after vesting, the seabed was allocated no value in its asset register. This apparently continued until the seabed was entered at a positive value in the 1999 asset valuation.

8.104. AIAL submitted it "is prepared to concede that arguments exist for suggesting that a value should not be ascribed to the seabed in the asset base for charging purposes".[317] The Commission considers there are strong grounds for excluding all of the seabed from AIAL's asset base.

8.105. Even if the seabed were included in AIAL's asset base, it should, as with land, be included at opportunity cost. Evidence at the Conference from AIAL suggested that the only potential acquirers of the seabed were local Maori, who own the rest of the Manukau Harbour. AIAL considered it unlikely they would be willing to pay for the seabed (suggesting, given that they would be the only potential acquirer, an opportunity cost of zero).[318]

8.106. The 140 Ha of unreclaimed western approaches seabed are excluded from the Commission's assessment of AIAL's appropriate airfield asset base. The values

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[315] Report to AIAL Board 31 March 2000, sourced from advice from Ernst and Young 28 March 2000.

[316] Air New Zealand, *Draft Interim Consultation Response to AIAL*, 22 December 1999, pages 84-85.

[317] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 20.

[318] *Conference Transcript*, pages 227-228.

attributed to the seabed by AIAL are shown as optimised out in the Commission's analysis, which has the same effect as including them at an opportunity cost of zero.

Seawall

8.107. In AIAL's land valuation obtained at 30 June 1999, an ODRC value of $9.787m was attributed to the seawall. In its value of airfield land included in its asset base for pricing purposes in August 2000, AIAL excluded this amount after the airlines pointed out the amount had already been included in civil works values (therefore, it was included in the asset base twice). This adjustment is reflected in the figures presented in Table 13 above as the starting point for the Commission's assessment of land value at 30 June 2001 (the seawall does not appear).

8.108. While AIAL made the correction for pricing purposes, the double counting of the seawall is included in its 1999 and 2000 financial accounts and information disclosures. The Commission uses these figures as its starting point for its computation of 1999 and 2000 land values. In the Draft Report, the Commission made adjustments to these values to similarly exclude the seawall from its assessment of AIAL's airfield land value. These adjustments are also made in this Report.

8.109. After the removal of the double counting, AIAL has treated its seawall as a separate asset (included in civil works), with a separate value assigned in the asset register, rather than the value being subsumed within the value of the airfield land. The Commission notes that WIAL has taken the same approach to the valuation of its seawall. Regardless of whether the seawall is included in civil works or subsumed into the land value, the issue is whether the seawall has a value over-and-above that of the land it protects.

8.110. Using the Commission's valuation principles discussed in Chapter 5, this issue can be resolved by considering the opportunity cost of the seawall and land. Where the seawall is needed to support the runway, but would not be needed for an alternative use of that land, its opportunity cost is zero (as it has no alternative use). Where the seawall is needed to protect reclaimed land more generally, the opportunity cost of that land would be the same as other equivalent land in the vicinity (as the land does not have a use, alternative or otherwise, without the seawall). Again the opportunity cost of the seawall would be zero. The only value, in opportunity cost terms, is in the value of the land it protects.

8.111. In short, seawalls are specialised assets whose costs are sunk. Their opportunity costs are therefore zero. However, in common with other specialised assets, the Commission considers that, in order to protect the value of the original investment, the seawall should be valued separately from the land at DHC.

8.112. The value attributed to the seawall by AIAL is summarised in Table 15.

Table 15
Treatment of AIAL Seawall

	$000s
Vesting Value	0
ODRC Valuation 30 June 1999	9,787

8.113. In the revised assessment of AIAL's asset base contained in this Report, the Commission has considered whether it needs to include estimates of the DHC of the seawall construction costs. As noted above, amounts associated with such assets should only be included where they are **not** already included in the opportunity cost of the land, in order to avoid double counting. Amounts should not be included where the seawall construction costs have no separate value to AIAL.

8.114. Vesting documentation indicates that no separate amounts were attached to these costs as part of AIAL's vesting value. The Commission considers that this may have been because the costs had already been almost fully (if not entirely) depreciated at vesting. Any value that did remain, may have been implicitly included within the vesting value of the land. As no value was specifically attributed to seawall construction costs at vesting, investors would not have expected to recover, and earn a return on, such costs. However, it may have merely been an oversight on the part of those determining AIAL's vesting value.

8.115. The airfield at Auckland International Airport is bounded in part by sea, and lies partly on reclaimed land. The seawall has been built, both as part of the reclamation process, and to protect the land against erosion by the sea. In addition, Mr Seagar (an expert for AIAL) cited engineering advice that the land already present at the airport site did not need seawall protection for non-airport use—it is relatively stable and not subject to wave erosion—but did need a seawall to add stability to the runway under the weight of landing aircraft.[319] The building of the seawall was less expensive than the alternative of reclaiming an additional strip of land to act as a supporting 'buffer'. Thus, the seawall is needed for airport use of the land, but not for alternative uses.

8.116. The seawall does not add to the opportunity cost value of the land, as alternative uses of AIAL's airfield land do not require a seawall. As such, the Commission considers that seawall construction costs are not captured in its estimates of the opportunity cost of the land. Additional value needs to be allowed for seawall construction costs. The seawall has separate and distinct value to AIAL while the land continues to be used as an airfield. The seawall also needs ongoing maintenance by AIAL.

8.117. In the revised assessment of AIAL's asset base contained in this Report, the Commission includes an estimate of the DHC of the seawall construction costs for 1988 to 1998 (even though it was given no separate value at vesting). Also, the seawall amounts included in the years from 1999 in revalued non-land assets (as part of civil works) are reduced to DHC when non-land assets are adjusted. As all the \$9.787m amount included in 1999 is revaluation, the entire amount is deducted. However, to offset this, the Commission includes an estimate of the DHC of the seawall from 1999 onwards (based on its assessment of DHC for 1988 to 1998).

8.118. The estimates of the DHC of the seawall construction costs are determined by taking AIAL's 30 June 1999 gross replacement cost estimate, working out the effective costs at vesting (1 April 1988), then adjusting these to take account of depreciation from the time that the seawall was constructed (assumed to be in the 1960s) to vesting,

[319] Ibid, page 225.

continuing to depreciate going forward. Table 16 below summarises the results produced.

Table 16
Estimates of Seawall Construction Costs ($000s)

	RC Vesting	DRC Vesting	DRC 2001
Seawall Construction Costs	7,875	3,465	1,575

8.119. The $3.4m estimate of the DHC of the seawall at vesting appears reasonable when compared to the $4m value attached to WIAL's seawall at vesting. The Commission would expect—given the physical characteristics of the land at the two Airports—that the seawall at Wellington was more expensive to construct than the one at Auckland.

Reclaimed Seabed

8.120. A major part of AIAL's operational airfield land is reclaimed seabed (159.72 Ha of the 351.72 Ha), most of which (130.73 Ha) was reclaimed prior to vesting. Between 1995 and 1999, approximately 29 hectares was reclaimed by AIAL from the western lagoon area, at an outlay of $589,000 per hectare. In determining its asset base, AIAL has treated all reclaimed seabed as land and valued it at $305,000 per hectare. As noted above, this land would, under the Commission's approach, have an opportunity cost valuation of $200,000 per hectare, as for other runway land.

8.121. The issue is whether any allowance should be made for the costs of reclamation over and above the opportunity cost of the land.

8.122. The Commission has considered whether it needs to include estimates of the DHC of the reclamation costs associated with the development of operational airfield land. As noted above, amounts associated with such assets should only be included where they are **not** already included in the opportunity cost of the land, in order to avoid double counting. Amounts should not be included where the reclamation costs have no separate value to AIAL.

8.123. Vesting documentation indicates that no separate amounts were attached to these costs as part of AIAL's vesting value. The Commission considers that the reclaimed seabed was probably just simply valued as land, with costs of reclamation disregarded. As no value was specifically attributed to reclamation costs at vesting, investors would not have expected to recover, and earn a return on, such costs.

8.124. Without the reclamations, a large part of AIAL's airfield land would not exist in its present form. As unreclaimed seabed, it would have an opportunity cost of zero. However, as reclaimed land, it has a number of potential alternative uses. The reclamation costs associated with the development of AIAL's operational airfield (both pre- and post-vesting) add to the opportunity cost value of the land. As such, the Commission considers that reclamation costs are captured in its estimates of the opportunity cost of the land. No additional value needs to be allowed for reclamation costs.

Land Approaches

8.125. AIAL owns some parcels of approach land, which is flown over by aircraft using the airport when landing or taking off. Specifically, this land is Wiroa Island (40.36 Ha) and the eastern approaches (170.8081 Ha). AIAL has included this land at a value of $70,000 per Ha for pricing purposes. In the Draft Report, the Commission made no adjustments to these values, or the areas included by AIAL.

8.126. The approach land at AIAL covers the Pukaki Creek area to the east of the runway. This area of land, at about 170 hectares, is larger than required for an approach 'fan', and has been valued by AIAL at the rural zoned land rate of $70,000 per hectare, or $11.95 million in total. This land is zoned 'rural heritage', which is intended to maintain rural land uses and to protect soils, effectively meaning it can only be used for agricultural purposes. This prevents encroachment by urban land uses that would be incompatible with airport uses. Unlike most other airport land, however, it is considered to have no future urban potential. AIAL submitted that its ownership of the land was needed to ensure it is not used in ways that may prejudice the airport's curfew-free status. However, the Commission considers this concern is already addressed by zoning restrictions and the airport designation (in that the zoning offers the same protection as if AIAL owned the land).[320]

8.127. In addition, the airport owns Wiroa Island to the south of the runway, which is the site of buildings leased to Airways Corporation for air traffic control. Wiroa Island is also a bird sanctuary. AIAL noted that it has the highest rate of bird strikes of any New Zealand airport, and so the Island was valuable in drawing birds away from the runway.[321] However, he said that the rescue fire training ground will probably be relocated there in the longer term (it was not clear, however, whether this threatened the sanctuary or was a complementary use of the land). The Island comprises about 40 hectares, and was valued initially at $115,000 per hectare, subsequently reduced to $70,000 per hectare during the last consultation with AIAL's substantial customers.

8.128. AIAL has argued that the relevant areas of approach land should be included in the asset base because their ownership provides assurance of control over future developments that might impinge upon, or hinder, airfield use, rather than relying on planning constraints.[322] The leasing revenues from such land are deducted from the revenue requirement for pricing purposes.

8.129. The airlines, in contrast, have argued that the eastern approaches and Wiroa Island areas should be optimised out as they are not required for operational reasons.[323] The amount of land that AIAL owns is significantly larger than that required to protect aircraft movement capability (i.e., the fan required at the eastern end of the runway). The majority of the fan required is seabed in Pukaki Creek, with only a small part of the eastern approaches land falling within the fan.

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[320] *Conference Transcript*, pages 245-246.

[321] Ibid, page 245.

[322] AIAL Submission on the Critical Issues Paper, 27 April 2001, Part A, page 79, paragraph 9.20.

[323] Air New Zealand, *Draft Interim Consultation Response to AIAL*, 22 December 1999, page 85.

8.130. In its assessment of AIAL's asset base in this Report, the Commission has optimised out the eastern approaches land and Wiroa Island from AIAL's asset base. The rationale for this is akin to that for the seabed—all are approach land. The costs of the parts of Wiroa Island (on which Airways have buildings) should be recovered from Airways. The Commission considers that ownership of the eastern approaches land and Wiroa Island is not needed for operational purposes, given the protections afforded by the airport designation and zonings covering the land.

Second Runway Land

8.131. In its value of airfield land included in its asset base for pricing purposes, AIAL included approximately 263 Ha of land held for development of the second runway which was classified as future airfield activities land. In the Draft Report, the Commission excluded the value associated with this land (approximately $37m) from its assessment of AIAL's appropriate asset base.

8.132. AIAL plans to build a second runway to the north of the existing runway. There is no definite date for construction, but it will start before 2010 and—based on demand forecasts—AIAL, at present, considers it is likely to start around 2006 or 2007.[324] The current and previous versions (at the time of the Conference) of the Manukau District Plan contain a recognition of the potential need for the second runway. The land held for the development of the second runway is zoned 'airport' and is covered by the airport designation, which means it has limited alternative uses, thereby protecting the opportunity to build the second runway at some unspecified point in the future if required. The airport designation has been on the land since the early 1960s.

8.133. The proposed new Manukau City District Plan, which was in the final stages of negotiation at the time of the Conference, provides (for the first time) for AIAL to construct and operate the second runway. As a consequence, it also contains detailed noise control rules, including significant restrictions on noise-sensitive land uses within the relevant noise contours. These provisions were the subject of a Consent Order by the Environment Court in late 2001, which allows the building of a 1,200 metre runway immediately, and its extension to 2,150 metres subject only to a round of public consultation. However, there is presently considerable uncertainty as to when each stage of the new runway will be needed. The new runway would be subject to more restrictive interim noise control, which will prevent full usage, until a trigger mechanism in the Consent Order is activated by demand. AIAL may also have to compensate residents for noise.

8.134. Apart from the land that would be directly occupied by the second runway, additional land would be needed at each end of the runway for the fans for aircraft safety purposes. Under the proposed Manukau District Plan, the alternative uses for the fan areas would be limited; buildings would not be allowed, nor would activities involving assemblies of people. As planned, much of the fan at the western end would be seabed.

8.135. The District Plan has a life of ten years. Should the construction of the second runway not begin within the life of that Plan, AIAL would be able to apply for a

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[324] Ibid, page 126.

rolling over of the designation for a further ten-year period. However, this would involve the Manukau City Council revisiting the issue.

8.136. The Commission notes that, because of adverse environmental effects of airports, particularly noise, they are subject to considerable planning controls under the Resource Management Act. These controls limit the uses to which land designated for airport use can be put, even before it is acquired by an airport. The owners are under no obligation to sell their land to the airport, and many years may pass before the airport is able, through market transactions, to acquire all of the parcels of land needed for a planned development.[325] Once the land is owned by an airport, the controls place significant obligations on the owner in the course of seeking resource consent to develop the land for airport use. Hence, significant planning horizons appear to be involved in accumulating land and bringing it to the point where it can be developed for airport use.

8.137. From an economic perspective, the appropriate criterion to apply to land acquisition would be one of cost minimisation over time. In principle, this would involve choosing the time pattern of land purchases that would minimise the net present expected value of cost over time, where cost is measured as the purchase plus holding outlays, less revaluations and revenue generated from other uses in the meantime. These costs would reflect the various statutory restrictions and obligations (which add to the airport's costs) discussed above.

8.138. The thrust of AIAL's submission was that the application of such an economic criterion would encourage purchase of land where "the imminent future need for the land has not been fully appreciated by the market". This would avoid AIAL having to pay a premium for land, and make allowance for the fact that large parcels of land are not always available, which would necessitate a longer acquisition process. AIAL stated that, in the early 1960s, the airport had anticipated the second runway would be needed in the 1990s; a forecast that significantly over-estimated the growth in demand.[326] AIAL also emphasised that the need to meet planning requirements, and to get land designated for airport use, makes it desirable to acquire land early rather than later.[327] In short, AIAL argued that 'prudence' suggests early purchase. Nonetheless, the mere holding of land also does not address the important question of whether it is appropriate that acquirers pay for it through the airport's current charges.

8.139. Overall (as noted in Chapter 5), the Commission considers it a matter of judgment as to when land should be acquired for future runway development. Designation for airport use can prevent land that may be required in the future from being used for incompatible purposes. On the other hand, the accumulation of land required through individual market purchases can take some years. Further, there is uncertainty as to precisely when land may actually be required for such developments.

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[325] Although AIAL does have the ability to compulsorily acquire land under the Public Works Act, it has submitted the process that has to be gone through is not necessarily any faster than when it buys land through market transactions.

[326] *Conference Transcript*, pages 33-34.

[327] AIAL Submission on the Draft Report, 14 August 2001, Part A, pages 66-67.

8.140. The second runway land held by AIAL is included in its asset base for the purposes of determining landing charges, valued by AIAL at $140,000 per hectare. Holding costs have not been included.

8.141. AIAL submitted that the value of the second runway land would increase as it approached imminent development, and would be closer at that time to the $274,000 per Ha value (including holding costs, but prior to levelling costs) of the current airfield land.[328] However, he did not make clear how the precise value would be calculated at that time, and upon what it would depend, despite being questioned on the matter.

8.142. The airlines have agreed to the general prudence of AIAL acquiring the second runway land but they have not agreed that the land should be included in the asset base for charging purposes at this time. They do not consider they have been adequately consulted under the Airport Authorities Amendment Act regarding these acquisitions. The Act requires the airports to consult with substantial customers on any capital expenditure plans in relation to airfield activities that are likely, within the following five years, to exceed 20% of the value of the company's assets in respect of identified airport activities.

8.143. Dr Kahn (an expert for AIAL) argued the users of an airport are "causally responsible for the congestion that they impose on one another and these congestion costs form part of today costs".[329] He contended further that the costs of the land held by AIAL for the second runway are part of today's costs in economic terms, because they reflect the costs of relieving today's congestion. These costs are a surrogate for congestion costs, and are therefore economically justifiable in the absence of congestion pricing.

8.144. However, it can be argued that raising costs, and therefore landing charges, by including the development land in the asset base, is a blunt instrument for dealing with congestion. Although the long-run costs of providing airfield services are of primary interest, congestion is experienced in the short-run where demand exceeds capacity. The appropriate remedy economically, in the short-run, is to ration capacity by raising charges during the congested part of the day, charging higher prices when congestion exists. This would discourage airlines from timetabling flights when the runway is most congested. In the long-run, the appropriate remedy would be to take heed of the congestion price signal to plan for an expansion of capacity at the appropriate time. This timing would be better informed by the short-run approach and its impact on alleviating congestion.

8.145. The Commission notes that peak hour pricing is not supported by airports because of the alleged inflexibility of airline schedules, even though such pricing is used overseas. Landing times for long-haul international flights at Auckland International Airport tend to be inflexible, as New Zealand is somewhat 'the end of the line', and schedules are driven by availability of arrival and departure slots at larger, busier airports such as Heathrow (London) and LAX (Los Angeles).

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[328] *Conference Transcript*, page 245.

[329] AIAL Submission on the Draft Report, 14 August 2001, Attachment 3, page 10.

8.146. Peak-pricing, if contemplated, should not be introduced merely to raise the total revenue generated by an airport. Generally, increases at peak times should be matched by decreased prices at other times of the day.

8.147. Little evidence emerged at the Conference that there was significant congestion at Auckland International Airport. AIAL considered that a 15 minute delay at the peak hour was the standard to validate the building of a second runway.[330] BARNZ said delays of only one to four minutes currently occur in the peak hour at Auckland International Airport.[331] These figures were not disputed by AIAL. This suggests that current congestion levels at AIAL are probably not sufficient to warrant a congestion component to be added to prices, whether in the form of peak-hour pricing or by proxy in the form of development land costs as advocated by Dr Kahn.

8.148. This still does not solve the problem as to when the value of second runway land at Auckland should be incorporated in charges. There is an annual cost associated with the actual or implicit interest charge on the funds invested in the land. However, the land generates income each year from farming, and is also periodically revalued. These income and revaluations should be netted off from the costs. The options are for the annual net holding cost to enter the charging base each year, or to be allowed to accumulate until such time as it is permitted to enter the charging base. Either way, users pay the net holding cost; it is just a matter of when (and whether the costs is incurred by current or future users).

8.149. However, a consequence of carrying forward and accumulating net holding costs is that, if the land were not developed as intended, the airport would not be able to recoup those costs. Hence, the determination as to when the net holding costs enter the charging base has the effect of allocating the risk of non-development—albeit, probably very small—between the parties.

8.150. It is important that incentives are preserved to prudently invest in new capacity in a timely way. At the same time, it is important to avoid charges being used to cover imprudent or excessive investment in land, or land acquired prematurely, or to expect today's users to bear the risks associated with future developments. At the Conference, Simon Terry and Associates suggested that an economic criterion for when development land should enter the charging base would be from the point where there is a contract between the airport owner and its substantial customers that recognises the need for a second runway.[332] However, there may be 'gaming' problems with this option, e.g., airlines might delay entering into any such contract if there were any doubts about whether development might proceed as planned. What might be perceived as 'gaming', however, may be legitimate commercial behaviour by the airlines. There would be risks associated with, in effect, buying future capacity in a market with uncertain future demand. In the face of such uncertainty, directors may have trouble convincing shareholders that they should commit to a significant expense in the future.

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[330] *Conference Transcript*, page 34.

[331] Ibid, page 640.

[332] Ibid, page 817.

8.151. The Commission notes that this coordination problem to meet demand though new investment is not uncommon, particularly in the absence of vertical integration. For example, in the electricity sector, Transpower's investment in the national grid is dependent on decisions and activities of the generators and retailers (through their customers). Transpower stated that its policy is to capitalise holding costs on investments until they become 'used and useful'.[333] Indeed, the Commission notes that it is common accounting practice for interest costs of this kind to be capitalised.

8.152. The Commission considers that, given the judgmental nature of the decision to commence acquiring land, which falls largely to AIAL, and from which point net holding costs start to accrue, it is appropriate that AIAL bear the risk of non-development. That risk should provide some incentive on AIAL not to acquire land imprudently. However, as noted above, AIAL would recover its costs, so long as the land is developed. This approach would require net holding costs (on the historic cost of land) to be accumulated, rather than charged out on an annual basis. The Commission also considers that the appropriate point for the capitalised net holding costs (on the historic cost of land) to enter the charging base is once construction has commenced. From that point, the risk of non-development largely ceases to exist. This is similar to the risk that AIAL would bear in a competitive market. However, it is recognised this might create an incentive for AIAL to bring forward a development, or start early and take longer to complete, in order to commence charging sooner. The capitalised net holding cost (on the historic cost of land) to that point should be treated as a specialised asset, to be written off over the medium-term. From that point, the land would be valued at opportunity cost in the asset base.

8.153. In summary, as AIAL is yet to start construction of its second runway, it is not appropriate to include the second runway land in AIAL's asset base. In the analysis contained in this Report, the Commission continues to exclude the $36.757m value associated with this land (as determined by AIAL at $140,000 per Ha) from its assessment of AIAL's appropriate airfield asset base.

Conclusion

8.154. In addition to the general principles determined in Chapter 5, the Commission has determined the following in respect of the valuation of AIAL's airfield land:

- The appropriate estimate of opportunity cost of AIAL's operational airfield land is $200,000 per Ha.

- Holding, levelling and reclamation costs associated with the development of AIAL's operational airfield land should be included at DHC (to the extent they are not covered by opportunity cost and continue to have separate value to AIAL).

- Any seabed assets claimed should be optimised out of the asset base, or equivalently, incorporated at zero opportunity cost.
- Any value attributed to AIAL's seawall should be included as part of specialised assets at DHC.

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[333] Ibid, page 875.

- The eastern approaches land and Wiroa Island should be optimised out of the asset base.

- The land held for the second runway should be excluded from the asset base until such time as the construction of the second runway starts. At that time, the capitalised net holding costs (on the historic cost of land) should be treated as a specialised asset, to be written off over the medium-term; and the land would be valued at opportunity cost in the asset base.

Appropriate Asset Base

8.155. Based on the Commission's views of asset base outlined in Chapter 5 and their application to AIAL above, the Commission estimates the value of AIAL's airfield assets as at 30 June 2001 to be $190 million. The detailed calculation of the asset base is included in Appendix 13. Table 17 summarises the adjustments to AIAL's valuation to arrive at the Commission's assessed value.

Table 17
AIAL Airfield Asset Base as at 30/6/01

	Amount ($000s)
Asset Base used by AIAL for Pricing Purposes	$ 311,042
Exclusion of Ground Handling Area Land	-2,070
Asset Base (Revised)	**308,972**
Optimisation of Seabed	-9,800
Optimisation of Seawall (Replacement Cost Value)	0[334]
Optimisation of Second Runway Land	-36,757
Optimisation of Wiroa Island	-2,825
Optimisation of Eastern Approaches Land	-11,957
Adjustment to Operational Airfield Land Value (ORC to OC)	-36,931
Addition of Seawall Construction Costs (DHC)	1,575
Adjustment to Non-Land Asset Values (ODRC to DHC)	-24,127
Associated Adjustment to Depreciation (ODRC to DHC)	1,849
Commission Airfield Asset Base	**$ 189,999**

8.156. The Commission's decision to optimise selected assets (as explained above) reduces the asset base by $61.2m.[335] The inclusion of non-land assets at DHC (rather than ODRC) reduces the asset base by a further $22.2m. The major change between the figures estimated in the Draft Report and the figures shown above relates to the adjustments made to include operational airfield land at an opportunity cost of $200,000 per Ha. This reduces AIAL's asset base by to $36.9m (relative to AIAL's value, which was the figure used in the Draft Report). The additional figures for seawall construction costs add $1.5m back in to the asset base.

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[334] Adjustment is nil in 2001, as AIAL excluded the adjustment itself in determining prices. Adjustments are made in other (earlier) years.

[335] The optimisation of selected assets is the change that occurs in moving from scenario 1 to 2 in the Commission's workings in Appendix 13. The reduction of land to opportunity cost occurs when then moving from scenario 2 to 4. The removal of revaluations of non-land assets to ODRC occurs when lastly moving from scenario 4 to 6. Scenarios 3 and 5 make the same adjustments, but without any optimisation. Scenario 6 reflects the Commission's adopted principles and views on AIAL's appropriate airfield asset base.

WACC

Introduction

8.157. After asset valuation, WACC has the next most significant impact on the calculation of excess returns. In Chapter 6, the Commission, established the following approach to determining WACC:

- WACC is computed using the tax-adjusted Brennan-Lally CAPM.

- The cost of debt is estimated for the same period as that used to determine the risk-free rate (the period for which prices are set) and not the duration of the airport's assets or its debt.

- The period of the risk-free rate should match the revision frequency of pricing on the basis that landing charges should reflect expected costs and risks over the period for which prices are set, but not be affected by the expectations of rates beyond that period. In determining the rate used, the Commission's approach is to use an average yield on Government stock over the period in which an airport consults with its substantial customers (ending with the point at which any new prices come into effect) and with a maturity matching the point at which prices will again be reviewed (at maximum five years). The rate also reflects compound interest.

- The Commission does not consider any of the various approaches to estimating MRP to be better than any other. The Commission adopts a tax-adjusted MRP of 8%, within a range of 7-9% in recognition of uncertainty surrounding the estimate.

- The Commission uses a tax rate of 33% in computing the cost of equity, but the statutory corporate tax rate (which in the late 1980s was 28%) in computing the after-tax cost of debt.

- In selecting comparators to use to determine beta, the Commission considers a number of factors. In the case at hand, the regulatory environment is fundamental to the performance of the airports and is, therefore, the dominant factor considered in choosing comparators. Benchmarks for an asset beta for airfield activities are, therefore, United States firms engaged in electricity generation and/or distribution that are subject to rate-of-return regulation (which gives them a considerable degree of certainty on rate of return), and electricity firms in the United Kingdom subject to CPI-X price caps.

- A firm's actual leverage ratio—based on the market values of debt and equity at the time prices are set—should be used (consistent with the debt premium used).

- The Commission uses a nominal WACC in order to be consistent with its approach to asset base and analysis of historical returns. Any asset revaluations are included in income.

8.158. The above approach is now applied to determine AIAL's WACC for airfield activities.

Estimate Adopted by AIAL

8.159. In 2000, pursuant to the Airport Authorities (Airport Companies Information Disclosure) Regulations 1999, AIAL disclosed an estimate of the WACC for its identified airport activities. This WACC was used by AIAL to determine its new landing charges announced 22 August 2000. AIAL's WACC estimate, and its derivation, is provided in Table 18.

Table 18
WACC Estimates Disclosed and Adopted by AIAL 2000

R_f	4 year rate – 6.97%
t_c	33%
t_{int}	$= t_c = 33\%$
PTMRP	9%
Debt Premium	1%
R_d	7.970%
W_d	40%
W_e	60%
β_a	0.4 to 0.5
β_e	0.67 to 0.83
R_e	10.67 to 12.17%
Nominal Tax-Adjusted WACC	8.5 to 9.4%

Views of Substantial Customers

8.160. The airlines disagree with AIAL's estimate of its WACC with respect to the risk-free rate, the post-tax market risk premium, the debt premium, and the asset beta. The airlines consider the following figures are appropriate, compared in the table with those of AIAL.[336]

Table 19
Differing Views of Airlines on WACC Components

	AIAL	Airlines	Difference
R_f	6.97%	6.5%	-0.47%
PTMRP	9%	8%	-1%
Debt Premium	1%	0.8%	-0.2%
β_a	0.4 to 0.5	0.3 to 0.35	-0.1 to 0.15

8.161. Based on these alternative figures, the airlines consider the appropriate WACC for AIAL is 7.2-7.5%.

[336] For example, Air New Zealand, *Further Interim Consultation Response to AIAL*, 7 June 2000, page 7.

Appropriate WACC

8.162. Each airport may have its own unique characteristics which can result in a distinct risk profile and WACC. The Commission considers that the appropriate WACC for the airfield activities of AIAL, as at its last price reset on 1 September 2001, is:

Table 20
Appropriate WACC for AIAL Airfield Activities as at 1/9/01

R_f	6.33%
t_c	33%
t_{int}	33%
PTMRP	7 to 9%, point est. 8%
Debt Premium	1%
R_d	7.33%
W_d	25%
W_e	75%
β_a	0.4 to 0.6, point est. 0.5
β_e	0.53 to 0.8, point est. 0.67
R_e	7.97 to 11.44%, point est. 9.57%
Nominal Tax-Adjusted WACC	7.21 to 9.81%, point est. 8.41%

8.163. Full details of the Commission's computation of WACC for AIAL are contained in Appendix 13. Comments are included in the spreadsheet which explain various inputs and assumptions. In accordance with the approach determined in Chapter 6, the risk-free rate of 6.33% shown in Table 20 above is the five-year Government stock rate averaged for the six month period of April to September 2001.

8.164. The asset beta is the most significant parameter that AIAL and airlines disagree on. AIAL favours an asset beta of 0.4 to 0.5, while the airlines favour a beta of about 0.3. Using the benchmarks adopted in Chapter 6, and based on advice from Dr Lally, the Commission considers that an asset beta of 0.5, within a range of 0.4 to 0.6, is appropriate for AIAL's airfield activities.

8.165. The Commission notes that the WACC range of 8.5% to 9.4% adopted by AIAL in setting current prices falls within the range of 7.21% to 9.81% considered appropriate by the Commission. The upper bounds are not materially different, but the Commission's lower bound is significantly less than AIAL's. Also, the Commission's point estimate is just outside (below) the lower bound of AIAL's range.

BENEFITS AND COSTS

Introduction

8.166. Chapter 7 outlined the Commission's approach to deriving estimates of the potential benefits and costs of controlling airfield activities. The models developed in Chapter 7 are now applied to the airfield services supplied by AIAL to aircraft operators.

8.167. The Commission's analysis of the potential benefits of control involves a number of distinct parts: calculation of returns from vesting to date (1989-2001); forecasting of returns into the future (through to the end of the period for which landing charges are presently set, i.e., 30 June 2007); assessing any allocative inefficiencies associated with current landing charges; assessing any productive inefficiency; and assessing any dynamic inefficiency. Each are now discussed.

8.168. All the results presented in this Chapter are based on the Commission's assessed airfield asset base and the WACC range for AIAL estimated by the Commission. Appendix 13 contains full workings of the analysis, as well as results and sensitivity analysis based on alternative asset base assumptions.

Historic Analysis of Returns

Introduction

8.169. From an economic perspective, AIAL should be able, on average over time, to earn a normal return on the optimised assets used in providing the services of airfield activities. WACC is used to determine the normal or target return on AIAL's assets used for airfield activities, on the grounds that a return equal to the WACC for an entity is a return commensurate with the opportunity cost of capital for that entity. A return in excess of that would suggest AIAL was earning an excessive return, unless those returns reflected efficiency gains and superior performance.

The Calculations

8.170. The Commission has conducted an analysis of the historical returns of the airfield activities of AIAL over the period since vesting, comparing actual returns with target returns (based on the Commission's views on asset base and WACC). The returns have been calculated based on the formula provided in Chapter 7:

Excess Returns ($) = Net Earnings – (Asset Base x WACC)

8.171. The first part of the equation, net earnings, represents AIAL's actual earnings from airfield activities. As noted in Chapter 7, net earnings is computed as earnings before interest, but after tax, depreciation and operating expenses, <u>plus</u> revaluations. In accordance with the principles on asset base determined by the Commission, the revaluations included are those relating only to any revaluations of land to opportunity cost. The second element of the equation (asset base x WACC) represents the target returns.

8.172. The returns are computed annually for each financial year from vesting (1989-2001) separately for the lower bound, upper bound and point estimates of WACC (relevant to that financial year, based on the last price reset). In order to look at trends over time, and not create an outlier in the returns derived for the year ended 30 June 1999, the revaluation of land undertaken by AIAL as at 30 June 1999 is spread back to vesting.[337]

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[337] Note that, in the revised numbers in this Report, revaluations are spread entirely based on the Housing Group of the CPI for the Auckland region. In the Draft Report, the Commission used the New

8.173. The framework for the analysis is largely the same as that in the Draft Report. However, the spreadsheets used for the analysis have been revised and simplified, and the analysis has been updated to include the 2001 financial year results for AIAL (unavailable when the Draft Report was released). Inputs and assumptions have also been modified where appropriate (as discussed in this Report).

Assumptions and Inputs

8.174. As noted above, for full details of the data used and of the analysis of AIAL, readers are referred to Appendix 13. These include an analysis of the sensitivity of the results to different assumptions or scenarios regarding the appropriate asset base reported below.[338] The key assumptions and inputs in the Commission's analysis of historical returns are detailed below.

8.175. Revenue figures for AIAL's airfield activities are sourced from a combination of AIAL's financial accounts, information disclosures and breakdowns of airfield income provided to the Commission during the Inquiry. The only figures that have been estimated are those of 'other revenue' for 1989-1993, where an estimate of $500,000 is included each year.

8.176. Expense figures are less precise. The Commission has only obtained actual expense data for AIAL's airfield activities for the last two years (2000 and 2001), when AIAL released the information as part of information disclosure. As with the analysis included in the Draft Report, the Commission derived estimates of the airfield expenses for 1989-1999. In the Draft Report, the Commission computed estimates for 1989-1999 by extrapolating back from 2000 (working out the airfield portion of expenses for a given year based on the proportion of that expense in 2000 when figures were available). In computing its revised figures for this Report, the Commission has accepted AIAL's suggestion that expenses be further adjusted to account for the change in focus of AIAL's business over time (based on the proportion of total income that airfield income was in 2000 compared to the year for which expenses are being computed).

8.177. In terms of taxation—as noted in Chapter 7—the Commission now uses an effective tax rate in its analysis. The effective tax rate is unlevered to fit with the way returns are computed (i.e., before interest). In recent years, the unlevered effective tax rate and the statutory corporate tax rate are the same. The statutory tax rate continues to be applied in the forecast return analysis beyond 2001.

8.178. The Commission's assessment of the appropriate airfield asset base for AIAL as at 30 June 2001 was detailed earlier in this Chapter. In analysing historical returns, the Commission also needed to determine the asset base in each year from vesting

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Zealand-wide 'all groups' CPI, with a wash-up based on revenue. The Commission notes that the conclusions reached on the analysis of historical returns are not sensitive to how revaluations are spread. For example, simply spreading revaluations on a straight line basis over the 11 years 1989-1999 does not produce any difference in the trends or averages that result from using the CPI for the Auckland region.

[338] The Commission's assessment of the appropriate asset base is computed in scenario 6 in Appendix 13. It is the results from this scenario that are presented and discussed in this Chapter.

through to 2001. For recent years (1998-2001), data was able to be sourced from a combination of the 1999 valuation report, information disclosures and AIAL's pricing model from the recent consultation round.

8.179. For 1988-1997, the Commission has endeavoured to derive estimates of the airfield asset values. Except for sealed surfaces (the runways, taxiways and aprons), assets have been extrapolated in a similar manner as expenses. The sealed surfaces (the runways, taxiways and aprons) are included at the full amount as per AIAL's financial accounts (as they all relate to airfield activities).

8.180. Adjustments to the asset base (and revaluations included as earnings) are made over the period 1988-1997. One adjustment for optimisation over this period relates to the second runway land, for which the historic cost values (as advised by AIAL) are removed. Other adjustments to the asset base due to optimisation and the Commission's chosen method of valuing assets over this period are due to reduction or removal of spread revaluations.

The Results

8.181. The Commission's assessment of the returns earned historically on airfield activities by AIAL are summarised in Table 21. Table 21 provides three different representations of the results: average returns from vesting to date (1989-2001), average returns over the last five years (1997-2001), and the present value of returns from vesting to date as at the end of AIAL's 2001 financial year (30 June 2001). For results for individual years, refer to the detailed results provided in Appendix 13.

Table 21
Returns on Airfield Activities Supplied by AIAL
Since Vesting ($000s)

	Over WACC Range	At Point Estimate
Average 1989-2001	-1,926 to 1,208	-239
Average 1997-2001	2,707 to 6,101	4,534
Present Value 1989-2001	-74,365 to -8,887	-39,107

8.182. The figures in Table 21 suggest varying results. In the last five years, despite the presence of this Inquiry, AIAL has earned significant returns annually. However, this was not the case in the early years post-vesting. The figures per year from 1989-2001 (detailed in Appendix 13) indicate a trend of increasing returns, moving from negative returns just after vesting to large positive returns per annum currently. The average of returns since vesting shown in Table 21 indicates the presence of positive returns only at the margin, but the average is distorted by the significant negative returns in early years. The same applies to the present value of returns since vesting. In all cases, returns are greater at the lower bound of the WACC range.

8.183. The Commission considers that the results of recent years (and forecast returns ahead), and the trend that is shown, are more relevant than an average or present value of returns since vesting, which (due to compounding) can have the effect of over-emphasising the negative returns earned over a decade ago. As such, the Commission places more weight on the results in recent years, and those expected in future years, than those at or soon after vesting.

8.184. Although significant positive returns have been identified, a finding of excess returns cannot be made without eliminating, as possible causes, certain reasons for the returns. As noted above, what might otherwise be considered excess returns (and evidence of the exercise of market power), may just reflect efficiency gains and/or superior performance. In addition, a trend towards increasing returns may be (partially) explained by a declining asset base (as assets are depreciated annually).

8.185. To test the influence of a depreciating asset base on the trend of increasing returns, the Commission recalculated returns without depreciating the asset base (depreciation was still included as an expense in the calculation of net earnings). This analysis revealed that less than 10% of the returns were due to the effect of a depreciating asset base. The trend of increasing returns was still apparent, although the magnitude of returns was slightly less).

8.186. Whether the returns might reflect productive efficiency gains is considered later when AIAL's productive efficiency is examined. However, the Commission notes, at this point, that the high proportion of fixed costs associated with airfield activities mean that it is unlikely that there could be sufficient productive efficiency gains to explain all the returns identified.

8.187. To a large extent, returns are likely to have been driven by increasing revenues, which have increased as the result of increases in landing charges and increasing aircraft movements. There is no evidence to suggest that they are reflective of superior performance. Rather than reducing landing charges as movements have increased, AIAL has reaped the benefits itself, as revealed by the increasing returns.

8.188. In the absence of any other explanation, the Commission finds evidence that AIAL has earned excess returns. On face value, these findings suggest the conclusion that AIAL has used its market power in airfield activities by raising prices above the efficient level. It would also appear difficult to argue that the period for review biased the findings by, for example, being too short a time in which to assess performance. This reinforces the Commission's findings earlier that there are insufficient constraints on the exercise of market power by AIAL.

Current and Forecast Analysis

8.189. As discussed in Chapter 7, the counterfactual in AIAL's case will be the status quo, which includes the November 2001 agreements reached between AIAL and its substantial airline customers (including Air NZ and Qantas). The terms of the agreements are open to all airlines and are, therefore, used as the basis for projecting earnings through to 30 June 2007.

8.190. While analysis of historical returns is useful for evaluating behaviour of AIAL in the past, an analysis of the forecast returns helps to determine whether such results are an indication of the future. The future analysis also presents an evaluation of the efficiency effects of AIAL behaviour, assuming that behaviour in the past continues.

8.191. The Commission uses the year 2001 as a base year for introducing the forward-looking models, as this is the most recent year from which projections can be made.[339] The analysis for AIAL projects future returns and inefficiencies out to 30 June 2007. The approach is designed to be consistent with the historical analysis, in particular, it takes into account any unrealised capital gains or losses.

Allocative Inefficiency and Excessive Returns

Determining P_C, P_M and Q_C

8.192. The Commission has calculated an average price per tonne (P_m) for AIAL's 2001 year based on the landing charge revenues and tonnes landed (Q_m) in the 2001 financial year for AIAL. P_m is used to compute P_c. AIAL's price elasticity of demand of [ ] (calculated in Chapter 3) is used in calculating Qc, per the model in Chapter 7 (Figure 2). The results of these calculations are presented in Table 22.

Table 22
Average Prices Relative to Competitive Benchmark Prices for AIAL for its 2001 Financial Year

	Over WACC Range	At Point Estimate
Actual Price (P_M)	$15.09	
Efficient Price (P_C)	$13.14 to $14.39	$13.72
Difference, P_M-P_C	0.70 to 1.96	1.38
Actual Output (Q_M)	3,290,392	
Efficient Output (Q_C)	[ ]	[ ]
Difference, Q_C-Q_M	[ ]	[ ]

8.193. AIAL's actual price for 2001 exceeds the Commission's range of efficient prices shown in Table 22. AIAL's actual output for 2001 falls below the range for efficient output. Allocative inefficiencies exist and represent losses of consumer surplus.

8.194. The Commission has computed the same figures for each of the forecast years (2002-2007). These figures are not detailed here, but can be found in Appendix 13. The figures for 2002-2007 reveal similar results. In the few isolated instances where the actual price is below the efficient level, then allocative inefficiencies represent losses of producer surplus, and negative excess returns represent less than normal returns).[340]

Estimates of Allocative Inefficiency and Excess Returns

8.195. The figures above have provided the information to calibrate the model in Figure 2 of Chapter 7. The model can now be used to estimate the potential allocative inefficiencies and excess returns associated with AIAL's 2001 price levels. Because the precise values of marginal cost are not available, although they are known to be very low, it is assumed that marginal cost is 50 cents. It is also assumed, for the purpose of analysing allocative inefficiencies, that there are no productive

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[339] In the Draft Report, the Commission used the 2000 year as the base. Since the Draft Report was released, the 2001 financial year end data for AIAL has become available.

[340] Note that less than normal returns does not necessarily imply that losses are being made overall, although this is possible.

inefficiencies or cost misallocations, and that levels of service quality demanded by the airlines are being provided (to be discussed below). On this basis, the Commission has estimated that the likely size of the allocative inefficiencies associated with pricing of airfield activities in the 2001 financial year of AIAL.

8.196. Forecast returns are computed using the same formula as that used in the historical analysis. AIAL's actual results for 2001 are used as the base, modified as appropriate based on AIAL's forecasts and growth estimates. In computing forecast returns under scenario 1 for 2002-2007, the Commission has adopted AIAL's forecasts of MCTOW (tonnes landed), expenses and changes in the asset base (i.e., capital expenditure and depreciation). Those figures are then adjusted as appropriate to be consistent with the Commission's view on how to calculate the appropriate asset base (e.g., adjustments to depreciation in respect of the move from ODRC to DHC).

8.197. The Commission's projections to 2007 assume, as did AIAL's own projections, that the value per hectare attributed to the airfield land remains unchanged at the 1999 level. However, the Commission is aware that since 1999 land values in Auckland have increased substantially. This increase has occurred over a relatively short period of time, and it is unclear whether it is a cyclical phenomenon or a move to a new higher level of value. Should those higher values be maintained, however, then an adjustment to the company's asset valuation is likely to be required in the future, with the consequent revaluation being reflected in landing charges. The Commission has not factored these prospective adjustments into its projections to 2007.

8.198. Allocative inefficiency consists of consumer surplus (area BFE in Figure 2, Chapter 7) and producer surplus (area EFHG in Figure 2, Chapter 7). In addition, the excess returns stemming from prices being above the efficient levels cause a redistribution of wealth from acquirers to suppliers (as measured by area $P_C P_M BE$ in Figure 2). Estimates of these distribution effects are given in Table 23. These transfers are proportionally much larger than the associated allocative inefficiencies, as would be expected, given the highly inelastic demand for airport services. It should be noted, however, that transfers are distributional in nature, not losses to economic efficiency. The figures shown in Table 23 are an average of the seven years 2001-2007. Results for individual years are shown in Appendix 13.

Table 23
Estimated Allocative Inefficiencies and Excess Returns for AIAL ($000s)

	Over WACC Range	At Point Estimate
Consumer Surplus	1 to 24	9
Producer Surplus	45 to 335	210
Excess Returns	816 to 6,494	3,873

8.199. Table 23 reveals that the excess returns found historically are also forecast to continue into the future. Some allocative inefficiency also exists; however, it is very small in comparison to the excess returns forecast.

8.200. Table 24 presents forecast excess returns for individual years:

Table 24
Estimated Excess Returns for AIAL for Individual Years ($000s)

	Over WACC Range	At Point Estimate
2001	2,316 to 6,446	4,540
2002	1,943 to 6,883	4,603
2003	-160 to 5,509	2,892
2004	-844 to 5,217	2,419
2005	-1,316 to 5,208	2,196
2006	804 to 7,119	4,204
2007	2,973 to 9,075	6,259

8.201. Results for individual forecast years show that returns are expected to decrease slightly over 2003-2005, but increase in 2006 and 2007 to levels greater than at present. The increase in returns between now and 2007 is primarily due to [ ] The forecast decrease in returns for 2003-2005 is due to the impact of increases in the asset base in coming years as the costs of rehabilitating the current runway are capitalised. Actual returns will be higher to the extent that AIAL has overstated forecasts of capital expenditure required in respect of the runway rehabilitation. The Commission has not assessed whether the forecasts are overstated.

8.202. It should be noted that for the purpose of the forecast analysis, no expected revaluation gains are estimated for and, although the Commission considers that there may be revaluation gains over the forecast period. If this were the case, this would be likely to suggest that the figures above understate forecast allocative inefficiencies and excess returns.

<u>Cross-Subsidisation</u>

8.203. In Chapter 4, the Commission presented the way it would assess whether there was any cross subsidisation associated with airfield activities by considering:

- Prices charged by aircraft type per landing, with prices per landing dependent on weight bands.
- Cost allocation between airfield activities and other airport activities

8.204. AIAL determines the price charged by aircraft type per landing by first using a cost allocation model and then establishing weight bands and prices into which different aircraft fall. For airlines, the landing charge they pay for a given aircraft landing is calculated by multiplying a dollar charge per MCTOW by the MCTOW of that aircraft. Key drivers of AIAL's cost allocations model are summarised in Table 25.

Table 25
Basis of Cost Allocation

	AIAL
Return on the capital cost of land	Landings and m^2 runway area used (width x length)
Return on the capital cost of runways and taxiways	Landings and m^3 runway used (width x length x depth)

	AIAL
Return on the capital cost of aprons	Landings and m^3 runway used
Runway damage (operating costs of sealed surfaces)	Equivalent landings[341]
Rescue fire service costs	Seats landed[342]

8.205. The cost allocation model attempts to identify the causes of costs, and to allocate costs accordingly. The cost of runway damage aims to take account of the wear-and-tear on the runway, and associated taxiway and aprons, caused by aircraft movements, with heavier aircraft causing greater damage. The cost of rescue fire is related to the seat capacity of aircraft, with international standards requiring more services available the greater the aircraft's seat capacity. The returns on the various capital costs are related to the size of the aircraft and, therefore, the likely number of potential passengers, reflecting demand conditions. This seems to be a reasonable attempt to recover the costs involved.

8.206. AIAL is a multi-product business, and serves a variety of customers. This suggests there is potential for cross-subsidisation to occur across its different activities. Because of the throughput of passengers generated by airfield activities, AIAL can undertake other integrated aeronautical activities (such as the provision of both airfield and terminal facilities) together with significant complementary commercial activities (such as the provision of retail and commercial premises). There are incremental and common costs associated with these activities.

8.207. BARNZ argue that airlines have not received sufficient information from AIAL on the apportionment of common costs to commercial activities and airfield activities to judge whether cross-subsidisation is occurring. It considers disclosures could be enhanced to assist in assessments of such allocations.[343]

8.208. The Commission considers there is no economically appropriate way to allocate costs, except indirectly via Ramsey Pricing. MCTOW based pricing approximates Ramsey Pricing. The Commission also notes that an analysis of the adequacy of information disclosure regulations is outside the scope of this Inquiry.

8.209. Given the information available, the Commission considers the scope for cross-subsidisation is minimised by AIAL's use of a multiple till approach, which where possible does try to associate costs with their cause and, to some degree, the demands of the various user groups.

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[341] Calculated in accordance with Federal Aviation Authority (FAA) Advisory Circular AC150/5320-6C (an algorithm that reflects the wheel weights and required runway length of aircraft).

[342] Seat capacity of aircraft multiplied by the number of landings.

[343] BARNZ Submission on the Draft Report, 10 August 2001, Page 18, paragraph 11.10

Productive Inefficiency

Introduction

8.210. Airports are predominantly fixed-costs businesses characterised by economies of scale. As traffic builds up, the runway facilities are better utilised and the fixed costs are spread over a larger number of landings or passengers. In general, therefore, unit costs would go down with increased use, unless an airport invests too much or too soon in new facilities. However, despite the importance of fixed costs for efficiency, the operating costs at airports are also significant.

8.211. The pricing principles in Chapter 4 suggest a productively efficient operation is one that, over the medium-term, meets demand at the lowest possible cost, commensurate with the level of service quality demanded. The Commission has considered the submissions on AIAL's productive efficiency from interested parties. It presents below some of the evidence that has informed its decision on this matter.

Measures of Operating Costs and their Trends

8.212. The major operating expenses of AIAL are depreciation, employee remuneration, repairs and maintenance, and rescue fire services. Of the operating expenses, all but depreciation could be susceptible to productive inefficiency over the medium-term. These might arise, for example, because of overly lavish maintenance expenditure, over-staffing, or excessive levels of staff remuneration.

8.213. In the Draft Report, the Commission suggested that productive inefficiencies may be 1% of operating costs (excluding depreciation) for AIAL. AIAL argued that the 1% figure used by the Commission was in effect a 4% figure on variable costs. To determine this 4% figure, AIAL assumed 75% of operating expenses (including employee costs, which is the greatest expense) were fixed.[344] However, the Commission applied the 1% figure only to operating costs. Depreciation expenses were considered fixed and were deducted from operating costs before the 1% figure was applied. It is arguable, however, that some costs classified by AIAL as being fixed are also variable to some extent, particularly if a longer-term perspective were taken, but the Commission conservatively assumed that these were all fixed.

8.214. AIAL's operating expenses (excluding depreciation) have increased since vesting. However, aggregate operating costs on their own do not provide sufficient information for evaluating productive efficiency. Relative (per unit) measures of operating costs are needed. Since vesting, Auckland International Airport has experienced significant growth in passenger, aircraft movements, cargo and tonnes landed. Passenger and landing data for Auckland provide a complete record since vesting. The Commission has, therefore evaluated AIAL's productive efficiency in relation to costs per landing and per passengers.[345]

[344] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 110.

[345] In terms of Figure 3, in Chapter 7, output (Q) can be thought of as being represented by either landings or passengers.

8.215. On a per passenger and per landing basis, the operating costs (excluding depreciation) of AIAL have fallen on average by 2.1% pa and 3.5% pa respectively, when comparing the operating costs in 2000 to those in 1989. [

].[346] Despite the reduction in flights from Air NZ and the fallout of the 11 September 2001 terrorist attacks in the United States, [

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8.216. BARNZ argued in submissions that AIAL should have been able to achieve the same cost reductions as WIAL. BARNZ claimed WIAL achieved 7.2% per annum reduction in airfield expenses over the period 1998 to 2000, "while operating under a Deed which specified prices".[347] BARNZ argued the 1% figure suggested by the Commission was, therefore, too low for AIAL, and it suggested a 3% figure instead. BARNZ also noted that airports should benefit from economies of scale, and that AIAL should be able "to achieve efficiencies above the level of total factor productivity improvement experienced by the economy as a whole."[348] AIAL argued that offsetting any economies of scale is the increasing complexity associated with handling more intensive traffic flows.[349]

8.217. AIAL suggested that the airlines participate in a variety of AIAL's operating committees and claimed that the airlines have never advised AIAL on where it could improve its efficiency of airfield operations.[350] Airlines in response have suggested that, in some instances, even though they have been involved in the various operational committees, they have disagreed with AIAL over the level of necessary costs to be incurred. One example, mentioned by BARNZ, was the maintenance expenditure on the main runway. It is also noted that there are areas, such as staffing and remuneration, where the airlines do not have a say in AIAL's operation.[351]

<u>Benchmarking</u>

8.218. Monopolies may be less productively efficient, implying that there may be 'X inefficiencies' associated with the lack of competitive constraints. AIAL in its submission argued that both competitive and monopoly sectors face incentives to be 'normally efficient'. AIAL advocates, and uses, benchmarking to assess its operational efficiency.[352]

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[346] In cross submissions, BARNZ had been concerned that in AIAL's initial pricing proposal that it had forecasted increases in operating costs of 12% in 2001, 5% in 2002 and 5% in 2003; which they suggest had a cumulative impact of 23.5%. See BARNZ Cross Submission, 31 August 2001, page 19.

[347] BARNZ Submission on the Draft Report, 10 August 2001, page 36.

[348] Ibid, paragraph 33.3.

[349] LEK, *Auckland International Airport Ltd – Airport Efficiency*, 15 June 2000, pages 11-12.

[350] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 113, paragraph 9.20.

[351] *Conference Transcript*, pages 625-626 and 698.

[352] AIAL Submission on the Draft Report, 14 August 2001, Part A, page 109, paragraph 9.7.

8.219. The Commission considers that benchmarking of AIAL's productive efficiency has merit. However, it is also difficult to do, because appropriate indicators of productivity and comparator airports are difficult to find. For example, output can be defined in terms of the number of aircraft movements, passengers and cargo volumes. Each of these output measures is related to only part of the Airport's infrastructure. For this reason, operational indicators tend to be only partial efficiency indicators. Appropriate indicators can vary between airports, reflecting differences in operating conditions, traffic mix and other factors. AIAL notes such difficulties in its submissions on benchmarking in response to the Critical Issues Paper and reports it has commissioned.[353]

8.220. AIAL referred to reports prepared by Transport Research Laboratory (TRL) and LEK Consulting, the latter being commissioned by AIAL.[354] The airport-wide focus of these reports makes it difficult to determine their implications for airfield activities alone. These reports also had difficulties of finding appropriate benchmark airports. For example, London's Heathrow was used as one benchmark airport despite being many times the size of AIAL.[355] Some of the indicators used were also questionable. For example, one of the variables used to benchmark AIAL against other international airports, and on which it scored well, was a measure of profitability. The profitability indicator is of limited relevance given the nature of this Inquiry, which in part must assess whether AIAL is misusing its market power. Nonetheless, these reports do present AIAL in a favourable light when comparing the airport's total costs on a per passenger and per landing basis against the vast majority of the international airports included in the survey.

8.221. BARNZ commissioned a report by NECG that challenged the findings of the LEK Consulting report obtained by AIAL.[356] NECG argues in its report that "AIAL compares unfavourably with all Australian airports on the basis of operating costs per passenger", when the graphs used by LEK are recast to show costs and revenue per passenger.[357] NECG also argue that AIAL is less efficient than WIAL and CIAL.[358] They are critical of LEK's arguments that the different functional characteristics of the airports (such are the length of the runways and number of terminals), and other factors (such as having a higher proportion of international traffic compared to WIAL and CIAL), means AIAL's operations are of greater "complexity", and that this "complexity" should explain AIAL's greater operating costs per passenger compared to WIAL and CIAL.[359]

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[353] For example, AIAL Submission on the Critical Issues Paper, 27 April 2001, page 37, paragraph 7.5.

[354] The LEK report was based on the same methodology and also drew on the historical data of the TRL reports, but it updated these reports and provided its own interpretation of the results.

[355] The airports covered by the reports included Adelaide, Auckland, Amsterdam, Brisbane, Capetown, Honolulu, Los Angeles, London Gatwick, London Heathrow, Perth, San Francisco, Singapore, Sydney and Vancouver.

[356] LEK, *Auckland International Airport Ltd – Airport Efficiency*, 15 June 2000. NECG, *Review of LEK report Auckland International Airport Ltd – Airport Efficiency*, July 2000.

[357] NECG, *Review of LEK Report Auckland International Airport – Airport Efficiency,* July 2000, page 15.

[358] Ibid, pages 18-19

[359] Ibid, page 19. See also LEK's report *Auckland International Airport Ltd: Airport Efficiency*, 15 June 2000, pages 10-12.

8.222. On the question of future productivity gains, the NECG report suggests that "{LEK} stretches credulity somewhat to suppose that…AIAL is so different from Australian airports that its scope for efficiency gains is a very modest 1.1% per annum {for total costs per passenger}".[360] The LEK estimate was for the period 1996 to 2005. In cross submissions, BARNZ also noted that the ACCC, in its May 2001 decision regarding aeronautical charges at Sydney Airport, had imposed cost savings of 4% per annum (Sydney Airport itself had suggested 3%).[361]

8.223. Despite the trend in falling operating costs (excluding depreciation) on a per passenger and landing basis, AIAL still has the highest operating costs (excluding depreciation) per passenger and per landing of the three airports subject to this Inquiry. In 2000, on a per landing basis, its operating costs (excluding depreciation) were over twice those of WIAL and CIAL, and on a per passenger basis, AIAL's operating costs (excluding depreciation) were 30% greater than WIAL's and 11% greater than CIAL's. AIAL explains its higher per unit operating costs by the higher complexity of its operations.[362] The Commission is sceptical of AIAL's explanation. Even if AIAL's operations were significantly more complex (which is by no means clear), such complexity would likely be more than offset by economies of scale.

Summary

8.224. The Commission considers that it cannot fully rely on the benchmarking exercises commissioned by AIAL, or the response by NECG, to determine the level of productive inefficiencies. The benchmarking exercises are, however, relevant to informing the Commission's decision on the appropriate level it has adopted. The Commission has adopted a pragmatic approach to an issue that involves significant uncertainty by presenting productive inefficiencies as a percentage range of operating costs (excluding depreciation).

8.225. AIAL has significantly higher operating costs (excluding depreciation) on a per landing and passenger basis compared to some airports overseas and to WIAL and CIAL. The Commission considers this cannot be explained by claims of its greater complexity, particularly given that economies of scale could be expected with increasing size, and that some of the Australian Airports of comparable size are less costly, albeit on a total cost basis. It may also be significant that the comparable Australian airports have been price-capped for the last five years.

8.226. The Commission considers there is likely to be some room for improvement in the productive efficiency of the airfield activities at Auckland. Although operating costs (excluding depreciation) have fallen (and are expected to continue to fall) on a per passenger and landing basis, the Commission considers there was scope for these reductions (and future reductions) to be greater than what was achieved, and for future reductions to be greater than expected to be achieved. The Commission notes that the LEK report (commissioned by AIAL) suggests that there is scope for a 1% productive efficiency gain per annum. BARNZ, on the other hand, submitted that a productive efficiency gain of 3% per annum was more appropriate. The Commission considers

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[360] Ibid, page 21.

[361] BARNZ Cross Submission, 31 August 2001, page 21.

[362] LEK, *Auckland International Airport Ltd – Airport Efficiency*, 15 June 2000, pages 11-12.

there to be productive inefficiency of the order of 1-3% of operating costs (excluding depreciation) at Auckland.

8.227. Table 26 presents the levels of potential productive efficiency benefits based on the 1-3% range. The figures shown in Table 26 include an average of the seven years 2001-2007.

Table 26
Potential Productive Inefficiency at Auckland International Airport ($000s)

	1-3% Range
2001	161 to 485
2002	[ ]
2003	[ ]
2004-2007 per annum	[ ]
Average 2001-2007	141 to 425

8.228. The Commission notes that the slight productive efficiency gains that AIAL has achieved to date account for some for some of the excess returns that AIAL has earned historically (as identified earlier). However, they are insufficient to explain all the excess returns identified.

Dynamic Inefficiency

8.229. Dynamic efficiency relates to minimising costs over time through investment, and to the quantity and quality of assets used by an entity. Inefficiencies can arise where investments that would be optimal are not made (or made at the wrong time), or investment has led to too many assets being acquired—meaning that some assets are not 'used or useful' in meeting demand—or because some assets are 'gold plated'. Given the nature of airfield activities, the acquisition of too many assets (most likely land) is more likely to be a potential source of dynamic inefficiency than 'gold plating'. The issue then becomes one of whether the optimal amount of assets is being used to provide the service.

8.230. As noted earlier, there appears to be some over-investment by AIAL in airfield activities in the form of land held for future development of the second runway and in respect of the eastern approaches land. This land has been optimised out of AIAL's asset base. However, there may also be dynamic efficiency implications regarding the optimised land, particularly if the land is not put to its best alternative use until it is used for airfield activities.

8.231. AIAL argued in its submission to the Draft Report that optimising out the land from the asset base for charging purposes, and evaluating the efficiency of the investment itself, constituted double counting. AIAL also argued that it was impractical for the airports to be expected to use the land in best alternative uses until the time it is used. AIAL advised that it has endeavoured in the past to find more productive uses for the second runway land in revenue terms, but in each case, they were not viable nor practical at the time.[363] For example:

[363] AIAL Submission on the Draft Report, 14 August 2001, Part A, pages 115-116.

- AIAL worked with Fletcher Forests to assess the possibility of planting the land in pine trees. The plan was ruled out as the forest would need to stand for some 25-30 years before being felled, and the second runway would be needed before then.
- Large scale dairying was considered but the configuration and access points of the various land holdings did not permit the scale of operation that would be required. Short-term leases were subsequently entered into, principally involving grazing.
- Low cost housing—this was considered undesirable from a social perspective by AIAL's Board and possibly fraught with problems in the longer term when tenants needed to be moved on to make way for the second runway.

8.232. Having considered AIAL's submission, the Commission considers that, if the optimised land will form part of the airfield activities markets in the medium-term, and was a prudent investment, then consideration of any inefficiencies in the interim may constitute double counting. Double counting would be inconsistent with the Commission's principles in Chapter 4, in particular it would compromise prices being dynamically efficient over the medium-term.

8.233. The Commission has attempted to quantify the extent of dynamic inefficiencies at Auckland International Airport by first determining that proportion of land that may have resulted in dynamic inefficiency (either through the purchase or subsequent use). Determining whether the optimised land, even if it is not presently used or useful, is prudently held over the medium-term provided a basis on which the decision could be made. That land which is not prudently held over the medium-term is subject to dynamic inefficiencies and should be used elsewhere (or not acquired in the first place) as it will not earn its opportunity cost in the medium-term. Land that is prudently held is expected to enter the asset base on which charges are based over the medium-term, and will, therefore, earn its opportunity cost in the future.

8.234. The portion of land subject to dynamic inefficiency at Auckland is that proportion of land which will not be needed for the shorter second runway now proposed. This is about 18% of the total land held for the second runway. The extended runway is not expect to be needed for at least 40 years. The presence of this excess land holding implies sub-optimal use of this land. The size of dynamic inefficiencies for this land depends on its best alternative use. Two scenarios are possible:

- If the optimal use for this land is rural land uses, and because it is currently used for these purposes, there are unlikely to be dynamic inefficiencies associated with the use of this land. No dynamic inefficiencies could therefore be attached to this excess land holding at Auckland.

- If the best alternative use were residential or commercial (reflected by the \$140,000 per Ha opportunity cost value), then the dynamic inefficiencies attached to this land can be measured using the approach described in Chapter 7. By way of example, some of the key figures of this calculation for 2001 were:

  - The Commission has estimated the annual returns on the land at \$100,000. With a discount rate of 10.28% to 7.68% and treating these returns as a perpetuity (as land does not depreciate) and adding expected revaluation gains of 2%, the excess land (in its current use) was valued at \$1-\$1.3m in 2001.

- AIAL's valuation of the excess land was $6.7 million in 2001.

- The difference between the two valuations indicates the extent to which the land is being misallocated. This difference was converted into an annual equivalent value of $0.2-$0.4 million in 2001, and represents the dynamic inefficiency AIAL would experience with the higher opportunity cost value.

8.235. The eastern approaches land was also optimised out. No dynamic inefficiency exists for the eastern approaches land as the land is employed in its best alternative rural use and is earning its opportunity cost.

8.236. The estimate of dynamic inefficiency in airfield activities per annum at Auckland, for all years, is presented in Table 27.

Table 27
Potential Dynamic Inefficiency at Auckland International Airport ($000s)

	Over WACC Range	At Point Estimate
2001	0 to 378	0 to 283
2002-2007 per annum	0 to 346	0 to 251
Average 2001-2007	0 to 350	0 to 256

Costs of Control

8.237. Costs of control are forward looking by the very nature of this Inquiry. The Commission considers that the direct costs of control (including both the regulators' and market participants' costs) for a single airport might be $1-$2 million in a review year, and $0.5-$1 million in other years. Over a five year period, with one review, this suggested an annual average of between $0.6-$1.2 million per year at each airport.

8.238. The total costs of control are not easy to estimate. In Chapter 7, the Commission considered that, in the absence of any superior alternatives, the indirect costs of control could be measured by considering what extent of the potential benefits of control could be realised by control. The Commission determined that the indirect costs of control as a proportion of potential benefits would be 25% of any excess returns and producer surplus, 43.75% of any consumer surplus, and from 50% to 100% of any dynamic inefficiencies. The productive efficiency costs of control are estimated at 0 to 2% of operating costs (less depreciation), and are offset against the range of possible benefits of control regarding productive inefficiencies.

8.239. Table 28 summarises the likely indirect costs, per annum, of controlling the airfield services supplied by AIAL to aircraft operators. The figures shown in Table 28 are an average of the seven years 2001-2007. Results for individual years are shown in Appendix 13.

Table 28
Likely Indirect Costs of Controlling AIAL ($000s)

	Over WACC Range	At Point Estimate
Consumer Surplus	0.5 to 10	4
Producer Surplus	11 to 83	52
Excess Returns	287 to 1,623	968
Productive Inefficiency	0 to 283	141
Dynamic Inefficiency	0 to 350	0 to 256

NECESSARY OR DESIRABLE

8.240. As noted in Chapter 2, under Part IV of the Commerce Act goods and services may be controlled if it is necessary or desirable for those goods and services to be controlled in the interests of acquirers. The potential benefits and costs to acquirers of controlling the airfield services supplied by AIAL have been identified above. The Commission considers that if the weighing of these benefits and costs demonstrates that an improvement in the economic welfare of acquirers would result, then control would be demonstrated to be necessary or desirable in the interests of acquirers.

8.241. Table 29 brings together the Commission's estimates of the potential benefits and costs to acquirers of declaring control for airfield activities supplied by AIAL. The figures shown in Table 29 are an average of the seven years 2001-2007. Results for individual years are shown in Appendix 13.

Table 29
Estimates of the Potential Benefits and Costs to Acquirers of Control of Airfield Activities Supplied by AIAL, Average Per Annum ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	1,243 to 6,836	4,096 to 4,352
Total Costs	1,891 to 2,429	2,084 to 2,340
Net Benefits to Acquirers	**-647 to 4,494**	**2,011 to 2,139**

8.242. There are potentially benefits to acquirers (in this context, specifically the aircraft operators and any indirect acquirers, such as airline passengers) if the airfield services supplied by AIAL were to be controlled. At the point estimate of WACC, these range from $4.1m to $4.4m per annum. However, to achieve these benefits, costs ranging from $2.1m to $2.3m per annum would potentially be incurred (on the basis of the control mechanism assumed by the Commission). The Commission thus estimates that there would be likely to be $2.0m of net benefits per annum to acquirers over the seven year period, or some $14m in total. Use of the WACC range produces a wider range of net benefits, from a gain of $4.5m to a relatively small loss of $0.6m per annum. Overall, the Commission considers that it is likely, on the balance of probabilities, that net benefits would accrue to acquirers through the declaration of control. The likely net benefits of about $2m per annum are significant, as they amount to about 10% of the net profits earned by AIAL on its airfield activities, or to about 4% of landing charges paid to AIAL.

8.243. In considering whether it is necessary or desirable in the interests of acquirers to control the airfield activities supplied by AIAL, the Commission also notes the fact that it has found evidence of a trend of excess returns historically, including during the period of the Inquiry. This reinforces the Commission's concern that excess returns are likely in the future under the current regulatory environment.

8.244. Table 30 presents potential net benefits to acquirers of declaring control for airfield activities supplied by AIAL for individual years

Table 30
Estimates of the Potential Net Benefits to Acquirers of Control of Airfield Activities Supplied by AIAL for Individual Years ($000s)

	Over WACC Range	At Point Estimate
2001	580 to 4,492	2,523 to 2,665
2002	[ ]	[ ]
2003	[ ]	[ ]
2004	[ ]	[ ]
2005	[ ]	[ ]
2006	[ ]	[ ]
2007	[ ]	[ ]

8.245. Forecast results for individual years show that net benefits to acquirers are expected to decrease slightly over 2003-05, and then increase in 2006 and 2007 to levels greater than at present. The increase in net benefits between now and 2007 is primarily due to [ ] The forecast decrease in net benefits for 2003-2005 is due to the impact on forecast returns of increases in the asset base in coming years as the costs of rehabilitating the current runway are capitalised. Actual net benefits may be higher if AIAL has overstated forecasts of capital expenditure required in respect of the runway rehabilitation. The Commission has not assessed whether the forecasts are appropriate.

8.246. In calculating the costs of control, the Commission has assumed price cap regulation, as this is one of the more common forms of regulatory control overseas. Use of this form of control, for the purpose of estimating the costs of control, should not be seen as predetermining the form of control that the Commission would employ if control were declared. The Commission notes that a wide range of regulatory controls are available under Part V, which are likely to be less intrusive or less costly than price cap regulation. It would also need to be determined, however, how effective different control mechanisms would be in achieving the benefits of control, i.e., the overall cost-effectiveness of control would need to be assessed for control mechanisms besides price cap regulation. The Commission has not considered the efficacy of other forms of control.

8.247. In terms of other control mechanisms, section 70(2) enables the Commission to use formulas or other methods from which prices or revenues, or any part of a price or revenue, may be determined. One suggestion, from BARNZ, is that the parties could commercially negotiate, based either on the principles resulting from this report, or pricing principles established by the Commission as a form of control. In addition, the Commission notes there may be other policy options available to the Minister. Irrespective, the Commission is cognisant that any form of control utilised would need to be commensurate with the level of market power available to AIAL, the size of the anticipated excess return, and resulting net benefits to acquirers.

NET PUBLIC BENEFITS

8.248. In considering the net benefits to acquirers, the Commission has had regard to both the efficiency effects (only some of the allocative efficiency) and the distributional effects of the removal of excess returns. The Commission is required by section 52 to take this approach. However, the Minister, in exercising his discretion, may wish to consider only the efficiency effects contained in the net public benefits. This approach considers the interests of the public at large, including AIAL, and not just those of the acquirers. Such an approach involves focusing on the efficiency, and ignoring the distributional, effects of control. Excess returns would be ignored, as transfers between suppliers and acquirers are considered efficiency-neutral.

8.249. Table 31 presents the Commission's estimates of the potential public benefits and costs of introducing control for airfield activities at AIAL. The figures shown in Table 31 are an average of the seven years 2001-2007. Results for individual years are shown in Appendix 13.

Table 31
Estimates of the Potential Benefits and Costs of Control on Airfield Activities Supplied by AIAL, Average Per Annum ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	472 to 823	432 to 688
Total Costs	714 to 1,966	1,168 to 1,425
Net Public Benefits	**-1,143 to -125**	**-736 to -607**

8.250. Table 31 shows that there are no net public benefits likely to accrue from controlling the airfield activities supplied by AIAL through price cap regulation. The costs exceed the benefits irrespective of the point chosen in the WACC range. The reason for this is that the benefits of control under this approach are limited to efficiency gains, and do not include the removal of excess returns.

CONCLUSION

8.251. In this Chapter, the Commission considered the extent of competition in the supply of airfield services at Auckland International Airport. It found that the relevant market was one in which AIAL was by far the major supplier, faced little prospect of new competitors entering the market, and was not sufficiently constrained by the countervailing power of the airlines, and hence was one where competition was limited. The Commission applied its generic principles developed earlier in this report to calculate the appropriate asset base and WACC for AIAL. It then considered the returns that AIAL had made in the recent past, and the returns it was projected to make in future years, against target returns for those years based on realised or forecast demand and other costs. It also assessed the efficiency implications of control.

8.252. A critical assumption made by the Commission is that the costs of control would be borne by acquirers rather than the general public. The Commission has found a net benefit to acquirers, despite having netted-off all of the costs of control from the benefits to acquirers. The Commission, therefore, considers that on the balance of probabilities it is necessary or desirable for the airfield activities supplied by AIAL to be controlled in the interests of acquirers.

8.253. The Commission finds that the thresholds contained in section 52 of the Commerce Act are satisfied in the case of the airfield activities supplied by AIAL to aircraft operators, and that the airfield activities supplied by AIAL may be controlled. The Commission's consideration of whether or not the Minister should control the airfield activities supplied by AIAL is contained in Chapter 11.

9. WELLINGTON INTERNATIONAL AIRPORT

INTRODUCTION

9.1. Chapters 2-7 of this Report outlined the framework the Commission uses to arrive at its recommendations to the Minister. Chapter 3 introduced the competition issues associated with airports, coming to tentative views on market definitions. This Chapter builds on Chapter 3 and includes a detailed assessment of competition in terms of the airfield services supplied by Wellington International Airport Limited (WIAL) to aircraft operators. In addition, the principles established in Chapters 4 to 7 for determining whether control of the airfield activities is necessary or desirable in the interests of acquirers are applied to WIAL.

WELLINGTON INTERNATIONAL AIRPORT LIMITED (WIAL)

9.2. WIAL was incorporated on 16 October 1990. The airport company is majority owned (66%) by Infratil Limited (Infratil), with the Wellington City Council owning the other 34%.

Operational Details

9.3. Wellington International Airport is the third largest airport in New Zealand, and the smallest of the three subject airports. It classifies itself as a regional hub, servicing New Zealand and international flights to the eastern seaboard of Australia and the island nations in the south-west Pacific. Approximately 90% of Wellington's passengers travel domestically, and a high proportion are business people.

9.4. Wellington International Airport is located on a cramped isthmus site, which makes physical expansion of facilities difficult and expensive. The runway length, at just under 2000 metres, is relatively short for an international airport, and is bounded by water at both ends. Capacity is also limited by airspace problems due to the surrounding hills. The hills and runway length impose limits on aircraft operations, precluding the use of B747 aircraft, and restrict the range that can be achieved with smaller aircraft types to destinations in Australia and some Pacific Islands. Wellington International Airport's location close to residential areas has resulted in noise abatement requirements, which include restrictions on aircraft types that may operate and a night curfew. The Airport also gets congested at peak periods, especially in adverse weather conditions.

9.5. Key operational statistics for the year ended 31 March 2001 are detailed in Table 32.

Table 32
Wellington International Airport Operational Statistics

Size:	Land area (hectares)	105
	Runway length (metres)	1,935
	ICAO category	7

Aircraft Movements:	Domestic	107,618
	International	5,118
	Other (incl. GA)	12,616
	Total	122,352
Passenger Numbers:	Domestic	3,199,000
	International	470,000
	Total	3,699,000
MCTOW Landed (tonnes)		1,299,611

9.6. Freight statistics are not available for Wellington International Airport, although the Airport is used for freight purposes.

Activities Undertaken

9.7. WIAL is largely a facilities provider—providing land or buildings from which third parties operate their business. However, there are some exceptions. WIAL's business is focused on the provision of airport facilities by providing aerodrome facilities and services, property, roading, car parking, information services and service utilities to the various airlines and other airport users. WIAL also provides a rescue fire service and public car parking at the Airport. WIAL aims to contract out services wherever there are cost reductions to be made.

9.8. WIAL's assets include a single runway, aprons, the terminal building, car parking and other ancillary buildings. Over 1998 and 1999, WIAL constructed a new multi-user integrated terminal used by all airlines, both domestic and international.

9.9. Air traffic control is currently provided by Airways Corporation of New Zealand Limited (Airways), which has its own control tower located off the Airport in a residential street. Airways provide and bill the airlines directly for air traffic control services. Ground handling services at the airport are provided by the airlines themselves, not by WIAL.

9.10. Geographical limitations mean that there is a limited area of land at the Airport, constraining both current operations and opportunities for development. Of the 110 hectares of land owned, 85 hectares is the airfield. There is limited opportunity to extend the runway, as it is bound by water at each end. The runway could only be extended by reclaiming substantial amounts of land.

Airfield Activities

9.11. The activities undertaken by WIAL can be classified and grouped in terms of the three identified airport activities (defined in the Airport Authorities Amendment Act) and an additional grouping, other airport activities.[364] This Inquiry focuses only on airfield activities.

9.12. Airfield activities at Wellington International Airport, and those undertaken by WIAL, are as follows:

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[364] Refer to Appendix 14 for full details of activities undertaken by WIAL.

Table 33
Airfield Activities at Wellington International Airport

Element of Activity	Undertaken by WIAL	Undertaken by Third Party	Assets owned by WIAL	Prices charged or revenue derived by WIAL
Airfields, runways, taxiways, and parking aprons for aircraft	All.	None.	Land and land improvements to runway, taxiways, aprons and grassed areas.	Landing charges (except rescue fire component).
Facilities and services for air traffic control	None.	Airways provide all air traffic control from an off-airport site.	None.	None.
Facilities and services for parking apron control	Partly by WIAL.	Undertaken by airlines.	Apron supervision vehicles.	None.
Airfield associated lighting	Some facilities provided by WIAL.	Airways own all lighting and navigation aids.	WIAL owns stand lighting and Nose in Guidance units.	Component of landing charges.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Contracted out by WIAL.	Major maintenance undertaken by outside contractors with supervision by airport.	None.	Component of landing charges.
Rescue, fire, safety, and environmental hazard control services	Provides rescue fire service and airside services team. The airside services team monitor the safety of the apron, conduct runway checks, co-ordinate airside works, look after bird and hazard control, and monitor airside rules.	Airport Noise Committee (council, airlines, Airways and WIAL).	Land and buildings, vehicles and equipment, and noise monitoring system.	Rescue fire component of landing charges.
Airfield supervisory and security services	Provides and maintains security fencing, perimeter patrols, and management of systems.	AVSEC provides airside security, security between airside and landside, and international passenger screening.	Security fencing, access control system, and CCTV monitors.	Component of landing charges.
Facilities/ assets held for future activities	Residential properties bordering airfield (for resource management).	None.	Residential properties bordering airfield.	Rent from residential properties.

9.13. As noted in Chapter 1, the Commission has focused on those airfield services supplied to aircraft operators—being the bulk of the airfield services supplied by WIAL, for which aircraft operators pay per tonne landing charges. The remaining airfield activities provided by WIAL are facilities provided (by way of lease or other commercial arrangements) to the Aviation Security Service (AVSEC) to enable those parties to supply airfield activities themselves. Unlike AIAL and CIAL, WIAL does not provide any facilities to Airways, as Airways operates its air traffic control service in Wellington from an off-airport location.

Airfield (Landing) Charges

9.14. WIAL's revenue from airfield activities is principally derived from landing charges levied on aircraft operators based on aircraft weight. In addition, WIAL—like AIAL—charges non-scheduled flights (itinerants) that park for more than six hours a *parking charge*. However, revenue from aircraft parking charges is insignificant relative to landing charge revenues. The Commission has focused on determining whether landing charges need to be controlled.

9.15. On 1 January 1991 (shortly after vesting), new airport charges were introduced. Landing charges were further increased on 1 July 1992 and again on 1 May 1997. The change in charges in 1997 was based on a five-year Deed entered into with the major airline users (Air NZ, Qantas, Ansett New Zealand, Air Pacific, Polynesian Airlines). Changes in charges since 1997 have been in accordance with the Deed.

9.16. The Deed set initial prices for the first year from 1 July 1997. Prices for the four subsequent years have been determined based on the actual landed tonnes (MCTOW) of the previous year. Prices for various bands of increases and decreases in MCTOW (relative to MCTOW for the year ended 30 June 1997) are built into the Deed, which range from 90% to 130% of the 30 June 1997 MCTOW. In the event that MCTOW falls outside the bands in the Deed, the Deed provides for the parties to negotiate a price, and failing that for WIAL to set charges.

9.17. Since vesting, all weight bands have experienced increased charges, typically with increases in charges being higher for smaller aircraft. Landing charges since vesting are summarised in Table 34.

Table 34
WIAL Landing Charges

	Charge Effective From					
MCTOW	**1/01/91**	**1/07/92**	**1/07/97**	**1/04/99**	**1/07/00**	**1/7/01**
<2 tonnes	$8.80/T	$ 8.80/T	$ 8.80/T	$12.50/L[365]	$12.50/L	$12.90/L
2-3 tonnes	$3.33/T	$ 8.80/T	$ 8.80/T	$ 6.17/T	$ 6.17/T	$ 6.24/T
3-15 tonnes	$3.33/T	$ 5.87/T	$ 6.17/T	$ 6.17/T	$ 6.17/T	$ 6.24/T
15-30 tonnes	$3.33/T	$ 5.87/T	$ 6.17/T	$ 6.17/T	$ 6.17/T	$ 6.24/T
30+ tonnes	$8.21/T	$11.55/T	$12.13/T	$ 12.13/T	$12.59/T	$12.50/T

9.18. WIAL is currently in consultation with the airlines, in order to set new charges from 1 July 2002. The present Deed with users expires on 30 June 2002. WIAL's latest current proposal of 17 May 2002 is to seek an average increase in total aeronautical

[365] Note that landing charges for aircraft under 2 tonne since 1/4/99 are actual landing charge per landing, not on a tonne basis.

revenue of [ ] over the next five years. [

]

9.19. Whilst consultation is ongoing, WIAL has announced an interim increase in landing charges of 10% from 1 July 2002 (1 August for smaller aircraft).[366] This 10% increase is factored into the Commission's forecast analysis for WIAL presented later in this Chapter.

Acquirers of Airfield Activities

9.20. The direct acquirers of the airfield services supplied by WIAL (that are being examined) are the aircraft operators—the commercial airlines and other aircraft operators that land and take-off aircraft at/from Wellington International Airport. The indirect acquirers are the aircraft passengers and persons sending freight by aircraft. Table 35 details the acquirers.

Table 35
Acquirers of Airfield Services Supplied by WIAL

Class or Grouping	User
Direct Acquirers: Aircraft operators	• International—Air New Zealand, Air Pacific, Qantas Airways • Domestic—Air New Zealand, Freedom Air, Origin Pacific Airways, Qantas Airways, Mount Cook Airlines • Commuter—Air Chathams, Air Nelson, Eagle Airways, Soundsair, Wanganui Commuter Air • Cargo Only—Airpost, Airwork, Flight Corporation, Yellow Fin Holdings • General Aviation – Capital Jet Services, Wellington Aero Club, Wellington Aviation • Other – RNZAF, Life Flight Operations
Indirect Acquirers	Aircraft passengers, persons sending freight by aircraft (including freight forwarders)

9.21. WIAL's substantial customers, in their own right, are Air NZ and Qantas Airways. The Board of Airlines Representatives of New Zealand Inc (BARNZ) represents these substantial customers in consultation.

[366] The 10% interim increase is included in the Commission's analysis of WIAL's future performance presented later in this Chapter.

COMPETITION ANALYSIS

Introduction

9.22. The Commission must determine whether the airfield services supplied by WIAL are supplied in a market in which competition is limited (or is likely to be lessened).

9.23. In Chapter 3, the Commission came to the conclusion that, for the purposes of this Inquiry, the relevant product market is the airfield services market, as defined by the airfield activities in the Airport Authorities Amendment Act 1997. The issue of whether airports are in competition with each other in the airfield services market, or whether each operates in a geographically distinct market, was also broadly canvassed. The Commission came to the preliminary view in Chapter 3 that, in terms of the geographical dimension of the market, its generic analysis of passenger and airline demand suggested that, for most traffic, none of the three airports faced significant competition either from each other, or from other regional airports.

9.24. In assessing WIAL's ability to exercise market power, the following considerations, which are further addressed below, are important:

- On the supply-side of the market, the actual competition from existing airports, or potential competition from new airports.
- On the demand-side, the possibility of airlines and their passengers and freight customers switching to other airports.
- The potential countervailing power of airlines.
- The present regulatory regime.

Demand Characteristics

9.25. The weighted elasticity of demand determined for Wellington International Airport in Chapter 3 was [ ].

Competition and Substitutes

9.26. In Chapter 3, the Commission noted that the nature of the investment in international airport facilities (with very large sunk costs), such as those at Wellington International Airport, is likely to mean barriers to entry are high and, that in consequence, competition from potential entrants is low. It was noted that Wellington, like the other international airports, may face competition from other airports in the provision of airfield services. This competition may be the *potential* competition from prospective new entrants, and the *existing* competition from other airports already operating. The specific circumstances of Wellington International Airport are now examined.

General Aviation

9.27. Airport substitutability from a supply-side perspective depends largely upon the size of aircraft. Smaller aircraft are more flexible as to where they can land. For small, general aviation (GA) aircraft, Paraparaumu Airport is a possible substitute for Wellington International Airport in the Wellington region. Indeed, such substitution has to some extent been forced upon GA operators by operating constraints at Wellington International Airport and also by charges (GA aircraft landing charges have seen some of the biggest increases in the last ten years). However, GA aircraft still use Wellington International Airport, and some operators have a preference to do so because of the better facilities and location. The Wellington Aero Club also has its facilities at the airport.

9.28. GA aircraft impact on peak hour congestion at Wellington, as they take up landing slots, and also reduce the number of movements that can be achieved per hour. WIAL tries to encourage GA aircraft to operate outside peak periods.

Domestic Aircraft

9.29. From a supply-side perspective, and focusing only on domestic traffic, which does not involve the use of the larger aircraft, there appears to be considerable scope for substitution between a number of airports in large centres and regional areas.

9.30. However, while there are many airports capable of servicing domestic aircraft, domestic travel tends to be destination specific. Other airports are, therefore, unlikely to be a substitute for Wellington when passengers wish to go there. For example, most people wishing to travel to Wellington—whether business people on a day return trip, leisure travellers making international connections, or commuter travellers who are interlining (who would suffer the inconvenience of having to transfer between airports if they were delivered to one airport but making a connection at another)—would find Paraparaumu or Palmerston North poor substitutes because of the time delays and the extra costs imposed. Also, Paraparaumu Airport would not appear to be a good supply-side substitute for domestic flights to Wellington unless it is substantially upgraded.

9.31. Even if WIAL imposed a substantial increase in airport charges, competition between the domestic airlines would probably ensure that Wellington remained the destination. If an increase in charges were to cause an airline to stop servicing Wellington International Airport, another airline would likely start operating as demand for air travel to and from Wellington would still exist, or, alternatively, remaining airlines would probably increase flight frequencies to fill the gap. Further, airport charges are not the most significant operating costs for an airline, so airlines would likely accept an increase in costs, rather than fly to an alternative airport and lose to a competitor the business generated from servicing Wellington International Airport (given the additional loss of losing connecting international flights or not being a person or entity's preferred airline because all airports are not serviced).

9.32. To some extent, Wellington International Airport is a domestic hub, with flights between regional centres operating through the airport. This suggests that, for domestic services, Wellington International Airport has essentially a regional monopoly, in that, in the large majority of cases, there are no substitutes for its services for travellers wishing, and freight needing, to fly into or out of Wellington.

International Aircraft

9.33. Wellington International Airport is limited by its relatively cramped site and runway length, which prevents it from handling the largest aircraft (such as Boeing 747) on long-haul routes. In addition to these technical limitations on its operations, there is also a night curfew (from 1 am to 6 am). Auckland and Christchurch International Airports have the advantage over Wellington (and other airports) in being able to handle the largest international jets needed for maximum flight distances and in not having curfews.

9.34. A number of airports can, and currently do, service the smaller Boeing 737 and 767 aircraft that are operated on shorter distance international routes such as Australia and the South Pacific. In Wellington's case, Palmerston North Airport is the most likely competitor in terms of outbound flights by New Zealand residents, with Air NZ operating its discount Freedom Air services from there to Australia. WIAL presented data from Statistics New Zealand for the period ending 30 June 2001, which showed that, although 85% of Wellington region residents travelling to Australia left from Wellington International Airport, the remaining 15% left from other New Zealand airports, including 10% from Auckland and 4% from Palmerston North.[367] The latter resulted from the operation of Freedom Air from that city.

9.35. Despite this, the Commission considers that Palmerston North does not provide sufficient competition to be viewed as a close substitute for most travellers. In terms of inbound tourists, their choice of airport is likely to be driven by destination.

9.36. WIAL argued that, although a good proportion of aircraft movements are 'captive' to the Airport, those at the margin are susceptible to competition from other airports. The loss of a service involving a larger jet aircraft can impose a significant loss of business on the Airport. There is scope for certain airports to compete for traffic at the margin.[368]

9.37. Wellington International Airport does not offer the same level of international services as Auckland or Christchurch. For long-haul international flights, the majority of New Zealand residents will go through Auckland airport to join connecting flights en route to their ultimate destination. WIAL cited the example of departures of Wellington region residents to Fiji, where 71% left through AIAL and only 29% through Wellington International Airport.[369] WIAL argued that these patterns reflected Air NZ's hubbing through Auckland, which has the effect of drawing Wellington into competition with Auckland. The larger population base in Auckland may also be responsible for there being more flights from Auckland than Wellington. However, operating constraints at Wellington are a large cause of the limited direct international flights available from the airport.

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[367] WIAL Submission on the Draft Report, 14 August 2001, Vol. 1, page 29, paragraph 4.11.

[368] Ibid, page 28.

[369] Ibid, page 29.

9.38. As noted in Chapter 8, there are plans being promoted by the Palmerston North City Council for Ohakea to be established as an international airfreight gateway, although the likelihood of this happening is not known. This might provide competition for Wellington in respect of freight services. However, for it to happen, the Government would need to approve Ohakea for combined civilian-military use and Ohakea's runway would need to be reconstructed (at a reported cost of $20m).

Conclusion

9.39. The Commission considers there are limited supply side substitutes for the airfield services supplied by WIAL, but only at the margin. The potential or existing competition faced by WIAL in supplying airfield services is low.

9.40. In submissions, WIAL agreed that, with the exception of GA operators, airlines operating larger turbo-prop and jet aircraft often have little choice but to use its facilities to offload and uplift passengers and freight at Wellington International Airport. It noted that a good proportion of aircraft movements at Wellington are 'captured'.[370]

Constraints on Exercise of Market Power

9.41. As noted in Chapter 3, the current regulation of airports relies principally upon the countervailing power of airlines, and the requirements on airport operators to disclose information about their operations and to consult substantial customers.

Countervailing Power

9.42. At the Conference and in submissions, views of the airlines and WIAL on the strength of countervailing power of airlines differed markedly. BARNZ agreed with the Commission's preliminary finding in the Draft Report that WIAL is unlikely to be significantly constrained by the countervailing power of airlines under the current regime, and that the airlines stand to lose greater amounts than WIAL from withdrawing custom.[371] In contrast, WIAL considered the Commission had not given sufficient weight to the regulatory regime and countervailing power of the airlines[372], although WIAL considered it inevitable that the Commission would find that competition is limited (given the threshold adopted).[373]

9.43. WIAL was not prepared to concede that it operated in a market where competition was lessened. It cited the 'down-gauging' of aircraft type in recent years, with a consequent adverse impact on its revenue, as an example of its vulnerability to changes by airlines in their operations. WIAL also argued that when airlines object to rises in charges they can, for example, 'short pay' or threaten litigation, as witnessed by the amount of litigation against the company by Air NZ. WIAL's two major customers—Air NZ and Qantas Airways—together make up 94% of its aircraft-movement-related revenue, which WIAL argued gives them significant countervailing

[370] Ibid, page 28, paragraph 4.6.

[371] BARNZ Submission on the Draft Report, 10 August 2001, page 18, paragraph 8.2.

[372] WIAL Submission on the Draft Report, 14 August 2001, Vol. 1, page 8, paragraph 2.18.

[373] Ibid, page 57, paragraph 9.13.

power.[374] WIAL submitted that this makes it highly dependent on the continued use of the airport by these airlines. WIAL also argued that the low returns it had earned historically, based on the Commission's own calculations in the Draft Report, indicated it had not, on average, been earning excessive profits from over-charging.[375] While the Commission accepts returns have generally been low, they worsened noticeably after 1996, an outcome which appears to be connected with the need to get airline support for investment in the new terminal (achieved through the signing of the five-year Deed). The Commission considers this indicated that countervailing power of airlines may be stronger in some conditions than in others.

9.44. WIAL submitted that the financial performance of WIAL is determined by maintaining, and increasing where possible, the number of aircraft movements. Thus the loss of even a few movements at the so-called margin, to another airport, can, over time, be costly. The larger jet aircraft, whether an international flight or not, can deliver and uplift around 200 passengers at a time, plus an additional number of airport visitors to deliver or meet those passengers.[376]

9.45. WIAL further submitted that the Commission had applied undue weight in the Draft Report to the airlines being 'dissatisfied' as some sort of evidence that the statutory consultation process and information disclosure regime does not work. WIAL argued that this was inconsistent with the findings of the High Court and the Court of Appeal, which studied the regime in the early 1990s (at a time when it did not include information disclosure).[377] WIAL cited in support of its argument the comment by McGechan J in *Air NZ v WIAL* that consultation provides a:[378]

> ...compulsory opportunity for vigorous and informed objection by powerful airline interests, and the political and consumer consequences which may follow. That 'consultation' obligation is to be interpreted and promoted so as to permit the full exercise of such countervailing power.

9.46. WIAL argued information asymmetry applied in both directions given WIAL's reliance on the plans of the airlines (in terms of forecast movements and route schedules/changes), to which it is not privy.[379]

9.47. In general, a buyer must account for a substantial portion of a supplier's business before it has the potential to exert significant countervailing power against that supplier. The threat by a small buyer to switch its business elsewhere will have little impact on the supplier's behaviour. Thus, the size of the airlines and their collective efforts are an important determinant of any countervailing power against the market power of the airports.

9.48. The number of airlines operating at Wellington International Airport is quite small, and two airlines (Air NZ and Qantas) provide the bulk of WIAL's revenues from

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[374] Ibid, page 30, paragraph 4.15-4.17.

[375] Ibid, page 63, paragraph 9.60.

[376] Ibid, page 28, paragraph 4.7.

[377] Ibid, pages 30-31, paragraph 4.21.

[378] *Air New Zealand v Wellington International Airport Limited*, unreported, High Court Wellington, CP 403/91, 6 January 1992, page 8.

[379] WIAL Submission on the Draft Report, 14 August 2001, Vol. 1, page 28.

landing charges. In addition, there is a growing tendency for international airline alliances. Airlines have also demonstrated capability to act collectively, as through BARNZ, and to engage in lobbying, in pursuit of common interests. This suggests that the buyer concentration needed as a prerequisite for the exercise of countervailing market power exists at Wellington International Airport, at least in principle. The question is whether it is effective.

9.49. The ability to switch to alternative suppliers is crucial to the exercise of countervailing power. The behaviour of a supplier with market power is likely to be moderated where a significant buyer can credibly threaten to switch its custom elsewhere.

9.50. One factor favouring countervailing power is that the capital of airlines (in contrast to that of WIAL) is relatively mobile, and hence has the potential to be relatively easily deployed elsewhere. For example, overseas-based international airlines have the power to deploy their limited fleets to destinations in other countries, and some have withdrawn services to New Zealand, or resorted to code-sharing when this proved more cost-effective than providing a direct service. Having said this, airlines do invest in costs which arguably become sunk at particular airports (e.g., maintenance facilities), thereby reducing their ability (and hence the credibility of any threat) to move elsewhere, thereby undermining any countervailing power they might possess. It is difficult to see how Air NZ, for example, could withdraw from providing air services in this country. Air NZ has a strong position in New Zealand and relies on the country to some extent for its marketing and brand image.

9.51. The major airlines have demonstrated a willingness to withhold airport payments and to consider court action. This indicates that the airlines do have some power to impose, or to threaten to impose, costs on WIAL.

Consultation

9.52. Airlines, as users interested in minimising their costs, want to monitor airport charging and efficiency. The statutory consultation process provides an avenue through which this monitoring may take place. However, the airlines have been dissatisfied with the consultation process and its outcomes to date.

9.53. WIAL has had a history of litigation associated with consultation. Litigation occurred twice in the early 1990s in connection with WIAL's setting of charges, initially upon its vesting, and also in connection with a subsequent increase. Such litigation imposed substantial costs on WIAL, both in terms of the cost of lawyers and experts, and in diverted management time. Air NZ also withheld payment until the litigation was finished.

9.54. On 1 July 1997, WIAL signed a five-year Deed with the major airline users (Air NZ, Qantas, Ansett New Zealand, Air Pacific, Polynesian Airlines) over airport charges (including landing charges). The Deed sets out, inter alia, arrangements for consultation, charging and arbitration of disputes. WIAL argued that this is a feature that might be expected in a competitive market, where firms strive to maintain long-term commercial relationships with valued customers.[380] However, debate at the

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[380] Ibid, page 31, paragraph 4.26.

Conference suggested that WIAL had tempered its stance on prices at that time in order to win support from the airlines for its planned new terminal building, which Air NZ had been opposing, to the point of initiating legal action.[381] WIAL has indicated that the prices in the Deed were too low to yield even a competitive return, and that its current priority is to seek an increase in the current round of consultations with the airlines (to set prices beyond the expiry of the deed on 30 June 2002).[382] The outcome of WIAL's current consultation is yet to be seen. However, WIAL's past consultation suggests that there may be certain circumstances when airlines' ability to exercise countervailing power may be enhanced, such as when an airport seeks their support for a major investment.

Conclusion

9.55. There are clearly widely disparate views on the effectiveness of countervailing power of the airlines, as augmented by the regulatory requirement for WIAL to consult with its substantial customers, and to publish information under disclosure requirements.

9.56. The Commission considers that the countervailing power of the airlines cannot be ignored as a feature of the relevant markets. The current regulatory regime appears to provide some constraint on WIAL. However, the Commission is of the view that there are not sufficient constraints on the exercise of market power by WIAL. While WIAL is required to consult with substantial customers before setting charges, WIAL ultimately has the power to set whatever charges it thinks fit. There is no requirement to negotiate or reach commercial agreement. Airlines do have some power, but their ability to effectively exercise that power is limited.

Assessment of Whether Competition is Limited

9.57. In submissions, WIAL accepted it as inevitable that the Commission would find that competition was limited for the airfield services supplied by WIAL. However, WIAL did not consider that this conclusion meant that it had high market power. WIAL submitted that the level of its market power is a relevant factor when considering the test of control being necessary or desirable under section 52(b) and whether or not control should be imposed.[383]

9.58. WIAL has relatively high market power in the market for airfield services due to the lack both of supply side substitutes and adequate countervailing power of airlines. It is not economical, and often not possible, to duplicate many of the assets associated with facilitating aircraft movement in a particular region, and demand tends largely to be region-specific. The lack of alternative airports to meet customer-driven origin and destination demand, means airlines cannot credibly threaten to remove sufficient custom to produce an undesirable consequence, and thereby discipline any airport's pricing decisions. Any reduction in use by one airline will tend to be replaced by increased use by another airline, as that second airline moves to meet the customer-driven origin and destination demand in the competitive market.

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[381] *Conference Transcript*, pages 539-540.

[382] Ibid, pages 430 and 535-536.

[383] WIAL Submission on the Draft Report, 14 August 2001, Vol. 1, page 57, paragraph 9.13-9.14. *Conference Transcript*, pages 467-468.

9.59. The structure of the market, and the impact of a regulatory approach designed to encourage countervailing power, provides a counter-weight to the potential market power of the major airports. However, the presence of such a regulatory framework indicates a concern about possible market power. The evidence of litigation also indicates that there has previously been dissatisfaction with the outcome of WIAL's consultation, although WIAL's Deed indicates that, in certain circumstances, commercial agreements are possible.

9.60. The Minister's Notice requires the Commission to report to the Minister on whether "airfield activities provided by the three major international airports are supplied or acquired in a market in which competition is limited or is likely to be lessened". The airfield services supplied by WIAL to aircraft operators form the bulk of the airfield services market at Wellington International Airport and are, in the Commission's view, subject to limited competition. The goods or services (falling within the definition of airfield activities) provided by WIAL to aircraft operators that are subject to limited competition are set out in Table 36.

Table 36
Airfield Services Supplied by WIAL Subject to Limited Competition

Airfield Activities	Goods and Services Supplied by WIAL
Airfields, runways, taxiways, and parking aprons for aircraft	Airfields, runways, taxiways, and aprons.
Facilities and services for air traffic control	None.
Facilities and services for parking apron control	Apron supervision vehicles.
Airfield associated lighting	Stand lighting and nose in guidance units.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Maintenance undertaken by outside contractors under the supervision of WIAL (costs recovered in landing charges).
Rescue, fire, safety, and environmental hazard control services	Provides rescue fire service and airside services team. The airside services team monitor the safety of the apron, conduct runway checks, co-ordinate airside works, look after bird and hazard control, and monitor airside rules.
Airfield supervisory and security services	Provides and maintains security fencing, perimeter patrols, and management of systems.
Facilities/assets held for future airfield activities	None.

9.61. The Commission has reached the conclusion that the airfield services supplied by WIAL are supplied in a market in which competition is limited (or is likely to be lessened). The first requirement of section 52 is, therefore, satisfied. The remainder of this Chapter considers whether it is necessary or desirable for the prices, revenue, or quality standards of any of the goods or services identified above to be controlled in the interests of acquirers; and whether airfield activities should be controlled.

ASSET BASE

9.62. In Chapter 5, the Commission established principles for determining the appropriate asset base for airfield activities. The asset base for WIAL is now determined.

9.63. The airfield assets of WIAL can be separated into land and non-land assets. Non-land assets are considered first. The most significant non-land assets are the runways, taxiways and aprons that sit on that land (the sealed surfaces) and supporting infrastructure.

Non-Land (Specialised) Assets

9.64. In Chapter 5, the Commission concluded that, for reasons of economic efficiency, assets should normally be valued at opportunity cost, unless they are specialised, when some higher value is required in order to prevent investors' funds from being expropriated and dynamic efficiency harmed (as the opportunity cost of specialised assets is likely to be at or close to zero). In the case of airports, the Commission considers that depreciated historic cost should be used for specialised airfield assets.

9.65. The starting point for determining the value attached to WIAL's non-land airfield assets in the asset base are the values attributed to those assets by WIAL. Unlike AIAL and CIAL, WIAL has revalued its non-land assets consistently since vesting. The first revaluation, based on discounted cash flow (DCF), was undertaken at 30 June 1993. Prior to that WIAL valued all its non-land assets at vesting value depreciated, with any new assets included at depreciated historic cost (DHC). In 1995 (and again since) WIAL revalued all its non-land assets to optimised depreciated replacement cost (ODRC). In between revaluations, WIAL includes any additions to these assets at DHC.

9.66. To arrive at an airfield asset base for WIAL that includes non-land assets at DHC, only one adjustment is required—removal of revaluations above DHC. All revaluations of non-land assets to date have been removed from the Commission's analysis, and associated adjustments have been made to the depreciation of those assets.[384]

9.67. In Chapter 5, the Commission noted that the dimensions and structure of WIAL's sealed surfaces were largely determined by Civil Aviation Authority requirements and international standards, and that the current runway length was necessary to meet the operating requirements of the aircraft using the airport. As such, the Commission does not optimise any sealed surfaces. The Commission similarly does not optimise any buildings, infrastructure, or vehicles and plant assets.

Land

9.68. Compared to other utilities and infrastructure providers, land is a significant asset for airports. In Chapter 5, the Commission reached the following general conclusions on the valuation of airfield land:

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[384] Depreciation figures when the assets are valued at DHC will be lower than when the assets are included at ODRC, so depreciation figures are reduced (amounts are added back to the asset base).

- Airfield land should be valued at its opportunity cost, namely its value in its best alternative use in the event the airport were closed (highest alternative use value).

- The opportunity cost would be the higher of the value with or without the sealed surfaces (the latter incorporating the costs of removing the sealed surfaces).

- Any land holding and levelling outlays, and seawall and reclamation outlays, should be valued as specialised sunk assets at depreciated historic cost. These values should not include any amounts associated with such assets that are already included in the opportunity cost of the land, in order to avoid double-counting.

WIAL Land Valuation

9.69. As with non-land assets, the starting point for determining the value attached to WIAL's airfield land in the asset base are the values attributed to that land by WIAL.

9.70. WIAL has revalued its land consistently since vesting. The first revaluation, based on discounted cash flow (DCF), was undertaken at 30 June 1993. Prior to that, WIAL valued all its land at vesting value depreciated, with any new assets included at historic cost. In 1995 (and again since) WIAL revalued all its land to optimised replacement cost (ORC). In between revaluations, WIAL includes any additions to these assets at cost. WIAL most recently obtained valuations of its land at 31 March 2001 and 21 September 2001.

9.71. The Commission's starting point for its analysis of WIAL's asset base is 31 March 2001. This is the most-recent financial year for which results have been released. Analysis for 2002 can only be done on a forecast basis until the results for 2002 are released. While there is a valuation more recent than that of 31 March 2000 for WIAL's land, the 31 March 2000 valuation is the one that was current at 31 March 2001 (and should, therefore, be used for that year). The changes in land value suggested by the 21 September 2001 valuation are incorporated, where appropriate, into the forecasts of WIAL's asset base in 2002 and 2003.

9.72. At 31 March 2001 (based on the 31 March 2000 valuation) WIAL, using a zonal approach, attributed the following values to airfield land:

Table 37
31/3/00 Gross Valuation of WIAL Airfield Land

	Area (Ha)	Value per Ha	Amount ($000s)
Common Airfield			
Runway and Taxiway	54.0854	$600,000	$32,451
Terminal Apron and Gates	15.0918	600,000	9,055
Airport Fire Station	0.2906	700,000	203
Airside Roads	0.2908	599,175	174
Western Apron	5.6172	600,000	3,370
Leased Airfield			
111 Wexford Road	5.7668	200,000	1,153
Residential Properties	0.7299	1,274,360	930
Runway and Taxiway	0.2036	600,000	122
Western Industrial	0.8257	500,000	412

	Area (Ha)	Value per Ha	Amount ($000s)
Shared Assets (55.3% allocated to Airfield)			
Roads and Parking	2.3890	599,792	1,433
South Eastern Industrial	0.0503	800,000	40
Western Industrial	0.0586	500,000	29
Total	**85.4**		**$49,375**

9.73. WIAL's per Ha values for the various land parcels shown in Table 37 are based on a zonal approach to valuation (where the land values are assessed with direct reference to prices paid in the active market for land with a similar intensity of use). WIAL's valuers also, for comparative purposes, computed a valuation under a hypothetical subdivision approach. The resulting land values produced by the two approaches are not materially different. As such, the figures in Table 37 essentially incorporate the following components (making up the market value existing use) under the hypothetical subdivision approach, which can be summarised as follows:

- The sale price of the land for the purposes of a hypothetical subdivision is estimated (assuming a mixture of residential and commercial use), net of selling costs and legal fees.

- An allowance (deduction) is made for:

  - The estimated profit and risk associated with developing the subdivision.

  - Development costs.

  - The interest costs (at 8%) over the 10 year sale and development period.

- The costs that would be incurred to enable the land to be used as an airfield are added, including planning approval and professional fees, holding costs and financing costs.

9.74. While holding costs are explicitly derived (in the last step) under the hypothetical subdivision approach, they are regarded as implicit in the zonal approach. In addition, WIAL has advised that neither approach includes any adjustment to the land value to explicitly reflect levelling costs.

9.75. Table 38 provides a breakdown of WIAL's total gross land value on an entire airport basis (all 110 Ha, not just the 85.4 Ha relating to airfield activities) using a hypothetical subdivision approach. The Commission does not have this information on this basis for airfield activities. The figures for airfield land are estimated by the Commission based on the proportion that the airfield land value ($49,375 from Table 36) is of the total value of WIAL's land (70.32%).

Table 38
31/3/00 Gross Value of WIAL Land Broken Down

	WIAL ($000s)	$ per Ha	Airfield ($000s)
Gross Realisation	**$146,941**	**$1,335,829**	**$104,522**
Less Selling Costs (Agents Fees)	-4,408	-40,075	-3,135
Less Legal Fees	-560	-5,097	-398
Net Realisation	**141,972**	**1,290,657**	**100,987**

	WIAL ($000s)	$ per Ha	Airfield ($000s)
Less Profit and Risk	-28,394	-258,131	-20,197
Less Development Costs	-29,156	-265,056	-20,739
Less Interest Costs	-45,431	-413,010	-32,316
Estimated Block Value	**38,990**	**354,459**	**27,734**
Plus Adjustments for Airport Use			
• Planning Approval	4,000	36,364	2,845
• Holding Costs	5,089	46,268	3,620
• Financing Costs	21,333	193,994	15,175
Market Value Existing Use	**$69,413**		**$49,375**

9.76. The gross realisation was derived as follows:

Table 39
31/3/00 Gross Realisation of WIAL Land

	Area (Ha)	Value per Ha	Amount ($000s)
Residential 1 (30%)	33.4147	$2,150,000	$72,028
Residential 2 (20%)	22.2945	2,780,000	61,929
Industrial/Commercial (20%)	22.2945	1,250,000	27,868
Reserve Contribution (10%)	11.1472		0
Roads (20%)	22.2945		0
		Less GST	-14,884
Gross Realisation	**110**		**$146,941**

9.77. The per Ha values detailed in Table 39 represent the estimated sale price of the land for the purposes of a hypothetical subdivision (assuming a mixture of residential and commercial use). The values are supported by market evidence of block land sales in Wellington's eastern suburbs (Rongotai, Kilbirne, Seatoun and Miramar).

9.78. As noted above, the valuation obtained by WIAL in 2000 gave its land (including non-airfield land) a total value of $69m. As shown in Table 37, the airfield land was valued at $49.3m. The figures shown in Tables 37 to 39 above are the gross land values (in that the value of WIAL's seawall—$20.5m—is subsumed within the value of the land). In its financial accounts, and in the pricing proposals that WIAL is discussing with airlines, the land value adopted by WIAL is lower, as the ODRC value of the seawall is deducted from gross land value (but added to civil works). In 2000, this reduces the $69m total land value by $20.5m, arriving at a book value for WIAL's total land of $48.5m (civil works similarly went from $45.3m to $64.9m). The net impact on the total asset base is zero—WIAL's approach ensures there is no double counting. This adjustment in respect of seawall relates entirely to airfield land, so the same adjustments are made to airfield land values.

9.79. [[385]] On the same reasoning, the other three parcels of leased airfield land should also be excluded (although it is not clear whether WIAL is to exclude them). The costs associated with leased land is presumably recovered from the parties that lease the land. Removing the leased airfield land reduces the total airfield land value by $2.6m.

[385] WIAL Response to Section 70E Notice, 11 February 2002.

9.80. The revised (financial accounts and pricing) figures, excluding the seawall and leased airfield land, are summarised in Table 40. These revised figures are the Commission's starting point for determining the appropriate value for WIAL's airfield land.

Table 40
31/3/00 Net Value of WIAL Airfield Land

	Area (Ha)	Value per Ha	Amount ($000s)
Common Airfield			
Runway and Taxiway	54.0854	$220,000	$11,919[386]
Terminal Apron and Gates	15.0918	600,000	9,055
Airport Fire Station	0.2906	700,000	203
Airside Roads	0.2908	599,175	174
Western Apron	5.6172	600,000	3,370
Shared Assets (55.3% allocated to Airfield)			
Roads and Parking	2.3890	599,792	1,433
South Eastern Industrial	0.0503	800,000	40
Western Industrial	0.0586	500,000	29
Total	**77.4**		**$26,223**

Zoning and Designation

9.81. All WIAL airfield land is covered by a specific airport designation. The designation limits development that may inhibit the efficient operation of Wellington International Airport.

9.82. The underlying zonings of the various parcels of airfield land at Wellington International Airport have changed over time. At vesting, the zonings were a mixture of residential, industrial and recreation. Currently, all airfield land falls into the Airport and Golf Course Recreation Precinct (as specified in the Wellington City 1998 District Plan).

9.83. While the land remains subject to the airport designation, the provisions relating to the Airport Precinct in the Proposed District Plan do not apply. The Plan permits some commercial activity, but it is limited to that which is 'ancilliary to' or 'connected with' aeronautical type activity.

Estimates of Opportunity Cost

9.84. For each of the various types of airfield land owned by WIAL, the Commission has derived an estimate of opportunity cost—the highest alternative use value (excluding holding and levelling costs). In deriving its estimates, the Commission has considered:

- Whether the values attributed to the land by WIAL constitute an opportunity cost valuation.

[386] $32,451 figure shown in Table 37 less $20,532 value attributed to seawall. Note that the $ per Ha figure is recomputed to give an effective rate ($11,919/54.0854).

- Any submissions made by the airlines as to the appropriate opportunity cost figure for WIAL's airfield land.

- Any submissions made by WIAL as to the value of WIAL's land in its next best use (other than as an airfield).

- The permitted uses of the land, as dictated by its zoning and designation (outlined above), indicating possible alternative uses. The likelihood of changes in zoning is also considered, as it has implications for the next best alternative use.

- The impact of existing infrastructure at, and adjacent to, Wellington International Airport on the appropriate opportunity cost value of WIAL's airfield land.

- Advice obtained from Telfer Young on the appropriate opportunity cost values (or range of values) for WIAL's airfield land.[387]

9.85. Opportunity cost estimates derived are based on an assessment of the proceeds that would be obtained from an orderly sale of the land (in economically manageable parcels) over such time period as would likely be needed to achieve the highest and best alternative use value of that land. They are not estimates of the proceeds that would be obtained by the sale of WIAL's airfield land in a single parcel tomorrow (this would be akin to 'scrap' value).

<u>Estimates Derived From MVEU Valuation</u>

9.86. A possible way to determine the opportunity cost of WIAL's airfield land is to adjust its market value existing use (MVEU) valuation. WIAL submitted that the estimated block value shown in Table 38 reflects the land's value in its alternative highest and best use. It submitted that this is an estimate of what a developer would pay for the bare land on the open market with the intention of developing a multi-use subdivision on the site.[388] It is the market value existing use of the land less the adjustments for airport use (totalling to \$21.3m as shown in the airfield column of Table 38). By this approach, Table 38 would suggest an opportunity cost value for WIAL's airfield land of \$27.7m, or \$324,762 per Ha (for the 85.4 Ha).

9.87. The value implied by Table 38 reflects a mix of residential, commercial and industrial alternative uses. The Commission considers that this assessment of the best alternative use of WIAL's airfield land is reasonable. Given the location of Wellington International Airport, it is highly likely that, in the absence of the Airport, the land would be used for the purposes of a hypothetical subdivision (with a mixture of residential and commercial use). The land does not have the same heritage or rural zoning as the land at Auckland or Christchurch International Airports, which significantly increases the possible alternative uses of WIAL's airfield land. BARNZ submitted that the likely alternative use of the land would be a mixture of commercial, industrial and residential uses.[389]

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[387] Telfer Young's advice to the Commission is included in Appendix 21.

[388] WIAL Response to Section 70E Notice, 11 February 2002.

[389] BARNZ Submission on the Draft Report, 10 August 2001, page 21, paragraph 13.3.

9.88. While the Commission agrees with WIAL's assessment of the best alternative use, it has questions about the opportunity cost estimate that can be derived from the tables above. The Commission's questions stem firstly from the fact that WIAL's opportunity cost estimate is derived from the gross valuation of its land (shown in Tables 37 and 38) and not the net valuation (shown in Table 40). As a result, the opportunity cost estimate is overstated, as the gross valuation still includes WIAL's seawall (which is included in the asset base as a specialised asset at an ODRC value of $20.5m). It is further overstated to the extent that leased airfield land (which has a gross market value existing use of $2.6m) is included in the $27.4m estimate.

9.89. The Commission has further concerns over this being a suitable means of producing an opportunity cost estimate. WIAL submitted that, in deriving the block value figure in Table 38, it was finding an alternative use value in order to determine the market value existing use. It argued that this is not the same as endeavouring to find the optimal sale proceeds of the land if the airport ceased to operate.[390] As with AIAL, the Commission regards the value implied by Table 38 as having been estimated in order to determine the cost involved in acquiring land and establishing an airport, not the alternative highest and best use value that might eventuate should the airport cease to operate.

Independent Estimate

9.90. To avoid these issues, the Commission has sought advice from Telfer Young as to what an appropriate independent estimate of opportunity cost might be. Based on advice from Telfer Young, the Commission considers that $450,000 per Ha is a reasonable estimate of opportunity cost of WIAL's airfield land.

9.91. The Commission notes that the $450,000 per Ha estimate assumes that the seawall is in place and that the value or otherwise of the seawall is subsumed on the value of the land. Given this, the seawall should not also be included in civil works (discussed further below).

9.92. The $450,000 per Ha figure also does not take into account the costs of removing sealed surfaces that sit on the operational airfield land. Depending on what the best alternative use was, the sealed surfaces might have to be removed (in order for the land to be put into that use). The costs of removing the sealed surfaces could be significant. In any event, as noted earlier, the Commission takes the higher of the value with or without the sealed surfaces.

Adjustments for Holding and Levelling Costs

9.93. In the revised assessment of WIAL's asset base contained in this Report, the Commission has considered whether it needs to include estimates of the DHC of the holding and levelling costs associated with the development of airfield land. As noted above, amounts associated with such assets should only be included where they are **not** already included in the opportunity cost of the land, in order to avoid double counting. Amounts should not be included where the holding and levelling costs have no separate value to WIAL.

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[390] WIAL Submission on Estimates of Opportunity Cost, 20 May 2002, pages 8-9.

9.94. Vesting documentation indicates that no separate amounts were attached to these costs as part of WIAL's vesting value. The Commission considers that this may have been because the costs had already been almost fully (if not entirely) depreciated at vesting. Any value that did remain, may have been implicitly included within the vesting value of the land. The fact that the land had been levelled may have added to the value of the land at vesting. As no value was specifically attributed to holding and levelling costs at vesting, investors would not have expected to recover, and earn a return on, such costs.

9.95. The levelling costs associated with the development of WIAL's airfield add to the opportunity cost value of the land. Many potential alternative uses would require levelled land. As such, the Commission considers that levelling costs (the value attached to the fact that the land is level) are captured in its estimates of the opportunity cost of the land. No additional value needs to be allowed for levelling costs.

9.96. In terms of holding costs, the Commission considers that the costs originally incurred when the Airport was developed were almost fully (if not entirely) depreciated at vesting, with low or no value to WIAL remaining. As such, no additional value needs to be allowed in the asset base for holding costs associated with WIAL's airfield land.

Seawall

9.97. The airfield at Wellington International Airport is bounded in part by sea, and lies partly on reclaimed land. The seawall has been built, both as part of the reclamation process, and to protect the land against erosion by the sea.

9.98. As noted in Chapter 8, AIAL has treated its seawall as a separate asset (included in civil works), with a separate value being assigned to it in the asset register, rather than the value being subsumed within the value of the airfield land. As noted above, WIAL has treated its seawall in the same manner. In its value of airfield land included in its financial accounts in 2000, WIAL includes an amount of $20.5 m relating to the seawall in civil works values (transferred from land values). Regardless of whether the seawall is included in civil works or subsumed into the land value, the issue is whether the seawall has a value over-and-above that of the land it protects.

9.99. Using the Commission's valuation principles discussed in Chapter 5, this issue can be resolved by considering the opportunity cost of the seawall and land. Where the seawall is needed to support the runway, but would not be needed for an alternative use of that land, its opportunity cost is zero (as it has no alternative use). Where the seawall is needed to protect reclaimed land more generally, the opportunity cost of that land would be the same as other equivalent land in the vicinity (as the land does not have a use, alternative or otherwise, without the seawall). Again the opportunity cost of the seawall would be zero. The only value, in opportunity cost terms, is in the value of the land it protects.

9.100. In the Draft Report, the Commission made no adjustments to WIAL's asset values to exclude the seawall from its assessment of WIAL's appropriate asset base. However, seawall amounts included in revalued non-land assets (as part of civil works) were reduced to DHC when non-land assets were adjusted. In the revised assessment of WIAL's asset base contained in this Report, the Commission excludes the value of WIAL's seawall from civil works values. As noted above, the value associated with the seawall is subsumed into the Commission's estimate of opportunity cost. The Commission's treatment of seawall in the case of AIAL is different as the seawall at Auckland is not necessarily needed for alternative uses. The values attached to WIAL's seawall at vesting and in the 31 March 2000 valuation that are removed from specialised assets, are shown in Table 41.

Table 41
Treatment of WIAL Seawall

	$000s
Vesting Value	3,990
ODRC Valuation 31 March 2000	20,500

Reclaimed Seabed

9.101. Much of WIAL's operational airfield land has been reclaimed and filled. As noted above, this land would, under the Commission's approach, have an opportunity cost valuation of $450,000 per hectare, as for other airfield land. The issue then is whether any allowance should be made for the costs of reclamation over and above the opportunity cost of the land.

9.102. WIAL has submitted that, from an economic perspective, it is appropriate to value land at opportunity cost and any airfield land originally purchased as land should be valued in its next best alternative use.[391] However, WIAL further submitted that created land should be valued at creation cost.[392] In this regard, WIAL argues that it should be allowed to recover the costs associated with reclaiming seabed to create land.

9.103. The Commission has considered whether it needs to include estimates of the DHC of the reclamation costs associated with the development of airfield land. As noted above, amounts associated with such assets should only be included where they are **not** already included in the opportunity cost of the land, in order to avoid double counting. Amounts should not be included where the reclamation costs have no separate value to WIAL.

9.104. Vesting documentation indicates that no separate amounts were attached to these costs as part of WIAL's vesting value. The Commission considers that the reclaimed seabed was probably just simply valued as land, with costs of reclamation disregarded. As no value was specifically attributed to reclamation costs at vesting, investors would not have expected to recover, and earn a return on, such costs.

9.105. Without the reclamations, a large part of WIAL's airfield land would not exist in its present form. As unreclaimed seabed, it would have an opportunity cost of zero. However, as reclaimed land, it has a number of potential alternative uses. The

[391] WIAL Submission on the Draft Report, 14 August 2001, Expert Report 2, page 13.

[392] Ibid, Vol. 1, page 58, paragraph 9.23.

reclamation costs associated with the development of WIAL's airfield add to the opportunity cost value of the land. As such, the Commission considers that reclamation costs are captured in its estimates of the opportunity cost of the land. No additional value needs to be allowed for reclamation costs.

Conclusion

9.106. In addition to the general principles determined in Chapter 5, the Commission has determined the following in respect of the valuation of WIAL's airfield land:

- The appropriate estimate of opportunity cost of WIAL's airfield land is \$450,000 per Ha.

- Holding, levelling and reclamation costs associated with the development of WIAL's operational airfield land should be included at DHC (to extent they are not covered by opportunity cost and continue to have separate value to WIAL).

- Any value attributed to WIAL's seawall are excluded from specialised assets as its value is subsumed in the Commission's estimate of opportunity cost.

Appropriate Asset Base

9.107. Based on the Commission's views of asset base outlined in Chapter 5 and their application to WIAL above, the Commission estimates the value of WIAL's airfield assets as at 31 March 2001 to be \$54 million. The detailed calculation of the asset base is included in Appendix 15. Table 42 summarises the adjustments to WIAL's valuation to arrive at the Commission's assessed value.

Table 42
WIAL Airfield Asset Base as at 31/3/01

	Amount (\$000s)
Asset Base Adopted by WIAL for Pricing	\$ 94,936
Optimisation of Leased Airfield Land	-2,619
Adjustment to Operational Airfield Land Value (ORC to OC)	7,684
Exclusion of the Seawall from Civil Works	-20,500
Adjustment to Non-Land Asset Values (ODRC to DHC)	-34,615
Associated Adjustment to Depreciation (ODRC to DHC)	10,037
Commission Airfield Asset Base	**\$ 54,923**

9.108. The exclusion of leased airfield land reduces the asset base by \$2.6m. The inclusion of non-land assets at DHC (rather than ODRC) reduces the asset base by approximately \$24.5m. The major change between the figures estimated in the Draft Report and the figures shown above relates to the adjustments made to include operational airfield land at an opportunity cost value of \$450,000 per Ha. This increases WIAL's asset base by \$7.6m (relative to WIAL's value, which was the figure used in the Draft Report).[393] The removal of the seawall from civil works reduces the asset base by a further \$20.5m.

[393] The optimisation of selected assets is the change that occurs in moving from scenario 1 to 2 in the Commission's workings in Appendix 15. The reduction of land to opportunity cost occurs when then

WACC

Introduction

9.109. After asset valuation, WACC has the next most significant impact on the calculation of excess returns. In Chapter 6, the Commission, established the following approach to determining WACC:

- WACC is computed using the tax-adjusted Brennan-Lally CAPM.

- The cost of debt is estimated for the same period as that used to determine the risk-free rate (the period for which prices are set) and not the duration of the airport's assets or its debt.

- The period of the risk-free rate should match the revision frequency of pricing on the basis that landing charges should reflect expected costs and risks over the period for which prices are set, but not be affected by the expectations of rates beyond that period. In determining the rate used, the Commission's approach is to use an average yield on Government stock over the period in which an airport consults with its substantial customers (ending with the point at which any new prices come into effect) and with a maturity matching the point at which prices will again be reviewed (at maximum five years). The rate also reflects compound interest.

- The Commission does not consider any of the various approaches to estimating MRP to be better than any other. The Commission adopts a tax-adjusted MRP of 8%, within a range of 7-9% in recognition of uncertainty surrounding the estimate.

- The Commission uses a tax rate of 33% in computing the cost of equity, but the statutory corporate tax rate (which in the late 1980s was 28%) in computing the after-tax cost of debt.

- In selecting comparators to use to determine beta, the Commission considers a number of factors. In the case at hand, the regulatory environment is fundamental to the performance of the airports and is, therefore, the dominant factor considered in choosing comparators. Benchmarks for an asset beta for airfield activities are, therefore, United States firms engaged in electricity generation and/or distribution that are subject to rate-of-return regulation (which gives them a considerable degree of certainty on rate of return), and electricity firms in the United Kingdom subject to CPI-X price caps.

- A firm's actual leverage ratio—based on the market values of debt and equity at the time prices are set—should be used (consistent with the debt premium used).

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moving from scenario 2 to 4. The removal of revaluations of non-land assets to ODRC occurs when lastly moving from scenario 4 to 6. Scenarios 3 and 5 make the same adjustments, but without any optimisation. Scenario 6 reflects the Commission's adopted principles and views on WIAL's appropriate airfield asset base.

- The Commission uses a nominal WACC in order to be consistent with its approach to asset base and analysis of historical returns. Any asset revaluations are included in income.

9.110. The above approach is now applied to determine WIAL's WACC for airfield activities.

Estimate Adopted by WIAL

9.111. In 2000, pursuant to the Airport Authorities (Airport Companies Information Disclosure) Regulations 1999, WIAL disclosed an estimate of the WACC for its identified airport activities. WIAL's WACC estimate, and its derivation, is provided in Table 43.

Table 43
WACC Estimates Disclosed by WIAL 2000

R_f	7.3%
t_c	33%
t_{int}	$= t_c$ =33%
PTMRP	9%
Debt Premium	1.5%
R_d	8.8%
W_d	50%
W_e	50%
β_a	0.45 to 0.6
β_e	0.9 to 1.2
R_e	12.991 to 15.691%
Nominal Tax-Adjusted WACC	9.5 to 11.5%

Views of Substantial Customers

9.112. The airlines disagree with WIAL's estimate of its WACC with respect to the risk-free rate, the post-tax market risk premium, the debt premium, and the asset beta. The Airlines consider the following figures are appropriate, compared in the table with those of WIAL.[394]

Table 44
Differing Views of Airlines on WACC Components

	WIAL	Airlines	Difference
R_f	7.3%	6.5%	-0.8%
PTMRP	9%	8%	-1%
Debt Premium	1.5%	0.8%	-0.7%
β_a	0.45 to 0.6	0.3 to 0.35	-0.15 to 0.25

[394] For example, Air NZ, *Further Interim Consultation Response to AIAL*, 7 June 2000, page 7.

9.113. Based on these alternative figures, the airlines consider the appropriate WACC for WIAL is 7.02-7.42%.

Appropriate WACC

9.114. Each airport may have its own unique characteristics which can result in a distinct risk profile and WACC. The Commission considers that the appropriate WACC for the airfield activities of WIAL, as at its last price reset on 1 July 1997, is as follows:

Table 45
Appropriate WACC for WIAL Airfield Activities as at 1/7/97

R_f	7.62%
t_c	33%
t_{int}	33%
PTMRP	7 to 9%, point est. 8%
Debt Premium	1%
R_d	8.62%
W_d	25%
W_e	75%
β_a	0.4 to 0.6, point est. 0.5
β_e	0.53 to 0.8, point est. 0.67
R_e	8.84 to 12.31%, point est. 10.44%
Nominal Tax-Adjusted WACC	8.07 to 10.67%, point est. 9.27%

9.115. Full details of the Commission's computation of WACC for WIAL are contained in Appendix 15. Comments are included in the spreadsheet that explain various inputs and assumptions. In accordance with the approach determined in Chapter 6, the risk-free rate of 7.62% shown in Table 45 above is the five-year Government stock rate averaged for the first six months of 1997.

9.116. The asset beta is the most significant parameter that WIAL and airlines disagree on. WIAL favours an asset beta of 0.45 to 0.6, while the airlines favour a beta of about 0.3. Using the benchmarks adopted in Chapter 6, and based on advice from Dr Lally, the Commission considers that an asset beta of 0.5, within a range of 0.4 to 0.6, is appropriate for WIAL's airfield activities.

9.117. The estimates of WACC shown above for WIAL that are favoured by WIAL and the airlines are current estimates, relevant to the setting of prices from 1 July 2002. To assess the current prices (set in terms of the Deed on 1 July 1997), the Commission has derived an estimate of WIAL's WACC as at 1 July 1997. While not strictly comparable to the current estimates of WIAL, the Commission notes that its WACC range of 8.07% to 10.67% overlaps slightly (at the upper end) with the current WACC range adopted by WIAL. The Commission's estimate is outside (below) the lower bound of WIAL's range.

BENEFITS AND COSTS

9.118. Chapter 7 outlined the Commission's approach to deriving estimates of the potential benefits and costs of controlling airfield activities. The models developed in Chapter 7 are now applied to the airfield services supplied by WIAL to aircraft operators.

9.119. The Commission's analysis of the potential benefits of control involves a number of distinct parts: calculation of returns from vesting to date (1991-2001); forecasting of returns into the future (through to 2003); assessing any allocative inefficiencies associated with current landing charges; assessing any productive inefficiency; and assessing any dynamic inefficiency. Each are now discussed.

9.120. All the results presented in this Chapter are based on the Commission's assessed airfield asset base and the WACC range for WIAL estimated by the Commission. Appendix 15 contains full workings of the analysis, as well as results and sensitivity analysis based on alternative asset base assumptions.

Historic Analysis of Returns

Introduction

9.121. From an economic perspective, WIAL should be able, on average over time, to earn a normal return on the optimised assets used in providing the services of airfield activities. WACC is used to determine the normal or target return on WIAL's assets used for airfield activities, on the grounds that a return equal to the WACC for an entity is a return commensurate with the opportunity cost of capital for that entity. A return in excess of that would suggest that WIAL was earning an excessive return, unless those returns reflected efficiency gains and superior performance.

The Calculations

9.122. The Commission has conducted an analysis of the historical returns of the airfield activities of WIAL over the period since vesting, comparing actual returns with target returns (based on the Commission's views on asset base and WACC). The returns have been calculated based on the formula provided in Chapter 7:

Excess Returns ($) = Net Earnings – (Asset Base x WACC)

9.123. The first part of the equation, net earnings, represents WIAL's actual earnings from airfield activities. As noted in Chapter 7, net earnings is computed as earnings before interest, but after tax, depreciation and operating expenses, <u>plus</u> revaluations. In accordance with the principles on asset base determined by the Commission, the revaluations included are those relating only to any revaluations of land to opportunity cost. The second element of the equation (asset base x WACC) represents the target returns.

9.124. The returns are computed annually for each financial year from vesting (1991-2001) separately for the lower bound, upper bound and point estimates of WACC (relevant to that financial year, based on the last price reset). In order to look at trends over time, and not create an outlier in the returns derived in years where there are substantial revaluations, revaluations are spread back to vesting, or the last revaluation.[395]

9.125. The framework for the analysis is largely the same as that in the Draft Report. However, the spreadsheets used for the analysis have been revised and simplified, and the analysis has been updated to include the 2001 financial year results for WIAL (unavailable when the Draft Report was released). Inputs and assumptions have also been modified where appropriate (as discussed in this Report).

Assumptions and Inputs

9.126. As noted above, for full details of the data used and of the analysis of WIAL, readers are referred to Appendix 15. These include an analysis of the sensitivity of the results to different assumptions or scenarios regarding the appropriate asset base reported below.[396] The key assumptions and inputs in the Commission's analysis of historical returns are detailed below.

9.127. Revenue figures for WIAL's airfield activities are sourced from a combination of WIAL's financial accounts, information disclosures and breakdowns of airfield income provided to the Commission during the Inquiry. The only figures that have been estimated are those of 'other revenue' for 1991-1993, where an estimate of $200,000 is included each year.

9.128. Expense figures are less precise. Expense data for WIAL's airfield activities for the last two years (2000 and 2001) are sourced from information disclosures. For 1994-1999, the data is sourced from estimates provided by WIAL during the Inquiry. No such information was provided for 1991-1993. As with the analysis included in the Draft Report, the Commission derived estimates of the airfield expenses for 1991-1993. In the Draft Report, the Commission computed these estimates by extrapolating back from 2000 (working out the airfield portion of expenses for a given year based on the proportion of that expense type in 2000). In computing its revised figures for this Report, the Commission has accepted WIAL's suggestion that expenses be further adjusted to account for the change in focus of WIAL's business over time. Also, in conducting the extrapolations, the Commission now uses 1994 as the base.

9.129. In terms of taxation—as noted in Chapter 7—the Commission now uses an effective tax rate in its analysis. The effective tax rate is unlevered to fit with the way returns are computed (i.e., before interest). In recent years, the unlevered effective tax rate and the statutory corporate tax rate are the same. The statutory tax rate continues to be applied in the forecast return analysis beyond 2001.

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[395] Note that, in the revised numbers in this Report, revaluations are spread entirely based on the Housing Group of the CPI for the Wellington region. In the Draft Report, the Commission used the New Zealand-wide 'all groups' CPI, with a wash-up based on revenue. The Commission notes that the conclusions reached on the analysis of historical returns are not sensitive to how revaluations are spread.

[396] The Commission's assessment of the appropriate asset base is computed in scenario 6 in Appendix 15. It is the results from this scenario that are presented and discussed in this Chapter.

9.130. The Commission's assessment of the appropriate airfield asset base for WIAL as at 31 March 2001 was detailed earlier in this Chapter. In analysing historical returns, the Commission also needed to determine the asset base in each year from vesting through to 2001. As with expenses, WIAL has provided the Commission with estimates of its airfield asset base for 1994-1999, and has disclosed figures for 2000 and 2001. In addition, WIAL has provided breakdowns of land and civil works values since vesting, as well as details of revaluations by asset type (on an entire airport basis). As part of the information provided to the airlines as part of the current consultation, WIAL has provided other estimates of airfield assets and revaluations, and a detailed breakdown of WIAL's land values since vesting. Using this information and WIAL's 2000 valuation report, the Commission has formulated a picture of WIAL's asset base (whole airport and airfield) since vesting.

9.131. Adjustments to the asset base (and revaluations included as earnings) are made over the period. Adjustments to the asset base mainly relate to the Commission's chosen method of valuing assets over this period, and are due to the reduction or removal of spread revaluations.

The Results

9.132. The Commission's assessment of the returns earned historically on airfield activities by WIAL are summarised in Table 46. Table 46 provides three different representations of the results: average returns from vesting to date (1991-2001), average returns over the last five years (1997-2001), and the present value of returns from vesting to date as at the end of WIAL's 2001 financial year (31 March 2001). For results for individual years, refer to the detailed results provided in Appendix 15.

Table 46
Returns on Airfield Activities Supplied by WIAL
Since Vesting ($000s)

	Over WACC Range	At Point Estimate of WACC
Average 1991-2001	-2,123 to -941	-1,486
Average 1997-2001	632 to 1,891	1,310
Present Value 1991-2001	-42,895 to -24,641	-33,066

9.133. The Commission also notes that the average figures for 1997-2001 estimate results for WIAL's current pricing Deed (which covers the period 1 July 1997 to 30 June 2001).

9.134. The figures in Table 46 suggest varying results. In the last five years, WIAL has earned positive returns, but this was not the case in the early years post-vesting. The figures per year from 1991-2001 (detailed in Appendix 15) indicate a trend of increasing returns, moving from negative returns just after vesting to positive returns per annum currently. The average of returns since vesting shown in Table 46 is distorted by the significant negative returns in early years. The same applies to the present value of returns since vesting. In all cases, returns are greater at the lower bound of the WACC range.

9.135. The Commission considers that the results of recent years (and forecast returns ahead), and the trend that is shown, are more relevant than an average or present value of returns since vesting, which (due to compounding) can have the effect of over-emphasising the negative returns earned over a decade ago. As such, the Commission places more weight on the results in recent years, and those expected in future years, than those at or soon after vesting.

9.136. Although positive returns have been identified, a finding of excess returns cannot be made without eliminating, as possible causes, certain reasons for the returns. As noted above, what might otherwise be considered excess returns (and evidence of the exercise of market power), may just reflect efficiency gains and/or superior performance. In addition, a trend towards increasing returns may be (partially) explained by a declining asset base (as assets are depreciated annually).

9.137. To test the influence of a depreciating asset base on the trend of increasing returns, the Commission recalculated returns without depreciating the asset base (depreciation was still included as an expense in the calculation of net earnings). As with AIAL, the analysis revealed that returns were not materially affected by the depreciating of the asset base. The trend of increasing returns was still apparent, although the magnitude of returns was slightly less).

9.138. The returns identified for WIAL are nowhere near as large as those found for AIAL. In addition, results vary markedly over the WACC range. The slight excess returns identified at the upper bound of the WACC range may be justified given that this is where the Commission's and WIAL's WACC estimates overlap. The extent of any productive efficiency gains are also yet to be examined, and these may be sufficient to negate the suggestion that WIAL has earned excess returns historically.

9.139. The extent of any productive efficiency gains is considered later when WIAL's productive efficiency is examined. However, the Commission notes, at this point, that the high proportion of fixed costs associated with airfield activities mean that it is unlikely that there could be sufficient productive efficiency gains to explain all the returns identified.

Current and Forecast Analysis

9.140. As discussed in Chapter 7, the counterfactual in WIAL's case will be the status quo.

9.141. While analysis of historical returns is useful for evaluating behaviour of WIAL in the past, an analysis of the forecast returns helps to determine whether such results are an indication of the future. The future analysis also presents an evaluation of the efficiency effects of WIAL behaviour, assuming that behaviour in the past continues.

9.142. The Commission uses the year 2001 as a base year for introducing the forward-looking models, as this is the most recent year from which projections can be made.[397] The analysis for WIAL projects future returns and inefficiencies out to 2003. The approach is designed to be consistent with the historical analysis, in particular, it takes into account any unrealised capital gains or losses.

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[397] In the Draft Report, the Commission used the 2000 year as the base. Since the Draft Report was released, the 2001 financial year end data for WIAL has become available.

Allocative Inefficiency and Excessive Returns

Determining P_C, P_M and Q_C

9.143. The Commission has calculated an average price per tonne (P_m) for WIAL's 2001 year based on the landing charge revenues and tonnes landed (Q_m) in the 2001 financial year for WIAL. P_m is used to compute P_c. WIAL's price elasticity of demand of [ ] (calculated in Chapter 3) is used in calculating Qc, per the model in Chapter 7 (Figure 2). The results of these calculations are presented in Table 47.

Table 47
Average Prices Relative to Competitive Benchmark Prices for WIAL for its 2001 Financial Year

	Over WACC Range	At Point Estimate of WACC
Actual Price (P_M)	$10.89	
Efficient Price (P_C)	$9.76 to $10.88	$10.28
Difference, P_M-P_C	0.01 to 1.13	0.61
Actual Output (Q_M)	1,299,611	
Efficient Output (Q_C)	[ ]	[ ]
Difference, Q_C-Q_M	[ ]	[ ]

9.144. WIAL's actual price for 2001 exceeds the Commission's range of efficient prices shown in Table 47. WIAL's actual output for 2001 falls below the range for efficient output. Allocative inefficiencies exist and represent losses of consumer surplus.

9.145. The Commission has computed the same figures for each of the forecast years (2002-2003). These figures are not detailed here, but can be found in Appendix 15. [ ], actual price is less than efficient price in 2002. For 2003, as a result of the 10% interim price increase from 1 July 2002, actual price generally exceeds efficient price. Where the actual price is below the efficient level, then allocative inefficiencies are losses of producer surplus, and negative excess returns will also be apparent (representing less than normal returns).[398]

Estimates of Allocative Inefficiency and Excess Returns

9.146. The figures above have provided the information to calibrate the model in Figure 2 of Chapter 7. The model can now be used to estimate the potential allocative inefficiencies and excess returns associated with WIAL's 2001 price levels. Because the precise values of marginal cost are not available, although they are known to be very low, it is assumed that marginal cost is 50 cents. It is also assumed, for the purpose of analysing allocative inefficiencies, that there are no productive inefficiencies or cost misallocations, and that levels of service quality demanded by the airlines are being provided (to be discussed below). On this basis, the Commission has estimated that the likely size of the allocative inefficiencies associated with pricing of airfield activities in the 2001 financial year of WIAL.

[398] Note that less than normal returns does not necessarily imply that losses are being made overall, although this is possible.

9.147. Forecast returns are computed using the same formula as that used in the historical analysis. WIAL's actual results for 2001 are used as the base, modified as appropriate based on WIAL's forecasts and growth estimates. In computing forecast returns under scenario 1 for 2002-2003, the Commission has adopted WIAL's forecasts of MCTOW (tonnes landed), expenses and changes in the asset base (i.e., capital expenditure and depreciation). Those figures are then adjusted as appropriate to be consistent with the Commission's view on how to calculate the appropriate asset base (e.g., adjustments to depreciation in respect of the move from ODRC to DHC).

9.148. Allocative inefficiency consists of consumer surplus (area BFE in Figure 2, Chapter 7) and producer surplus (area EFHG in Figure 2, Chapter 7). In addition, the excess returns stemming from prices being above the efficient levels cause a redistribution of wealth from acquirers to suppliers (as measured by area P_CP_MBE in Figure 2). Estimates of these distribution effects are given in Table 48 These transfers are proportionally much larger than the associated allocative inefficiencies, as would be expected, given the highly inelastic demand for airport services. It should be noted, however, that transfers are distributional in nature, not losses to economic efficiency. The figures shown in Table 48 are an average of the three years 2001-2003. Results for individual years are shown in Appendix 15.

Table 48
Estimated Allocative Inefficiencies and Excess Returns for WIAL ($000s)

	Over WACC Range	At Point Estimate of WACC
Consumer Surplus	0.4 to 6	2
Producer Surplus	-7 to 96	50
Excess Returns	-88 to 1,346	684

9.149. Table 48 shows that the positive returns found in recent years historically are forecast to continue. At the higher end of the WACC range, negative returns are forecast, which suggests that less than normal returns may be being earned. The level of allocative inefficiency is immaterial.

9.150. It should be noted that for the purpose of the forecast analysis, no expected revaluation gains are estimated for and, although the Commission considers that there may be revaluation gains over the forecast period. If this were the case, this would be likely to suggest that the figures above understate forecast allocative inefficiencies and excess returns.

Cross-Subsidisation

9.151. In Chapter 4, the Commission presented the way it would assess whether there was any cross subsidisation associated with airfield activities by considering:

- Prices charged by aircraft type per landing, with prices per landing dependent on weight bands.

- Cost allocation between airfield activities and other airport activities.

9.152. WIAL determines the price charged by aircraft type per landing by first using a cost allocation model and then establishing weight bands and prices into which different aircraft fall. For airlines, the landing charge they pay for a given aircraft landing is calculated by multiplying a dollar charge per MCTOW by the MCTOW of that aircraft. The key drivers of WIAL's cost allocations model are summarised in Table 49.

Table 49
Basis of Cost Allocation

	WIAL
Return on the capital cost of land	Landings and m^2 runway area used
Return on the capital cost of runways and taxiways	Equivalent landings of design aircraft[399] and m^2 runway area used
Return on the capital cost of aprons	Tonnes landed (MCTOW x number of landings)[400]
Runway damage (operating costs of sealed surfaces)	Equivalent landings and m^2 runway area used
Rescue fire service costs	Landings

9.153. The cost allocation model attempts to identify the causes of costs, and to allocate costs accordingly. The cost of runway damage aims to take account of the wear-and-tear on the runway, and associated taxiway and aprons, caused by aircraft movements, with heavier aircraft causing greater damage. Unlike AIAL, the cost of rescue fire is allocated based on the number of landings (not seat capacity). The returns on the various capital costs are related to the size of the aircraft and, therefore, the likely number of potential passengers, reflecting demand conditions. This seems to be a reasonable attempt to recover the costs involved.

9.154. WIAL is a multi-product business, and serves a variety of customers. This suggests there is potential for cross-subsidisation to occur across its different activities. Because of the throughput of passengers generated by airfield activities, WIAL can undertake other integrated aeronautical activities (such as the provision of both airfield and terminal facilities) together with significant complementary commercial activities (such as the provision of retail and commercial premises). There are incremental and common costs associated with these activities.

9.155. BARNZ argue that airlines have not received sufficient information from WIAL on the apportionment of common costs to commercial activities and airfield activities to judge whether cross-subsidisation is occurring. It considers disclosures could be enhanced to assist in assessments of such allocations.[401]

9.156. The Commission considers there is no economically appropriate way to allocate costs, except indirectly via Ramsey Pricing. MCTOW based pricing approximates Ramsey Pricing. The Commission also notes that an analysis of the adequacy of information disclosure regulations is outside the scope of this Inquiry.

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[399] Calculated in accordance with Federal Aviation Authority (FAA) Advisory Circular AC150/5320-6C (an algorithm that reflects the wheel weights and required runway length of aircraft).

[400] Maximum certified take-off weight of aircraft (MCTOW) multiplied by number of landings.

[401] BARNZ Submission on the Draft Report, 10 August 2001, Page 18, paragraph 11.10

9.157. Given the information available, the Commission considers the scope for cross-subsidisation is minimised by WIAL's use of a multiple till approach, which where possible does try to associate costs with their cause and, to some degree, the demands of the various user groups.

Productive Inefficiency

Introduction

9.158. Airports are predominantly fixed costs businesses characterised by economies of scale. As traffic builds up, the runway facilities are better utilised and the fixed costs are spread over a larger number of landings or passengers. In general, therefore, unit costs would go down with increased use, unless an airport invests too much or too soon in new facilities. However, despite the importance of fixed costs for efficiency, the operating costs at airports are also significant.

9.159. The pricing principles in Chapter 4 suggest a productively efficient operation is one that, over the medium-term, meets demand at the lowest possible cost, commensurate with the level of service quality demanded. In the Draft Report, the Commission suggested that productive inefficiencies may be 1% of operating costs (excluding depreciation) at WIAL. The Commission has considered the submissions on WIAL's productive efficiency from interested parties. It presents below some of the evidence that has informed its decision on this matter.

Measures of Operating Costs and their Trends

9.160. The major operating expenses of WIAL are depreciation, employee remuneration, repairs and maintenance, fire rescue, motor vehicles and insurance. Of the operating expenses, all but depreciation would appear to be potentially susceptible to productive inefficiency over the medium-term. These might arise, for example, because of overly lavish maintenance expenditure, over-staffing, or excessive levels of staff remuneration.

9.161. In its response to the Critical Issues Paper, WIAL suggested that "{b}ecause of the difficulties in drawing valid conclusions from cross-airport comparisons WIAL focuses on changes in its own efficiency over time."[402] WIAL refers to different phases in its history, namely: establishment 1990-1993; consolidation 1994-1995; terminal area development 1996-1999; and consolidation (2000-). By the measures WIAL presents, most significant cost savings measures were first felt during the consolidation phase of 1994-1995, "in particular relating to airport fire services".[403] Since vesting, some airfield activities have been brought in-house (such as fire services), while other airfield activities have been contracted out (such as repairs and maintenance).

9.162. WIAL's operating expenses (excluding depreciation) have decreased 43.5% since vesting. However, aggregate operating costs on their own do not provide sufficient

[402] WIAL Submission on the Critical Issues Paper, 27 April 2001, Vol. 1, page 104.

[403] Ibid, page 107.

information for evaluating productive efficiency. Relative (per unit) measures of operating costs are needed. Since vesting, Wellington International Airport has also experienced growth in passenger, aircraft movements, cargo and tonnes landed. Passenger and landing data for Wellington provide a complete record since vesting. The Commission has, therefore, evaluated WIAL's productive efficiency in relation to costs per landing and per passenger.[404]

9.163. On a per passenger and per landing basis the operating costs (excluding depreciation) of WIAL have fallen on average by 6.8% pa and 3.8% pa respectively, when comparing the operating costs in 2000 to those in 1991. [

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9.164. BARNZ argued in submissions that 1% productive inefficiency, as indicated in the Draft Report, was appropriate for WIAL. BARNZ recognised that WIAL had made cost savings of 7.2% per annum over the period 1998 to 2000.[405] In general terms, however, BARNZ noted that airports should benefit from economies of scale.[406]

Benchmarking

9.165. The Commission considers that benchmarking of WIAL's productive efficiency has merit. However, it is also difficult to do. There were no benchmarking exercises presented on WIAL's productive efficiency, although WIAL was used as a comparator in the NECG response on LEK's study of AIAL's productive efficiency.[407] In this study WIAL's productive efficiency compares favourably with that of AIAL.

9.166. WIAL has a trend of falling operating costs (excluding depreciation) on a per passenger and landing basis, and also had the lowest operating costs (excluding depreciation) per passenger and per landing of either AIAL (23% and 61% respectively) or CIAL (15% and 10% respectively) for 2000.

Summary

9.167. As noted above, WIAL's operating costs (excluding depreciation) have fallen on a per passenger and landings basis since vesting. In 2000, WIAL had the lowest operating costs (excluding depreciation) on a per landing and passenger basis compared to AIAL and CIAL. However, while WIAL has achieved cost savings in the past, the Commission considers there is likely to be scope for further improvement in the productive efficiency of the airfield activities at Wellington in the future. The

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[404] In terms of Figure 3, in Chapter 7, output (Q) can be thought of as being represented by either landings or passengers.

[405] BARNZ Submission on the Draft Report, 10 August 2001, page 36.

[406] Ibid, paragraph 33.3.

[407] NECG, *Review of LEK Report Auckland International Airport Ltd – Airport Efficiency*, July 2000.

Commission notes that operating costs (excluding depreciation) per passenger and landing are [ ] at the Airport.

9.168. The Commission has adopted a pragmatic approach (to an issue that involves significant uncertainty) by presenting productive inefficiencies as a percentage range of operating costs (excluding depreciation). The Commission considers there to be productive inefficiency of the order of 0-1% of operating costs (excluding depreciation) at WIAL.

9.169. Table 50 presents the levels of potential productive efficiency benefits based on the 0-1% range. The figures shown in Table 50 include an average of the three years 2001-2003.

Table 50
Potential Productive Inefficiency at Wellington International Airport ($000s)

	0-1% Range
2001	0 to 55
2002	[ ]
2003	[ ]
Average 2001-2003	0 to 54

9.170. The 7.2% per annum productive efficiency gains achieved by WIAL from 1998 to 2000 (the period of the Deed), may account for the bulk of the positive returns earned by WIAL over that period (as identified earlier). This being the case, the Commission does not find evidence that WIAL had earned excess returns historically.

Dynamic Inefficiency

9.171. Dynamic efficiency relates to minimising costs over time through investment, and to the quantity and quality of assets used by an entity. Inefficiencies can arise where investments that would be optimal are not made (or made at the wrong time), or investment has led to too many assets being acquired—meaning that some assets are not 'used or useful' in meeting demand—or because some assets are 'gold plated'. Given the nature of airfield activities, the acquisition of too many assets (most likely land) is more likely to be a potential source of dynamic inefficiency than 'gold plating'. The issue then becomes one of whether the optimal amount of assets is being used to provide the service.

9.172. As noted earlier, there appears to be no over-investment by WIAL in airfield activities and no misuse of assets. The Commission considers there are no dynamic inefficiencies at Wellington International Airport.

Costs of Control

9.173. Costs of control are forward looking by the very nature of this Inquiry. The Commission considers that the direct costs of control (including both the regulators' and market participants' costs) for a single airport might be $1-$2 million in a review year, and $0.5-$1 million in other years. Over a five-year period, with one review, this suggested an annual average of between $0.6-$1.2 million per year at each airport.

9.174. The total costs of control are not easy to estimate. In Chapter 7, the Commission considered that, in the absence of any superior alternatives, the indirect costs of control could be measured by considering what extent of the potential benefits of control could be realised by control. The Commission determined that the indirect costs of control as a proportion of potential benefits would be:

- 25% of any excess returns. Where excess returns are zero or negative, the indirect costs cannot be measured in the same way, and are, therefore, recorded as zero. However, the Commission notes that, in principle, indirect costs would exist were control to be imposed in such circumstances.

- 43.75% of any consumer surplus and 25% of any producer surplus.

- From 50% to 100% of any dynamic inefficiencies.

9.175. The productive efficiency costs of control are estimated at 0 to 2% of operating costs (less depreciation) and are offset against the range of possible benefits of control regarding productive inefficiencies.

9.176. Table 51 summarises the likely indirect costs, per annum, of controlling the airfield services supplied by WIAL to aircraft operators. The figures shown in Table 51 are an average of the three years 2001-2003. Results for individual years are shown in Appendix 15.

Table 51
Likely Indirect Costs of Controlling WIAL ($000s)

	Over WACC Range	At Point Estimate
Consumer Surplus	-0.1 to 2	1
Producer Surplus	-1.9 to 24	12
Excess Returns	47 to 336	176
Productive Inefficiency	0 to 108	54
Dynamic Inefficiency	0	0

NECESSARY OR DESIRABLE

9.177. As noted in Chapter 2, under Part IV of the Commerce Act goods and services may be controlled if it is necessary or desirable for those goods and services to be controlled in the interests of acquirers. The potential benefits and costs to acquirers of controlling the airfield services supplied by WIAL have been identified above. The Commission considers that, if the weighing of these benefits and costs demonstrates that an improvement in the economic welfare of acquirers would result, then control would be demonstrated to be necessary or desirable in the interests of acquirers.

9.178. Table 52 brings together the Commission's estimates of the potential benefits and costs to acquirers of introducing control for airfield activities in terms of acquirers' interests. The figures shown in Table 52 are an average of the three years 2001-2003. Results for individual years are shown in Appendix 15.

Table 52
Estimates of the Potential Benefits and Costs to Acquirers of Control of Airfield Activities Supplied by WIAL, Average Per Annum ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	-34 to 1,352	713
Total Costs	959 to 1,475	1,201
Net Benefits to Acquirers	**-1,512 to 393**	**-488**

9.179. Overall, the Commission considers, on the balance of probabilities, that there are unlikely to be any net benefits to acquirers (in this context, specifically the aircraft operators and any indirect acquirers such as airline passengers) if the airfield activities supplied by WIAL were to be controlled. The costs that may be incurred by controlling WIAL outweigh the likely benefits. The Commission estimates there are between $0.4 million net benefits and a $1.3 million net loss per annum to acquirers over a period of three years. At the Commission's point estimate, there would be an estimated $0.4 million loss to acquirers per annum, or some $1.2m loss in total over three years.

9.180. The Commission has not found evidence that WIAL earned excess returns historically, and forecast excess returns are not significant. The potential net benefits are not sufficiently large to warrant control, given the associated costs. In short, the Commission considers control is not necessary or desirable in the interests of acquirers of airfield activities.

9.181. In calculating the costs of control, the Commission has assumed price cap regulation, as this is one of the more common forms of regulatory control overseas. Use of this form of control, for the purpose of estimating the costs of control, should not be seen as predetermining the form of control that the Commission would employ if control were declared. The Commission notes that a wide range of regulatory controls are available under Part V, which are likely to be less intrusive or less costly than price cap regulation. It would also need to be determined, however, how effective different control mechanisms would be in achieving the benefits of control, i.e., the overall cost-effectiveness of control would need to be assessed for control mechanisms besides price cap regulation. The Commission has not considered the efficacy of other forms of control.

9.182. In terms of other control mechanisms, section 70(2) enables the Commission to use formulas or other methods from which prices or revenues, or any part of a price or revenue, may be determined. One suggestion, from BARNZ, is that the parties could commercially negotiate, based either on the principles resulting from this report, or pricing principles established by the Commission as a form of control. In addition, the Commission notes there may be other policy options available to the Minister. Irrespective, the Commission is cognisant that any form of control utilised would need to be commensurate with the level of market power available to WIAL, the size of the anticipated excess return, and resulting net benefits to acquirers.

NET PUBLIC BENEFITS

9.183. In considering the net benefits to acquirers, the Commission has had regard to both the efficiency effects (only some of the allocative efficiency) and the distributional effects of the removal of excess returns. The Commission is required by section 52 to take this approach. However, the Minister, in exercising his discretion, may wish to consider only the efficiency effects contained in the net public benefits. This approach considers the interests of the public at large, including WIAL, and not just those of the acquirers. Such an approach involves focusing on the efficiency, and ignoring the distributional, effects of control. Excess returns would be ignored, as transfers between suppliers and acquirers are considered efficiency-neutral.

9.184. Table 53 presents the Commission's estimates of the potential benefits and costs of introducing control for airfield activities for the economy as a whole (not just acquirers). The figures shown in Table 53 are an average of the three years 2001-2003. Results for individual years are shown in Appendix 15.

Table 53
Estimates of the Potential Benefits and Costs of Control of Airfield Activities Supplied by WIAL, Average Per Annum ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	46 to 102	80
Total Costs	646 to 1,426	1,022
Net Public Benefits	**-1,380 to -544**	**-957**

9.185. Table 53 shows there are no net public benefits likely to accrue from controlling the airfield activities supplied by WIAL through price cap regulation. The costs exceed the benefits irrespective of the point chosen in the WACC range. This assessment does not take into account WIAL's proposed price increase.

CONCLUSION

9.186. In this Chapter, the Commission considered the extent of competition in the supply of airfield services at Wellington International Airport. It found that the relevant market was one in which WIAL was by far the major supplier, faced little prospect of new competitors entering the market, and was not sufficiently constrained by the countervailing power of the airlines, and hence was one where competition was limited. The Commission applied its generic principles developed earlier in this report to calculate the appropriate asset base and WACC for WIAL. It then considered the returns that WIAL had made in the recent past, and the returns it was projected to make in future years, against target returns for those years based on realised or forecast demand and other costs. It also assessed the efficiency implications of control.

9.187. A critical assumption made by the Commission is that the costs of control would be borne by acquirers rather than the general public. After having netted-off all of the costs of control from the benefits to acquirers, the Commission has not found any net benefit to acquirers. Even the gross benefits are estimated to be small.

9.188. The Commission is not satisfied that the thresholds contained in section 52 of the Commerce Act are met in the case of the airfield activities supplied by WIAL to aircraft operators. The net benefits of control to acquirers per annum are consistently negative over the Commission's WACC range. The Commission, therefore, considers that on the balance of probabilities it is not necessary or desirable for the airfield activities supplied by WIAL to be controlled in the interests of acquirers.

9.189. The Commission's findings above in respect of WIAL, do not take account of the impact of any increase in charges that may yet occur as a result of its current consultation with users. As noted in paragraph 9.18, WIAL's current proposal is for landing charges to increase. A 10% interim increase from 1 July 2002 has already been announced by WIAL and was agreed with airlines. As the proposed further increase in charges has not been implemented the Commission has not incorporated any impact into its recommendations. However, if the proposed [ ] increase in charges (to apply for the next five years) were factored into the Commission's forecasts for WIAL for 2003, significant excess returns would arise in that year (and the next four years), such that there would likely be net benefits to acquirers of up to [ ] per annum. In that event, the Commission would likely be satisfied that it would be necessary or desirable in the interests of acquirers for the airfield activities supplied by WIAL to be controlled.

10. CHRISTCHURCH INTERNATIONAL AIRPORT

INTRODUCTION

10.1. Chapters 2-7 of this Report outlined the framework the Commission uses to arrive at its recommendations to the Minister. Chapter 3 introduced the competition issues associated with airports, coming to tentative views on market definitions. This Chapter builds on Chapter 3 and includes a detailed assessment of competition in terms of the airfield services supplied by Christchurch International Airport Limited (CIAL) to aircraft operators. In addition, the principles established in Chapters 4 to 7 for determining whether control of the airfield activities is necessary or desirable in the interests of acquirers are applied to CIAL.

CHRISTCHURCH INTERNATIONAL AIRPORT LIMITED (CIAL)

10.2. CIAL was incorporated on 1 July 1988, with 75% of shares held by Christchurch City Council and 25% by the Crown. The Crown has indicated its desire to sell its shareholding. The Christchurch City Council and Ngai Tahu have first option to purchase the Crown's shares.

Operational Details

10.3. Christchurch is the largest airport in the South Island and the second largest in New Zealand. It markets itself as the gateway for inbound tourists to the South Island. Currently about 17% of New Zealand's international visitors enter the country via Christchurch. Approximately 75% of passenger movements at Christchurch are domestic.

10.4. Like Auckland, Christchurch Airport is able to handle the largest aircraft types currently in operation. It has two intersecting runways, the shorter of which is used for aircraft up to B767 size when the wind direction is unfavourable for the main runway (about 7% of the time). Like Auckland, the Airport operates 24 hours a day with no curfew or restrictions on noise, apart from the hours during which engine testing can be undertaken. At present, Christchurch does not suffer from airfield congestion, with runway utilisation being about 70% in peak periods.

10.5. Key operational statistics for the year ended 30 June 2001 are detailed in Table 54.

Table 54
Christchurch International Airport Operational Statistics

Size:	Land area (hectares)	750
	Runway length (metres):	
	• Main Runway	3,287
	• Cross Runway	1,741
	ICAO category	8
Aircraft Movements:	Domestic	61,952
	International	7,738
	Other (incl. GA)	83,752
	Total	153,242

Passenger Numbers:	Domestic	3,209,169
	International	1,134,420
	Total	4,343,589
Freight Volumes:	International (tonnes) for 2001 calendar year	32,635
MCTOW Landed (tonnes)		1,779,665

10.6. Domestic freight statistics are not available for Christchurch International Airport.

Activities Undertaken

10.7. CIAL is largely a facilities provider—providing land or buildings from which third parties operate their business. However, there are some exceptions. CIAL operates predominantly in the business of providing airport facilities and services to airline and airport users, but continues to diversify its revenue base by focusing on investments and land holdings. Christchurch Airport offers significant technical input on site, with Air NZ having a maintenance base at the Airport. In addition, CIAL owns the waste disposal facility at the Airport, contracting the operations out to the Medical Waste Group.

10.8. CIAL's assets include the two runways, aprons, the terminal building, car parking, and other ancillary land and buildings. The terminal building is essentially three buildings together, as there have been distinct areas for the two main domestic airlines (Air NZ and the former Qantas NZ) and for the international operations. CIAL is planning developments to the domestic terminal area in the near future, creating a multi-user domestic terminal.

10.9. Air traffic control at Christchurch is currently undertaken by Airways Corporation (Airways). A number of other services, such as ground handling, are provided by other third parties.

10.10. A notable feature of CIAL is its role as a base through which the Antarctica research programmes of certain countries are supplied. This began in 1955 with the United States, and today includes New Zealand, the US and Italy. As part of the Antarctic theme, the airport operates a tourist facility—the Antarctic Visitor Centre.

10.11. A reasonable area of land is owned by CIAL, enabling it to have a commercial precinct at the airport. The company currently owns around 750 hectares of land, 550 hectares of which is the present airfield. In addition, there is plenty of flat farm land surrounding the Airport—some owned by CIAL—that could be used for further development. Christchurch is the only one of the three airports that, if required, has the ability to relatively easily extend the length of its current runway.

Airfield Activities

10.12. The activities undertaken by CIAL can be classified and grouped in terms of the three identified airport activities (defined in the Airport Authorities Amendment Act) and an additional grouping, other airport activities.[408] This Inquiry focuses only on airfield activities.

10.13. Airfield activities at Christchurch International Airport, and those undertaken by CIAL, are as follows:

Table 55
Airfield Activities at Christchurch International Airport

Element of Activity	Undertaken by CIAL	Undertaken by Third Party	Assets owned by CIAL	Prices charged or revenue derived by CIAL
Airfields, runways, taxiways, and parking aprons for aircraft	All land and sealed surfaces except those undertaken by third parties.	Aprons provided by Air NZ and NZ Post (part only).	All land and all sealed surfaces except those undertaken by third parties.	Landing charge and rent.
Facilities and services for air traffic control	Provision of Control Tower.	All air traffic control provided by Airways.	Airways office space and control tower.	Rent.
Facilities and services parking apron control	None.	Air NZ allocates gates for all flights.	None.	None.
Airfield associated lighting	Apron flood lighting.	Airfield lighting provided by Airways.	Apron flood lighting.	Landing charge.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Grass mowing, pavement sweeping, and patching. Provide 24 hour, seven days a week maintenance service for all airport facilities, grounds and surfaces.	Contractors used for major maintenance, e.g., resealing and pavement rehabilitation.	Maintenance yard land, buildings plant and machinery.	Landing charge.
Rescue, fire, safety, and environmental hazard control services	All.	None.	Land, buildings, equipment and vehicles relating to rescue fire service.	Rescue fire component of landing charge.
Airfield supervisory and security services	Provides and maintains security fencing and perimeter patrols.	AVSEC provides airside security, security between airside and landside, and international passenger control.	Security fencing.	Landing charge.
Facilities/ assets held for future activities	Holds land.	None.	Land.	Rental from current users of land (e.g., farmers).

10.14. As noted in Chapter 1, the Commission has focused on those airfield services supplied to aircraft operators—being the bulk of the airfield services supplied by CIAL, for

[408] Refer to Appendix 16 for full details of activities undertaken by CIAL.

which aircraft operators pay per tonne landing charges. The remaining airfield activities provided by CIAL are facilities provided (by way of lease or other commercial arrangements) to Airways Corporation of New Zealand Limited and the Aviation Security Service (AVSEC) to enable those parties to supply airfield activities themselves.

Airfield (Landing) Charges

10.15. CIAL's revenue from airfield activities is principally derived from landing charges levied on aircraft operators based on aircraft weight. The Commission has focused on determining whether landing charges need to be controlled.

10.16. On 1 October 1988, CIAL introduced new airport charges for each specific aircraft type covering the costs of both aircraft landings and the terminal (although the portion relating to the airfield was easily identifiable). The charges were revised slightly a year later (1989), and increased by an average of 2% on 1 June 1991 (for domestic aircraft only).

10.17. For the following 10 years, (from 1 June 1991 until 1 January 2001), CIAL's airport charges were held constant. However, on 1 January 2001, CIAL introduced new charges after lengthy consultation with substantial customers as required by the Airport Authorities Amendment Act 1997.[409] Charges have been set for three years. Table 56 summarises CIAL's proposals and decision on charges.

Table 56
CIAL Consultation Proposals

		< 3 tonnes	3-6 tonnes	6-30 tonnes	>30 tonnes
Dec 1999	Proposal	$ 6.00	$ 14.32	$ 5.93	$ 6.21
Oct 2000	Proposal	$ 6.00	$ 4.00	$ 6.04	$ 6.56
Dec 2000	**Decision**	**$ 6.00**	**$ 4.00**	**$ 5.61**	**$ 7.84**

10.18. The change in landing charges between 1991 and 2001 is indicated below:[410]

Table 57
CIAL Landing Charges

	Charge Effective From		
MCTOW	**Min 1 June 91**	**Max 1 June 91**	**1 Jan 01**
<3 tonnes	$8.05/T	$ 8.05/T	$6.00/T
3-6 tonnes	$5.29/T	$ 7.56/T	$4.00/T
6-30 tonnes	$3.08/T	$ 5.36/T	$5.61/T
30+ tonnes	$3.40/T	$11.59/T	$7.84/T

[409] Following CIAL announcing its new charges in late December 2000, discussions between BARNZ and CIAL resulted in the inputs into the airfield allocation algorithm being modified and the charges for the top two weight bands being slightly amended. In December 2000, CIAL had proposed charges of $7.76 per tonne for aircraft 6-30 tonnes and $7.14 for aircraft over 30 tonnes.

[410] Because CIAL has restructured the way it charges—from per individual aircraft to by weight breaks—minimum and maximum charges for each new weight break have been determined for the old charges.

Acquirers of Airfield Activities

10.19. The direct acquirers of the airfield services supplied by CIAL (that are being examined) are the aircraft operators—the commercial airlines and other aircraft operators that land and take-off at/from Christchurch International Airport. The indirect acquirers are the aircraft passengers and persons sending freight by aircraft. Table 58 details the acquirers.

Table 58
Acquirers of Airfield Services Supplied by CIAL

Class or Grouping	User
Direct Acquirers: Aircraft operators	• International—Air New Zealand, Air Pacific, Qantas Airways, Singapore Airlines • Domestic—Air New Zealand, Freedom Air, Origin Pacific Airways, Qantas Airways, Mount Cook Airlines • Commuter—Air Chathams, Air Nelson, Air Safari, Eagle Airways • Cargo Only—Airpost, Asian Express Airlines, DHL, Emery Worldwide • General Aviation—Canterbury Aero Club • Other—US Navy, International Antarctic Programmes (US, Italian and NZ)
Indirect Acquirers	Aircraft passengers, persons sending freight by aircraft (including freight forwarders)

10.20. CIAL's substantial customers, in their own right, are Air NZ, Mount Cook Airlines (an Air NZ subsidiary) and Qantas Airways. The Board of Airlines Representatives of New Zealand Inc (BARNZ) represents these substantial customers in consultation.

COMPETITION ANALYSIS

Introduction

10.21. The Commission must determine whether the airfield services supplied by CIAL are supplied in a market in which competition is limited (or is likely to be lessened).

10.22. In Chapter 3, the Commission came to the conclusion that, for the purposes of this Inquiry, the relevant product market is the airfield services market, as defined by the airfield activities in the Airport Authorities Amendment Act 1997. The issue of whether airports are in competition with each other in the airfield services market, or whether each operates in a geographically distinct market, was also broadly canvassed. The Commission came to the preliminary view in Chapter 3 that, in terms of the geographical dimension of the market, its generic analysis of passenger and airline demand suggested that, for most traffic, none of the three airports faced significant competition either from each other, or from other regional airports.

10.23. In assessing CIAL's ability to exercise market power, the following considerations, which are further addressed below, are important:

- On the supply-side of the market, the actual competition from existing airports, or potential competition from new airports.
- On the demand-side, the possibility of airlines and their passengers and freight customers switching to other airports.
- The potential countervailing power of airlines.
- The present regulatory regime.

Demand Characteristics

10.24. The weighted elasticity of demand determined for Christchurch International Airport in Chapter 3 was [ ].

Competition and Substitutes

10.25. In Chapter 3, the Commission noted that the nature of the investment in international airport facilities (with very large sunk costs), such as those at Christchurch International Airport, is likely to mean barriers to entry are high and, in consequence, competition from potential entrants is low. It was noted that Christchurch, like the other international airports, may face competition from other airports in the provision of airfield services. This competition may be of two kinds: the *potential* competition from prospective new entrants, and the *existing* competition from other airports already operating. The specific circumstances of Christchurch International Airport are now examined.

General Aviation

10.26. Airport substitutability from a supply-side perspective depends largely upon the size of aircraft. Smaller aircraft are more flexible as to where they can land, for example, a grass strip can be adequate for small, general aviation (GA) aircraft. GA aircraft are a large proportion of aircraft movements at Christchurch International Airport. There is a grass runway at Christchurch used by GA aircraft at times. For such aircraft, Rangiora Airport (approximately 20 minutes by road north of Christchurch International Airport) is a possible substitute. However, Christchurch has a large amount of GA traffic produced by a flight training school located at the airport. The Canterbury Aero Club also has its facilities at the Airport. In addition, Christchurch International Airport does not have the same operating constraints as Auckland and Wellington International Airports (in terms of peak hour congestion). GA aircraft landing charges at Christchurch have also not increased over the last ten years, instead they were decreased on 1 January 2001.

Domestic Aircraft

10.27. From a supply-side perspective, and focusing only on domestic traffic, which does not involve the use of the larger aircraft, there appears to be considerable scope for substitution between a number of airports in large centres and regional areas.

10.28. However, while there are many airports capable of servicing domestic aircraft, domestic travel tends to be destination specific. Other airports are, therefore, unlikely to be a substitute for Christchurch when passengers wish to go there. For example, most people wishing to travel to Christchurch—whether business people on a day return trip, leisure travellers making international connections, or commuter travellers who are interlining (who would suffer the inconvenience of having to transfer between airports if they were delivered to one airport but making a connection at another)—would find Dunedin, Timaru or Blenheim poor substitutes because of the time delays and extra costs imposed.

10.29. CIAL considers it faces some competition at the margin, citing planes over-flying its airport to Queenstown as an example.[411] However, this presumably reflects the growing popularity of Queenstown as a destination in its own right, such that direct flights by larger aircraft can now be justified, rather than direct competition between the airfield services provided at the two airports.

10.30. Even if CIAL imposed a substantial increase in airport charges, competition between the domestic airlines would probably ensure that Christchurch remained the destination. If an increase in charges were to cause an airline to stop servicing Christchurch International Airport, another airline would likely start operating as demand for air travel to and from Christchurch would still exist, or, alternatively, remaining airlines would probably increase flight frequencies to fill the gap. Further, airport charges are not the most significant operating costs for an airline, so airlines would likely accept an increase in costs, rather than fly to an alternative airport and lose to a competitor the business generated from servicing Christchurch International Airport (given the additional loss of losing connecting international flights or not being a person or entity's preferred airline because all airports are not serviced). This suggests that, for domestic services, Christchurch International Airport has essentially a regional monopoly, in that, in the large majority of cases, there are no substitutes for their services for travellers wishing, and freight needing, to fly into or out of Christchurch.

International Aircraft

10.31. As noted in Chapter 8, Auckland International Airport is New Zealand's largest and busiest airport for passengers and freight. Christchurch is the only other airport in New Zealand also capable of handling the largest jets. As such, in the supply of airfield services to long-haul international flights, Christchurch provides competition for Auckland International Airport (in terms of point of entry or exit from New Zealand). While Christchurch International Airport operates as the gateway to the South Island, it is somewhat limited by the relatively small size of its population base. Also, hubbing by Air NZ out of Auckland is likely to reduce the potential for Christchurch to compete with Auckland for such services. In addition, downturns in the numbers of tourists visiting New Zealand and the financial position of airlines often impact on the extent of international services operating at Christchurch. Airlines have regularly reduced or stopped services (or reduced aircraft sizes) to Christchurch, choosing instead to connect Christchurch passengers to flights out of

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[411] CIAL Submission on the Draft Report, 14 August 2001, Part B, page 9, paragraph 15.

Auckland. However, flights to Christchurch have equally increased when justified by demand.

10.32. Christchurch International Airport does have the advantage of being the base from which air services to and from Antarctica are provided.

10.33. There is potential for more competition in shorter distance international routes such as Australia and the South Pacific. A number of airports can, and currently do, service the smaller Boeing 737 and 767 aircraft that are operated on these routes. In Christchurch International Airport's case, Dunedin is the most likely competitor in terms of outbound flights by New Zealand residents, with Air NZ operating its discount Freedom Air services to Australia. Queenstown is also a competitor in terms of inbound tourists, particularly skiers in the winter months. However, the Commission considers that neither Dunedin or Queenstown provide sufficient competition to be viewed as close substitutes for most travellers. In terms of inbound tourists, their choice of airport is likely to be driven by destination (e.g., the choice between skiing in Central Otago versus Mt Hutt). There is scope for certain airports to compete for traffic in Christchurch, but only at the margin.

Conclusion

10.34. The Commission considers there are supply side substitutes for some of the airfield services supplied by CIAL. In the case of long-haul international flights, Auckland is a substitute for Christchurch. There are instances where services have been discontinued at Christchurch, but continue to operate at Auckland. In the case of flights to and from Australia, Dunedin and Queenstown are potential substitutes, but such traffic can be more destination-specific, such that they are not close substitutes. There are no realistic substitutes for domestic services. On the whole, the potential or existing competition faced by CIAL in supplying airfield services is not significant.

10.35. The Commission notes that CIAL, in submissions, agreed with the Commission's findings that:[412]

- CIAL operates in a distinct geographic market.
- There are no substantial near entrants (regional airports) to compete effectively with Christchurch International Airport for domestic commuter and international traffic.
- Potential competition from entry of new airports is weak.

Constraints on Exercise of Market Power

10.36. As noted in Chapter 3, the current regulation of airports relies principally upon the countervailing power of airlines, and the requirements on airport operators to disclose information about their operations and to consult with substantial customers.

[412] Ibid, paragraph 14.

Countervailing Power

10.37. At the Conference and in submissions, views of the airlines and CIAL on the strength of countervailing power of airlines differed markedly. BARNZ agreed with the Commission's preliminary finding in the Draft Report that CIAL is unlikely to be significantly constrained by the countervailing power of airlines under the current regime, and that the airlines stand to lose greater amounts than CIAL from withdrawing custom.[413] In contrast, CIAL considered the Commission had not given sufficient weight to the regulatory regime and countervailing power of the airlines, although CIAL stated it had never denied that competition is limited in its market for airfield activities.[414]

10.38. CIAL considered that the Commission had "seriously underestimated the countervailing power of the airlines", through which it was significantly constrained. This countervailing power comes from three sources: the current regulatory regime (which CIAL viewed as being 'medium-powered' when assessed against an international scale); the requirement to consult, which has the effect of delaying price changes while the consultation proceeds and then 'locking in' price changes despite the potential for adverse market changes to occur; and the fact that its biggest customer provides in excess of 60% of its business (thereby giving that customer, in CIAL's view, significant negotiating leverage). CIAL cited the last consultation round as an example, which took 18 months to complete, and which led to prices being set for three years, during which period Korean Air ceased to use the airport and Qantas New Zealand collapsed.[415]

10.39. CIAL also cited in support of its argument the comment by McGechan J in *Air NZ v WIAL* that consultation provides a:[416]

> ...compulsory opportunity for vigorous and informed objection by powerful airline interests, and the political and consumer consequences which may follow.

10.40. That statement was made before information disclosure was made part of the regulatory regime. CIAL submitted that the requirement to consult imposes greater restrictions on airports than the Commission allowed for in the Draft Report, especially, in CIAL's view, for a relatively small airport like Christchurch facing the combined resources of the airlines operating collectively through BARNZ.[417]

10.41. CIAL argued that the market between airport and airlines is one of mutual interdependence in which, typically, there are no contracts. CIAL claimed it was performing an unwritten contract to satisfy both present and prospective future demand. Christchurch International Airport's biggest customer (Air NZ) provides in excess of 60% of its business. The ability of CIAL to price discriminate is circumscribed by ICAO rules. CIAL is vulnerable both to changes in airlines'

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[413] BARNZ Submission on the Draft Report, 10 August 2001, page 18, paragraph 8.2.

[414] CIAL Submission on the Draft Report, 14 August 2001, Part A, page 2, paragraph 1.

[415] Ibid, pages 3-4, paras 8-10.

[416] *Air New Zealand v Wellington International Airport Limited*, unreported, High Court Wellington, CP 403/91, 6 January 1992, page 8.

[417] CIAL Submission on the Draft Report, 14 August 2001, Part C, page 80.

schedules (including the size of aircraft operated)—which adds to the uncertainty of planning to meet demand over the lengthy time period needed for major airport developments—and to changes in the financial position of airline customers.[418]

10.42. CIAL) further submitted that CIAL's charges had remained unchanged over the period from 1989 to 2000 (apart from a slight increase in domestic charges in 1991). In real terms, CIAL's charges had fallen over the period.[419]

10.43. In general, a buyer must account for a substantial portion of a supplier's business before it has the potential to exert significant countervailing power against that supplier. The threat by a small buyer to switch its business elsewhere will have little impact on the supplier's behaviour. Thus, the size of the airlines and their collective efforts are an important determinant of any countervailing power against the market power of the airports.

10.44. The number of airlines operating at Christchurch International Airport is quite small, and two airlines (Air NZ and Qantas) provide the bulk of CIAL's revenues from landing charges. In addition, there is a growing tendency for international airline alliances. Airlines have also demonstrated capability to act collectively, as through BARNZ, and to engage in lobbying, in pursuit of common interests. This suggests that the buyer concentration needed as a prerequisite for the exercise of countervailing market power exists at Christchurch International Airport, at least in principle. The question is whether it is effective.

10.45. The ability to switch to alternative suppliers is crucial to the exercise of countervailing power. The behaviour of a supplier with market power is likely to be moderated where a significant buyer can credibly threaten to switch its custom elsewhere.

10.46. One factor favouring countervailing power is that the capital of airlines (in contrast to that of CIAL) is relatively mobile, and hence has the potential to be relatively easily deployed elsewhere. For example, overseas-based international airlines have the power to deploy their limited fleets to destinations in other countries, and some have withdrawn services to New Zealand, or resorted to code-sharing when this proved more cost-effective than providing a direct service. Having said this, airlines do invest in costs which arguably become sunk at particular airports (e.g., maintenance facilities), thereby reducing their ability (and hence the credibility of any threat) to move elsewhere and undermining any countervailing power they might possess. It is difficult to see how Air NZ, for example, could withdraw from providing air services in this country. Air NZ has a strong position in New Zealand and relies on the country to some extent for its marketing and brand image. The airline also has significant maintenance facilities at Christchurch International Airport.

10.47. The major airlines have demonstrated a willingness to withhold airport payments and to consider court action. This indicates that the airlines do have some power to impose, or to threaten to impose, costs on CIAL.

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[418] Ibid, Part B, page 11, paragraphs 26-27.

[419] Ibid, Part C, page 79.

Consultation

10.48. Airlines, as users interested in minimising their costs, want to monitor airport charging and efficiency. The statutory consultation process provides an avenue through which this monitoring may take place. However, the airlines have been dissatisfied with the consultation process and its outcomes to date.

10.49. Over a period of 18 months up till 1 January 2001, CIAL consulted with its substantial customers over charges. CIAL went through a number of proposals during consultation before arriving at new higher charges. However, CIAL did not propose a flat across-the-board increase. In general, the landing charges for international aircraft decreased, while the landing charges for domestic aircraft increased. Overall, charges for large aircraft increased over the course of consultation, while charges for small aircraft decreased or remained unchanged. New charges were announced in December 2000 and took effect on 1 January 2001.

10.50. CIAL's recent consultation suggests that the airlines may have some power to moderate prospective increases in charges, at least in some circumstances.

Conclusion

10.51. There are clearly widely disparate views on the effectiveness of countervailing power of the airlines, as augmented by the regulatory requirement for CIAL to consult with its substantial customers, and to publish information under disclosure requirements.

10.52. The Commission considers that the countervailing power of the airlines cannot be ignored as a feature of the relevant markets. The current regulatory regime appears to provide some constraint on CIAL. However, the Commission is of the view that there are not sufficient constraints on the exercise of market power by CIAL. While CIAL is required to consult with substantial customers before setting charges, CIAL ultimately has the power to set whatever charges it thinks fit. There is no requirement to negotiate or reach commercial agreement. Airlines do have some power, but their ability to effectively exercise that power is limited.

Assessment of Whether Competition is Limited

10.53. CIAL has relatively high market power in the market for airfield services due to the lack both of supply side substitutes and adequate countervailing power of airlines. It is not economical, and often not possible, to duplicate many of the assets associated with facilitating aircraft movement in a particular region, and demand tends largely to be region-specific. The lack of alternative airports to meet customer-driven origin and destination demand, means airlines cannot credibly threaten to remove sufficient custom to produce an undesirable consequence, and thereby discipline any airport's pricing decisions. Any reduction in use by one airline will tend to be replaced by increased use by another airline, as that second airline moves to meet the customer-driven origin and destination demand in the competitive market.

10.54. The structure of the market, and the impact of a regulatory approach designed to encourage countervailing power, provides a counter-weight to the potential market power of the major airports. However, the presence of such a regulatory framework indicates a concern about possible market power.

10.55. The Minister's Notice requires the Commission to report to the Minister on whether "airfield activities provided by the three major international airports are supplied or acquired in a market in which competition is limited or is likely to be lessened". The airfield services supplied by CIAL to aircraft operators form the bulk of the airfield services market at Christchurch International Airport and are, in the Commission's view, subject to limited competition. The goods or services (falling within the definition of airfield activities) provided by CIAL to aircraft operators that are subject to limited competition are set out in Table 59.

Table 59
Airfield Services Supplied by CIAL Subject to Limited Competition

Airfield Activities	Goods and Services Supplied by CIAL
Airfields, runways, taxiways, and parking aprons for aircraft	Airfields, runways, taxiways, and aprons.
Facilities and services for air traffic control	None.
Facilities and services for parking apron control	None.
Airfield associated lighting	Apron flood lighting.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Day-to-day maintenance (grass moving, pavement sweeping, and patching).
Rescue, fire, safety, and environmental hazard control services	Rescue, fire, safety, and environmental hazard control services.
Airfield supervisory and security services	Provides and maintains security fencing and perimeter patrols.
Facilities/assets held for future airfield activities	None.

10.56. The Commission has reached the conclusion that the airfield services supplied by CIAL are supplied in a market in which competition is limited (or is likely to be lessened). The first requirement of section 52 is, therefore, satisfied. The remainder of this Chapter considers whether it is necessary or desirable for the prices, revenue, or quality standards of any of the goods or services identified above to be controlled in the interests of acquirers; and whether airfield activities should be controlled.

ASSET BASE

10.57. In Chapter 5, the Commission established principles for determining the appropriate asset base for airfield activities. The asset base for CIAL is now determined.

10.58. The airfield assets of CIAL can be separated into land and non-land assets. Non-land assets are considered first. The most significant non-land assets are the runways, taxiways and aprons that sit on that land (the sealed surfaces) and supporting infrastructure.

Non-Land (Specialised) Assets

10.59. In Chapter 5, the Commission concluded that, for reasons of economic efficiency, assets should normally be valued at opportunity cost, unless they are specialised, when some higher value is required in order to prevent investors' funds from being expropriated and dynamic efficiency harmed (as the opportunity cost of specialised assets is likely to be at or close to zero). In the case of airports, the Commission considers that depreciated historic cost should be used for specialised airfield assets.

10.60. The starting point for determining the value attached to CIAL's non-land airfield assets in the asset base are the values attributed to those assets by CIAL. Since vesting, CIAL has valued its non-land assets in its financial accounts at vesting value depreciated, with any new assets included at depreciated historic cost (DHC). On 30 June 1999, CIAL obtained a valuation of its sealed surfaces based on optimised depreciated replacement cost (ODRC) methodology. The ODRC valuation was more than double the DHC value at 30 June 1999.

10.61. In arriving at new prices in December 2000 (which took effect on 1 January 2001), CIAL included its sealed surfaces in its airfield asset base at the higher ODRC figure, with any additions since 30 June 1999 being included at DHC. In its financial accounts, CIAL still includes sealed surfaces at DHC (in contrast to AIAL and WIAL who have included the revaluations in their accounts). Other non-land assets (Buildings, Vehicles, Furniture and Plant) were not revalued and were included in pricing at vesting value depreciated, with any new assets included DHC.

10.62. To arrive at an airfield asset base for CIAL that includes all non-land assets at DHC, only one adjustment is required—removal of revaluations above DHC. The 30 June 1999 revaluation of sealed surfaces has been removed from the Commission's analysis, and associated adjustments have been made to the depreciation of those assets from 2000 onwards.[420] The Commission has reversed CIAL's reseal reserve adjustment to produce a DHC figure for CIAL's sealed surfaces.[421]

10.63. In Chapter 5, the Commission noted that the dimensions and structure of CIAL's sealed surfaces were largely determined by Civil Aviation Authority requirements and international standards, and that the current runway length was necessary to meet the operating requirements of the aircraft using the airport. As such, the Commission does not optimise any sealed surfaces. The Commission similarly does not optimise any buildings, infrastructure, or vehicles and plant assets.

Land

10.64. Compared to other utilities and infrastructure providers, land is a significant asset for airports. In Chapter 5, the Commission reached the following general conclusions on the valuation of airfield land:

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[420] Depreciation figures when the assets are valued at DHC will be lower than when the assets are included at ODRC, so depreciation figures are reduced (amounts are added back to the asset base).

[421] The provision for sealed surfaces is, in effect, an extra accelerated depreciation adjustment. The Commission reverses the adjustment as it considers the depreciation on sealed surfaces to be sufficient.

- Airfield land should be valued at its opportunity cost, namely its value in its best alternative use in the event the airport were closed (highest alternative use value).

- The opportunity cost would be the higher of the value with or without the sealed surfaces (the latter incorporating the net costs of removing the sealed surfaces).

- Any land holding and levelling outlays should be valued as specialised sunk assets at depreciated historic cost. These values should not include any amounts associated with such assets that are already included in the opportunity cost of the land, in order to avoid double-counting.

CIAL Land Valuation

10.65. As with non-land assets, the starting point for determining the value to be attached to CIAL's airfield land in the asset base are the values attributed to that land by CIAL. Up until 30 June 1996, CIAL valued all its land at vesting value, with any new assets included at cost. On 30 June 1996, CIAL revalued all land to market value. Since then, CIAL has regularly revalued land, and in between revaluations it has included any acquisitions at cost.

10.66. At 30 June 1999, CIAL attributed the following values to airfield land (note that some land is freehold and some leasehold):

Table 60
30/6/99 Valuation of CIAL Airfield Land

	Area (Ha)	Value per Ha	Amount ($000s)
Runways, Taxiways and Grass	328.0865	$ 10,000	$3,281
Lessors Interest	32.8764		361
Apron	9.0269	500,000	4,513
Canterbury Aero Club	1.4426	500,000	721
Lessors Interest	0.525		328
Pavement (allocated to Airfield)	1.9426	250,000	486
Land Held for Development	176.47	[422]	2,972
Total	**550.37**		**$12,662**

10.67. For the purposes of arriving at prices in 2000, CIAL voluntarily excluded the land held for development (approximately 176 Ha) from its asset base. The Commission does not, therefore, consider whether it is appropriate to include the land or not, but takes it as read that it should be excluded as CIAL has done. This is also consistent with the Commission's approach to land held for development by other airports.

10.68. The revised figures are summarised in Table 61. These figures are the Commission's starting point for determining the appropriate value for CIAL's airfield land.

[422] Land held for development consists of a number of parcels of land which are valued at varying rates per Ha depending on the assessment comparable uses for the land. The values range from $12,000 to $250,000 per Ha.

Table 61
1/1/01 Value of CIAL Airfield Land used for Pricing

	Area (Ha)	Value per Ha	Amount ($000s)
Runways, Taxiways and Grass	328.0865	$ 10,000	$3,281
Lessors Interest	32.8764		361
Apron	9.0269	500,000	4,513
Canterbury Aero Club	1.4426	500,000	721
Lessors Interest	0.525		328
Pavement (allocated to Airfield)	1.9426	250,000	486
Total	**373.9**		**$9,690**

10.69. Unlike AIAL, the market value existing use (MVEU) of CIAL's airfield land was not derived by using a base figure for the value of the land and adjusting that value upwards for such factors as levelling and holding costs. A zonal approach was used to value the CIAL land assets (one of the two approaches used by WIAL). CIAL's land assets are valued with direct reference to prices paid in the active market for land with a similar intensity of use. Valuing the land using a zonal approach involved the following steps:

- Identifying land associated with airfield activities.
- Disaggregating land into broad zones based on the intensity of land use.
- Based on market evidence, deriving land values and applying them to the identified parcels/zones of land.
- Estimating individual land values.

10.70. The $10,000 per Ha valuation of the runways and taxiways land is based on comparable sales of rural land in the greater Christchurch area. The $250,000 and $500,000 values attributed to the other land are based on a comparable land use of large industrial. The lower value of $250,000 used for pavement (roading) reflects its lower intensity of use.

Zoning and Designation

10.71. Historically, airport land at Christchurch was a designated area within an underlying rural zone. Currently (since the Proposed Christchurch City District Plan 1995), all CIAL airfield land is zoned 'Special Purpose (Airport)'. Any development of that land has to be clearly associated with the operations of the airport. Some commercial activity is permitted, but it is limited to that which is 'ancillary to' or 'connected with' aeronautical type activity. Residential accommodation is only allowed in association with the security or management of an activity within the zone, for short-term location of personnel associated with the operations of the airport, or to provide accommodation for travellers.

Estimates of Opportunity Cost

10.72. For each of the various types of airfield land owned by CIAL, the Commission has derived an estimate of opportunity cost—the highest alternative use value (excluding holding and levelling costs). In deriving its estimates, the Commission has considered:

- Whether the values attributed to the land by CIAL constitute an opportunity cost valuation.

- Any submissions made by the airlines as to the appropriate opportunity cost figure for CIAL's airfield land.

- Any submissions made by CIAL as to the value of CIAL's land in its next best use (other than as an airfield).

- The permitted uses of the land, as dictated by its zoning and designation (outlined above), indicating possible alternative uses. The likelihood of changes in zoning is also considered, as it has implications for the next best alternative use.

- The impact of existing infrastructure at, and adjacent to, Christchurch International Airport on the appropriate opportunity cost value of CIAL's airfield land.

- Advice obtained from Telfer Young on the appropriate opportunity cost values (or range of values) for CIAL's airfield land.[423]

10.73. Opportunity cost estimates derived are based on an assessment of the proceeds that would be obtained from an orderly sale of the land (in economically manageable parcels) over such time period as would likely be needed to achieve the highest and best alternative use value of that land. They are not estimates of the proceeds that would be obtained by the sale of CIAL's airfield land in a single parcel tomorrow (this would be akin to 'scrap' value).

Submissions Received

10.74. The major proportion of CIAL airfield land is valued (by CIAL) on a rural use basis, but some small areas of land are valued by reference to sales of commercial/industrial sites. During consultation with CIAL in 2000, the airlines agreed with the valuation on a rural basis, but disagreed with the use of higher commercial/industrial values for other land parcels. The airlines (based on their valuers' opinion) considered that there was no market-based evidence to substantiate the use of the higher values for some areas of airfield land. They suggested that a uniform value per Ha should be applied. The airlines proposed a base land value of $30,000 per Ha, adding a 55% premium for airport land, and an allowance for site preparation (presumably levelling costs) of $15,000 per Ha, producing a MVEU of $61,500 per Ha.[424]

10.75. In its submission on the Draft Report, BARNZ considered that the value CIAL had assigned to its airfield land ($9.69m or $10,000 per Ha), based on extensive and intensive rural use, appeared to be reasonable.[425]

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423 Telfer Young's advice to the Commission is included in Appendix 21.

424 Rushton Australia Pty Limited Report to BARNZ on CIAL Valuation, 2 February 2000.

425 BARNZ Submission on the Draft Report, 10 August 2001, page 22, paragraph 13.13.

10.76. CIAL submitted that the next best use of the bulk of the airfield land would be as rural residential land (valued at $10,000 to $12,000 per Ha). However, CIAL noted that other land uses that should be considered are:[426]

- Resort, hotel or golf course land, similar to the close-by Clearwater Resort.
- Parcels of commercial or technology park development along the eastern perimeter of the airfield (valued at $200,000 per Ha).
- More extensive rural residential use along the western boundary of the airfield (CIAL suggested that such small holding would be valued at $50,000 per Ha).

Commission Assessment

10.77. The current zoning of CIAL's airfield land limits the best alternative rural (farming) use. However, if the airport were to cease to operate it is highly likely that the zoning would change. The current zoning reflects the present use of the land as an airfield and a desire to control development around the airport, so as to avoid noise controls. Without the airport, there is no need for the restrictions on development to continue.

10.78. The Commission is of the view that the best alternative use of CIAL airfield land would be for urban/lifestyle development, incorporating a range of uses including commercial, retail, industrial, lo density residential and lifestyle blocks. The location of the land (both in proximity to the City, and to State Highway one north and south of the City), the existing infrastructure/amenities in place at the airport, and the type of land uses undertaken on nearby land lead the Commission to this view.

10.79. Having considered submissions from CIAL and BARNZ on opportunity cost estimates, and taken advice from Telfer Young, the Commission is of the opinion that $70,000 per Ha is an appropriate estimate of the opportunity cost of CIAL's airfield land. This value would apply to all airfield land owned by CIAL.

10.80. Compared to the values adopted by CIAL, the Commission estimate results an increased valuation of the runways and taxiways land (valued by CIAL at $10,000 per Ha), but decreased values for other areas of airfield land (valued at $250,000 and $500,000 per Ha by CIAL). However, as the runways and taxiways land makes up the majority of airfield land (in terms of Ha), the overall impact on the valuation of CIAL airfield land (excluding development land) is to increase it from $9.69m to $26.1m. The Commission uses this higher valuation in its analysis below.

10.81. The figures above do not take into account the costs of removing sealed surfaces that sit on the operational airfield land. Depending on what the best alternative use was, the sealed surfaces might have to be removed (in order for the land to be put into that use). The costs of removing the sealed surfaces may significant. CIAL estimated that it would cost $2.7m to remove its sealed surfaces.[427] However, as noted earlier, the Commission takes the higher of the value with or without the sealed surfaces.

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[426] CIAL Response to Section 70E Notice, 4 February 2002.

[427] CIAL Submission on Estimates of Opportunity Cost, 21 May 2002, page 6, paragraph 24.

Adjustments for Holding and Levelling Costs

10.82. In the revised assessment of CIAL's asset base contained in this Report, the Commission has considered whether it needs to include estimates of the DHC of the holding and levelling costs associated with the development of the runways, taxiways and aprons land (337.1Ha). As noted above, amounts associated with such assets should only be included where they are **not** already included in the opportunity cost of the land, in order to avoid double counting. Amounts should not be included where the holding and levelling costs have no separate value to CIAL.

10.83. Vesting documentation indicates that no separate amounts were attached to these costs as part of CIAL's vesting value. The Commission considers that this may have been because the costs had already been almost fully (if not entirely) depreciated at vesting. Any value that did remain, may have been implicitly included within the vesting value of the land. The fact that the land had been levelled may have added to the value of the land at vesting. As no value was specifically attributed to holding and levelling costs at vesting, investors would not have expected to recover, and earn a return on, such costs.

10.84. The levelling costs associated with the development of CIAL's airfield add to the opportunity cost value of the land. Many potential alternative uses would require levelled land. As such, the Commission considers that levelling costs (the value attached to the fact that the land is level) are captured in its estimates of the opportunity cost of the land. No additional value needs to be allowed for levelling costs.

10.85. In terms of holding costs, the Commission considers that the costs originally incurred when the Airport was developed were almost fully (if not entirely) depreciated at vesting, with low or no value to CIAL remaining. As such, no additional value needs to be allowed in the asset base for holding costs associated with CIAL's airfield land.

Land Held for Development

10.86. CIAL holds 176.47 Ha of land for future development of the airfield. This land was valued at 30 June 1999 at $2.972m, made up as follows:

Table 62
30/6/99 Valuation of CIAL Airfield Development Land

	Area (Ha)	Value per Ha	Amount ($000s)
North of Harewood Road	15.8126	$ 12,000	$190
East of Subsidiary Runway	2.1267	250,000	532
South of Avonhead Road	8.2343	50,000	412
Located on Title #1	70.7668	12,000	849
Lessors Interest	51.6558		654
Balance of Titles	27.8767	12,000	335
Total	**176.47**		**$2,972**

10.87. There are two key reasons that CIAL holds land for future development:[428]

- To provide land for airport developments that increase operational capacity (e.g., part of the land is held for a proposed apron development).

- To provide a buffer between the core airport activity and the possible encroachment by land uses such as housing, which may, in the future, constrain the Airport's operations.

10.88. As noted above, in its value of airfield land included in its asset base for pricing purposes in 2000, CIAL excluded all land held for development. In the Draft Report, the Commission, therefore, did not consider whether to make adjustments in respect of optimising out the land (as CIAL had done it itself). The Commission did not consider whether any further adjustments were needed to historical periods. Since the Draft Report, the Commission has learned that approximately 122 Ha of development land existed at vesting and was valued (at vesting) at $0.955m and that more land has been acquired since vesting. As a result, adjustments were needed for 1989 to 1998 to make the asset base in those years consistent with that currently used by CIAL for pricing purposes. In this Report, the Commission has optimised all land held for development in the years 1989 to 1998.

10.89. The Commission notes that its approach to land held by CIAL for development is consistent with that for AIAL and WIAL. If and when CIAL decides to start to develop the land, and the airlines agree to this, it will be appropriate, at this point, for the capitalised net holding costs associated with the land to enter CIAL's charging base.

Conclusion

10.90. In addition to the general principles determined in Chapter 5, the Commission has determined the following in respect of the valuation of CIAL's airfield land:

- The appropriate estimate of opportunity cost of CIAL's airfield land is $50,000 per Ha.

- Holding and levelling costs associated with the development of CIAL's runways, taxiways and aprons land should be included at DHC (to the extent that they are not covered by opportunity cost and continue to have separate value to CIAL).

- In accordance with CIAL's treatment of land held for development, it is excluded from the asset base until such time as CIAL starts to develop it. The capitalised net holding cost to that point should be treated as a specialised asset, to be written off over the medium-term; and the land would be valued at opportunity cost.

Appropriate Asset Base

10.91. Based on the Commission's views of asset base outlined in Chapter 5 and their application to CIAL above, the Commission estimates the value of CIAL's airfield

[428] CIAL Response to Section 70E Notice, 4 February 2002.

assets as at 30 June 2001 to be $38 million. The detailed calculation of the asset base is included in Appendix 17. Table 63 summarises the adjustments to CIAL's valuation to arrive at the Commission's assessed value.

Table 63
CIAL Airfield Asset Base as at 30/6/01

	Amount ($000s)
Asset Base used by CIAL for Pricing Purposes	$ 40,067
Optimisation of Development Land	0[429]
Adjustment to Operational Airfield Land Value (ORC to OC)	16,483
Add back of Reseal Reserve	0[430]
Adjustment to Non-Land Asset Values (ODRC to DHC)	-20,031
Associated Adjustment to Depreciation (ODRC to DHC)	1,568
Commission Airfield Asset Base	**$ 38,087**

10.92. The inclusion of non-land assets at DHC (rather than ODRC) reduces the asset base by $18.4m.[431] The inclusion of land at opportunity cost increases the asset base by $16.4m.

WACC

Introduction

10.93. After asset valuation, WACC has the next most significant impact on the calculation of excess returns. In Chapter 6, the Commission, established the following approach to determining WACC:

- WACC is computed using the tax-adjusted Brennan-Lally CAPM.

- The cost of debt is estimated for the same period as that used to determine the risk-free rate (the period for which prices are set) and not the duration of the airport's assets or its debt.

- The period of the risk-free rate should match the revision frequency of pricing on the basis that landing charges should reflect expected costs and risks over the period for which prices are set, but not be affected by the expectations of rates beyond that period. In determining the rate used, the Commission's approach is to use an average yield on Government stock over the period in which an airport consults with its substantial customers (ending with the point at which any new prices come into effect) and with a maturity matching the point at which prices

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[429] Adjustment is nil in 2001, as CIAL excluded the adjustment itself in determining prices. Adjustments are made in other (earlier) years.

[430] Adjustment is nil in 2001, as reseal reserve adjustment is only included with DHC values, not ODRC.

[431] The optimisation of selected assets is the change that occurs in moving from scenario 1 to 2 in the Commission's workings in Appendix 17. The reduction of land to opportunity cost occurs when then moving from scenario 2 to 4. The removal of revaluations of non-land assets to ODRC occurs when lastly moving from scenario 4 to 6. Scenarios 3 and 5 make the same adjustments, but without any optimisation. Scenario 6 reflects the Commission's adopted principles and views on CIAL's appropriate airfield asset base.

will again be reviewed (at maximum five years). The rate also reflects compound interest.

- The Commission does not consider any of the various approaches to estimating MRP to be better than any other. The Commission adopts a tax-adjusted MRP of 8%, within a range of 7-9% in recognition of uncertainty surrounding the estimate.

- The Commission uses a tax rate of 33% in computing the cost of equity, but the statutory corporate tax rate (which in the late 1980s was 28%) in computing the after-tax cost of debt.

- In selecting comparators to use to determine beta, the Commission considers a number of factors. In the case at hand, the regulatory environment is fundamental to the performance of the airports and is, therefore, the dominant factor considered in choosing comparators. Benchmarks for an asset beta for airfield activities are, therefore, United States firms engaged in electricity generation and/or distribution that are subject to rate-of-return regulation (which gives them a considerable degree of certainty on rate of return), and electricity firms in the United Kingdom subject to CPI-X price caps.

- A firm's actual leverage ratio—based on the market values of debt and equity at the time prices are set—should be used (consistent with the debt premium used).

- The Commission uses a nominal WACC in order to be consistent with its approach to asset base and analysis of historical returns. Any asset revaluations are included in income.

10.94. The above approach is now applied to determine CIAL's WACC for airfield activities.

Estimates Adopted by the Airports

10.95. In 2000, pursuant to the Airport Authorities (Airport Companies Information Disclosure) Regulations 1999, CIAL disclosed an estimate of the WACC for its identified airport activities. This WACC was used by CIAL to determine its new landing charges announced December 2000. CIAL's WACC estimate, and its derivation, is provided in Table 64.

Table 64
WACC Estimates Disclosed and Adopted by CIAL 2000

R_f	5 year rate - 6.23%
t_c	33%
t_{int}	$= t_c$ =33%
PTMRP	9%
Debt Premium	0.5%
R_d	6.73%
W_d	40%
W_e	60%

β_a	0.65
β_e	1.0833
R_e	13.924%
Nominal Tax-Adjusted WACC	10.15%[432]

Views of Substantial Customers

10.96. The airlines disagree with CIAL's estimate of its WACC with respect to the risk-free rate, the post-tax market risk premium, the debt premium, and the asset beta. The airlines consider the following figures are appropriate, compared in the table with those of CIAL.[433]

Table 65
Differing Views of Airlines on WACC Components

	CIAL	Airlines	Difference
R_f	6.23%	6.5%	0.27%
PTMRP	9%	8%	-1%
Debt Premium	0.5%	0.8%	0.3%
β_a	0.65	0.3 to 0.35	-0.3 to 0.35

10.97. Based on these alternative figures, the airlines consider the appropriate WACC for CIAL is 7.09-7.59%.

Appropriate WACC

10.98. Each airport may have its own unique characteristics that can result in a distinct risk profile and WACC. The Commission considers that the appropriate WACC for the airfield activities of CIAL, as at its last price reset on 1 January 2001, is as follows:

Table 66
Appropriate WACC for CIAL Airfield Activities as at 1/1/01

R_f	7.04%
t_c	33%
t_{int}	33%
PTMRP	7 to 9%, point est. 8%
Debt Premium	1%
R_d	8.04%
W_d	25%
W_e	75%
β_a	0.4 to 0.6, point est. 0.5
β_e	0.53 to 0.8, point est. 0.67
R_e	8.45 to 11.92%, point est. 10.05%

[432] CIAL's final consultation decision in December 2000 also adopts a WACC of 10.1%, but arrives at this figure based on slightly different components: R_f 6.7%, Debt Premium 1.0%, and t_{int} 36%.

[433] For example, Air New Zealand, *Further Interim Consultation Response to AIAL*, 7 June 2000, page 7.

Nominal Tax-Adjusted WACC	7.68 to 10.28%, point est. 8.88%

10.99. Full details of the Commission's computation of WACC for CIAL are contained in Appendix 17. Comments included in the spreadsheet explain various inputs and assumptions. In accordance with the approach determined in Chapter 6, the risk-free rate of 7.04% shown in Table 66 above is an average of yields on three-year government stock over the six month period of February to August 2000.

10.100. The asset beta is the most significant parameter that CIAL and airlines disagree on. CIAL favours an asset beta of 0.65, while the airlines favour a beta of about 0.3. Using the benchmarks adopted in Chapter 6, and based on advice from Dr Lally, the Commission considers that an asset beta of 0.5, within a range of 0.4 to 0.6, is appropriate for CIAL's airfield activities.

10.101. The Commission notes that the WACC estimate of 10.15% adopted by CIAL in setting current prices just falls within the range of 7.68% to 10.28% considered appropriate by the Commission (at the upper bound). The Commission's point estimate of WACC is significantly lower than CIAL's figure.

BENEFITS AND COSTS

10.102. Chapter 7 outlined the Commission's approach to deriving estimates of the potential benefits and costs of controlling airfield activities. The models developed in Chapter 7 are now applied to the airfield services supplied by CIAL to aircraft operators.

10.103. The Commission's analysis of the potential benefits of control involves a number of distinct parts: calculation of returns from vesting to date (1989-2001); forecasting of returns into the future (through to the end of the period for which landing charges are presently set, i.e., 2003); assessing any allocative inefficiencies associated with current landing charges; assessing any productive inefficiency; and assessing any dynamic inefficiency. Each are now discussed.

10.104. All the results presented in this Chapter are based on the Commission's assessed airfield asset base and the WACC range for CIAL estimated by the Commission. Appendix 17 contains full workings of the analysis, as well as results and sensitivity analysis based on alternative asset base assumptions.

Historic Analysis of Returns

Introduction

10.105. From an economic perspective, CIAL should be able, on average over time, to earn a normal return on the optimised assets used in providing the services of airfield activities. WACC is used to determine the normal or target return CIAL's assets used for airfield activities, on the grounds that a return equal to the WACC for an entity is a return commensurate with the opportunity cost of capital for that entity. A return in excess of that would suggest CIAL was earning an excessive return, unless those returns reflected efficiency gains and superior performance.

The Calculations

10.106. The Commission has conducted an analysis of the historical returns of the airfield activities of CIAL over the period since vesting, comparing actual returns with target returns (based on the Commission's views on asset base and WACC). The returns have been calculated based on the formula provided in Chapter 7:

Excess Returns ($) = Net Earnings – (Asset Base x WACC)

10.107. The first part of the equation, net earnings, represents CIAL's actual earnings from airfield activities. As noted in Chapter 7, net earnings is computed as earnings before interest, but after tax, depreciation and operating expenses, plus revaluations. In accordance with the principles on asset base determined by the Commission, the revaluations included are those relating only to any revaluations of land to opportunity cost. The second element of the equation (asset base x WACC) represents the target returns.

10.108. The returns are computed annually for each financial year from vesting (1989-2001) separately for the lower bound, upper bound and point estimates of WACC (relevant to that financial year, based on the last price reset). In order to look at trends over time, and not create an outlier in the returns derived in years where there are substantial revaluations, revaluations are spread back to vesting, or the last revaluation.[434]

10.109. The framework for the analysis is largely the same as that in the Draft Report. However, the spreadsheets used for the analysis have been revised and simplified, and the analysis has been updated to include the 2001 financial year results for CIAL (unavailable when the Draft Report was released). Inputs and assumptions have also been modified where appropriate (as discussed in this Report).

Assumptions and Inputs

10.110. As noted above, for full details of the data used and of the analysis of CIAL, readers are referred to Appendix 17. These include an analysis of the sensitivity of the results to different assumptions or scenarios regarding the appropriate asset base reported below.[435] The key assumptions and inputs in the Commission's analysis of historical returns are detailed below.

10.111. Revenue and expenses figures for CIAL's airfield activities are sourced from information provided by CIAL in its submission on the Draft Report and supporting computations since provided. The only figures that have been estimated are those of 'other revenue' for 1989-1997, where an estimate of $200,000 is included each year.

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[434] Note that, in the revised numbers in this Report, revaluations are spread entirely based on the Housing Group of the CPI for the Christchurch region. In the Draft Report, the Commission used the New Zealand-wide 'all groups' CPI, with a wash-up based on revenue. The Commission notes that the conclusions reached on the analysis of historical returns are not sensitive to how revaluations are spread.

[435] The Commission's assessment of the appropriate asset base is computed in scenario 6 in Appendix 17. It is the results from this scenario that are presented and discussed in this Chapter.

10.112. Expense figures for 1999-2001 are sourced from CIAL's financial system and information disclosures. For 1989-1998, expenses were not recorded in terms of airfield activities, so estimates are required. In the analysis included in the Draft Report, the Commission derived estimates of the airfield expenses for these years by extrapolating back from 2000. In response to the Draft Report, CIAL produced its own estimates of airfield expenses for 1989 to 1998. The figures for 1989 are based on the 1989 Travers Morgan pricing model developed for CIAL. Where possible, expense figures for 1990-1998 are directly allocated. Elsewhere, CIAL has interpolated between the proportions in the 1988 model and the actual allocations for 1999 and 2000. This approach applies to expenses other than depreciation. CIAL has derived airfield depreciation figures by constructing an asset register for airfield assets back to 1989. CIAL's approach to estimating expenses takes account of the change in the focus of CIAL's business over time.

10.113. In terms of taxation—as noted in Chapter 7—the Commission now uses an effective tax rate in its analysis. The effective tax rate is unlevered to fit with the way returns are computed (i.e., before interest). In recent years, the unlevered effective tax rate and the statutory corporate tax rate are the same. The statutory tax rate continues to be applied in the forecast return analysis beyond 2001.

10.114. The Commission's assessment of the appropriate airfield asset base for CIAL as at 30 June 2001 was detailed earlier in this Chapter. In analysing historical returns, the Commission also needed to determine the asset base in each year from vesting through to 2001. The Commission has been able to source asset base figures for earlier years from a combination of the 1999 valuation reports, information disclosures, CIAL's pricing model from the recent consultation round, and the airfield asset register constructed by CIAL to determine depreciation expenses.

10.115. Adjustments to the asset base (and revaluations included as earnings) are made over the period 1988-2000. One adjustment for optimisation over this period relates to the land held for development of the airfield, for which the historic cost values (as advised by CIAL) are removed. Other adjustments to the asset base due to the Commission's chosen method of valuing assets over this period are due to reduction or removal of spread revaluations.

The Results

10.116. The Commission's assessment of the returns earned historically on airfield activities by CIAL are summarised in Table 67. Table 67 provides three different representations of the results: average returns from vesting to date (1989-2001), average returns over the last five years (1997-2001), and the present value of returns from vesting to date as at the end of CIAL's 2001 financial year (30 June 2001). For results for individual years, refer to the detailed results provided in Appendix 17.

Table 67
Returns on Airfield Activities Supplied by CIAL
Since Vesting ($000s)

	Over WACC Range	At Point Estimate of WACC
Average 1989-2001	-843 to 76	-348
Average 1997-2001	-1,525 to -479	-962
Present Value 1989-2001	-17,116 to 1,509	-7,087

10.117. The figures in Table 67 suggest results of varying magnitude, but all with largely the same overall result—negative returns. Small positive returns have been earned since vesting at the lower end of the Commission's WACC range.

10.118. As with WIAL and AIAL, the Commission tested the influence of a depreciating asset base on returns. In CIAL's case, the few instances of positive returns appear to be due to the effect of a depreciating asset base. Without needing to examine the influence of productive efficiency gains, the Commission concludes that CIAL has not earned excess returns historically.

10.119. These findings suggest the conclusion that CIAL has not used its market power in airfield activities historically. This appears reasonable, given that CIAL kept its landing charges constant from 1991 to 2001.

Current and Forecast Analysis

10.120. As discussed in Chapter 7, the counterfactual in CIAL's case will be the status quo.

10.121. While analysis of historical returns is useful for evaluating behaviour of CIAL in the past, an analysis of the forecast returns helps to determine whether such results are an indication of the future. The future analysis also presents an evaluation of the efficiency effects of CIAL behaviour, assuming that behaviour in the past continues.

10.122. The Commission uses the year 2001 as a base year for introducing the forward-looking models, as this is the most recent year from which projections can be made.[436] The analysis for CIAL projects future returns and inefficiencies out to 2003. The approach is designed to be consistent with the historical analysis, in particular, it takes into account any unrealised capital gains or losses.

Allocative Inefficiency and Excessive Returns

Determining P_C, P_M and Q_C

10.123. The Commission has calculated an average price per tonne (P_m) for CIAL's 2001 year based on the landing charge revenues and tonnes landed (Q_m) in the 2001 financial year for CIAL. P_m is used to compute P_c. CIAL's price elasticity of demand of [ ] (calculated in Chapter 3) is used in calculating Qc, per the model in Chapter 7 (Figure 2). The results of these calculations are presented in Table 68.

[436] In the Draft Report, the Commission used the 2000 year as the base. Since the Draft Report was released, the 2001 financial year end data for CIAL has become available.

Table 68
Average Prices Relative to Competitive Benchmark Prices for CIAL for its 2001 Financial Year

	Over WACC Range	At Point Estimate of WACC
Actual Price (P_M)	$6.71	
Efficient Price (P_C)	$7.53 to $8.07	$7.78
Difference, P_M-P_C	-1.36 -0.82	-1.07
Actual Output (Q_M)	1,779,665	
Efficient Output (Q_C)	[ ]	[ ]
Difference, Q_C-Q_M	[ ]	[ ]

10.124. CIAL's actual price for 2001 is below the Commission's efficient price. Similarly, CIAL's actual output for 2001 is above the Commission's efficient output. Allocative inefficiencies are losses of producer surplus, and negative excess returns are also apparent (representing less than normal returns).[437]

10.125. The Commission has computed the same figures for each of the forecast years (2002-2003). These figures are not detailed here, but can be found in Appendix 17. The figures for 2002 and 2003 include the impact of a full 12 months of new landing charges (2001 data included only six months of increased prices). This has the effect of producing different results for 2002 and 2003. In these years, CIAL's actual price exceeds the efficient price, and CIAL's actual output is less than the efficient output. Slight allocative inefficiencies are forecast for 2002 and 2003, and are losses of consumer surplus. The impact of this is reflected in the averages for 2001 to 2003 in subsequent tables.

Estimates of Allocative Inefficiency and Excess Returns

10.126. The figures above have provided the information to calibrate the model in Figure 2 of Chapter 7. The model can now be used to estimate the potential allocative inefficiencies and excess returns associated with CIAL's 2001 price levels. Because the precise values of marginal cost are not available, although they are known to be very low, it is assumed that marginal cost is 50 cents. It is also assumed, for the purpose of analysing allocative inefficiencies, that there are no productive inefficiencies or cost misallocations, and that levels of service quality demanded by the airlines are being provided (to be discussed below). On this basis, the Commission has estimated that the likely size of the allocative inefficiencies associated with pricing of airfield activities in the 2001 financial year of CIAL.

10.127. Forecast returns are computed using the same formula as that used in the historical analysis. CIAL's actual results for 2001 are used as the base, modified as appropriate based on CIAL's forecasts and growth estimates. In computing forecast returns under scenario 1 for 2002-2003, the Commission has adopted CIAL's forecasts of MCTOW (tonnes landed), expenses and changes in the asset base (i.e., capital expenditure and depreciation). Those figures are then adjusted as to be consistent with the

[437] Note that less than normal returns does not necessarily imply that losses are being made overall, although this is possible.

Commission's view on how to calculate the appropriate asset base (e.g., adjustments to depreciation in respect of the move from ODRC to DHC).

10.128. Allocative inefficiency consists of consumer surplus (area BFE in Figure 2, Chapter 7) and producer surplus (area EFHG in Figure 2, Chapter 7). In addition, the excess returns stemming from prices being above the efficient levels cause a redistribution of wealth from acquirers to suppliers (as measured by area P_CP_MBE in Figure 2). Estimates of these distribution effects are given in Table 69. These transfers are proportionally much larger than the associated allocative inefficiencies, as would be expected, given the highly inelastic demand for airport services. It should be noted, however, that transfers are distributional in nature, not losses to economic efficiency. The figures shown in Table 69 are an average of the three years 2001-2003. Results for individual years are shown in Appendix 17.

Table 69
Estimated Allocative Inefficiencies and Excess Returns for CIAL($000s)

	Over WACC Range	At Point Estimate of WACC
Consumer Surplus	-4 to 0.3	-2
Producer Surplus	-43 to 10	-13
Excess Returns	-758 to 246	-217

10.129. As with allocative inefficiencies, the Commission's findings on excess returns change in 2002. For 2001, the Commission finds negative returns (consistent with the finding of no excess returns historically), but when the new charges take full effect in 2002 and 2003, excess returns of up to, on average, $1.5m per annum are forecast. The levels of allocative inefficiency are immaterial relative to the excess returns forecast.

10.130. It should be noted that for the purpose of the forecast analysis, no expected revaluation gains are estimated for and, although the Commission considers that there may be revaluation gains over the forecast period. If this were the case, this would be likely to suggest that the figures above understate forecast allocative inefficiencies and excess returns.

Cross-Subsidisation

10.131. In Chapter 4, the Commission presented the way it would assess whether there was any cross subsidisation associated with airfield activities by considering:

- Prices charged by aircraft type per landing, with prices per landing dependent on weight bands.
- Cost allocation between airfield activities and other airport activities.

10.132. CIAL determines the price charged by aircraft type per landing by first using a cost allocation model and then establishing weight bands and prices into which different aircraft fall. For airlines, the landing charge they pay for a given aircraft landing is calculated by multiplying a dollar charge per MCTOW by the MCTOW of that aircraft. The key drivers of CIAL's cost allocation model are summarised in Table 70.

Table 70
Basis of Cost Allocation

	CIAL
Return on the capital cost of land	Landings and m^2 runway area used except for 1984 runway extension which is based on seats landed[438] (number of seats x number of landings)
Return on the capital cost of runways and taxiways	Equivalent landings of design aircraft[439] and m^2 runway area used except for 1984 runway extension which is based on seats landed
Return on the capital cost of aprons	Seats landed
Runway damage (operating costs of sealed surfaces)	Equivalent landings and m^2 runway area used except for 1984 runway extension which is based on equivalent seats landed (number of seats x equivalent number of landings)
Rescue fire service costs	Landings

10.133. The cost allocation model attempts to identify the causes of costs, and to allocate costs accordingly. The cost of runway damage aims to take account of the wear-and-tear on the runway, and associated taxiway and aprons, caused by aircraft movements, with heavier aircraft causing greater damage. As with WIAL, the cost of rescue fire is allocated based on the number of landings (not on seat capacity). The returns on the various capital costs are related to the size of the aircraft and, therefore, the number of passengers, reflecting demand conditions. This seems to be a reasonable attempt to recover the costs involved.

10.134. CIAL is a multi-product business, and serves a variety of customers. This suggests there is potential for cross-subsidisation to occur across its different activities. Because of the throughput of passengers generated by airfield activities, CIAL can undertake other integrated aeronautical activities (such as the provision of both airfield and terminal facilities) together with significant complementary commercial activities (such as the provision of retail and commercial premises). There are incremental and common costs associated with these activities.

10.135. BARNZ argue that airlines have not received sufficient information from CIAL on the apportionment of common costs to commercial activities and airfield activities to judge whether cross-subsidisation is occurring. It considers disclosures could be enhanced to assist in assessments of such allocations.[440]

10.136. The Commission considers there is no economically appropriate way to allocate costs, except indirectly via Ramsey Pricing. MCTOW based pricing approximates Ramsey Pricing. The Commission also notes that an analysis of the adequacy of information disclosure regulations is outside the scope of this Inquiry.

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[438] Seat capacity of aircraft multiplied by the number of landings.

[439] Calculated in accordance with Federal Aviation Authority (FAA) Advisory Circular AC150/5320-6C (an algorithm that reflects the wheel weights and required runway length of aircraft).

[440] BARNZ Submission on the Draft Report, 10 August 2001, Page 18, paragraph 11.10

10.137. Given the information available, the Commission considers the scope for cross-subsidisation is minimised by CIAL's use of a multiple till approach, which where possible does try to associate costs with their cause and, to some degree, the demands of the various user groups.

Productive Inefficiency

Introduction

10.138. Airports are predominantly fixed costs businesses characterised by economies of scale. As traffic builds up, the runway facilities are better utilised and the fixed costs are spread over a larger number of landings or passengers. In general, therefore, unit costs would go down with increased use, unless an airport invests too much or too soon in new facilities. However, despite the importance of fixed costs for efficiency, the operating costs at airports are also significant.

10.139. The pricing principles in Chapter 4 suggest a productively efficient operation is one that, over the medium-term, meets demand at the lowest possible cost, commensurate with the level of service quality demanded. The Commission has considered the submissions on CIAL's productive efficiency from interested parties. It presents below some of the evidence that has informed its decision on this matter.

10.140. In its submission, CIAL argued that in principle the efficient cost curve depicted as AC' in Figure 3 (Chapter 7) "makes no reference to the likelihood that AC is already lower than it would otherwise be, because of economies of scope".[441] It notes that the Commission recognises that economies of scope exist and were mentioned in the competition analysis. CIAL argues it should be given a credit for this, as it believes AC in Figure 3 may be already be lower than the Commission expects. The Commission considers that economies of scope are a relevant consideration for determining the efficient level of average costs (AC'). Whether these economies of scope are captured in AC or AC' is irrelevant to determining what the efficient level of average costs. The Commission does not double count this effect, so it does not agree that credits should be given for cost savings that should be achieved were CIAL behaving efficiently.

Measures of Operating Costs and their Trends

10.141. The major operating expenses of CIAL are depreciation, employee remuneration, repairs and maintenance, and rescue fire services. Of the operating expenses, all but depreciation would appear to be potentially susceptible to productive inefficiency over the medium-term. These might arise, for example, because of overly lavish maintenance expenditure, over-staffing, or excessive levels of staff remuneration.

10.142. In the Draft Report the Commission suggested that productive inefficiencies may be 1% of operating costs (excluding depreciation) for CIAL. In its submission, CIAL questioned the empirical evidence supporting that view[442], stating that "{i}n the absence of any empirical insight, it is not possible to judge whether the Commission

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[441] CIAL Submission on the Draft Report, 14 August 2001, Part B, page 22.

[442] Ibid.

is 'correct' in its approach". CIAL suggested various comparators that could be used, including an assessment of operating costs and inter-airport comparisons.

10.143. CIAL's operating expenses (excluding depreciation) have gone up by about 60% from vesting to 2000. However, aggregate operating costs on their own do not provide sufficient information for evaluating productive efficiency. Relative (per unit) measures of operating costs are needed. Since vesting, Christchurch International Airport has experienced growth in passenger, aircraft movements, cargo and tonnes landed. Passenger and landing data for Christchurch provide a complete record since vesting. It is in relation to landings and passengers, therefore, that CIAL's productive efficiency can be evaluated.[443]

10.144. On a per passenger and per landing basis, the operating costs (excluding depreciation) of CIAL have risen on average by 1.3% pa and 0.6% pa respectively, when comparing the operating costs in 1989 to those in 2000. CIAL has forecast operating costs (excluding depreciation) over the next three years (2001-2003) to fall and then rise in nominal terms. Despite the reduction in flights from Air NZ and the fallout of the 11 September terrorist attacks in the US, forecast passenger numbers and landings are expected to stay the same over the same period. Together, these figures indicate that operating costs (excluding depreciation) per passenger and landing will increased on average by 4% and 7% pa respectively, comparing 2000 figures to those forecast for 2003.

10.145. BARNZ argued in submissions that CIAL should have been able to achieve the same cost reductions as WIAL, which BARNZ claim achieved 7.2% per annum reduction in airfield expenses over the period 1998 to 2000, "while operating under a Deed which specified prices".[444] BARNZ argued the 1% figure suggested by the Commission was too low for CIAL. It suggested a 3% figure. BARNZ also noted that airports should benefit from economies of scale and that CIAL should be able "to achieve efficiencies above the level of total factor productivity improvement experienced by the economy as a whole."[445]

10.146. The Commission notes that, in setting current prices, CIAL has assumed an ongoing annual improvement in productive efficiency of 1% in line with the wider economy.

<u>Benchmarking</u>

10.147. The Commission considers that benchmarking of CIAL's productive efficiency has merit. However, it is also difficult to do. There were no benchmarking exercises presented regarding CIAL's productive efficiency, although CIAL was used as a comparator in the NECG response on LEK's study of AIAL's productive efficiency.[446] In this study, CIAL's productive efficiency compares favourably with that of AIAL.

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[443] In terms of Figure 3, in Chapter 7, output (Q) can be thought of as being represented by either landings or passengers.

[444] BARNZ Submission on the Draft Report, 10 August 2001, page 36.

[445] Ibid, paragraph 33.3.

[446] NECG, *Review of LEK Report Auckland International Airport Ltd – Airport Efficiency*, July 2000.

10.148. Despite the trend in rising operating costs (excluding depreciation) on a per passenger and landing basis, CIAL still had lower operating costs (excluding depreciation) per passenger and per landing than AIAL for 2000 (10% and 56% respectively), although it had higher operating costs (excluding depreciation) per passenger and per landing than WIAL for 2000 (18% and 11% respectively).

Summary

10.149. The Commission has adopted a pragmatic approach (to an issue that involves significant uncertainty) by presenting productive inefficiencies as a percentage range of operating costs (excluding depreciation).

10.150. Given the considerations above, the Commission considers there is likely to be some room for improvement in the productive efficiency of the airfield activities at Christchurch. Operating costs (excluding depreciation) have risen (and are expected as a general trend to continue to rise) on a per passenger and landing basis. CIAL has lower operating costs (excluding depreciation) on a per landing and passenger basis compared to AIAL, but higher costs compared to WIAL. The Commission considers there is scope for these figures to be improved upon over the forecast period. The Commission considers there to be productive inefficiency of the order of 1% to 2% of operating costs (excluding depreciation) at Christchurch.

10.151. Table 71 presents the levels of potential productive efficiency benefits based on this range. The figures shown in Table 71 include an average of the three years 2001-2003.

Table 71
Potential Productive Inefficiency at Christchurch International Airport ($000s)

	1-2% Range
2001	83 to 166
2002	74 to 149
2003	80 to 121
Average 2001-2003	79 to 159

Dynamic Inefficiency

10.152. Dynamic efficiency relates to minimising costs over time through investment, and to the quantity and quality of assets used by an entity. Inefficiencies can arise where investments that would be optimal are not made (or made at the wrong time), or investment has led to too many assets being acquired—meaning that some assets are not ‘used or useful’ in meeting demand—or because some assets are ‘gold plated’. Given the nature of airfield activities, the acquisition of too many assets (most likely land) is more likely to be a potential source of dynamic inefficiency than ‘gold plating’. The issue then becomes one of whether the optimal amount of assets is being used to provide the service.

10.153. As noted earlier, there appears to be some over-investment by CIAL in airfield activities in the form of land held for future development. This land has been optimised out of CIAL’s asset base (including by CIAL itself). However, there may also be dynamic efficiency implications regarding this optimised land particularly if the land is not put to its best alternative use until it is used for airfield activities.

10.154. CIAL argued in its submission to the Draft Report that optimising out the land from the asset base for charging purposes, and evaluating the efficiency of the investment itself, constituted double counting.[447]

10.155. In the Draft Report, the Commission did not consider the calculation of allocative inefficiencies and dynamic inefficiencies as double counting, but merely taking account of all efficiency effects. Having considered CIAL's submission, the Commission considers that, if the optimised land will form part of the airfield activities markets in the medium-term, and was a prudent investment, then consideration of any inefficiencies in the interim may constitute double counting. Double counting would be inconsistent with the Commission's principles in Chapter 4, in particular it would compromise prices being dynamically efficient over the medium-term.

10.156. The Commission has attempted to quantify the extent of dynamic inefficiencies at CIAL by first determining that proportion of land that may have resulted in dynamic inefficiency (either through the purchase or subsequent use). Determining whether the optimised land, even if it is not presently used or useful, is prudently held over the medium-term provided basis on which the decision could be made. That land which is not prudently held over the medium-term is subject to dynamic inefficiencies and should be used elsewhere (or not acquired in the first place) as it will not earn its opportunity cost in the medium-term in the present case. Land that is prudently held is expected to enter the asset base on which charges are based over the medium-term, and will, therefore, earn its opportunity cost in the future.

10.157. The portion of land potentially subject to dynamic inefficiency at Christchurch is that proportion of land which will not be needed for airfield activities over the medium-term. In 2001, the proportion of land was 32% of the total airfield land. This proportion of land was optimised by CIAL in determining its charges. The presence of this excess land holding could nonetheless imply sub-optimal use of this land, and could imply dynamic inefficiencies still existed.

10.158. However, as the optimal use for this land (while the airport continues to operate) is deemed to be rural land uses, and because it is currently used for these purposes, there are unlikely to be dynamic inefficiencies associated with the use of this land. No dynamic inefficiencies have therefore been attached to these surplus assets at CIAL.

Costs of Control

10.159. Costs of control are forward looking by the very nature of this Inquiry. The Commission considers that the direct costs of control (including both the regulators' and market participants' costs) for a single airport might be \$1-\$2 million in a review year, and \$0.5-\$1 million in other years. Over a five-year period, with one review, this suggested an annual average of between \$0.6-\$1.2 million per year at each airport.

[447] CIAL Submission on the Draft Report, 14 August 2001, Part C, page 38, paragraph 44.

10.160. The total costs of control are not easy to estimate. In Chapter 7, the Commission considered that, in the absence of any superior alternatives, the indirect costs of control could be measured by considering what extent of the potential benefits of control could be realised by control. The Commission determined that the indirect costs of control as a proportion of potential benefits would be 25% of any excess returns and producer surplus, 43.75% of any consumer surplus, and from 50% to 100% of any dynamic inefficiencies. The productive efficiency costs of control are estimated at 0 to 2% of operating costs (less depreciation) and are offset against the range of possible benefits of control regarding productive inefficiencies.

10.161. Table 72 summarises the likely indirect costs, per annum, of controlling the airfield services supplied by CIAL to aircraft operators. The figures shown in Table 72 are an average of the three years 2001-2003. Results for individual years are shown in Appendix 17.

Table 72
Likely Indirect Costs of Controlling CIAL ($000s)

	Over WACC Range	At Point Estimate
Consumer Surplus	-2 to 0.1	-0.9
Producer Surplus	-10 to 2	-3
Excess Returns	48 to 182	103
Productive Inefficiency	0 to 159	79
Dynamic Inefficiency	0	0

NECESSARY OR DESIRABLE

10.162. As noted in Chapter 2, under Part IV of the Commerce Act goods and services may be controlled if it is necessary or desirable for those goods and services to be controlled in the interests of acquirers. The potential benefits and costs to acquirers of controlling the airfield services supplied by CIAL have been identified above. The Commission considers that if the weighing of these benefits and costs demonstrates that an improvement in the economic welfare of acquirers would result, then control would be demonstrated to be necessary or desirable in the interests of acquirers.

10.163. Table 73 brings together the Commission’s estimates of the potential benefits and costs to acquirers of introducing control for airfield activities in terms of acquirers interests. The figures shown in Table 73 are an average of the three years 2001-2003. Results for individual years are shown in Appendix 17.

Table 73
Estimates of the Potential Benefits and Costs to Acquirers of Control of Airfield Activities Supplied by CIAL, Average Per Annum ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	-604 to 326	-100
Total Costs	802 to 1,525	1,152
Net Benefits to Acquirers	**-2,130 to -476**	**-1,253**

10.164. There are no net benefits to acquirers (in this context, specifically the aircraft operators and any indirect acquirers, such as airline passengers) if the airfield services supplied by CIAL were to be controlled. At the Commission's point estimate of WACC, the Commission estimates there are $1.2 million net losses per annum to acquirers over a period of three years. Overall, the Commission considers that, on the balance of probabilities, no net benefits would accrue to acquirers through the imposition of control, irrespective of the position chosen in the WACC range.

10.165. In considering whether it is necessary or desirable in the interests of acquirers to control the airfield activities supplied by CIAL, the Commission also notes the fact that it has not found evidence of a trend of excess returns historically. This reinforces the Commission's view that excess returns are not likely in the future under the current regulatory environment.

10.166. The Commission, therefore, considers that control does not appear to be necessary or desirable in the interests of acquirers of airfield activities. The test in section 52(b) is not met. The requirements for controlling the airfield services supplied by CIAL are not satisfied.

10.167. In calculating the costs of control, the Commission has assumed price cap regulation, as this is one of the more common forms of regulatory control overseas. Use of this form of control, for the purpose of estimating the costs of control, should not be seen as predetermining the form of control that the Commission would employ if control were declared. The Commission notes that a wide range of regulatory controls are available under Part V, which are likely to be less intrusive or less costly than price cap regulation. It would also need to be determined, however, how effective different control mechanisms would be in achieving the benefits of control, i.e., the overall cost-effectiveness of control would need to be assessed for control mechanisms besides price cap regulation. The Commission has not considered the efficacy of other forms of control.

10.168. In terms of other control mechanisms, section 70(2) enables the Commission to use formulas or other methods from which prices or revenues, or any part of a price or revenue, may be determined. One suggestion, from BARNZ, is that the parties could commercially negotiate, based either on the principles resulting from this report, or pricing principles established by the Commission as a form of control. In addition, the Commission notes there may be other policy options available to the Minister. Irrespective, the Commission is cognisant that any form of control utilised would need to be commensurate with the level of market power available to CIAL, the size of the anticipated excess return, and resulting net benefits to acquirers.

NET PUBLIC BENEFITS

10.169. In considering the net benefits to acquirers, the Commission has had regard to both the efficiency effects (only some of the allocative efficiency) and the distributional effects of the removal of excess returns. The Commission is required by section 52 to take this approach. However, the Minister, in exercising his discretion, may wish to consider only the efficiency effects contained in the net public benefits. This approach considers the interests of the public at large, including CIAL, and not just those of the acquirers. Such an approach involves focusing on the efficiency, and ignoring the distributional, effects of control. Excess returns would be ignored, as transfers between suppliers and acquirers are considered efficiency-neutral.

10.170. Table 74 presents the Commission's estimates of the potential benefits and costs of introducing control for airfield activities for the economy as a whole (not just acquirers). The figures shown in Table 74 are an average of the three years 2001-2003. Results for individual years are shown in Appendix 17.

Table 74
Estimates of the Potential Benefits and Costs of Control of Airfield Activities Supplied by CIAL, Average Per Annum ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	90 to 111	103
Total Costs	622 to 1,466	1,045
Net Public Benefits	**-1,355 to -532**	**-941**

10.171. Table 74 shows that there are no net public benefits likely to accrue from controlling the airfield activities supplied by CIAL through price cap regulation. The costs exceed the benefits irrespective of the point chosen in the WACC range.

CONCLUSION

10.172. In this Chapter, the Commission considered the extent of competition in the supply of airfield services at Christchurch International Airport. It found that the relevant market was one in which CIAL was by far the major supplier, faced little prospect of new competitors entering the market, and was not sufficiently constrained by the countervailing power of the airlines, and hence was one where competition was limited. The Commission applied its generic principles developed earlier in this report to calculate the appropriate asset base and WACC for CIAL. It then considered the returns that CIAL had made in the recent past, and the returns it was projected to make in future years, against target returns for those years based on realised or forecast demand and other costs. It also assessed the efficiency implications of control.

10.173. A critical assumption made by the Commission is that the costs of control would be borne by acquirers rather than the general public. After having netted-off all of the costs of control from the benefits to acquirers, the Commission has not found any net benefit to acquirers. Indeed, even the gross benefits are small.

10.174. The Commission has not found evidence that CIAL earned excess returns historically, and there are potentially only small forecast excess returns. The thresholds contained in section 52 of the Commerce Act are not satisfied in the case of the airfield activities supplied by CIAL to acquirers. The Commission, therefore, considers that on the balance of probabilities it is not necessary or desirable for the airfield activities supplied by CIAL to be controlled in the interests of acquirers.

11. CONCLUSION

NOTICE FROM THE MINISTER

11.1. Acting pursuant to sections 54 and 56 of the Commerce Act, the Minister required the Commission to report on whether airfield activities at Auckland, Wellington and Christchurch International Airports should be controlled under the Commerce Act. The Commission's response to the Minister's Notice is presented below.

SECTION 56—RECOMMENDATIONS REGARDING CONTROL

11.2. Pursuant to section 56, the Minister required the Commission to advise on the following:

> a whether there is evidence that airfield activities, as defined in the Airport Authorities Amendment Act 1997, provided by the three major international airports (Auckland, Wellington and Christchurch) are supplied or acquired in a market in which competition is limited or is likely to be lessened; and it is necessary or desirable for these goods or services to be controlled in the interests of persons acquiring the goods or services (whether directly or indirectly) or as the case may be, suppliers; and
>
> b whether market conditions are such that the Commission believes that I should recommend to the Governor-General that she make an Order in Council under section 53 of the Act invoking controls over airfield activities at the three major international airports.
>
> 1. Whether controls should be introduced for airfield activities at one or more of the three major international airports;
>
> 2. If the Commission is of the view that controls should be introduced, to which (i) components of the prices, revenues, or quality standards; (ii) regions, areas, or localities in New Zealand; (iii) quantities, qualities, grades, or classes; and (iv) different persons or classes of persons, should controls be applied?

Paragraph 'a'—Section 52

11.3. Paragraph 'a' of the Minister's Notice essentially required the Commission to advise on whether there is evidence that the requirements of section 52 of the Commerce Act are met. These are the matters on which the Minister must be satisfied in order for the Minister to be able to recommend control.

11.4. In terms of section 52(a), the Commission considers that there is evidence that airfield activities, as defined in the Airport Authorities Amendment Act 1997, provided by all three major international airports (Auckland, Wellington and Christchurch) are supplied or acquired in markets in which competition is limited. Competition between those airports and with others is not significant, and hence each operates in a separate, regional airfield services market in which it is able to exercise significant market power. Those airports are insufficiently constrained by the countervailing power of acquirers, the present regulatory regime, or by the potential for entry. Competition is not workable or effective, and there is more than a nominal or de minimis restriction or impairment of competition.

11.5. In terms of section 52(b), the Commission is satisfied that, on the balance of probabilities, it is necessary or desirable for the airfield activities supplied by AIAL to aircraft operators to be controlled in the interests of persons acquiring the goods or services (whether directly or indirectly). Acquirers of airfield activities supplied by AIAL would be likely to benefit from the removal of excess returns and inefficiencies, and that benefit would not be outweighed by the likely direct costs and inefficiencies that administering control could create.

11.6. In the case of the airfield activities supplied by WIAL and CIAL, the Commission does not consider that, on the balance of probabilities, it necessary or desirable for airfield activities to be controlled in the interests of acquirers. Given the Commission is not satisfied, it has not considered whether market conditions are such that the Minister should recommend control in the case of these two airports.

11.7. The Commission's findings in respect of WIAL do not take account of the impact of any increase in charges that may yet occur as a result of its current consultation with users. As noted in Chapter 9, WIAL's current proposal is for landing charges to increase. A 10% interim increase from 1 July 2002 was agreed with airlines. As the proposed further increase in charges has not been implemented the Commission has not incorporated its impact into its recommendations. However, if the proposed [ ] increase in charges (to apply for the next five years) were factored into the Commission's forecasts for WIAL for 2003, significant excess returns would arise in that year (and the next four years), such that there would be net benefits to acquirers of up to [ ] per annum. In that event, the Commission would likely be satisfied that it would be necessary or desirable in the interests of acquirers for the airfield activities supplied by WIAL to be controlled.

Paragraph 'b' and Question 1—Discretion to Control

11.8. Paragraph 'b' and question 1 of the Minister's Notice required the Commission to advise on whether market conditions are such that it considers the Minister should exercise his discretion to recommend control. The Commission considers that, in the case of AIAL, market conditions are such that the Minister should exercise his discretion and recommend to the Governor-General that an Order in Council under section 53 of the Commerce Act be made, declaring control over airfield activities at Auckland International Airport.

11.9. The Minister's request limits the Commission to considering whether market conditions are such that control should be recommended to the Governor General. The Commission has not been asked to consider the net public benefit of control or other factors. The Commission notes that the Minister is not similarly constrained and could take into account a broader range of factors. Additional matters the Minister may wish to consider include:

- The level of prospective net benefits to acquirers from control amount to about 4% of the total landing charges paid to AIAL, and 10% of AIAL's net profit from airfield activities.

- In formulating its estimates of the costs of control, the Commission has assumed price cap regulation under Part V and has not considered other forms of control under Part V or regulatory intervention, which are likely to result in lower costs of control than price cap regulation. Irrespective, the Commission is cognisant that any form of control utilised needs to be commensurate with the level of market power available to AIAL, the size of the anticipated excess return, and resulting net benefits to acquirers.

- The results of the net public benefit analysis set out in this Report.
- Airfield activities are not the only services supplied by AIAL and the Commission has not considered the impact of control on those other services, as the scope of the Inquiry was confined to airfield activities only.

Question 2—Specific Goods and Services to Control

11.10. Question 2 echoes section 57A of the Commerce Act. As the Commission considers that the Minister should recommend control for AIAL, it is required by question 2 to provide details to identify the (i) components of the prices, revenues, or quality standards; (ii) regions, areas, or localities in New Zealand; (iii) quantities, qualities, grades, or classes; and (iv) different persons or classes of persons, to which controls should be applied.

11.11. The Commission recommends that controls be declared over landing (or other airfield) charges for airfield activities at Auckland International Airport supplied by AIAL to aircraft operators. Table 75 details these airfield services:

Table 75
Airfield Services Supplied by AIAL to be Controlled

Airfield Activities	Goods and Services Supplied by AIAL
Airfields, runways, taxiways, and parking aprons for aircraft	Airfields, runways, taxiways, and aprons.
Facilities and services for air traffic control	None.
Facilities and services for parking apron control	Apron control service at the international terminal apron.
Airfield associated lighting	Cable ducts and light pots for the entire airfield; cabling for light fittings for aprons and first taxiways; and apron lights.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft.
Rescue, fire, safety, and environmental hazard control services	Rescue, fire, safety, and environmental hazard control services.
Airfield supervisory and security services	Provides and maintains security fencing.
Facilities/assets held for future airfield activities	Holds land for second runway.

SECTION 54—CONDITIONS, TESTS OR THRESHOLDS

11.12. In addition to advising as to whether under section 53 airfield activities may be controlled, the Minister has required (pursuant to section 54) the Commission to advise the conditions, tests or thresholds useful for determining whether section 52 is met. Specifically:

3. What conditions, tests, or thresholds does the Commission consider would be useful in judging whether (i) airfield activities are or will be supplied in a market in which competition is limited or likely to be lessened; and (ii) it is necessary or desirable for airfield activities to be controlled in the interests of acquirers or suppliers of airfield activities.

11.13. The Commission is cautious about identifying absolute thresholds. It is mindful that a view on the state of competition in a market, and on the need for control, can be reached only after a full examination of the characteristics of competition in that particular market, and an assessment of the potential benefits and costs of control involved. With that as a caveat, the thresholds that the Commission considers would be useful in judging whether section 52 is satisfied are detailed in the following paragraphs.

11.14. Competition in the Commerce Act (section 3(1)) is defined as being workable or effective competition. In order to satisfy the requirement that competition be limited, the Commission's view is that there needs to be more than a nominal or de minimis restriction or impairment of workable or effective competition.

11.15. In determining whether workable or effective competition is limited in the relevant markets for airfield activities, the Commission's view is that the following non-exhaustive list of factors are relevant:

- The number and relative size of competitors in the market.
- The potential for entry and the significance of any barriers to entry that might exist.
- The nature of the good or service, and in particular the extent to which it is differentiated.
- The behaviour of airports, and the competitive constraint that one may have upon another.
- The extent of any countervailing power of acquirers.
- The effectiveness of the regulatory environment within which airports operate.
- Evidence of airports operating inefficiently or achieving excess returns.

11.16. In considering whether it is necessary or desirable to impose control in the interests of acquirers of airfield activities, the Commerce Act requires that the relevant consideration is the likelihood, and magnitude, of net benefits accruing to acquirers. In the Commission's view, the following factors are relevant to this consideration:

- Evidence of any excess returns earned historically.
- Any forecast excess returns in the medium-term.

- Evidence of any superior performance by airports justifying excess returns.

- Evidence of any inefficiencies (allocative, productive and dynamic).

- The impact of any market power exerted in other, related markets.

- Any other evidence of the exercise of market power.

- The likely benefits of control that would accrue to acquirers through the reduction or removal of excess returns or inefficiencies.

- The likely costs of control that would be borne directly or indirectly by those same acquirers.

PART V—FORM AND ADMINISTRATION OF CONTROL

11.17. The Minister's final question asks how the Commission would administer control if it were introduced, including what form of control the Commission would apply. Specifically:

> 4. If controls were introduced (i) what form of controls would the Commission apply; (ii) and why; (iii) how would the Commission operate these controls; and (iv) what time and/or in what conditions should controls end?

11.18. The Commission considers that this issue ought to be addressed under Part V of the Commerce Act, which concerns the administration of control, and is not a matter that the Commission is able to consider under Part IV when determining whether to recommend control. Advising the Minister on this matter, prior to any declaration of control, would risk predetermining the processes associated with administering control under Part V. Accordingly, the Commission determines that it would not be appropriate to respond to this issue now, and so declines to answer this final part of the Notice.

VIEWS OF PETER J M TAYLOR AND DONAL CURTIN

11.19. Peter J M Taylor and Donal Curtin agree with the Commission in respect of the use of the opportunity cost methodology used to value airfield land, and with the values thus obtained, but do not accept the methodology used to value specialised assets. Their preferred approach is to value specialised assets using optimised depreciated replacement cost (ODRC). Using this approach alters the calculations of returns for the airports, and leads them to conclude that the likely net benefits to acquirers of control on AIAL are not significant. Consequently, they are not satisfied that control of airfield activities supplied by AIAL is necessary or desirable in the interests of acquirers, and do not consider AIAL, WIAL or CIAL may be controlled. Consequently, they have not considered whether market conditions are such that the Minister should recommend control. They express no view on the airfield activities that need to be controlled. Otherwise, they agree with the report.

12. RECOMMENDATIONS

12.1 The Minister has required the Commission to report on whether airfield activities at Auckland, Wellington and Christchurch International Airports should be controlled under the Commerce Act. The Commission's key recommendations are set out below.

12.2 The Commission recommends that the Minister:

Question 1 – Whether Controls Should Be Introduced For Airport Activities?

Auckland International Airport Limited (AIAL)

(a) **Recommend** to the Governor-General that an Order in Council be made declaring that the airfield activities supplied by AIAL are controlled.

(b) **Note** that the Commission is satisfied that the airfield activities supplied by AIAL are supplied in a market in which competition is limited; and it is necessary or desirable for these services to be controlled in the interests acquirers and may, therefore, be controlled.

(c) **Note** that the Commission considers that market conditions are such that the Minister should recommend to the Governor-General that control be declared in respect of airfield activities supplied by AIAL.

(d) **Note** that the Commission has not considered the full range of control mechanisms available under Part V of the Commerce Act and that other less intrusive, and lower cost, forms of control than price cap regulation, which was used as a means of estimating the costs of control, are likely to be available. Irrespective, the Commission is cognisant that any form of control utilised needs to be commensurate with the level of market power available to AIAL, the size of the anticipated excess return, and resulting net benefits to acquirers.

Wellington International Airport Limited (WIAL)

(e) **Agree** to not recommend to the Governor-General that an Order in Council be made declaring that the airfield activities supplied by WIAL are controlled.

(f) **Note** that the Commission is not satisfied that the airfield activities supplied by WIAL may be controlled as it is not necessary or desirable for those services to be controlled in the interests of persons acquiring those goods or services.

(g) **Note** that if WIAL imposes a significant increase in charges as a result of its current consultation with the airlines, the Commission would likely be satisfied that it would be necessary or desirable for the airfield activities supplied by WIAL to be controlled in the interests of persons acquiring those goods or services.

Christchurch International Airport Limited (CIAL)

(h) **Agree** to not recommend to the Governor-General that an Order in Council be made declaring that the airfield activities supplied by CIAL are controlled.

(i) **Note** that the Commission is not satisfied that the airfield activities supplied by CIAL may be controlled as it is not necessary or desirable for those services to be controlled in the interests of persons acquiring those goods or services.

Question 2 – Specific Goods And Services To Control

(j) **Recommend** to the Governor-General that control be declared for the airfield activities supplied by AIAL listed in Table 75 in Chapter 11.

Question 3 – Conditions, Tests Or Thresholds

(k) **Note** the following conditions, tests or thresholds that the Commission has used for determining whether section 52 is met:

(i) <u>Limited competition (52(a))</u> - To satisfy this requirement, there needs to be more than a nominal or de minimis restriction or impairment of workable or effective competition. The following non-exhaustive list of factors are relevant:

- The number and relative size of competitors in the market.
- The potential for entry and the significance of any barriers to entry that might exist.
- The nature of the good or service, and in particular the extent to which it is differentiated.
- The behaviour of airports, and the competitive constraint that one may have upon another.
- The extent of any countervailing power of acquirers.
- The effectiveness of the regulatory environment within which airports operate.
- Evidence of airports operating inefficiently or achieving excess returns.

(ii) <u>Necessary or desirable in the interests of acquirers (52(b))</u> To satisfy this requirement, the Commission considers the likelihood, and magnitude, of net benefits accruing to acquirers. The following non-exhaustive list of factors is relevant:

- Evidence of any excess returns earned historically.
- Any forecast excess returns in the medium-term.

- Evidence of any superior performance by airports justifying excess returns.
- Evidence of any inefficiencies (allocative, productive and dynamic).
- The impact of any market power exerted in other, related markets.
- Any other evidence of the exercise of market power.
- The likely benefits of control that would accrue to acquirers through the reduction or removal of excess returns or inefficiencies.
- The likely costs of control that would be borne directly or indirectly by those same acquirers.

Question 4 – Form Of Control

(l) **Note** that the question of what form of control should be imposed is a matter under Part V of the Commerce Act, and not a matter for Part IV and the determination of whether to recommend control, which is the focus for this Inquiry.

THE VIEWS OF PETER J M TAYLOR AND DONAL CURTIN

Summary

1. In principle, we support and agree with the Commission's competition analysis; legal framework; economic framework (including pricing principles and the framework for numerical analysis) and calculation of WACC. In respect of asset valuation generally, we also support and agree with the Commission's approach, specifically the use of the opportunity cost principle. We differ from the view of the Commission on the valuation of specialised assets, and this has implications as to whether in our view AIAL, WIAL or CIAL may be controlled.

2. As the Commission noted, valuing specialised assets at opportunity cost (i.e. at zero) would be unfair to investors who reasonably expect a fair return on their investment. Further, an opportunity cost valuation of such assets risks damaging dynamic efficiency, in that investors might be deterred from making similar investments in the future knowing their assets may be valued at zero. Given the zero-valuation outcome under an opportunity cost approach, the assets in question need to be valued in some other way. We consider ORDC is the appropriate methodology for valuing the airports' specialised assets, not DHC as the Commission decided.

Why ODRC Should be Used to Value Specialised Assets

Use of Current Costs Has Better Efficiency Properties

3. Current costs are, in our view, more relevant than historic costs for considering efficiency. For a range of reasons (e.g. inflation and changes in relative prices, including as a result of technological advances), historic costs may increasingly diverge from the value of assets today. It is the scale of resources committed to a business today, and the returns derived from them today, that are primarily of interest in assessing the efficiency or otherwise of the assets employed.

4. While DHC has been widely used in regulatory regimes overseas, the context in New Zealand is quite different, specifically:

- In the United States, for example, there has been a regulatory compact for a guaranteed rate of return over the life of particular assets. Under this (rate of return) approach, the case for using historic costs is stronger so that a fair return is earned and no more.

- In New Zealand, there has been no such compact and, therefore, the case for using historic costs is weaker. The appropriate focus should be on what valuation method best promotes efficiency, which, in our view, is ODRC given its use of current prices. Further, rate of return regulation is generally no longer favoured internationally; instead, price cap regulation is generally seen as providing better efficiency incentives for regulated firms.

ODRC is No More Complex Than DHC

5. The assertion that historic cost is relatively straightforward to establish, compared with ODRC (or other current cost approaches) is, in our view, incorrect. While ODRC involves judgements about the appropriate level of replacement costs and optimisation, historic cost also requires judgements, e.g., on:

- When costs were incurred and their extent at the time – it proved difficult for the Commission to establish the historical cost of even quite substantial assets (notably civil works such as the Auckland leveling and reclamation costs, and the cost of the seawall).

- The depreciated value of historic costs at different points in time – the Commission chose the vesting dates of the airports as the appropriate starting point for DHC figures in its analysis. These dates differed across airports, which raises the possibility of performance assessments being compromised by, for example, differences in inflation rates over time and, in a sense, accidents of history resulting in use of one date and not another. From the point of view of assessing efficiency, the vesting date of an airport is of little or no relevance.

6. In our view, one of the very reasons that the ODRC methodology was developed was for precisely the situation faced by this Inquiry, namely the difficulty of placing a value on specialised assets in markets with limited competition.

Other Factors

7. The Commission's approach of mixing historic cost (specialised assets) and current cost (opportunity cost for other assets) is, in our view, an uncomfortable hybrid. In our view, our approach that values all assets on the same basis—current costs—is more intuitive and analytically more robust.

Effect of ODRC on the Commission's Numerical Analysis

AIAL

8. The use of ODRC increases the value of the asset base of AIAL by $20 million, thereby reducing the likely excess returns and inefficiencies. The likely benefits and costs to acquirers, resulting from the use of ODRC as the method for valuing specialised assets, are shown in Table 76.

Table 76
Estimates of the Potential Net Benefits to Acquirers of Control on Airfield Activities Supplied by AIAL, Average Per Annum ($000s)

	Over WACC Range	At Point Estimate
Total Benefits	-1,321 to 4,769	1,801 to 2,057
Total Costs	1,625 to 1,975	1,509 to 1,765
Net Benefits to Acquirers	**-2,946 to 2,946**	**291 to 419**

9. Although the use of ODRC (further set out in scenario 4 in Appendix 13) finds excess returns in the case of AIAL, the extent of excess returns is significantly less than under scenario 6 (using DHC), and only arises at the lower bound of the WACC range. At the point estimate of WACC, net benefits are present, but they are not significant.

10. Notwithstanding the Commission's best attempt to estimate the benefits and costs of control, these are uncertain in practice. Given that the net benefits to acquirers depend on where in the WACC range is chosen, and the fact that the level of net benefits at the Commission's point estimate are insignificant, we do not consider in respect of AIAL that control of its airfield activities is necessary or desirable in the interests of acquirers.

WIAL and CIAL

11. In respect of WIAL and CIAL, we agree with the Commission that control of airfield activities supplied by those airports is not necessary or desirable in the interests of acquirers. We note that as a result of applying the ODRC methodology to specialised assets, the case for not controlling these airports is stronger. We have not considered the impact of WIAL's proposed increases in its landing charges.

Conclusion

12. We generally agree with the Commission's approach in its Final Report, including general use of the opportunity cost principle to value assets. We differ only as a result of the Commission's approach to valuing some specialised assets employed by the airports as having an opportunity cost of zero and, therefore, needing to be valued in some other way. The Commission considered these assets should be valued using DHC. We do not agree with the Commission and, for the reasons discussed above, consider ODRC should be used. The implications of our view are that:

- Use of ODRC reduces the range of likely excess returns earned by the airports (historically and likely to be earned in the future) and, therefore, the likely benefits and costs of control.

- We are not satisfied that control is necessary or desirable in the interests of acquirers at any of the three airports (noting the case for not controlling WIAL or CIAL is stronger if ORDC is used).

13. Given the above, we are not required to consider whether market conditions are such for any of the three airports that the Minister should recommend to the Governor-General to make a declaration of control.

PART B – APPENDICES AND SUPPLEMENTS

APPENDICES

APPENDIX 1 – MINISTER'S ORIGINAL REQUEST

1. Letter of request from Minister of Commerce 27 March 1998

2. Commerce Commission letter to Minister seeking clarification 5 May 1998

3. Letter of request from Minister of Commerce 26 May 1998

Office of the Minister COMMERCE MINISTRY OF COMMERCE Te Manatū Tauhokohoko Wellington 1

27 March 1998

Mr Peter Allport
Acting Chairman
Commerce Commission
PO Box 2351
WELLINGTON

Dear Mr Allport

COMMERCE ACT 1986: SECTION 54(1) REQUEST FOR REPORT: THE MARKET FOR THE PROVISION OF AIRFIELD SERVICES

Section 53 of the Commerce Act 1986 ("the Act") empowers the Governor General (acting on the recommendation of the responsible Minister) to make an Order in Council declaring that the prices for specified goods and services be controlled in accordance with the Act.

In determining whether to make a recommendation to the Governor-General, the responsible Minister may, under section 54 of the Act require the Commerce Commission to report on whether to make such a recommendation. The purpose of this letter is to initiate a report under section 54 of the Act.

Relevant Goods and Services

The goods or services to which this letter relates are airfield facilities. These facilities are defined in the Airport Authorities Amendment Act 1997 ("the AAA Act") and include the facilities and services provided to enable th elanding and take-off of aircraft. The AAA Act defines airfield activities as:

(a) The provision of any one or more of the following:

   (i) Airfields, runways, taxiways and parking aprons for aircraft;

   (ii) Facilities and services for air traffic and parking apron control;

   (iii) Airfield and associated lighting;

   (iv) Services to maintain and repair airfields, runways, taxiways and parking aprons for aircraft;

(v) Rescue, fire, safety and environmental hazard control services;

(vi) Airfield supervisory and security services; and

(b) The holding of any facilities and assets (including land) acquiured or held to provide airfield activities in the future (whether or not used for any other purpose in the meantime).

Parameters of this Report

Acting pursuant to the power in section 54(1) of the Act, I require the Commerce Commission to report to me by no later than 14 December 1999 on the following matters:

A whether there is evidence that airfield facilities provided by the three major international airports (Auckland, Wellington and Christchurch) are supplied or acquired in a market in which competition is limited or is likely to be lessened; and it is necessary or desirable for the prices of these goods or services to be controlled in accordance with the Act in the interests of users, or consumers, or as the case may be, suppliers; and

B whether market conditions are such that the Commission believes that I should recommend to the Governor-General that he make an Order in Council under section 53 of the Act invoking price control over charges for airfield facilities at the three major international airports.

Specific matters on which I require the Commission to consider and report to me on are:

1. Whether charges should be introduced for airfield facilities at one or more of the three major international airports.

2. If the Commission is of the view that price control should be introduced, to which (i) regions, areas, or localities in New Zealand; (ii) quantities, qualities, grades, or classes; and (iii) different persons or classes of persons, should price control be applied?

3. What conditions, test, or thresholds does the Commission consider would be useful in judging whether (i) airfield facilities are or will be supplied in a market in which competition is limited or likely to be lessened; and (ii) it is necessary or desirable for the prices of airfield facilities to be controlled in accordance with the Act.

4. If price control was introduced (i) what form of price control would the Commission apply; (ii) and why; (iii) how would the Commission operate this form of price control; and (iv) what time and/or in what conditions should price control end?

Background information that may assist you in your investigation is contained in the following papers:

- Cabinet Submission CIE(95)318 and Minute CAB(95)M46/5G;
- Cabinet Committee on Industry and Environment (CIE(97)148) and Minute (CIE(97)M31/1); and
- Discussion document: "Review of Airport Regulation: Proposals for Consultation".

I look forward to receiving your report in due course.

Yours sincerely

Hon John Luxton
Minister of Commerce

COMMERCE COMMISSION

Wellington
J2773

5 May 1998

Hon John Luxton
Minister of Commerce
Parliament Buildings
WELLINGTON

Dear Mr Luxton

Price Control Enquiry: Airports

On 27 March 1998 you wrote to the Commission requiring it to enquire into, and report on, whether you should recommend that prices for certain airports services be controlled pursuant to the Commerce Act.

The Commission has considered your letter and would appreciate clarification of one technical point. We note that the relevant goods or services for the enquiry have been referred to in your letter as airfield *facilities*. These are stated to be those defined as airfield *activities* in the Airport Authorities Amendment Act 1997. That Act includes, within the definition of airport activities, reference to various facilities. While the distinction between airport *activities* and airport *facilities* may be of a minor nature, for the sake of clarification the Commission suggests that it be required to report on whether airport *activities*, as defined in the relevant section of the Airport Authorities Amendment Act, should be controlled in accordance with the Commerce Act and reference not be made to airport *facilities* in the request.

We believe this will remove any doubt as to the scope of your request by tying it to the definitions used in the appropriate statute.

Would you please consider this request. If you agree, the appropriate change could be effected either by a follow up letter clarifying your letter of 27 March or by issuing a new letter to the Commission which could then supersede your earlier one. Thank you for your assistance in this matter.

Yours sincerely

Peter Allport
Chairman

Office of the Minister COMMERCE Wellington 1
MINISTRY OF COMMERCE
Te Manatū Tauhokohoko

26 May 1998

Mr Peter Allport
Chairman
Commerce Commission
PO Box 2351
WELLINGTON

Dear Mr Allport

I am writing in response to your letter of 5 May 1998 regarding the inquiry into prices for airport services.

In reference to my letter to you of 27 March 1998, you note that the relevant goods or services for the inquiry have been referred to as airfield facilities. These were stated to be those defined as airfield activities in the Airport Authorities Amendment Act 1997 ("the Act").

In your letter, you note that although the distinction between airport activities and airport facilities may be of a minor nature, but for the sake of clarification it would be preferrable that the Commission be required to report on whether airport activities (as defined in the Act) should be controlled in accordance with the Commerce Act 1986.
I concur with your view. Thus, acting pursuant to the power in section 54(1) of the Commerce Act 1986, I require the Commerce Commission to report to me by no later than 14 December 1999 on the following matters:

A whether there is evidence that airfield activities provided by the three major international airports (Auckland, Wellington and Christchurch) are supplied or acquired in a market in which competition is limited or is likely to be lessened; and it necessary or desirable for the prices of these goods or services to be controlled in accordance with the Act in the interests of users, or consumers, or as the case may be, suppliers; and

B whether market conditions are such that the Commission believes that I should recommend to the Governor-General that he make an Order in Council under section 53 of the Act invoking price controls over charges for airfield activities at the three major international airports.

Specific matters on which I require the Commission to consider and report to me on are:

1. Whether charges should be introduced for airfield activities at one or more of the three major international airports.

2. If the Commission is of the view that price control should be introduced, to which (i) regions, areas, or localities in New Zealand; (ii) quantities, qualities, grades, or classes; and (iii) different persons or classes of persons, should price control be applied?

3. What conditions, tests, or thresholds does the Commission consider would be useful in judging whether (i) airfield activities are or will be supplied in a market in which competition is limited or likely to be lessened; and (ii) it is necessary or desirable for the prices of airfield activities to be controlled in accordance with the Act.

If price control was introduced (i) what form of price control would the Commission apply; (ii) and why; (iii) how would the Commission operate this form of price control; and (iv) what time and/or in what conditions should price control end?

The definition of "airfield activities" is as defined in section 2 of the Act.

Once again, I look forward to receiving your report in due course.

Yours sincerely

Hon John Luxton
Minister of Commerce

APPENDIX 2 – SUBMISSIONS ON PROCESS

LIST OF PARTIES WHO MADE SUBMISSIONS ON A98/1 PROCESS AND PRELIMINARY ISSUES 4 JUNE 1998

1. Air New Zealand Limited
2. Airways Corporation of New Zealand Limited
3. Ansett New Zealand Limited
4. Auckland International Airport Limited
5. Board of Airline Representatives of New Zealand Incorporated
6. Christchurch International Airport Limited
7. Qantas Airways Limited
8. Wellington International Airport Limited

APPENDIX 3 – REGISTER OF INTERESTED PERSONS

1. Caterair Limited
   C/- Chapman Tripp Sheffield Young
   P O Box 2206
   Auckland

2. Air New Zealand Limited
   Private Bag 92007
   Auckland

3. Airways Corporation of New Zealand Limited
   P O Box 294
   Wellington

4. Board of Airline Representatives of New Zealand Incorporated
   P O Box 2779
   Auckland

5. Christchurch International Airport Limited
   P O Box 14001
   Christchurch

6. Auckland International Airport Limited
   P O Box 73020
   Auckland

7. Wellington International Airport Limited
   P O Box 14175
   Wellington

8. Silver Fern Shipping Limited
   C/- KPMG Legal
   P O Box 10246
   Wellington

9. Qantas Airways Corporation
   P O Box 59
   Auckland

10. James Armour
    Rudd Watts & Stone
    P O Box 2793
    Wellington

11. Aviation Industry Association of New Zealand Incorporated
    P O Box 2096
    Wellington

13. Palmerston North Airport Limited
P O Box 4384
Palmerston North

14. Dunedin Airport Limited
Private Bag 1922
Dunedin

15. Waikato Regional Airport Limited
R D 2
Hamilton

16. Rotorua Regional Airport Limited
P O Box 7221
Te Ngae
Rotorua

17. Tauranga Airport Authority
C/- Tauranga District Council
Private Bag
Tauranga

18. Hertz New Zealand Limited
Private Bag 4716
Christchurch

19. Adrienne Wing
Gilbert & Tobin
P O Box 90786
Auckland

20. New Zealand Post Limited
P O Box 90949
Auckland

21. Avis Rent A Car Limited
Private Bag 92809
Penrose
Auckland

22. Duty Free Stores Limited
P O Box 21042
Wellington

23. Anne Callinan
Partner
Simpson Grierson
Private Bag 92518
Wellesley St
Auckland

24. Port Company Reform Working Group
C/- New Zealand Shipping Federation
P O Box 10739
Wellington

25. Auckland Regional Council
Private Bag 92012
Auckland

26. Auckland City Council
Private Bag 92-516
Wellesley Street
Auckland

27. Christchurch City Holdings Limited
P O Box 237
Christchurch

28. Orion New Zealand Limited
P O Box 13896
Christchurch

29. Simon Terry and Associates
P O Box 24-102
Wellington

30. Federated Farmers of New Zealand Inc
P O Box 715
Wellington

31. UnitedNetworks Limited
Private Bag 102977
North Shore Mail Centre
Auckland

32. Business NZ
P O Box 1925
Wellington

33. Todd Energy
P O Box 3141
Wellington

34. Ministry of Transport
P O Box 3175
Wellington

35. Transpower New Zealand Limited
P O Box 1021
Wellington

APPENDIX 4 – PERSONS CONTACTED DURING INVESTIGATIONS

LIST OF PARTIES WHICH WERE VISITED BY COMMISSION STAFF, AND FROM WHOM INFORMATION WAS SOUGHT, DURING THE PRELIMINARY PHASE OF THE INQUIRY

1. Air New Zealand Limited
2. Airways Corporation of New Zealand Limited
3. Qantas New Zealand Limited (formerly Ansett New Zealand Limited)
4. Auckland International Airport Limited
5. Australian Competition and Consumer Commission
6. Australian Department of Transport and Regional Services
7. Aviation Industry Association of New Zealand Incorporated
8. BAA Plc
9. Board of Airline Representatives of New Zealand Incorporated
10. British Airways
11. Christchurch International Airport Limited
12. Civil Aviation Authority of New Zealand
13. Competition Commission
14. Manchester Airport Plc
15. Melbourne Airport
16. Ministry of Transport
17. Qantas Airways Limited
18. Wellington International Airport Limited
19. United Kingdom Civil Aviation Authority Economic Regulation Group
20. United Kingdom Department of the Environment, Transport and the Regions
21. Sydney Airports Corporation Limited

APPENDIX 5 – EXTENSION OF REPORTING DATE

1. Letter from Minister for Enterprise and Commerce 29 July 1999

OFFICE OF THE HON MAX BRADFORD
Minister for Enterprise and Commerce
Responsible for the Ministry of Commerce (including Energy and Industry)
and the Department of Labour

2 9 JUL 1999

Mr Mark N. Berry
Acting Chairman
Commerce Commission
P0 Box 2351
WELLINGTON

PRICE CONTROL STUDY OF AIRPORTS

As you know my predecessor as Minister of Commerce, Hon John Luxton, wrote to the Commission on 27 March 1998 requesting under Section 54 of the Commerce Act that the Commission report to him not later than 14 December 1999 on:

A whether there is evidence that airfield activities provided by the three major international airports (Auckland, Wellington and Christchurch) are supplied or acquired in a market in which competition is limited or is likely to be lessened; and it is necessary or desirable for the prices of these goods or services to be controlled in accordance with the Act in the interests of users, or consumers, or as the case may be, suppliers; and

B whether market conditions are such that the Commission believes that the Minister should recommend to the Governor-General that he make an Order in Council under Section 53 of the Act invoking price controls over charges for airfield activities at the three major international airports.

I am writing pursuant to Section 54, to require that the Commission extend the reporting date of this inquiry to 1 August 2002.

Cabinet agreed to an extended reporting date on 26 July 1999.

Apart from an extension in the reporting date, the terms of reference as set out in Mr Luxton's letter of 27 March 1998 and clarified in his subsequent letter of 27 May 1998. remain unchanged.

I am also writing to the three major airport companies, the Board of Airline Representatives of New Zealand and Air New Zealand informing them of the changed reporting time. I assume you will inform any other parties involved.

Yours sincerely

Hon **Max Bradford**
Minister for Enterprise and Commerce

APPENDIX 6 – SUBMISSIONS ON TIMETABLE

LIST OF PARTIES WHO MADE SUBMISSIONS ON A99/2 PROPOSED TIMETABLE FOR PROGRESSING THE INQUIRY 6 AUGUST 1999

1. Air New Zealand Limited
2. Airways Corporation of New Zealand Limited
3. Airwork (NZ) Limited, Airpost Limited and New Zealand Post Limited
4. Ansett New Zealand Limited
5. Auckland International Airport Limited
6. Aviation Industry Association of New Zealand Incorporated
7. Board of Airline Representatives of New Zealand Incorporated
8. Christchurch International Airport Limited
9. Dunedin Airport Limited
10. Qantas Airways Limited
11. Wellington International Airport Limited

APPENDIX 7 – SUBMISSIONS ON CRITICAL ISSUES PAPER

LIST OF PARTIES WHO MADE INITIAL SUBMISSIONS IN RESPONSE TO THE COMMISSION'S CRITICAL ISSUES PAPER A01/1, 16 MARCH 2001

1. Board of Airline Representatives of New Zealand Incorporated

2. Christchurch International Airport Limited

3. Wellington International Airport Limited

4. Auckland International Airport Limited

5. Gisborne Airport

APPENDIX 8 – MINISTER’S AMENDED REQUEST

1. Letter from Minister of Commerce 25 July 2001

Office of Hon Paul Swain
MP for Rimutaka
Minister of Commerce
Minister of Communications
Minister for Information Technology
Associate Minister of Finance

Associate Minister of Revenue
Associate Minister of Energy
Associate Minister of Justice
Associate Minister for Land information

25 July 2001

Mr John Belgrave
Chair
Commerce Commission
P O Box 2351
WELLINGTON

Dear Mr Belgrave

AIRPORTS PRICE CONTROL INQUIRY: COMMERCE AMMENDMENT ACT 2001

I am writing to clarify the implications of the Commerce Amendment Act 2001 (the Amendment Act) for the airports price control inquiry.

As you are aware, the previous Government required the Commission to report, under the former section 54(1) of the Commerce Act 1986 (the Act), on whether airfield activities supplied by Auckland, Wellington, and Christchurch International Airports should be controlled under the Act. The initial requirement was made, by notice in writing to the Commission, on 27 March 1998 and was subsequently amended on 26 May 1998 and 29 July 1999.

Since the original requirement, the Amendment Act has come into force. This Amendment Act has amended Parts IV and V of the Act, which are relevant to the inquiry.

For the avoidance of doubt, I am withdrawing the previous requirement for a report made under the former section 54. I hereby replace that requirement with a request under the new section 56 of the Act that the Commission report to me on whether or not an Order in Council under the new section 53 should be made to control airfield activities of the above-referenced airports. Included with this request is the requirement under the new section 54 that the Commission advise me on the thresholds that would assist me in assessing whether airfield activities should be controlled under the new section 52.

In making this request, I do not intend to make any significant change to the substance of the former requirement. I simply wish to make clear that the Commission should apply the post-amendment provisions of the Act in conducting this inquiry and reporting to me. To avoid any doubt, however, rather than incorporating by reference the terms of the former requirement, I will set out in full the matters on which I require the Commission to consider and report to me on. Specifically, the Commission must report to me, pursuant to the new sections 54 and 56 of the Act, no later than 1 August 2002, on the following matters:

a whether there is evidence that airfield activities, as defined in the Airport Authorities Amendment Act 1997, provided by the three major international airports (Auckland, Wellington and Christchurch) are supplied or acquired in a market in which competition is limited or is likely to be lessened; and it is necessary or desirable for these goods or services to be controlled in the interests of persons acquiring the goods or services (whether directly or indirectly) or as the case may be, suppliers; and

b whether market conditions are such that the Commission believes that I should recommend to the Governor-General that she make an Order in Council under section 53 of the Act invoking controls over airfield activities at the three major international airports.

Specific matters on which I require the Commission to consider and report to me on are:

1. Whether controls should be introduced for airfield activities at one or more of the three major international airports;

2. If the Commission is of the view that controls should be introduced, to which (i) components of the prices, revenues, or quality standards; (ii) regions, areas, or localities in New Zealand; (iii) quantities, qualities, grades, or classes; and (iv) different persons or classes of persons, should controls be applied?

3. What conditions, tests, or thresholds does the Commission consider would be useful in judging whether (i) airfield activities are or will be supplied in a market in which competition is limited or likely to be lessened; and (ii) it is necessary or desirable for airfield activities to be controlled in the interests of acquirers or suppliers of airfield activities.

4. If controls were introduced (i) what form of controls would the Commission apply; (ii) and why; (iii) how would the Commission operate these controls; and (iv) what time and/or in what conditions should controls end?

I look forward to receiving your report.

Yours sincerely

Hon Paul Swain
Minister of Commerce

APPENDIX 9 – SUBMISSIONS ON DRAFT REPORT

LIST OF PARTIES WHO MADE SUBMISSIONS IN RESPONSE TO THE COMMISSION'S DRAFT REPORT A01/2, 3 JULY 2001

1. Orion New Zealand Limited
2. Auckland City Council
3. Board of Airline Representatives of New Zealand Incorporated
4. New Zealand Shipping Federation / Port Company Reform Working Group
5. Business New Zealand
6. Christchurch City Council (Christchurch City Holdings Limited)
7. Federated Farmers of New Zealand Inc
8. Christchurch International Airport Limited
9. UnitedNetworks Limited
10. Silver Fern Shipping Limited
11. Wellington International Airport Limited
12. Auckland International Airport Limited
13. Simon Terry and Associates
14. Todd Energy
15. Ministry of Transport
16. Auckland Regional Council

APPENDIX 10 – CROSS SUBMISSIONS

LIST OF PARTIES WHO MADE CROSS SUBMISSIONS

1. Orion New Zealand Limited
2. Transpower New Zealand Limited
3. New Zealand Shipping Federation / Port Company Reform Working Group
4. Silver Fern Shipping Limited
5. Auckland International Airport Limited
6. Air New Zealand Limited
7. Wellington International Airport Limited
8. Board of Airline Representatives of New Zealand Incorporated
9. Christchurch International Airport Limited

APPENDIX 11 – SUBMISSIONS AT CONFERENCE

LIST OF PARTIES WHO MADE SUBMISSIONS AT A CONFERENCE HELD 4-7, 10 AND 12-14 SEPTEMBER 2001

1. Auckland International Airport Limited

2. Christchurch International Airport Limited

3. Wellington International Airport Limited

4. Christchurch City Council (Christchurch City Holdings Limited)

5. Board of Airline Representatives of New Zealand Incorporated

6. Air New Zealand Limited

7. Port Company Reform Working Group / Shipping Federation / Silver Fern Shipping

8. Auckland City Council

9. Simon Terry and Associates

10. Business New Zealand

11. Orion New Zealand Limited

12. Transpower New Zealand Limited

APPENDIX 12 – ACTIVITIES UNDERTAKEN BY AIAL

The activities undertaken by are classified and grouped in terms of the three identified airport activities (defined in the Airport Authorities Amendment Act) and an additional grouping headed "other airport activities", as follows:

Airfield activities at Auckland International Airport, and those undertaken by AIAL, are as follows:

Airfield Activities at Auckland International Airport

Element of Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Airfields, runways, taxiways, and parking aprons for aircraft	Most.	Airways own and maintain runway and taxiway paint markings.	Land and land improvements (including drainage storm water, roads and other infrastructure – both airside and some apportionment for landside) associated with the main runway, taxiways, international apron, domestic apron, grassed areas and roads within the airfield or otherwise supporting it.	Aircraft landing charges. Sundry income from hay sales.
Facilities and services for air traffic control	AIAL leases land to Airways.	Provided by Airways, who own the Control Tower building, as well as owning, operating and maintaining navigational assets.	Land on which Airways' Control Tower sits.	Rent from land leased to Airways.
Facilities and services for parking apron control	AIAL provides apron control service at the international terminal apron.	Air NZ and Eagle Air provide apron control at the domestic apron on behalf of AIAL.	Land and buildings for the International Apron Tower, together with land for the Domestic Apron.	Terminal Services Charge (TSC).
Airfield associated lighting	AIAL has apron lights only.	Airways owns cables and light fittings for main taxiway and runway. It operates and maintains this airfield lighting as well as AIAL's assets.	Cable ducts and light pots for entire airfield; cabling for light fittings for aprons and first taxiway.	Aircraft landing charges.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	All.	None.	Runway maintenance equipment.	Aircraft landing charges.

Element of Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Rescue, fire, safety, and environmental hazard control services	All.	Airport Noise Committee (council, airlines, Airways and AIAL).	Land and buildings associated with the rescue fire service (Public Safety Response) as well as vehicles.	Rescue fire component of aircraft landing charges.
Airfield supervisory and security services	AIAL provides and maintains security fencing and leases space to Aviation Security Service (AVSEC).	AVSEC provides airside security, security between airside and landside, International passenger control, and perimeter patrols.	Security fencing and office space leased to AVSEC.	Rental from ground lease to AVSEC.
Facilities/ assets held for future activities	Holding of land.	None.	Land held for the second runway.	Rental from current users of land (e.g. farmers).

Aircraft and freight activities at Auckland International Airport, and those undertaken by AIAL, are as follows:

Aircraft and Freight Activities at Auckland International Airport

Element of Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Hangars	AIAL leases land to some parties with hangars.	Air NZ, Great Barrier, St Johns Ambulance, Airworks, Skycare, NZ Post etc.	Land on which hangars are situated.	Ground and/or building rental.
Facilities and services for refuelling of aircraft	Provision of pipeline and access to the airfield.	Refuelling undertaken by fuel companies.	Pipeline running onto the international apron.	Charge for use of pipeline and access to airfield.
Facilities and services for flight catering	AIAL provides access to the airfield.	Provided Caterair directly to airlines.	Land leases.	Rent.
Facilities and services for waste disposal	Provision of bins for collection of rubbish around the airport and terminals. Owns and operates the quarantine waste disposal and honeypot facility at the airport.	Collection and removal of waste through AIAL agent Onyx and third party carriers.	Rubbish bins. Owns and operates on-airport quarantine incineration facility and honeypot.	Incineration fees for airside and landside waste.
Facilities and services for the storing of freight	Freight buildings leased to Air NZ.	Air NZ (container park).	Land and buildings, namely container park adjacent to international apron and freight building at domestic.	Rent.
Security services for freight	None.	Airside security provided by AVSEC and airport security provided by NZ Police.	None.	None.

Element of Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Customs services for freight	None.	Provided by NZ Customs.	None.	None.
Quarantine services for freight	None.	Provided by MAF.	None.	None.
Facilities/ assets held for future activities	Holding of land.	None.	Land.	Rental from current users of land (e.g. farmers).
Other				
(1) Stock handling	AIAL provides land where stock can be handled.	Airlines or freight operators handle stock.	Stock handling area.	Fees for use of stock handling area.
(2) Ground handling facilities	Land and buildings leased to ground handling operators.	Undertaken by Air NZ, Sky Care and Ogden Aviation Services. Each own their own tarmac equipment. Ogdens own their building.	Land and buildings.	Rent.

Specified passenger terminal activities at Auckland International Airport, and those undertaken by AIAL, are as follows:

Specified Passenger Terminal Activities at Auckland International Airport

Element of Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Passenger seating areas, thoroughfares	Provision of seating in gate lounges and other public areas in ITB (International Terminal Building) and in the DTBs	None.	Seating in public areas of ITB and domestic terminals (DTBs). Space for airline lounges.	For ITB - TSC and Airport Development Charge (ADC); For DTB – Rentals. Also rent from airline lounge space.
Airbridges	Provided by AIAL at ITB.	Provided by Air NZ at their DTB. Mobile stairs provided by airlines or ground handlers.	Airbridges at ITB.	TSC and portion of ADC.
Flight information and public address systems	Provided by AIAL, except at DTBs.	Air NZ provide at their DTB.	FIDS and PA systems at ITB.	TSC and portion of ADC.
Facilities and services for the operation of customs	Office space leased to NZ Customs. AIAL provides public space in ITB.	Provided by NZ Customs.	Furniture and fittings in public areas of ITB, as well as office space.	Rent for office space, TSC and portion of ADC for public facilities.

Element of Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Facilities and services for the operation of immigration	Office space leased to NZ Immigration. AIAL provides public space in ITB.	Provided by NZ Immigration.	Furniture and fittings in public areas of ITB, as well as office space.	Rent for office space, TSC and portion of ADC for public facilities.
Facilities and services for the operation of quarantine checks and control	Office space leased to MAF. AIAL provides public space in ITB.	Provided by MAF.	Furniture and fittings in public areas of ITB, as well as office space.	Rent for office space, TSC and portion of ADC for public facilities.
Facilities for the collection of duty-free items	Collection facility is operated by AIAL for off-airport and non-DFS/Regency sales.	DFS and Regency provide their own collection facilities.	Furniture and fittings and counter and storage space.	Licence fees.
Facilities and services for the operation of security	Space leased to AVSEC.	AVSEC provides security between airside and landside, and screening of hand baggage.	Space leased to AVSEC.	Rent for office space, TSC and portion of ADC for public facilities.
Facilities and services for the operation of Police services	Space leased to NZ Police.	Provided by NZ Police.	Space leased to NZ Police in ITB.	Rent for office space, TSC and portion of ADC for public facilities.
Passenger check-in areas	Space leased, and furniture and fittings provided, to airlines.	Check-in services provided by Airlines. Air NZ own their furniture and fittings.	Check-in counters at ITB ground floor check-in for all airlines except Air NZ premier check-in..	Counter rental and portions of both ADC and TSC.
Baggage handling	Provision of fixed outbound and inbound baggage systems at the ITB.	Provided by Air NZ, Ogdens and Skycare. Air NZ own inbound and outbound baggage make-up systems at the their DTB.	ITB outbound baggage system (feeder conveyor and scales, collector conveyors, and sortation conveyors) and inbound luggage carousels; plus conveyers at DTBs. AIAL also provide lost baggage areas.	TSC and portions of ADC.
Facilities/ assets held for future activities	Holding of land.	None.	Land.	Rental from current users of land (e.g. farmers).

Other airport activities at Auckland International Airport, and those undertaken by AIAL, are as follows:

Other Airport Activities at Auckland International Airport

Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Utilities (electricity, telecommunications, water etc)	AIAL provides the infrastructure and also supplies some services. Owns and operates electricity network, providing access to retailers. Owns and operates stand-by generators in the case of an emergency or when there is a fault on supply or network.	Electricity retailers supply electricity to AIAL and other parties operating at airport. Landis and Staefa NZ manage environment at ITB. Gas by Contact.	Infrastructure, including stand-by generators, electricity network at airport (underground cable, power centres and building cabling) that connects with the network of Vector at the airport boundary.	Electricity retailers pay a tariff to use electricity network pursuant to use of systems agreements negotiated with AIAL.
Roading	Provision of roads within airport (on AIAL land).	Manukau City Council provides adjoining roads.	Roads.	Portion of ADC.
Car parking	AIAL provides some parking facilities.	Public and staff car parks are managed under contract by Parking Services International Limited. On and off airport carparks, Skycare, Skyway Garage, Koru Valet parking and other valet parking, local hotel parking and tenancy parking.	Land and parking facilities.	Public and staff parking charges and rent from leased car parks.
Commercial property portfolio	AIAL leases out land and buildings (offices and warehousing) landside to various aviation and non-aviation related businesses, in addition to space in terminal buildings.	Some sub-leasing.	Land and buildings.	Rent.
Food and beverages	50/50 Joint venture with HMSC Host and AIAL Limited at ITB.	HMSC Host and Kiwi Discovery.	ITB facilities.	Share of joint venture profits with HMSC Host in ITB.
Office space	Provide office space in terminal buildings.	None.	Terminal space.	Rent.
Conference facilities	Provision of media centre and other conference facilities for hire in the terminals.	None.	Terminal space and facilities.	Rent.

Activity	Undertaken by AIAL	Undertaken by Third Party	Assets owned by AIAL	Prices charged or revenue derived by AIAL
Concessions	Offer concessions to third parties around and within the terminals for the following: • Retail shops. • Duty-free shops. • Food and beverages. • Rental cars. • Banking and money exchange services.	Third parties operate concessions around and within the terminals.	Terminal space and facilities.	Rate for each concession is calculated on the basis of the greater of a minimum base rental amount and a percentage (e.g. 25%) of the concession's gross turnover i.e. pay base amount and where turnover exceeds a set level, pay a percentage of surplus turnover to AIAL.
Information	Customer service officers (red coats) and hospitality ambassadors (blue coats).	Some airlines have their own customer service desks.	Terminal space and furniture.	Portion of ADC.
Public space and facilities in terminals	All. Some are free services and others incur at a charge.	None.	Terminal space and facilities. In the ITB this includes a chapel, a theatrette, reading/writing areas, smoking lounges, first aid, children's play areas, nurseries, an exercycle, day rooms, and showers.	In transit area of ITB, day rooms are available for hire as well as showers, towels, soap, and hairdryers. Luggage storage is also available. Costs of free facilities recovered from portion of ADC.
Passenger vehicle operators	Provide facilities and space for taxis, buses, shuttle operators.	Bus, taxi and shuttle service operators.	Facilities and land for taxis, buses, shuttles, valet parking etc.	Licence fees and fees per pick-up.
Consultancy services	AIAL offers training, consultancy and project management on all airport disciplines.	None.	None.	Consultancy income.
Trolley Services.	Management contract to Smart Cart.	None.	Trolleys.	Portion of ADC.

Any airfield activities provided by third parties are still undertaken on-airport (and on airport company land). In limited instances, third parties provide other activities from an off-airport location. Examples include rental cars, car parking (airline valet and long-term), airline catering, freight facilities, waste disposal. However, while these businesses may operate from premises off-airport, they need to obtain access to the airport in order to pick-up or drop-off customers or goods. While these entities may avoid paying rent to the airport company for a site on-airport, they typically pay fees to access the airport instead.

APPENDIX 13 – AIAL ANALYSIS

(A) Analysis Based on Opportunity Cost Estimate of $70,000 per Ha for Second Runway Land and $200,000 per Ha for Operational Airfield Land

Net Acquirers Benefits ($) - AIAL

Benefits to Acquirers

	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	**Average**
Allocative Inefficiency (Consumer Surplus)								
At Lower Bound of WACC	25,519	27,934	17,491	15,228	14,665	26,466	41,558	24,123
At Point Estimate of WACC	12,658	12,494	4,821	3,276	2,609	9,233	19,766	9,265
At Upper Bound of WACC	3,294	2,227	(15)	(399)	(937)	338	4,460	1,281
Excess Returns								
At Lower Bound of WACC	6,446,414	6,883,609	5,509,585	5,217,423	5,208,881	7,119,035	9,075,498	6,494,349
At Point Estimate of WACC	4,540,167	4,603,621	2,892,655	2,419,827	2,196,995	4,204,859	6,259,032	3,873,880
At Upper Bound of WACC	2,316,211	1,943,635	(160,430)	(844,035)	(1,316,871)	804,987	2,973,156	816,665
Productive Inefficiency								
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 1.5% of Opex-Depn	242,520	-	-	-	-	-	-	212,962
At 3% of Opex-Depn	485,040	-	-	-	-	-	-	425,924
Dynamic Inefficiency								
At Lower Bound of WACC	-	-	-	-	-	-	-	-
At Point Estimate of WACC	-	-	-	-	-	-	-	-
At Upper Bound of WACC	-	-	-	-	-	-	-	-
Total Benefits								
At Lower Bound	6,633,613							6,660,447
At Point Estimate	4,795,345							4,096,107
At Upper Bound	2,804,546							1,243,870

Costs to Acquirers

	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	Average
Allocative Inefficiency (Consumer Surplus)								
At Lower Bound of WACC	11,164	12,221	7,652	6,662	6,416	11,579	18,181	10,554
At Point Estimate of WACC	5,538	5,466	2,109	1,433	1,141	4,040	8,648	4,054
At Upper Bound of WACC	1,441	974	(6)	(174)	(410)	148	1,951	561
Excess Returns								
At Lower Bound of WACC	1,611,604	1,720,902	1,377,396	1,304,356	1,302,220	1,779,759	2,268,875	1,623,587
At Point Estimate of WACC	1,135,042	1,150,905	723,164	604,957	549,249	1,051,215	1,564,758	968,470
At Upper Bound of WACC	579,053	485,909	-	-	-	201,247	743,289	287,071
Productive Inefficiency								
At 0% of Opex-Depn	-	-	-	-	-	-	-	-
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 2% of Opex-Depn	323,360	-	-	-	-	-	-	283,950
Dynamic Inefficiency								
At Lower Bound of WACC	-	-	-	-	-	-	-	-
At Point Estimate of WACC	-	-	-	-	-	-	-	-
At Upper Bound of WACC	-	-	-	-	-	-	-	-
Direct Costs								
Lower Bound	620,000	620,000	620,000	620,000	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	**Average**
Total Costs								
At Lower Bound	2,242,768							2,254,141
At Point Estimate	2,272,260							2,084,498
At Upper Bound	2,223,854							1,891,581

Net Benefits to Acquirers

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	**Average**
At Lower Bound	4,390,845							4,406,306
At Point Estimate	2,523,085							2,011,609
At Upper Bound	580,691							(647,711)

Net Public Benefits ($) - AIAL

	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	**Average**
Benefits								
Allocative Inefficiency								
(1) Consumer Suprlus								
At Lower Bound of WACC	25,519	27,934	17,491	15,228	14,665	26,466	41,558	24,123
At Point Estimate of WACC	12,658	12,494	4,821	3,276	2,609	9,233	19,766	9,265
At Upper Bound of WACC	3,294	2,227	(15)	(399)	(937)	338	4,460	1,281
(2) Producer Surplus								
At Lower Bound of WACC	329,168	350,681	290,501	277,767	278,388	367,629	453,026	335,309
At Point Estimate of WACC	242,460	246,904	161,243	136,402	124,571	229,938	330,224	210,249
At Upper Bound of WACC	130,020	110,338	(9,478)	(49,862)	(77,795)	46,878	166,721	45,260
Productive Inefficiency								
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 1.5% of Opex-Depn	242,520	-	-	-	-	-	-	212,962
At 3% of Opex-Depn	485,040	-	-	-	-	-	-	425,924
Dynamic Inefficiency								
At Lower Bound of WACC	-	-	-	-	-	-	-	-
At Point Estimate of WACC	-	-	-	-	-	-	-	-
At Upper Bound of WACC	-	-	-	-	-	-	-	-
Total Benefits								
At Lower Bound	516,367							501,406
At Point Estimate	497,638							432,476
At Upper Bound	618,354							472,466
Costs								
Allocative Inefficiency								
(1) Consumer Suprlus								
At Lower Bound of WACC	11,164	12,221	7,652	6,662	6,416	11,579	18,181	10,554
At Point Estimate of WACC	5,538	5,466	2,109	1,433	1,141	4,040	8,648	4,054
At Upper Bound of WACC	1,441	974	(6)	(174)	(410)	148	1,951	561
(2) Producer Surplus								
At Lower Bound of WACC	82,292	87,670	72,625	69,442	69,597	91,907	113,256	83,827
At Point Estimate of WACC	60,615	61,726	40,311	34,100	31,143	57,485	82,556	52,562
At Upper Bound of WACC	32,505	27,584	(2,369)	(12,465)	(19,449)	11,720	41,680	11,315
Productive Inefficiency								
At 0% of Opex-Depn	-	-	-	-	-	-	-	-
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 2% of Opex-Depn	323,360	-	-	-	-	-	-	283,950
Dynamic Inefficiency								
At Lower Bound of WACC	-	-	-	-	-	-	-	-
At Point Estimate of WACC	-	-	-	-	-	-	-	-
At Upper Bound of WACC	-	-	-	-	-	-	-	-
Direct Costs								
Lower Bound	620,000	620,000	620,000	620,000	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000

	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	**Average**
Total Costs								
At Lower Bound	713,457							714,381
At Point Estimate	1,197,833							1,168,591
At Upper Bound	1,677,306							1,615,825
Net Public Benefits								
At Lower Bound	(197,089)							(212,975)
At Point Estimate	(700,195)							(736,114)
At Upper Bound	(1,058,952)							(1,143,359)

Net Acquirers Benefits ($) - AIAL

Specialised Assets at ODRC

	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	**Average**
Benefits to Acquirers								
Allocative Inefficiency (Consumer Surplus)								
At Lower Bound of WACC	9,988	13,466	6,856	5,733	5,663	14,073	26,097	11,697
At Point Estimate of WACC	2,145	2,987	202	16	-	2,212	8,747	2,330
At Upper Bound of WACC	(264)	(288)	(4,335)	(6,340)	(7,720)	(1,333)	201	(2,868)
Excess Returns								
At Lower Bound of WACC	4,032,913	4,779,364	3,449,451	3,201,400	3,236,968	5,191,232	7,191,806	4,440,448
At Point Estimate of WACC	1,869,052	2,250,929	591,417	170,044	(1,333)	2,057,985	4,163,614	1,585,958
At Upper Bound of WACC	(655,453)	(698,912)	(2,742,955)	(3,366,536)	(3,779,350)	(1,597,469)	630,722	(1,744,279)
Productive Inefficiency								
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 1.5% of Opex-Depn	242,520	-	-	-	-	-	-	212,962
At 3% of Opex-Depn	485,040	-	-	-	-	-	-	425,924
Dynamic Inefficiency								
At Lower Bound of WACC	-	-	-	-	-	-	-	-
At Point Estimate of WACC	-	-	-	-	-	-	-	-
At Upper Bound of WACC	-	-	-	-	-	-	-	-
Total Benefits								
At Lower Bound	4,204,581							4,594,119
At Point Estimate	2,113,717							1,801,250
At Upper Bound	(170,677)							(1,321,223)
Costs to Acquirers								
Allocative Inefficiency (Consumer Surplus)								
At Lower Bound of WACC	4,370	5,891	2,999	2,508	2,478	6,157	11,417	5,117
At Point Estimate of WACC	939	1,307	88	7	-	968	3,827	1,019
At Upper Bound of WACC	(115)	(126)	(1,897)	(2,774)	(3,378)	(583)	88	(1,255)
Excess Returns								
At Lower Bound of WACC	1,008,228	1,194,841	862,363	800,350	809,242	1,297,808	1,797,952	1,110,112
At Point Estimate of WACC	467,263	562,732	147,854	42,511	-	514,496	1,040,903	396,537
At Upper Bound of WACC	-	-	-	-	-	-	157,681	22,526
Productive Inefficiency								
At 0% of Opex-Depn	-	-	-	-	-	-	-	-
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 2% of Opex-Depn	323,360	-	-	-	-	-	-	283,950
Dynamic Inefficiency								
At Lower Bound of WACC	-	-	-	-	-	-	-	-
At Point Estimate of WACC	-	-	-	-	-	-	-	-
At Upper Bound of WACC	-	-	-	-	-	-	-	-
Direct Costs								
Lower Bound	620,000	620,000	620,000	620,000	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	**Average**
Total Costs								
At Lower Bound	1,632,598							1,735,229
At Point Estimate	1,599,882							1,509,531
At Upper Bound	1,643,245							1,625,220

Net Benefits to Acquirers

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	**Average**
At Lower Bound	2,571,983							2,858,890
At Point Estimate	513,836							291,719
At Upper Bound	(1,813,921)							(2,946,444)

Effects of Asset Base Decisions on Forecast Return Analysis - AIAL

	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	**Average**
Change in Excess Returns $000s								
Scenario 2 - Commission Optimisation								
Lower Bound	7,166	4,421	4,421	4,421	4,421	4,421	4,421	**4,813**
Midpoint	8,285	5,157	5,157	5,157	5,157	5,157	5,157	**5,604**
Upper Bound	9,591	6,016	6,016	6,016	6,016	6,016	6,016	**6,526**
Scenario 3 - OC Land								
Lower Bound	3,659	3,986	3,986	3,986	3,986	3,986	3,986	**3,940**
Midpoint	4,231	4,650	4,650	4,650	4,650	4,650	4,650	**4,590**
Upper Bound	4,897	5,424	5,424	5,424	5,424	5,424	5,424	**5,349**
Scenario 4 - OC Non-Optimised Land								
Lower Bound	2,247	2,662	2,662	2,662	2,662	2,662	2,662	**2,602**
Midpoint	2,598	3,105	3,105	3,105	3,105	3,105	3,105	**3,032**
Upper Bound	3,007	3,622	3,622	3,622	3,622	3,622	3,622	**3,534**
Scenario 5 - HC Specialised Assets								
Lower Bound	2,414	2,104	2,060	2,016	1,972	1,928	1,884	**2,054**
Midpoint	2,671	2,353	2,301	2,250	2,198	2,147	2,095	**2,288**
Upper Bound	2,972	2,643	2,583	2,523	2,462	2,402	2,342	**2,561**
Scenario 6 - HC Specialised Assets								
Lower Bound	2,414	2,104	2,060	2,016	1,972	1,928	1,884	**2,054**
Midpoint	2,671	2,353	2,301	2,250	2,198	2,147	2,095	**2,288**
Upper Bound	2,972	2,643	2,583	2,523	2,462	2,402	2,342	**2,561**

Forecast Return Analysis - AIAL

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	Average
Net Earnings $000s								
1	17,889	19,966	20,615	21,408	22,687	24,010	25,380	
2	17,889	19,966	20,615	21,408	22,687	24,010	25,380	
3	17,889	19,966	20,615	21,408	22,687	24,010	25,380	
4	17,889	19,966	20,615	21,408	22,687	24,010	25,380	
5	18,653	20,578	21,227	22,020	23,299	24,622	25,992	
6	18,653	20,578	21,227	22,020	23,299	24,622	25,992	
WACC								
Lower Bound	7.68%	7.21%	7.21%	7.21%	7.21%	7.21%	7.21%	
Midpoint	8.88%	8.41%	8.41%	8.41%	8.41%	8.41%	8.41%	
Upper Bound	10.28%	9.81%	9.81%	9.81%	9.81%	9.81%	9.81%	
Asset Base $000s								
1	308,972	336,439	350,882	368,128	359,373	350,619	341,864	
2	247,634	275,100	289,544	306,789	298,035	289,280	280,526	
3	253,663	281,130	295,573	312,819	304,064	295,310	286,555	
4	210,703	238,169	252,613	269,858	261,104	252,349	243,595	
5	232,959	261,038	276,093	293,951	285,808	277,666	269,523	
6	189,999	218,077	233,133	250,990	242,848	234,705	226,563	
Excess Returns $000s								
Scenario 1 - Airport Company (ODRC) Adjusted								
Lower Bound	(5,380)	(2,303)	(3,633)	(3,881)	(3,846)	(1,892)	109	**(2,975)**
Midpoint	(9,014)	(6,011)	(7,671)	(8,092)	(8,263)	(6,204)	(4,098)	**(7,050)**
Upper Bound	(13,253)	(10,337)	(12,381)	(13,004)	(13,417)	(11,235)	(9,007)	**(11,805)**
Scenario 2 - Airport Company (ODRC) with Commission Optimisation								
Lower Bound	1,786	2,118	788	540	575	2,529	4,530	**1,838**
Midpoint	(729)	(854)	(2,514)	(2,935)	(3,106)	(1,047)	1,059	**(1,447)**
Upper Bound	(3,663)	(4,321)	(6,365)	(6,989)	(7,401)	(5,219)	(2,991)	**(5,278)**
Scenario 3 - ODRC Specialised Assets, OC Land								
Lower Bound	(1,721)	1,683	353	105	141	2,095	4,095	**964**
Midpoint	(4,783)	(1,361)	(3,020)	(3,442)	(3,613)	(1,554)	552	**(2,460)**
Upper Bound	(8,356)	(4,912)	(6,956)	(7,580)	(7,993)	(5,811)	(3,583)	**(6,456)**
Scenario 4 - ODRC Specialised Assets, OC Land with Commission Optimisation								
Lower Bound	4,033	4,779	3,449	3,201	3,237	5,191	7,192	**4,440**
Midpoint	1,869	2,251	591	170	(1)	2,058	4,164	**1,586**
Upper Bound	(655)	(699)	(2,743)	(3,367)	(3,779)	(1,597)	631	**(1,744)**
Scenario 5 - HC Specialised Assets, OC Land								
Lower Bound	693	3,787	2,413	2,121	2,113	4,023	5,979	**3,018**
Midpoint	(2,112)	992	(719)	(1,192)	(1,415)	593	2,647	**(172)**
Upper Bound	(5,384)	(2,270)	(4,374)	(5,057)	(5,530)	(3,408)	(1,240)	**(3,895)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation								
Lower Bound	6,446	6,884	5,510	5,217	5,209	7,119	9,075	**6,494**
Midpoint	4,540	4,604	2,893	2,420	2,197	4,205	6,259	**3,874**
Upper Bound	2,316	1,944	(160)	(844)	(1,317)	805	2,973	**817**

Benefits Analysis - AIAL 2001 Result

Increase in Landing Charges at 1 September 2000		7.50%	(NB: 7.5% used as most aircraft paying this)	
Data for year ended 30 June 2001 (including 10 months of new charges)				
Tonnes Landed (MCTOW x Landings)		3,290,392		
Airfield Revenue ($000s)		49,668		
Current asset base ($000s)		308,972		
Airfield Expenses (including depreciation) ($000s)		22,931		
Net Earnings (Scenario 1) $000s		17,889		
Pm per tonne	**$**	**15.09**		
Qm (tonnes)		**3,290,392**		
Elasticity (Weighted Average)				
Net Earnings/Total Assets		**5.91%**		
Marginal Cost	**$**	**0.50**		

	Midpoint	Lower Bound	Upper Bound
Appropriate WACC	**8.88%**	***7.68%***	***10.28%***
AIAL Target WACC (when prices set 1/1/00)		***7.90%***	***9.40%***

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

	Midpoint	Lower Bound	Upper Bound
Appropriate asset base	**189,998,996**		
Net Earnings	**18,653,229**		
Pc per tonne	$ 13.72	$ 13.14	$ 14.39
$ that Pm > Pc	$ 1.38	$ 1.96	$ 0.70
% Pm > Pc	10.06%	14.91%	4.89%
Qc (tonnes)			
Tonnes that Qc > Qm			
# Boeing 737 Landings			

Potential Benefits - AIAL

	Midpoint	Lower Bound	Upper Bound
Excess returns = Net Earnings - (AAB x WACC)	4,540,167	6,446,414	2,316,211
Incremental Consumer surplus	12,658	25,519	3,294
Incremental Producer surplus	242,460	329,168	130,020
Excess returns and allocative efficiency	4,795,285	6,801,101	2,449,526
Productive efficiency	242,520	161,680	485,040
Dynamic efficiency	-	-	-
TOTAL	5,037,805	6,962,781	2,934,566

NOTE: Calculation of Appropriate Airfield Asset Base (Comparison to Draft Report)
($000s)

	Est. AIAL Pricing	Draft Report	Final Report
Land	173,038	126,481	70,344
Improvements - Runways, Taxiways and Aprons	60,986		
Buildings and Improvements	3,808		
Motor Vehicles and Plant	4,348		
Infrastructure	43,067	60,335	119,655
Revaluation of Assets Based on Inflation	-	-	-
	285,247	186,816	189,999

Benefits Analysis - AIAL 2002 Forecast

Increase in Landing Charges at 1 September 2001		5.00%		
Forecasted Data for the year ended 30 June 2002 (including 10 months of new charges)				
Tonnes Landed (MCTOW x Landings)				
Airfield Revenue ($000s)				
Airfield Expenses (including depreciation) ($000s)				
Net Earnings (Scenario 1) $000s		19,966		
Revaluations of Land		-		
Revaluations of Specialised Assets		-		
Capital Expenditure				
Asset Disposals		-		
Depreciation				
Asset base ($000s)		336,439		
Pm per tonne	**$**	**15.72**		
Qm (tonnes)		**-**		
Elasticity				
Net Earnings/Total Assets		**6.46%**		
Marginal Cost	**$**	**0.50**		

	Midpoint	Lower Bound	Upper Bound
Appropriate WACC	***8.41%***	***7.21%***	***9.81%***

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

	Midpoint	Lower Bound	Upper Bound
Appropriate asset base	**218,077,494**		
Net Earnings	**20,577,755**		
Pc per tonne	$ 14.32	$ 13.63	$ 15.13
$ that Pm > Pc	$ 1.40	$ 2.09	$ 0.59
% Pm > Pc	9.77%	15.35%	3.90%
Qc (tonnes)			
Tonnes that Qc > Qm			
# Boeing 737 Landings			

Potential Benefits - AIAL

	Midpoint	Lower Bound	Upper Bound
Excess returns = Net Earnings - (AAB x WACC)	4,603,621	6,883,609	1,943,635
Incremental Consumer surplus	12,494	27,934	2,227
Incremental Producer surplus	246,904	350,681	110,338
Excess returns and allocative efficiency	4,863,018	7,262,223	2,056,200
Productive efficiency			
Dynamic efficiency	-	-	-
TOTAL			

Benefits Analysis - AIAL 2003 Forecast

Forecasted Data for the year ended 30 June 2003					
Tonnes Landed (MCTOW x Landings)					
Airfield Revenue ($000s)					
Airfield Expenses (including depreciation) ($000s)					
Net Earnings (Scenario 1) $000s		20,615			
Revaluations of Land		-			
Revaluations of Specialised Assets		-			
Capital Expenditure					
Asset Disposals		-			
Depreciation					
Asset base ($000s)		350,882			
Pm per tonne	**$**	**15.85**			
Qm (tonnes)		**-**			
Elasticity					
Net Earnings/Total Assets		**6.13%**			
Marginal Cost	**$**	**0.50**			

		Midpoint		**Lower Bound**	**Upper Bound**
Appropriate WACC		**8.41%**		**7.21%**	**9.81%**

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**233,132,993**				
Net Earnings		**21,227,484**				
Pc per tonne	$	14.98	$	14.20	$	15.90
$ that Pm > Pc	$	0.87	$	1.65	-$	0.05
% Pm > Pc		5.78%		11.62%		-0.30%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	2,892,655	5,509,585	(160,430)
Incremental Consumer surplus	4,821	17,491	(15)
Incremental Producer surplus	161,243	290,501	(9,478)
Excess returns and allocative efficiency	3,058,719	5,817,577	(169,922)
Productive efficiency			
Dynamic efficiency	-	-	-
TOTAL			

Benefits Analysis - AIAL 2004 Forecast

Forecasted Data for the year ended 30 June 2004		
Tonnes Landed (MCTOW x Landings)		
Airfield Revenue ($000s)		
Airfield Expenses (including depreciation) ($000s)		
Net Earnings (Scenario 1) $000s		21,408
Revaluations of Land		-
Revaluations of Specialised Assets		-
Capital Expenditure		
Asset Disposals		-
Depreciation		
Asset base ($000s)		368,128
Pm per tonne	**$**	**15.85**
Qm (tonnes)		**-**
Elasticity		
Net Earnings/Total Assets		**6.10%**
Marginal Cost	**$**	**0.50**

		Midpoint		**Lower Bound**		**Upper Bound**
Appropriate WACC		**8.41%**		**7.21%**		**9.81%**
Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation						
Appropriate asset base		**250,990,491**				
Net Earnings		**22,020,445**				
Pc per tonne	$	15.15	$	14.33	$	16.09
$ that Pm > Pc	$	0.70	$	1.52	-$	0.25
% Pm > Pc		4.64%		10.58%		-1.52%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	2,419,827	5,217,423	(844,035)
Incremental Consumer surplus	3,276	15,228	(399)
Incremental Producer surplus	136,402	277,767	(49,862)
Excess returns and allocative efficiency	2,559,505	5,510,418	(894,295)
Productive efficiency			
Dynamic efficiency	-	-	-
TOTAL			

Benefits Analysis - AIAL 2005 Forecast

Forecasted Data for the year ended 30 June 2005				
Tonnes Landed (MCTOW x Landings)				
Airfield Revenue ($000s)				
Airfield Expenses (including depreciation) ($000s)				
Net Earnings (Scenario 1) $000s		22,687		
Revaluations of Land		-		
Revaluations of Specialised Assets		-		
Capital Expenditure		-		
Asset Disposals		-		
Depreciation		-		
Asset base ($000s)		359,373		
Pm per tonne	**$**	**15.85**		
Qm (tonnes)		**-**		
Elasticity				
Net Earnings/Total Assets		**6.16%**		
Marginal Cost	**$**	**0.50**		

	Midpoint	Lower Bound	Upper Bound
Appropriate WACC	**8.41%**	**7.21%**	**9.81%**

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

	Midpoint	Lower Bound	Upper Bound
Appropriate asset base	**242,847,990**		
Net Earnings	**23,298,979**		
Pc per tonne	$ 15.23	$ 14.39	$ 16.22
$ that Pm > Pc	$ 0.62	$ 1.46	-$ 0.37
% Pm > Pc	4.05%	10.17%	-2.28%
Qc (tonnes)			
Tonnes that Qc > Qm			
# Boeing 737 Landings			

Potential Benefits - AIAL

	Midpoint	Lower Bound	Upper Bound
Excess returns = Net Earnings - (AAB x WACC)	2,196,995	5,208,881	(1,316,871)
Incremental Consumer surplus	2,609	14,665	(937)
Incremental Producer surplus	124,571	278,388	(77,795)
Excess returns and allocative efficiency	2,324,176	5,501,935	(1,395,604)
Productive efficiency	-	-	-
Dynamic efficiency	-	-	-
TOTAL			

Benefits Analysis - AIAL 2006 Forecast

Forecasted Data for the year ended 30 June 2006						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)						
Net Earnings (Scenario 1) $000s		24,010				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure		-				
Asset Disposals		-				
Depreciation		-				
Asset base ($000s)		350,619				
Pm per tonne	**$**	**15.85**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**6.68%**				
Marginal Cost	**$**	**0.50**				
		Midpoint		**Lower Bound**		**Upper Bound**
Appropriate WACC		**8.41%**		**7.21%**		**9.81%**
Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation						
Appropriate asset base		**234,705,488**				
Net Earnings		**24,622,263**				
Pc per tonne	$	14.71	$	13.92	$	15.63
$ that Pm > Pc	$	1.14	$	1.93	$	0.22
% Pm > Pc		7.76%		13.88%		1.40%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	4,204,859	7,119,035	804,987
Incremental Consumer surplus	9,233	26,466	338
Incremental Producer surplus	229,938	367,629	46,878
Excess returns and allocative efficiency	4,444,030	7,513,130	852,204
Productive efficiency	-	-	-
Dynamic efficiency	-	-	-
TOTAL			

Benefits Analysis - AIAL 2007 Forecast

Forecasted Data for the year ended 30 June 2007						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)						
Net Earnings (Scenario 1) $000s		25,380				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure		-				
Asset Disposals		-				
Depreciation		-				
Asset base ($000s)		341,864				
Pm per tonne	**$**	**15.85**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**7.24%**				
Marginal Cost	**$**	**0.50**				
		Midpoint		**Lower Bound**		**Upper Bound**
Appropriate WACC		**8.41%**		**7.21%**		**9.81%**
Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation						
Appropriate asset base		**226,562,987**				
Net Earnings		**25,991,857**				
Pc per tonne	$	14.21	$	13.47	$	15.07
$ that Pm > Pc	$	1.64	$	2.38	$	0.78
% Pm > Pc		11.55%		17.67%		5.17%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	6,259,032	9,075,498	2,973,156
Incremental Consumer surplus	19,766	41,558	4,460
Incremental Producer surplus	330,224	453,026	166,721
Excess returns and allocative efficiency	6,609,023	9,570,082	3,144,337
Productive efficiency	-	-	-
Dynamic efficiency	-	-	-
TOTAL			

Effects of Asset Base Decisions on Historical Return Analysis - AIAL

	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	1989-2001 Average	1997-2001 Average	2001 PV
Change in Excess Returns $000s																
Scenario 2 - Commission Optimisation																
Lower Bound	(8,318)	(9,177)	(7,998)	6,428	(1,696)	(6,737)	(7,060)	(2,965)	3,314	1,155	10,188	7,362	7,166	**(641)**	**5,837**	**(46,670)**
Midpoint	(8,318)	(9,010)	(7,698)	6,879	(1,264)	(6,191)	(6,386)	(2,149)	4,235	2,197	11,338	8,481	8,285	**31**	**6,907**	**(34,884)**
Upper Bound	(8,318)	(8,816)	(7,349)	7,406	(760)	(5,553)	(5,600)	(1,197)	5,310	3,412	12,680	9,787	9,591	**815**	**8,156**	**(21,135)**
Scenario 3 - OC Land																
Lower Bound	(5,590)	(7,081)	(6,216)	3,362	(1,845)	(5,491)	(5,694)	(2,929)	1,263	(408)	5,496	3,759	3,659	**(1,363)**	**2,754**	**(49,385)**
Midpoint	(5,590)	(7,056)	(6,101)	3,568	(1,653)	(5,259)	(5,375)	(2,512)	1,753	112	6,064	4,331	4,231	**(1,037)**	**3,298**	**(43,815)**
Upper Bound	(5,590)	(7,026)	(5,966)	3,808	(1,430)	(4,988)	(5,002)	(2,026)	2,324	719	6,727	4,997	4,897	**(658)**	**3,933**	**(37,316)**
Scenario 4 - OC Non-Optimised Land																
Lower Bound	(3,432)	(4,517)	(3,967)	1,922	(1,232)	(3,465)	(3,585)	(1,882)	694	(318)	3,313	2,308	2,247	**(917)**	**1,649**	**(32,160)**
Midpoint	(3,432)	(4,518)	(3,912)	2,033	(1,128)	(3,336)	(3,401)	(1,637)	984	(9)	3,652	2,659	2,598	**(727)**	**1,977**	**(28,957)**
Upper Bound	(3,432)	(4,518)	(3,847)	2,164	(1,007)	(3,185)	(3,187)	(1,352)	1,322	352	4,048	3,069	3,007	**(505)**	**2,359**	**(25,221)**
Scenario 5 - HC Specialised Assets																
Lower Bound	(2,832)	(3,366)	(2,953)	1,892	(805)	(2,659)	(2,769)	(1,375)	747	(119)	2,709	2,525	2,414	**(507)**	**1,655**	**(21,566)**
Midpoint	(2,832)	(3,332)	(2,874)	2,015	(690)	(2,524)	(2,591)	(1,148)	1,009	158	3,010	2,792	2,671	**(334)**	**1,928**	**(18,514)**
Upper Bound	(2,832)	(3,292)	(2,782)	2,159	(556)	(2,367)	(2,383)	(884)	1,316	481	3,360	3,103	2,972	**(131)**	**2,246**	**(14,954)**
Scenario 6 - HC Specialised Assets																
Lower Bound	(2,832)	(3,366)	(2,953)	1,892	(805)	(2,659)	(2,769)	(1,375)	747	(119)	2,709	2,525	2,414	**(507)**	**1,655**	**(21,566)**
Midpoint	(2,832)	(3,332)	(2,874)	2,015	(690)	(2,524)	(2,591)	(1,148)	1,009	158	3,010	2,792	2,671	**(334)**	**1,928**	**(18,514)**
Upper Bound	(2,832)	(3,292)	(2,782)	2,159	(556)	(2,367)	(2,383)	(884)	1,316	481	3,360	3,103	2,972	**(131)**	**2,246**	**(14,954)**

Historical Return Analysis - AIAL

	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	1989-2001 Average	1997-2001 Average	2001 PV
1 Yr Govt Stock Rate @ y/e	13.32%	13.48%	11.86%	9.27%	6.52%	6.44%	8.89%	9.25%	6.78%	8.33%	4.41%	6.96%	5.67%			
Excess Returns $000s																
Scenario 1 - Airport Company (ODRC) Adjusted																
Lower Bound	5,596	10,866	10,108	(13,486)	5,377	13,064	15,708	10,516	74	4,776	(9,549)	(5,123)	(5,380)	**3,273**	**(3,040)**	**91,509**
Midpoint	4,137	9,258	8,297	(15,536)	3,388	10,911	13,334	7,883	(2,757)	1,773	(12,828)	(8,564)	(9,014)	**791**	**(6,278)**	**43,248**
Upper Bound	2,436	7,381	6,185	(17,927)	1,067	8,398	10,564	4,812	(6,060)	(1,730)	(16,655)	(12,578)	(13,253)	**(2,105)**	**(10,055)**	**(13,056)**
Scenario 2 - Airport Company (ODRC) with Commission Optimisation																
Lower Bound	(2,722)	1,689	2,110	(7,058)	3,681	6,328	8,648	7,551	3,388	5,931	639	2,239	1,786	**2,631**	**2,797**	**44,839**
Midpoint	(4,181)	247	599	(8,657)	2,124	4,720	6,948	5,734	1,478	3,970	(1,490)	(83)	(729)	**822**	**629**	**8,364**
Upper Bound	(5,882)	(1,435)	(1,163)	(10,522)	307	2,844	4,964	3,615	(750)	1,683	(3,974)	(2,791)	(3,663)	**(1,290)**	**(1,899)**	**(34,190)**
Scenario 3 - ODRC Specialised Assets, OC Land																
Lower Bound	6	3,785	3,892	(10,123)	3,533	7,574	10,014	7,587	1,337	4,368	(4,053)	(1,364)	(1,721)	**1,910**	**(286)**	**42,124**
Midpoint	(1,453)	2,202	2,197	(11,968)	1,735	5,652	7,959	5,371	(1,004)	1,885	(6,764)	(4,233)	(4,783)	**(247)**	**(2,980)**	**(567)**
Upper Bound	(3,154)	355	219	(14,119)	(363)	3,409	5,562	2,786	(3,736)	(1,011)	(9,928)	(7,581)	(8,356)	**(2,763)**	**(6,122)**	**(50,372)**
Scenario 4 - ODRC Specialised Assets, OC Land with Commission Optimisation																
Lower Bound	(6,155)	(2,828)	(1,857)	(5,136)	2,450	2,863	5,063	5,669	4,082	5,613	3,951	4,547	4,033	**1,715**	**4,445**	**12,679**
Midpoint	(7,613)	(4,270)	(3,312)	(6,623)	996	1,384	3,546	4,097	2,462	3,961	2,162	2,576	1,869	**95**	**2,606**	**(20,593)**
Upper Bound	(9,315)	(5,953)	(5,010)	(8,358)	(700)	(341)	1,777	2,263	572	2,034	73	277	(655)	**(1,795)**	**460**	**(59,411)**
Scenario 5 - HC Specialised Assets, OC Land																
Lower Bound	(2,827)	419	939	(8,232)	2,727	4,915	7,244	6,212	2,084	4,249	(1,343)	1,161	693	**1,403**	**1,369**	**20,558**
Midpoint	(4,285)	(1,130)	(677)	(9,953)	1,045	3,127	5,368	4,223	5	2,043	(3,755)	(1,441)	(2,112)	**(580)**	**(1,052)**	**(19,081)**
Upper Bound	(5,987)	(2,937)	(2,563)	(11,960)	(919)	1,042	3,178	1,902	(2,420)	(530)	(6,568)	(4,478)	(5,384)	**(2,894)**	**(3,876)**	**(65,326)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation																
Lower Bound	(8,987)	(6,194)	(4,810)	(3,245)	1,645	204	2,294	4,294	4,829	5,494	6,661	7,072	6,446	**1,208**	**6,101**	**(8,887)**
Midpoint	(10,446)	(7,602)	(6,186)	(4,609)	306	(1,140)	955	2,949	3,472	4,120	5,171	5,368	4,540	**(239)**	**4,534**	**(39,107)**
Upper Bound	(12,147)	(9,245)	(7,792)	(6,199)	(1,256)	(2,708)	(607)	1,379	1,888	2,516	3,433	3,381	2,316	**(1,926)**	**2,707**	**(74,365)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation WITH FULL AIRPORT REVALUATION GAINS INCLUDED AS INCOME																
Lower Bound	5,596	12,980	14,364	(6,756)	10,016	18,837	23,088	19,687	11,040	15,486	2,227	6,303	5,683	**10,658**	**8,148**	**223,863**
Midpoint	4,137	11,572	12,988	(8,119)	8,678	17,493	21,749	18,342	9,683	14,112	738	4,599	3,776	**9,211**	**6,581**	**193,643**
Upper Bound	2,436	9,929	11,382	(9,710)	7,116	15,926	20,188	16,772	8,099	12,508	(1,000)	2,611	1,552	**7,524**	**4,754**	**158,385**

AUCKLAND INTERNATIONAL AIRPORT LIMITED

AIRFIELD ACTIVITIES

($000s)	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	
						Adjusted to 12 months									
Revenue															
Landing Charges		25,490	30,514	32,098	30,935	32,767	33,477	37,551	41,318	41,697	42,644	42,029	44,157	49,486	
Other Revenue		*500*	*500*	*500*	*500*	*500*	579	611	1,587	806	821	828	796	182	
		25,990	31,014	32,598	31,435	33,267	34,056	38,162	42,905	42,503	43,465	42,857	44,953	49,668	
Proportion of Airfield Income to Total AIAL Income		39.77%	37.40%	36.66%	35.26%	26.72%	32.26%	32.49%	33.02%	30.34%	28.13%	26.72%	26.44%	26.23%	
Expenses															
Employee Remuneration and Benefits		*6,004*	*5,887*	*6,099*	*7,335*	*5,700*	*6,429*	*6,755*	*7,555*	*7,951*	*7,342*	*7,470*	8,016	9,640	44.76%
Repairs and Maintenance		*2,599*	*2,685*	*2,985*	*2,394*	*2,149*	*2,436*	*2,569*	*3,148*	*3,074*	*2,652*	*2,774*	2,410	1,533	13.46%
Depreciation		*3,108*	*3,312*	*4,106*	*4,074*	*3,726*	*3,923*	*4,546*	*5,166*	*6,091*	*6,458*	*5,795*	5,619	6,763	19.06%
General		*930*	*984*	*942*	*1,284*	*1,019*	*1,719*	*1,755*	*1,662*	*1,406*	*2,118*	*2,316*	2,265	4,675	26.52%
Rates and Insurance		*1,376*	*1,405*	*1,496*	*699*	*463*	*700*	*744*	*725*	*696*	*592*	*521*	500	320	26.52%
		14,017	14,272	15,627	15,785	13,057	15,206	16,369	18,256	19,219	19,162	18,876	18,810	22,931	
EBIT		**11,973**	**16,742**	**16,971**	**15,650**	**20,211**	**18,850**	**21,793**	**24,648**	**23,285**	**24,303**	**23,981**	**26,143**	**26,737**	
Taxation (@ effective tax rate)		*3,755*	*5,683*	*5,868*	*5,966*	*7,972*	*6,720*	*7,338*	*8,824*	*7,568*	*8,505*	*7,941*	*8,630*	*8,848*	
Earnings Before Interest After Tax, Opex and Depreciation		**8,218**	**11,059**	**11,103**	**9,684**	**12,239**	**12,130**	**14,455**	**15,824**	**15,716**	**15,798**	**16,039**	**17,512**	**17,889**	
Airfield Activities Assets												*implied 00*	*discl 00*	*pricing 01*	
Freehold Land	35,000	36,067	37,259	40,146	43,430	51,445	59,461	67,476	75,491	90,006	107,874	181,807	181,976	168,613	
Buildings (including fixed plant)	-	*885*	*897*	*910*	*826*	*881*	*845*	*924*	*1,362*	*1,751*	*1,794*	2,325	2,184	2,126	0.68%
Runways, Taxiways and Aprons	86,538	83,893	82,593	81,142	77,441	75,441	69,580	64,698	58,797	52,959	50,041	60,985	78,201	99,408	
Vehicles and Plant (NB: not revalued, at DHC)	-	*462*	*618*	*593*	*611*	*422*	*374*	*521*	*1,077*	*871*	*1,006*	1,278	1,365	1,114	12.47%
Infrastructure	-	-	-	-	-	-	-	-	-	-	-	40,326	39,090	37,711	
Non current assets per AIAL	***121,538***	***121,307***	***121,367***	***122,791***	***122,308***	***128,189***	***130,259***	***133,619***	***136,727***	***145,587***	***160,716***	***286,721***	***302,816***	***308,972***	
Current Assets													6,357		
Total													***309,173***	***335,238***	

Returns:

(1) Airport Company (ODRC) Adjusted

	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	
Provision for Runway Repairs		-	-	1,781	283	791	790	790	790	790	-	-	-	-	
Actual revaluations		-	-	-	-	-	-	-	-	-	-	(108,566)	(108,566)	(98,992)	
Assessed revaluations (cumulative)		12,745	29,502	46,259	43,190	50,507	66,792	84,965	98,418	103,846	112,578	108,566	108,566	98,992	**Average**
Adjusted NCA		**134,052**	**150,868**	**170,830**	**165,782**	**179,487**	**197,841**	**219,374**	**235,935**	**250,223**	**273,295**	**286,721**	**302,816**	**308,972**	
Asset revaluation		12,745	16,757	16,757	(3,068)	7,316	16,285	18,173	13,453	5,428	8,733	(4,012)	-	-	
Net Earnings		**20,963**	**27,816**	**27,860**	**6,616**	**19,555**	**28,415**	**32,628**	**29,277**	**21,145**	**24,531**	**12,027**	**17,512**	**17,889**	
Net Earnings to NCA		**17.25%**	**20.75%**	**18.47%**	**3.87%**	**11.80%**	**15.83%**	**16.49%**	**13.35%**	**8.96%**	**9.80%**	**4.40%**	**6.11%**	**5.91%**	**11.77%**
Inflation (All Groups CPI)		4.0%	7.0%	4.5%	0.8%	1.3%	1.1%	4.6%	2.0%	1.1%	1.7%	-0.4%	2.0%	3.2%	
Inflation (Housing Group of CPI for Auckland Region)		5.4%	7.1%	7.1%	-1.3%	3.1%	6.9%	7.7%	5.7%	2.3%	3.7%	-1.7%	n/a	n/a	
Spreading of Land Revaluation		9,912	13,033	13,033	(2,386)	5,690	12,666	14,134	10,463	4,222	6,792	(3,121)	-	-	
Spreading of Revaluations of Non-Land Assets		2,832	3,724	3,724	(682)	1,626	3,619	4,039	2,990	1,206	1,941	(892)	-	-	
Assessed Revaluations		12,745	16,757	16,757	(3,068)	7,316	16,285	18,173	13,453	5,428	8,733	(4,012)	-	-	
												108,566			

(2) Airport Company (ODRC) with Commission Optimisation

	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01
Optimisation of Second Runway Land		(1,067)	(1,192)	(2,887)	(3,285)	(8,015)	(8,015)	(8,015)	(8,015)	(8,015)	(11,368)	(36,757)	(36,757)	(36,757)
Optimisation of Seabed		-	-	-	-	-	-	-	-	-	-	(30,113)	(30,113)	(9,800)
Optimisation of Seawall (from Land Values)		-	-	-	-	-	-	-	-	-	-	(9,787)	(9,787)	-
Optimisation of Wiroa Island		(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(4,641)	(4,641)	(2,825)
Optimisation of Eastern Approaches		(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(9,213)	(9,213)	(11,957)	(11,957)	(11,957)
Reduction in assessed revaluations (cumulative)		(8,318)	(19,255)	(30,192)	(28,189)	(32,964)	(43,593)	(55,454)	(64,234)	(67,777)	(73,476)	-	-	-
Adjusted NCA		**120,138**	**125,893**	**133,223**	**129,779**	**133,979**	**141,704**	**151,376**	**159,157**	**163,402**	**177,421**	**193,466**	**209,561**	**247,634**

($000s)	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	
Associated adjustment to asset revaluation		(8,318)	(10,937)	(10,937)	2,003	(4,775)	(10,629)	(11,861)	(8,780)	(3,543)	(5,699)	2,619	-	-	
Net Earnings		**12,645**	**16,879**	**16,924**	**8,618**	**14,780**	**17,786**	**20,767**	**20,497**	**17,602**	**18,831**	**14,646**	**17,512**	**17,889**	
Net Earnings to NCA		**10.40%**	**14.05%**	**13.44%**	**6.47%**	**11.39%**	**13.28%**	**14.66%**	**13.54%**	**11.06%**	**11.52%**	**8.25%**	**9.05%**	**8.54%**	**11.20%**
Land Acquisions for 2nd Runway per AIAL Asset Files		1,825	213	2,900	680	8,091					5,735				
Proportion to Total 2nd Runway Area that is Airfield		**$ 36,757**	**58%**												
Total 2nd Runway Area Valuation	of	**$ 62,870**													
Historial Value of Second Runway Land Acquired		1,067	125	1,695	398	4,731	-	-	-	-	3,353				
Historial Value of Second Runway Land included in Accounts		1,067	1,192	2,887	3,285	8,015	8,015	8,015	8,015	8,015	11,368	36,757	36,757	36,757	
(3) ODRC Specialised Assets, OC Land															
Adjustment to second runway land valuation		-	-	-	-	-	-	-	-	-	-	(18,379)	(18,379)	(18,379)	
Reduction in assessed revaluations SR land (cumulative)		(2,157)	(4,994)	(7,831)	(7,311)	(8,550)	(11,307)	(14,383)	(16,661)	(17,579)	(19,058)				
Adjustment to operational airfield land valuation		-	-	-	-	-	-	-	-	-	-	(29,239)	(29,239)	(36,931)	
Reduction in assessed revaluations OAL land (cumulative)		(3,432)	(7,945)	(12,458)	(11,632)	(13,603)	(17,989)	(22,883)	(26,506)	(27,968)	(30,320)	-	-	-	
Holding Costs		-	-	-	-	-	-	-	-	-	-	-	-	-	
Levelling Costs		-	-	-	-	-	-	-	-	-	-	-	-	-	
Seawall Construction Costs		3,465	3,308	3,150	2,993	2,835	2,678	2,520	2,363	2,205	2,048	-	-	-	
Reclamation Costs		-	-	-	-	-	-	-	-	-	-	-	-	-	
Adjusted NCA		**131,927**	**141,236**	**153,691**	**149,831**	**160,170**	**171,224**	**184,628**	**195,131**	**206,881**	**225,965**	**239,103**	**255,198**	**253,663**	
Associated adjustment to asset revaluation SR land		(2,157)	(2,837)	(2,837)	519	(1,239)	(2,757)	(3,076)	(2,277)	(919)	(1,478)	679	-	-	
Associated adjustment to asset revaluation OAL land		(3,432)	(4,513)	(4,513)	826	(1,970)	(4,386)	(4,894)	(3,623)	(1,462)	(2,352)	1,081	-	-	
Net Earnings		**15,373**	**20,466**	**20,511**	**7,961**	**16,346**	**21,272**	**24,657**	**23,376**	**18,764**	**20,700**	**13,787**	**17,512**	**17,889**	
Net Earnings to NCA		**12.65%**	**15.51%**	**14.52%**	**5.18%**	**10.91%**	**13.28%**	**14.40%**	**12.66%**	**9.62%**	**10.01%**	**6.10%**	**7.32%**	**7.01%**	**10.71%**
(4) ODRC Specialised Assets, OC Land with Commission Optimisation															
Adjusted NCA		**120,171**	**121,255**	**123,914**	**121,140**	**123,211**	**126,393**	**131,013**	**135,013**	**137,639**	**149,149**	**164,227**	**180,322**	**210,703**	
Net Earnings		**9,213**	**12,366**	**12,411**	**9,444**	**12,810**	**13,400**	**15,872**	**16,874**	**16,140**	**16,479**	**15,726**	**17,512**	**17,889**	
Net Earnings to NCA		**7.58%**	**10.29%**	**10.24%**	**7.62%**	**10.57%**	**10.88%**	**12.56%**	**12.88%**	**11.95%**	**11.97%**	**10.54%**	**10.66%**	**9.92%**	**10.59%**
(5) HC Specialised Assets, OC Land															
Adjustment to specialised assets valuation (ODRC to HC)		-	-	-	-	-	-	-	-	-	-	(24,127)	(24,127)	(24,127)	
Reduction in assessed revaluations (cumulative)		(2,832)	(6,556)	(10,280)	(9,599)	(11,225)	(14,844)	(18,882)	(21,872)	(23,078)	(25,019)	-	-	-	
Seawall Construction Costs												2,048	2,048	2,048	
Associated adjustment to depreciation		-	-	-	-	-	-	-	-	-	-	(158)	612	1,376	
Adjusted NCA		**129,095**	**134,680**	**143,411**	**140,232**	**148,945**	**156,380**	**165,746**	**173,259**	**183,802**	**200,945**	**216,866**	**233,730**	**232,959**	
Associated adjustment to asset revaluation		(2,832)	(3,724)	(3,724)	682	(1,626)	(3,619)	(4,039)	(2,990)	(1,206)	(1,941)	892	-	-	
Associated adjustment to depreciation expense		-	-	-	-	-	-	-	-	-	-	(158)	770	764	
Net Earnings		**12,541**	**16,742**	**16,787**	**8,643**	**14,720**	**17,653**	**20,618**	**20,387**	**17,557**	**18,760**	**14,521**	**18,282**	**18,653**	
Net Earnings to NCA		**10.32%**	**12.97%**	**12.46%**	**6.03%**	**10.50%**	**11.85%**	**13.18%**	**12.30%**	**10.13%**	**10.21%**	**7.23%**	**8.43%**	**7.98%**	**10.28%**
(6) HC Specialised Assets, OC Land with Commission Optimisation															
Adjusted NCA		**117,338**	**114,699**	**113,634**	**111,541**	**111,987**	**111,550**	**112,131**	**113,141**	**114,560**	**124,130**	**141,989**	**158,854**	**189,999**	
Net Earnings		**6,380**	**8,642**	**8,687**	**10,126**	**11,184**	**9,781**	**11,834**	**13,884**	**14,933**	**14,539**	**16,460**	**18,282**	**18,653**	
Net Earnings to NCA		**5.25%**	**7.11%**	**7.15%**	**8.33%**	**9.20%**	**8.05%**	**9.74%**	**11.42%**	**12.29%**	**11.96%**	**13.54%**	**15.04%**	**15.35%**	**10.34%**

($000s)	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01
(6) HC Specialised Assets, OC Land with Commission Optimisation														
Reconciliation														
Airfield Activities Assets per AIAL														
Freehold Land	35,000	36,067	37,259	40,146	43,430	51,445	59,461	67,476	75,491	90,006	107,874	181,807	181,976	168,613
Total Non-land assets	86,538	85,240	84,108	82,645	78,878	76,744	70,799	66,143	61,236	55,581	52,842	104,914	120,840	140,359
	121,538	***121,307***	***121,367***	***122,791***	***122,308***	***128,189***	***130,259***	***133,619***	***136,727***	***145,587***	***160,716***	***286,721***	***302,816***	***308,972***
Land														
Value per AIAL	35,000	36,067	37,259	40,146	43,430	51,445	59,461	67,476	75,491	90,006	107,874	181,807	181,976	168,613
Plus Revaluations to ORC	-	9,912	22,945	35,978	33,592	39,282	51,948	66,083	76,546	80,768	87,559	-	-	-
	35,000	45,979	60,204	76,124	77,022	90,728	111,409	133,558	152,037	170,774	195,434	181,807	181,976	168,613
Less Optimisation														
Optimisation of Second Runway Land	-	(1,067)	(1,192)	(2,887)	(3,285)	(8,015)	(8,015)	(8,015)	(8,015)	(8,015)	(11,368)	(36,757)	(36,757)	(36,757)
Optimisation of Seabed	-	-	-	-	-	-	-	-	-	-	-	(30,113)	(30,113)	(9,800)
Optimisation of Seawall (from Land Values)	-	-	-	-	-	-	-	-	-	-	-	(9,787)	(9,787)	-
Optimisation of Wiroa Island	-	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(4,641)	(4,641)	(2,825)
Optimisation of Eastern Approaches	-	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(9,213)	(9,213)	(11,957)	(11,957)	(11,957)
Reduction in Revaluations	-	(8,318)	(19,255)	(30,192)	(28,189)	(32,964)	(43,593)	(55,454)	(64,234)	(67,777)	(73,476)	-	-	-
	35,000	32,065	35,228	38,516	41,019	45,219	55,272	65,560	75,258	83,952	99,560	88,552	88,721	107,274
Less Revaluations Above Opportunity Cost														
Adjustment to operational airfield land valuation	-	-	-	-	-	-	-	-	-	-	-	(29,239)	(29,239)	(36,931)
Reduction in assessed revaluations OAL land (cumulative)	-	(3,432)	(7,945)	(12,458)	(11,632)	(13,603)	(17,989)	(22,883)	(26,506)	(27,968)	(30,320)	-	-	-
Value of Airfield Land (Scenario 6) $70k OC	**35,000**	**28,633**	**27,283**	**26,058**	**29,387**	**31,617**	**37,283**	**42,677**	**48,752**	**55,984**	**69,240**	**59,313**	**59,482**	**70,344**
Ha Airfield Land	352	352	352	352	352	352	352	352	352	352	352	352	352	352
Opportunity Cost of Land per Ha	99,432	81,408	77,570	74,086	83,553	89,891	106,002	121,338	138,611	159,173	196,861	168,636	169,117	199,999
Historic Cost of Land per Ha	74,091	86,634	89,668	93,055	101,263	110,602	133,391	156,179	178,968	201,756	243,026	213,155	213,635	220,312
Inflationary increase in asset values		4,001	6,435	7,107	(1,438)	3,638	8,994	12,484	11,252	5,323	9,603			
Indexed Historic Cost of Land per Ha		90,635	100,104	110,599	117,369	130,346	162,128	197,401	231,441	259,553	310,426			
Non-Land Assets														
Value per AIAL	86,538	85,240	84,108	82,645	78,878	76,744	70,799	66,143	61,236	55,581	52,842	104,914	120,840	140,359
Plus Provision for Runway Repairs	-	-	-	1,781	283	791	790	790	790	790	-	-	-	-
Plus Revaluations to ODRC	-	2,832	6,556	10,280	9,599	11,225	14,844	18,882	21,872	23,078	25,019	-	-	-
	86,538	88,073	90,664	94,706	88,760	88,759	86,433	85,816	83,898	79,449	77,861	104,914	120,840	140,359
Plus Adjustments in Connection With OC Valuation														
Holding Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Levelling Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Seawall Construction Costs	-	3,465	3,308	3,150	2,993	2,835	2,678	2,520	2,363	2,205	2,048	-	-	-
Reclamation Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	86,538	91,538	93,972	97,857	91,752	91,595	89,110	88,336	86,261	81,654	79,908	104,914	120,840	140,359
Less Revaluations Above DHC														
Adjustment to specialised assets valuation (ODRC to HC)	-	-	-	-	-	-	-	-	-	-	-	(24,127)	(24,127)	(24,127)
Reduction in assessed revaluations (cumulative)	-	(2,832)	(6,556)	(10,280)	(9,599)	(11,225)	(14,844)	(18,882)	(21,872)	(23,078)	(25,019)	-	-	-
Seawall Construction Costs	-	-	-	-	-	-	-	-	-	-	-	2,048	2,048	2,048
Associated adjustment to depreciation	-	-	-	-	-	-	-	-	-	-	-	(158)	612	1,376
Value of Non-Land Assets (Scenario 6)	**86,538**	**88,705**	**87,416**	**87,576**	**82,154**	**80,370**	**74,267**	**69,453**	**64,389**	**58,576**	**54,889**	**82,677**	**99,372**	**119,655**
Total Airfield Assets (Scenario 6)	**121,538**	**117,338**	**114,699**	**113,634**	**111,541**	**111,987**	**111,550**	**112,131**	**113,141**	**114,560**	**124,130**	**141,989**	**158,854**	**189,999**

AIAL Land - Vesting to date

		Hectares	$/Ha	$000s		
Vesting						
	Total Land	986.44		128,574		
	Airfield Portion	777.87	*44,995*	35,000		
	Includes:					
	Seabed (Tidal Land)	252.957		4,220		
	Future Runway Land	101.523		4,700	??	
Acquisitions Since Vesting						
1997	Puhinui Rd "Eastern Approach Land"	110.51		6,500		
31/01/1989	Second Runway Land	1.832	44,005	81		
22/02/1991	Second Runway Land	54.938	66,340	3,645		
01/04/1992	Second Runway Land	33.555	76,603	2,570		
01/06/1998	Second Runway Land	9.229	131,314	1,212		
08/05/1992	Second Runway Land	0.4046	616,241	249		
08/05/1992	Second Runway Land	0.5094	616,241	314		
08/05/1992	Second Runway Land	0.9105	616,241	561		
01/04/1992	Second Runway Land	22.475	89,506	2,012		
01/04/1992	Second Runway Land	10.0219	74,577	747		
26/03/1991	Second Runway Land	3.74	101,663	380		
26/03/1991	Second Runway Land	10.919	101,663	1,110		
19/04/1991	Second Runway Land	1.58	112,023	177		
01/11/1997	Second Runway Land	2.438	132,000	322		
		152.5524		13,380		
1999 Valuation						
	Operational Airfield Land	278.4692	305,000	84,933	*	
	Second Runway Land	262.551	140,000	36,757		
	Eastern Approaches	170.8081	70,000	11,957		
	Wiroa Island	40.36	115,000	4,641	**	
	Seawall			9,787		
	Ground Handling Area	3.1851	650,000	2,070		
	Seabed (titled, untitled and reclaimed)	430.18	70,000	30,113		
				180,258		

* $140,000 + holding costs of $133,000 gets AIAL $273,000 base figure
Additional $32,000 of levelling costs is added to get to $305,000 ORC figure.

**Reduced for pricing to $70,000 per ha

*** Total reclaimed seabed since airport was established in 1960's is 181.44 ha

					Change in Revaluation
1999 Valuation (used for pricing 2001)					
	Operational Airfield Land	278.4692	305,000	84,933	-
	+ Reclaimed Seabed (OAL)	73.2513	305,000	22,342	*17,214*
	Second Runway Land	262.551	140,000	36,757	-
	Eastern Approaches	170.8081	70,000	11,957	-
	Wiroa Island	40.36	70,000	2,825	*(1,816)*
	Seawall			-	*(9,787)*
	Seabed (Western Approaches)	140	70,000	9,800	*(15,185)*
				168,614	*(9,574)*

Breakdown of 1999 AIAL Revaluation and 1998, 2000-2001 Asset Values

($000s)

		1998	1999		2000			2001	
		AIAL	**AIAL**	**Airfield**	**AIAL**	**Airfield**		**AIAL A/cs**	**Airfield Pricing**
Freehold Land									
	At valuation		313,996	181,807	313,996	181,807		313,996	
	At cost	208,397			(1,057)	169		(2,377)	
		208,397	313,996	181,807	312,939	181,976	58%	311,619	168,613
	Revaluation		*145,207*	*84,439*	-	-		-	*(9,574)*
Buildings									
	At valuation		271,627	2,325	271,627	2,325		271,627	2,325
	At cost	382,611			4,309	26	1%	19,221	116
	Accumulated depreciation	(118,235)			(19,128)	(167)	1%	(36,078)	(315)
		264,376	271,627	2,325	256,808	2,184	1%	254,770	2,126
	Revaluation		*56,607*	*481*	-	-	*22%*	-	-
							23%		
Infrastructure									
	At valuation	-	105,624	40,326	105,624	40,326		105,624	40,326
	At cost	-			7,662	130	2%	12,928	219
	Accumulated depreciation	-			(4,295)	(1,366)	32%	(8,911)	(2,834)
		-	105,624	40,326	108,990	39,090	36%	109,641	37,711
	Revaluation		*49,443*	*17,733*	-	-	*45%*	-	-
							47%		
Runways Taxiways and Aprons									
	At valuation		60,985	60,985	60,985	60,985		60,985	60,985
	At cost	106,432			20,794	20,794		45,894	45,894
	Accumulated depreciation	(56,391)			(3,578)	(3,578)		(7,471)	(7,471)
		50,041	60,985	60,985	78,201	78,201	100%	99,408	99,408
	Revaluation		*5,913*	*5,913*	-	-	*8%*	-	-
							6%		
Plant									
	At cost	24,745	35,770	6,365	38,838	6,911	18%	41,926	7,460
	Accumulated depreciation	(16,673)	(25,519)	(5,087)	(27,821)	(5,546)	20%	(31,837)	(6,347)
		8,072	10,251	1,278	11,017	1,365	12%	10,089	1,114
	Revaluation		-	-	-	-		-	-
TOTAL	**Assets** (excl investment properties)	**530,886**	**762,483**	**286,721**	**767,955**	**302,816**		**785,527**	**308,972**
	Revaluation		**257,170**	**108,566**	-	-		-	**(9,574)**
	Depreciation for year		**8,846**		**29,303**			**29,475**	
	c.f. Depreciation Expense	31,857	30,094		29,488			30,730	
	c.f. Revaluation per annual report		258,545						

But Revaluation Includes Optimised Assets

Revalued Value for 2nd Runway	36,757			
Less Original Cost	11,368	Purchased in 13 transactions		
Revaluation of Optimised assets	25,389			
Revaluation of Seawall	9,787			
Less Original Cost not in Vesting valuation	-			
	9,787			
Revaluation of Seabed	30,113			
Less Original Cost not in Vesting valuation	-			
	30,113		65,289	-

Therefore Airfield Revaluations adjusted for Commission optimisation

Freehold Land	28,937
Buildings	481
Infrastructure	7,946
Runways Taxiways and Aprons	5,913
Plant	-
	43,277

Computation of Adjustments to AIAL's Asset Base with the Adoption of Opportunity Cost

Inflation (CPI):		*AKL Housing Gp*
	Jun-88	783 (closest to 1/4/88 vesting)
	Jun-99	1220

Reclamations Undertaken at Auckland International Airport

Area	Activity	Date/Period	Area (Ha)	Cost per Ha ($)	Total $
Wiroa Island	Airfield	between 1960-1988	3.25		
Wiroa Island	Airfield	between 1960-1988	1.47		
Current Runway (western runway extension)	Airfield	between 1960-1988	30.9		
Current Runway	Airfield	between 1960-1988	70.7467		
Current Runway (southeast end)	Airfield	between 1960-1988	2.95		
Current Runway (eastern end)	Airfield	between 1960-1988	10.55		
Commercial Areas (northeast)	Commercial	between 1960-1988	21.72		
Two areas adjacent to Lagoon infill	Airfield	between 1960-1988	10.865		
Western Lagoon	Airfield	1995-1999	28.9883	588,900	6,812,251
			181.44		
		Airfield only total	*159.72*	305,000	

Levelling Costs

Area	Source	Date	Area (Ha)	Levelling Costs per Ha ($)
Operational Airfield	AIAL Valuation	30-Jun-99	351.7205	32,000

Seawall Construction Costs

Area	Construction	Date	GRC ($)	ODRC ($)	Depn pa
Seawall (Current Runway)	1965	30-Jun-99	12,270,300	9,787,000	

NB: In 30/6/99 valuation, AIAL included $9,787,000 ODRC amount twice, once as part of land value and secondly as part of infrastructure (civil works). In 22/8/00 pricing, figure removed from land, but kept in infrastructure.

Seawall Construction Costs in 1988 Dollars	7,875,621	157,512

Holding Costs

Area	Source	Valuation Date	Area (Ha)	Holding Costs per Ha ($)
Operational Airfield	AIAL Valuation	30-Jun-99	351.7205	133,000

Computed as follows:
Based on land being purchased at $140,000 per Ha undeveloped land figure, development over 7.5 years, with holding costs of 9% per annum and (??) real value increases in land value of 5.88% pa

	L V Index	Value per Ha ($)
1999	4,710	140,000
1993	2,207	65,601

	WACC	Interest Factor	$
1993	15.38%	115.38%	
1994	13.71%	131.20%	
1995	16.08%	152.30%	
1996	15.85%	176.43%	
1997	15.53%	203.83%	
1998	14.57%	233.53%	
1999	13.29%	264.57%	
2000	14.44%	302.77%	133,021

AIAL - STATEMENT OF FINANCIAL PERFORMANCE

For the period ended	Jun-01	Jun-00	Jun-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	15 months Jun-93	Mar-92	Mar-91	Mar-90	Mar-89
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
REVENUE													
Airport Development Charge	30,298	25,499	24,055	23,176	24,534	22,478	20,674	19,297	22,036	12,748	12,181	11,857	10,784
Landing Charges	51,128	45,897	44,902	42,644	41,697	41,318	37,551	33,477	40,959	30,935	32,098	30,514	25,490
Terminal Services Charges	15,149	13,599	14,433	13,751	11,977	8,965	7,822	7,676	7,843	5,349	5,157	7,463	4,510
Rental Income	18,936	16,999	16,037	14,833	11,378	9,225	8,366	8,316	10,458	8,202	7,824	5,804	3,987
Carpark Income	11,362	11,899	9,622	8,343	7,027	6,237	5,850	5,224	5,727	4,547	4,712	4,643	4,314
Concession Income	56,809	50,997	46,506	41,563	34,634	34,042	30,999	25,375	29,381	18,008	16,805	16,086	10,850
Utilities and General	5,681	5,100	4,811	10,198	8,827	7,666	6,184	6,203	8,092	9,361	10,136	6,551	5,425
OPERATING REVENUE	189,363	169,990	160,366	154,509	140,074	129,930	117,446	105,568	124,496	89,149	88,914	82,919	65,359
INTEREST INCOME	653	110	207	477	288	1,253	1,119	1,047	1,589	2,862	3,314	1,543	637
TOTAL REVENUE	190,016	170,100	160,573	154,986	140,362	131,183	118,565	106,616	126,085	92,011	92,228	84,462	65,996
EXPENSES													
Audit Fees	113	76	45	171	46	36	36	36	37	39	38	34	36
Depreciation	30,730	29,488	30,094	31,857	27,859	21,712	19,415	16,874	24,187	16,033	15,541	12,288	10,845
Directors' Fees	375	215	292	175	135	121	110	110	138	110	110	100	96
Repairs, Maintenance and Supplies	16,657	17,908	20,399	18,521	19,909	18,731	15,538	14,837	19,750	13,339	15,996	14,103	12,845
Utilities and General	10,940	8,250	8,304	7,162	4,440	4,861	5,241	5,166	4,580	3,482	2,413	2,489	2,200
Rates, Tax and Insurance	2,016	1,885	1,943	2,098	2,286	2,189	2,282	2,163	2,159	1,976	4,067	3,744	3,449
Staff and Associated Costs	20,156	17,908	16,513	15,419	15,480	13,517	12,281	11,774	15,752	12,289	9,828	9,298	8,920
Interest	20,445	18,632	19,754	12,774	10,741	9,170	7,990	9,110	13,357	14,485	19,786	20,347	21,077
TOTAL EXPENSES	101,431	94,361	97,343	88,177	80,896	70,337	62,893	60,070	79,960	61,753	67,779	62,404	59,468
Net Profit Before Extraordinaries	88,585	75,739	63,230	66,809	59,466	60,846	55,672	46,546	46,125	30,258	24,449	22,058	6,528
Extraordinary Items													
Profit on disposal of subsidiary	-	-	-	-	-	-	-	4,995	-	-	-	-	-
Costs of Initial Public Offering (IPO)	-	-	-	(3,536)	-	-	-	-	-	-	-	-	-
NET PROFIT BEFORE TAX (NPBT)	88,585	75,739	63,230	63,273	59,466	60,846	55,672	51,541	46,125	30,258	24,449	22,058	6,528
Income Tax	29,332	25,005	20,962	22,389	19,277	22,005	21,059	18,589	18,951	12,130	8,713	8,605	2,734
NET PROFIT AFTER TAX (NPAT)	**59,253**	**50,734**	**42,268**	**40,884**	**40,189**	**38,841**	**34,613**	**32,952**	**27,174**	**18,128**	**15,736**	**13,453**	**3,794**
Share of After Tax Profit of Associates	(143)	319	148	205	321	189	210	323	91	9	41	-	-
NET PROFIT AFTER TAX INCLUDING ASSOCIATES	59,110	51,053	42,416	41,089	40,510	39,030	34,823	33,275	27,265	18,137	15,777	13,453	3,794
Effective Tax Rate	33%	33%	33%	35%	33%	36%	34%	36%	39%	38%	35%	34%	31%

AIAL - STATEMENT OF MOVEMENTS IN EQUITY

For the period ended	Jun-01	Jun-00	Jun-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Mar-92	Mar-91	Mar-90	Mar-89
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
EQUITY AT THE BEGINNING OF THE YEAR	499,946	510,189	220,051	324,765	308,510	292,895	278,967	259,006	242,891	231,999	222,522	213,794	210,000
Operating Surplus After Tax	59,110	51,053	42,416	41,089	40,510	39,030	34,823	33,275	27,265	18,137	15,777	13,453	3,794
Increase in Asset Revaluation Reserve	112	2,544	281,322	-	-	-	-	-	-	-	-	-	-
Dividends to Shareholders	(21,000)	(63,840)	(33,600)	(145,803)	(24,255)	(23,415)	(20,895)	(13,314)	(10,920)	(7,245)	(6,300)	(4,725)	-
Increase in Shares	2,000	-	-	-	-	-	-	-	-	-	-	-	-
Prior Period Adjustment - Associated Company	-	-	-	-	-	-	-	-	(230)	-	-	-	-
EQUITY AT THE END OF THE YEAR	**540,168**	**499,946**	**510,189**	**220,051**	**324,765**	**308,510**	**292,895**	**278,967**	**259,006**	**242,891**	**231,999**	**222,522**	**213,794**

AIAL - STATEMENT OF FINANCIAL POSITION

As at	Jun-01	Jun-00	Jun-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Mar-92	Mar-91	Mar-90	Mar-89	
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	
EQUITY														
Share Capital	212,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	
Asset Revaluation Reserve	283,978	283,866	281,322	-	-	-	-	-	-	-	-	-	-	
Retained Earnings	44,190	6,080	18,867	10,051	114,765	98,510	82,895	68,967	49,006	32,891	21,999	12,522	3,794	
Total Equity	540,168	499,946	510,189	220,051	324,765	308,510	292,895	278,967	259,006	242,891	231,999	222,522	213,794	
NON-CURRENT LIABILITIES														
Long-Term Borrowing (coupon bonds, promissory notes)	320,000	290,000	265,800	156,200	153,400	113,500	79,350	87,000	110,000	130,000	152,050	141,495	141,330	
Other Term Borrowings	551	538	537	805	554	526	538	1,256	2,484	4,610	-	-	-	
Total Non-Current Liabilities	320,551	290,538	266,337	157,005	153,954	114,026	79,888	88,256	112,484	134,610	152,050	141,495	141,330	
CURRENT LIABILITIES														
Bank Overdraft	136	1,186	1,029	-	-	-	-	-	-	-	-	-	-	
Accounts Payable	12,490	17,781	13,664	8,851	9,295	8,782	7,061	4,264	1,971	3,596	2,866	2,360	1,973	
Provision for Runway Repairs	-	-	-	-	790	790	790	790	791	283	1,781	-	-	
Employee Entitlements (Leave Provision)	2,155	1,815	1,509	1,532	1,457	1,342	1,347	1,346	1,059	1,138	868	831	1,114	
Goods and Services Tax	767	1,224	466	489	118	50	444	535	686	447	294	864	1,066	
Proposed Dividend	-	21,840	21,420	134,988	13,440	12,600	12,495	8,064	7,770	4,620	3,675	4,725	-	
Taxation Payable	396	516	522	1,101	-	35	1,030	715	628	1,178	1,502	1,325	2,734	
Fixed Asset Payables and Retentions	7,625	6,477	8,779	9,926	13,772	12,417	6,994	2,532	3,333	2,268	-	-	-	
Other Payables		-	-	8,425	3,252	1,612	1,505	5,761	3,808	3,443	5,440	4,256	5,330	
Total Current Liabilities	23,569	50,839	47,389	165,312	42,124	37,628	31,666	24,007	20,046	16,973	16,426	14,361	12,217	
TOTAL EQUITY AND LIABILITIES	**884,288**	**841,323**	**823,915**	**542,368**	**520,843**	**460,164**	**404,449**	**391,230**	**391,536**	**394,474**	**400,475**	**378,378**	**367,341**	
NON-CURRENT ASSETS (@ cost less accumlated depreciation)														**Vesting Value**
Freehold Land	311,619	312,939	313,996	208,397	190,965	179,799	171,156	164,491	158,860	156,916	147,711	134,278	132,310	128,574
Buildings	254,770	256,808	271,627	264,376	258,024	200,640	136,208	124,498	129,749	121,664	134,025	132,102	130,395	128,504
Runways, Taxiways and Aprons	99,408	78,201	60,985	50,041	52,959	58,797	64,698	69,580	75,441	77,441	81,142	82,593	83,893	86,538
Vehicles and Plant	10,089	11,017	10,251	8,072	6,983	8,643	4,177	2,999	3,387	4,904	4,760	4,961	3,707	2,012
Infrastructure	109,641	108,990	105,624	-	-	-	-	-	-	-	-	-	-	
Investment Properties	81,192	59,933	50,600	-	-	-	-	-	-	-	-	-	-	-
Total Non-Current Assets	866,719	827,888	813,083	530,886	508,931	447,879	376,239	361,568	367,437	360,925	367,638	353,934	350,305	345,628
CURRENT ASSETS														
Cash and Bank Balances	-	-	-	57	108	294	20	284	133	(118)	170	(57)	211	
Bank Deposits	-	-	-	-	-	-	-	2,400	13,700	20,200	23,363	13,018	4,460	
NZ Government Stock	-	-	-	-	-	-	15,000	15,000	-	-	-	-	-	
Receivables (@ net realisable value)	12,833	7,562	6,936	8,580	6,924	9,314	8,013	5,858	4,855	5,321	5,952	8,087	12,083	
Prepayments	2,194	3,320	1,258	486	1,136	845	1,092	2,430	1,640	2,486	221	309	189	
Inventories	446	314	186	55	58	54	55	64	68	68	48	45	93	
Taxation Receivable	-	-	-	-	1,588	-	-	-	-	-	-	-	-	
Total Current Assets	15,473	11,196	8,380	9,178	9,814	10,507	24,180	26,036	20,396	27,957	29,754	21,402	17,036	
Investment in Associates (50% Marriott-AIAL & Waste Resources)	2,096	2,239	2,452	2,304	2,098	1,778	4,030	3,626	3,703	5,592	3,083	3,042	-	
TOTAL ASSETS	**884,288**	**841,323**	**823,915**	**542,368**	**520,843**	**460,164**	**404,449**	**391,230**	**391,536**	**394,474**	**400,475**	**378,378**	**367,341**	

AIAL Cost of Capital

per CC	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	Jun-02
Price resets	01-Nov-88		01-Apr-90		01-Apr-92				01-Jul-96	01-Jul-97			01-Sep-00	01-Sep-01
Non - Contestable/Airfield Activities														
Lower Bound														
Equity														
Rfr	14.16%	14.16%	13.13%	13.13%	8.34%	8.34%	8.34%	8.34%	8.90%	7.35%	7.35%	7.35%	7.04%	6.33%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Equity beta	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
PTMRP	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Return on Equity	***13.22%***	***13.22%***	***12.53%***	***12.53%***	***9.32%***	***9.32%***	***9.32%***	***9.32%***	***9.70%***	***8.66%***	***8.66%***	***8.66%***	***8.45%***	***7.97%***
Debt														
Debt margin	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Tax	28%	28%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Cost of debt	***15.16%***	***15.16%***	***14.13%***	***14.13%***	***9.34%***	***9.34%***	***9.34%***	***9.34%***	***9.90%***	***8.35%***	***8.35%***	***8.35%***	***8.04%***	***7.33%***
WACC														
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***12.64%***	***12.64%***	***11.77%***	***11.77%***	***8.55%***	***8.55%***	***8.55%***	***8.55%***	***8.93%***	***7.89%***	***7.89%***	***7.89%***	***7.68%***	***7.21%***
Midpoint														
Equity														
Rfr	14.16%	14.16%	13.13%	13.13%	8.34%	8.34%	8.34%	8.34%	8.90%	7.35%	7.35%	7.35%	7.04%	6.33%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Equity beta	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
PTMRP	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Return on Equity	***14.82%***	***14.82%***	***14.13%***	***14.13%***	***10.92%***	***10.92%***	***10.92%***	***10.92%***	***11.30%***	***10.26%***	***10.26%***	***10.26%***	***10.05%***	***9.57%***
Debt														
Debt margin	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Tax	28%	28%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Cost of debt	***15.16%***	***15.16%***	***14.13%***	***14.13%***	***9.34%***	***9.34%***	***9.34%***	***9.34%***	***9.90%***	***8.35%***	***8.35%***	***8.35%***	***8.04%***	***7.33%***
WACC														
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***13.84%***	***13.84%***	***12.97%***	***12.97%***	***9.75%***	***9.75%***	***9.75%***	***9.75%***	***10.13%***	***9.09%***	***9.09%***	***9.09%***	***8.88%***	***8.41%***

AIAL Cost of Capital

per CC	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	Jun-02
Price resets	01-Nov-88		01-Apr-90		01-Apr-92				01-Jul-96	01-Jul-97			01-Sep-00	01-Sep-01

Non - Contestable/Airfield Activities

Upper Bound														
Equity														
Rfr	14.16%	14.16%	13.13%	13.13%	8.34%	8.34%	8.34%	8.34%	8.90%	7.35%	7.35%	7.35%	7.04%	6.33%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Equity beta	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PTMRP	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Return on Equity	***16.69%***	***16.69%***	***16.00%***	***16.00%***	***12.78%***	***12.78%***	***12.78%***	***12.78%***	***13.16%***	***12.13%***	***12.13%***	***12.13%***	***11.92%***	***11.44%***
Debt														
Debt margin	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Tax	28%	28%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Cost of debt	***15.16%***	***15.16%***	***14.13%***	***14.13%***	***9.34%***	***9.34%***	***9.34%***	***9.34%***	***9.90%***	***8.35%***	***8.35%***	***8.35%***	***8.04%***	***7.33%***
WACC														
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***15.24%***	***15.24%***	***14.37%***	***14.37%***	***11.15%***	***11.15%***	***11.15%***	***11.15%***	***11.53%***	***10.49%***	***10.49%***	***10.49%***	***10.28%***	***9.81%***

(B) Analysis Based on Opportunity Cost Estimate of $140,000 per Ha for Second Runway Land and $200,000 per Ha for Operational Airfield Land

Net Acquirers Benefits ($) - AIAL

	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	**Average**

Benefits to Acquirers

Allocative Inefficiency (Consumer Surplus)								
At Lower Bound of WACC	25,519	27,934	17,491	15,228	14,665	26,466	41,558	24,123
At Point Estimate of WACC	12,658	12,494	4,821	3,276	2,609	9,233	19,766	9,265
At Upper Bound of WACC	3,294	2,227	(15)	(399)	(937)	338	4,460	1,281
Excess Returns								
At Lower Bound of WACC	6,446,414	6,883,609	5,509,585	5,217,423	5,208,881	7,119,035	9,075,498	6,494,349
At Point Estimate of WACC	4,540,167	4,603,621	2,892,655	2,419,827	2,196,995	4,204,859	6,259,032	3,873,880
At Upper Bound of WACC	2,316,211	1,943,635	(160,430)	(844,035)	(1,316,871)	804,987	2,973,156	816,665
Productive Inefficiency								
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 1.5% of Opex-Depn	242,520	-	-	-	-	-	-	212,962
At 3% of Opex-Depn	485,040	-	-	-	-	-	-	425,924
Dynamic Inefficiency								
At Lower Bound of WACC	203,197	171,125	171,125	171,125	171,125	171,125	171,125	175,706
At Point Estimate of WACC	283,914	251,842	251,842	251,842	251,842	251,842	251,842	256,423
At Upper Bound of WACC	378,084	346,011	346,011	346,011	346,011	346,011	346,011	350,593
Total Benefits								
At Lower Bound	6,836,810							6,836,153
At Point Estimate	5,079,259							4,352,530
At Upper Bound	3,182,630							1,594,464

Costs to Acquirers

Allocative Inefficiency (Consumer Surplus)								
At Lower Bound of WACC	11,164	12,221	7,652	6,662	6,416	11,579	18,181	10,554
At Point Estimate of WACC	5,538	5,466	2,109	1,433	1,141	4,040	8,648	4,054
At Upper Bound of WACC	1,441	974	(6)	(174)	(410)	148	1,951	561
Excess Returns								
At Lower Bound of WACC	1,611,604	1,720,902	1,377,396	1,304,356	1,302,220	1,779,759	2,268,875	1,623,587
At Point Estimate of WACC	1,135,042	1,150,905	723,164	604,957	549,249	1,051,215	1,564,758	968,470
At Upper Bound of WACC	579,053	485,909	-	-	-	201,247	743,289	287,071
Productive Inefficiency								
At 0% of Opex-Depn	-	-	-	-	-	-	-	-
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 2% of Opex-Depn	323,360	-	-	-	-	-	-	283,950
Dynamic Inefficiency (50%)								
At Lower Bound of WACC	101,599	85,562	85,562	85,562	85,562	85,562	85,562	87,853
At Point Estimate of WACC	141,957	125,921	125,921	125,921	125,921	125,921	125,921	128,212
At Upper Bound of WACC	189,042	173,006	173,006	173,006	173,006	173,006	173,006	175,297
Dynamic Inefficiency (100%)								
At Lower Bound of WACC	203,197	171,125	171,125	171,125	171,125	171,125	171,125	175,706
At Point Estimate of WACC	283,914	251,842	251,842	251,842	251,842	251,842	251,842	256,423
At Upper Bound of WACC	378,084	346,011	346,011	346,011	346,011	346,011	346,011	350,593
Direct Costs								
Lower Bound	620,000	620,000	620,000	620,000	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	Average
Total Costs								
(1) Dynamic Inefficiency 50%								
At Lower Bound	2,344,367							2,341,994
At Point Estimate	2,414,217							2,212,710
At Upper Bound	2,412,896							2,066,878
(2) Dynamic Inefficiency 100%								
At Lower Bound	2,445,965							2,429,848
At Point Estimate	2,556,174							2,340,922
At Upper Bound	2,601,938							2,242,174

Net Benefits to Acquirers

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	Average
(1) Dynamic Inefficiency 50% and Lower Bound of Direct Costs								
At Lower Bound	4,492,444							4,494,159
At Point Estimate	2,665,042							2,139,820
At Upper Bound	769,734							(472,414)
(2) Dynamic Inefficiency 100% and Upper Bound of Direct Costs								
At Lower Bound	4,390,845							4,406,306
At Point Estimate	2,523,085							2,011,609
At Upper Bound	580,691							(647,711)

Net Public Benefits ($) - AIAL

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	Average
Benefits								
Allocative Inefficiency								
(1) Consumer Suprlus								
At Lower Bound of WACC	25,519	27,934	17,491	15,228	14,665	26,466	41,558	24,123
At Point Estimate of WACC	12,658	12,494	4,821	3,276	2,609	9,233	19,766	9,265
At Upper Bound of WACC	3,294	2,227	(15)	(399)	(937)	338	4,460	1,281
(2) Producer Surplus								
At Lower Bound of WACC	329,168	350,681	290,501	277,767	278,388	367,629	453,026	335,309
At Point Estimate of WACC	242,460	246,904	161,243	136,402	124,571	229,938	330,224	210,249
At Upper Bound of WACC	130,020	110,338	(9,478)	(49,862)	(77,795)	46,878	166,721	45,260
Productive Inefficiency								
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 1.5% of Opex-Depn	242,520	-	-	-	-	-	-	212,962
At 3% of Opex-Depn	485,040	-	-	-	-	-	-	425,924
Dynamic Inefficiency								
At Lower Bound of WACC	203,197	171,125	171,125	171,125	171,125	171,125	171,125	175,706
At Point Estimate of WACC	283,914	251,842	251,842	251,842	251,842	251,842	251,842	256,423
At Upper Bound of WACC	378,084	346,011	346,011	346,011	346,011	346,011	346,011	350,593
Total Benefits								
At Lower Bound	719,564							677,113
At Point Estimate	781,553							688,900
At Upper Bound	996,439							823,059
Costs								
Allocative Inefficiency								
(1) Consumer Suprlus								
At Lower Bound of WACC	11,164	12,221	7,652	6,662	6,416	11,579	18,181	10,554
At Point Estimate of WACC	5,538	5,466	2,109	1,433	1,141	4,040	8,648	4,054
At Upper Bound of WACC	1,441	974	(6)	(174)	(410)	148	1,951	561
(2) Producer Surplus								
At Lower Bound of WACC	82,292	87,670	72,625	69,442	69,597	91,907	113,256	83,827
At Point Estimate of WACC	60,615	61,726	40,311	34,100	31,143	57,485	82,556	52,562
At Upper Bound of WACC	32,505	27,584	(2,369)	(12,465)	(19,449)	11,720	41,680	11,315
Productive Inefficiency								
At 0% of Opex-Depn	-	-	-	-	-	-	-	-
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 2% of Opex-Depn	323,360	-	-	-	-	-	-	283,950
Dynamic Inefficiency (50%)								
At Lower Bound of WACC	101,599	85,562	85,562	85,562	85,562	85,562	85,562	87,853
At Point Estimate of WACC	141,957	125,921	125,921	125,921	125,921	125,921	125,921	128,212
At Upper Bound of WACC	189,042	173,006	173,006	173,006	173,006	173,006	173,006	175,297
Dynamic Inefficiency (100%)								
At Lower Bound of WACC	203,197	171,125	171,125	171,125	171,125	171,125	171,125	175,706
At Point Estimate of WACC	283,914	251,842	251,842	251,842	251,842	251,842	251,842	256,423
At Upper Bound of WACC	378,084	346,011	346,011	346,011	346,011	346,011	346,011	350,593
Direct Costs								
Lower Bound	620,000	620,000	620,000	620,000	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	Average
Total Costs								
(1) Dynamic Inefficiency 50%								
At Lower Bound	815,055							802,234
At Point Estimate	1,339,790							1,296,802
At Upper Bound	1,866,348							1,791,122
(2) Dynamic Inefficiency 100%								
At Lower Bound	916,654							890,087
At Point Estimate	1,481,747							1,425,014
At Upper Bound	2,055,390							1,966,418

Net Public Benefits

	Jun-01	Average
(1) Dynamic Inefficiency 50% and Lower Bound of Direct Costs		
At Lower Bound	(95,491)	(125,121)
At Point Estimate	(558,237)	(607,902)
At Upper Bound	(869,910)	(968,063)
(2) Dynamic Inefficiency 100% and Upper Bound of Direct Costs		
At Lower Bound	(197,089)	(212,975)
At Point Estimate	(700,195)	(736,114)
At Upper Bound	(1,058,952)	(1,143,359)

Net Acquirers Benefits ($) - AIAL
Specialised Assets at ODRC

	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	**Average**
Benefits to Acquirers								
Allocative Inefficiency (Consumer Surplus)								
At Lower Bound of WACC	9,988	13,466	6,856	5,733	5,663	14,073	26,097	11,697
At Point Estimate of WACC	2,145	2,987	202	16	0	2,212	8,747	2,330
At Upper Bound of WACC	(264)	(288)	(4,335)	(6,340)	(7,720)	(1,333)	201	(2,868)
Excess Returns								
At Lower Bound of WACC	4,032,913	4,779,364	3,449,451	3,201,400	3,236,968	5,191,232	7,191,806	4,440,448
At Point Estimate of WACC	1,869,052	2,250,929	591,417	170,044	(1,333)	2,057,985	4,163,614	1,585,958
At Upper Bound of WACC	(655,453)	(698,912)	(2,742,955)	(3,366,536)	(3,779,350)	(1,597,469)	630,722	(1,744,279)
Productive Inefficiency								
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 1.5% of Opex-Depn	242,520	-	-	-	-	-	-	212,962
At 3% of Opex-Depn	485,040	-	-	-	-	-	-	425,924
Dynamic Inefficiency								
At Lower Bound of WACC	203,197	171,125	171,125	171,125	171,125	171,125	171,125	175,706
At Point Estimate of WACC	283,914	251,842	251,842	251,842	251,842	251,842	251,842	256,423
At Upper Bound of WACC	378,084	346,011	346,011	346,011	346,011	346,011	346,011	350,593
Total Benefits								
At Lower Bound	4,407,778							4,769,826
At Point Estimate	2,397,631							2,057,674
At Upper Bound	207,407							(970,630)
Costs to Acquirers								
Allocative Inefficiency (Consumer Surplus)								
At Lower Bound of WACC	4,370	5,891	2,999	2,508	2,478	6,157	11,417	5,117
At Point Estimate of WACC	939	1,307	88	7	-	968	3,827	1,019
At Upper Bound of WACC	(115)	(126)	(1,897)	(2,774)	(3,378)	(583)	88	(1,255)
Excess Returns								
At Lower Bound of WACC	1,008,228	1,194,841	862,363	800,350	809,242	1,297,808	1,797,952	1,110,112
At Point Estimate of WACC	467,263	562,732	147,854	42,511	-	514,496	1,040,903	396,537
At Upper Bound of WACC	-	-	-	-	-	-	157,681	22,526
Productive Inefficiency								
At 0% of Opex-Depn	-	-	-	-	-	-	-	-
At 1% of Opex-Depn	161,680	-	-	-	-	-	-	141,975
At 2% of Opex-Depn	323,360	-	-	-	-	-	-	283,950
Dynamic Inefficiency (50%)								
At Lower Bound of WACC	101,599	85,562	85,562	85,562	85,562	85,562	85,562	87,853
At Point Estimate of WACC	141,957	125,921	125,921	125,921	125,921	125,921	125,921	128,212
At Upper Bound of WACC	189,042	173,006	173,006	173,006	173,006	173,006	173,006	175,297
Dynamic Inefficiency (100%)								
At Lower Bound of WACC	203,197	171,125	171,125	171,125	171,125	171,125	171,125	175,706
At Point Estimate of WACC	283,914	251,842	251,842	251,842	251,842	251,842	251,842	256,423
At Upper Bound of WACC	378,084	346,011	346,011	346,011	346,011	346,011	346,011	350,593
Direct Costs								
Lower Bound	620,000	620,000	620,000	620,000	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000	1,320,000

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	Average
Total Costs								
(1) Dynamic Inefficiency 50%								
At Lower Bound	1,734,197							1,823,082
At Point Estimate	1,741,839							1,637,743
At Upper Bound	1,832,287							1,800,517
(2) Dynamic Inefficiency 100%								
At Lower Bound	1,835,795							1,910,936
At Point Estimate	1,883,796							1,765,955
At Upper Bound	2,021,329							1,975,814

Net Benefits to Acquirers

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	Average
(1) Dynamic Inefficiency 50% and Lower Bound of Direct Costs								
At Lower Bound	2,673,582							2,946,743
At Point Estimate	655,793							419,931
At Upper Bound	(1,624,879)							(2,771,147)
(2) Dynamic Inefficiency 100% and Upper Bound of Direct Costs								
At Lower Bound	2,571,983							2,858,890
At Point Estimate	513,836							291,719
At Upper Bound	(1,813,921)							(2,946,444)

Effects of Asset Base Decisions on Forecast Return Analysis - AIAL

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Forecast Jun-04	Forecast Jun-05	Forecast Jun-06	Forecast Jun-07	**Average**
Change in Excess Returns $000s								
Scenario 2 - Commission Optimisation								
Lower Bound	7,166	4,421	4,421	4,421	4,421	4,421	4,421	**4,813**
Midpoint	8,285	5,157	5,157	5,157	5,157	5,157	5,157	**5,604**
Upper Bound	9,591	6,016	6,016	6,016	6,016	6,016	6,016	**6,526**
Scenario 3 - OC Land								
Lower Bound	2,247	2,662	2,662	2,662	2,662	2,662	2,662	**2,602**
Midpoint	2,598	3,105	3,105	3,105	3,105	3,105	3,105	**3,032**
Upper Bound	3,007	3,622	3,622	3,622	3,622	3,622	3,622	**3,534**
Scenario 4 - OC Non-Optimised Land								
Lower Bound	2,247	2,662	2,662	2,662	2,662	2,662	2,662	**2,602**
Midpoint	2,598	3,105	3,105	3,105	3,105	3,105	3,105	**3,032**
Upper Bound	3,007	3,622	3,622	3,622	3,622	3,622	3,622	**3,534**
Scenario 5 - HC Specialised Assets								
Lower Bound	2,414	2,104	2,060	2,016	1,972	1,928	1,884	**2,054**
Midpoint	2,671	2,353	2,301	2,250	2,198	2,147	2,095	**2,288**
Upper Bound	2,972	2,643	2,583	2,523	2,462	2,402	2,342	**2,561**
Scenario 6 - HC Specialised Assets								
Lower Bound	2,414	2,104	2,060	2,016	1,972	1,928	1,884	**2,054**
Midpoint	2,671	2,353	2,301	2,250	2,198	2,147	2,095	**2,288**
Upper Bound	2,972	2,643	2,583	2,523	2,462	2,402	2,342	**2,561**

Forecast Return Analysis - AIAL

	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	**Average**
Net Earnings $000s								
1	17,889	19,966	20,615	21,408	22,687	24,010	25,380	
2	17,889	19,966	20,615	21,408	22,687	24,010	25,380	
3	17,889	19,966	20,615	21,408	22,687	24,010	25,380	
4	17,889	19,966	20,615	21,408	22,687	24,010	25,380	
5	18,653	20,578	21,227	22,020	23,299	24,622	25,992	
6	18,653	20,578	21,227	22,020	23,299	24,622	25,992	
WACC								
Lower Bound	7.68%	7.21%	7.21%	7.21%	7.21%	7.21%	7.21%	
Midpoint	8.88%	8.41%	8.41%	8.41%	8.41%	8.41%	8.41%	
Upper Bound	10.28%	9.81%	9.81%	9.81%	9.81%	9.81%	9.81%	
Asset Base $000s								
1	308,972	336,439	350,882	368,128	359,373	350,619	341,864	
2	247,634	275,100	289,544	306,789	298,035	289,280	280,526	
3	272,042	299,508	313,952	331,197	322,443	313,688	304,934	
4	210,703	238,169	252,613	269,858	261,104	252,349	243,595	
5	251,338	279,416	294,472	312,329	304,187	296,044	287,902	
6	189,999	218,077	233,133	250,990	242,848	234,705	226,563	
Excess Returns $000s								
Scenario 1 - Airport Company (ODRC) Adjusted								
Lower Bound	(5,380)	(2,303)	(3,633)	(3,881)	(3,846)	(1,892)	109	**(2,975)**
Midpoint	(9,014)	(6,011)	(7,671)	(8,092)	(8,263)	(6,204)	(4,098)	**(7,050)**
Upper Bound	(13,253)	(10,337)	(12,381)	(13,004)	(13,417)	(11,235)	(9,007)	**(11,805)**
Scenario 2 - Airport Company (ODRC) with Commission Optimisation								
Lower Bound	1,786	2,118	788	540	575	2,529	4,530	**1,838**
Midpoint	(729)	(854)	(2,514)	(2,935)	(3,106)	(1,047)	1,059	**(1,447)**
Upper Bound	(3,663)	(4,321)	(6,365)	(6,989)	(7,401)	(5,219)	(2,991)	**(5,278)**
Scenario 3 - ODRC Specialised Assets, OC Land								
Lower Bound	(3,133)	358	(972)	(1,220)	(1,184)	770	2,771	**(373)**
Midpoint	(6,416)	(2,906)	(4,566)	(4,987)	(5,158)	(3,099)	(993)	**(4,018)**
Upper Bound	(10,246)	(6,715)	(8,759)	(9,382)	(9,795)	(7,613)	(5,385)	**(8,271)**
Scenario 4 - ODRC Specialised Assets, OC Land with Commission Optimisation								
Lower Bound	4,033	4,779	3,449	3,201	3,237	5,191	7,192	**4,440**
Midpoint	1,869	2,251	591	170	(1)	2,058	4,164	**1,586**
Upper Bound	(655)	(699)	(2,743)	(3,367)	(3,779)	(1,597)	631	**(1,744)**
Scenario 5 - HC Specialised Assets, OC Land								
Lower Bound	(720)	2,463	1,089	796	788	2,698	4,655	**1,681**
Midpoint	(3,745)	(553)	(2,264)	(2,737)	(2,960)	(952)	1,102	**(1,730)**
Upper Bound	(7,274)	(4,072)	(6,176)	(6,860)	(7,333)	(5,211)	(3,043)	**(5,710)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation								
Lower Bound	6,446	6,884	5,510	5,217	5,209	7,119	9,075	**6,494**
Midpoint	4,540	4,604	2,893	2,420	2,197	4,205	6,259	**3,874**
Upper Bound	2,316	1,944	(160)	(844)	(1,317)	805	2,973	**817**

Benefits Analysis - AIAL 2001 Result

Increase in Landing Charges at 1 September 2000		7.50%	(NB: 7.5% used as most aircraft paying this)	
Data for year ended 30 June 2001 (including 10 months of new charges)				
Tonnes Landed (MCTOW x Landings)		3,290,392		
Airfield Revenue ($000s)		49,668		
Current asset base ($000s)		308,972		
Airfield Expenses (including depreciation) ($000s)		22,931		
Net Earnings (Scenario 1) $000s		17,889		
Pm per tonne	**$**	**15.09**		
Qm (tonnes)		**3,290,392**		
Elasticity (Weighted Average)				
Net Earnings/Total Assets		**5.91%**		
Marginal Cost	**$**	**0.50**		

	Midpoint	Lower Bound	Upper Bound
Appropriate WACC	**8.88%**	**7.68%**	***10.28%***
AIAL Target WACC (when prices set 1/1/00)		***7.90%***	***9.40%***

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**189,998,996**				
Net Earnings		**18,653,229**				
Pc per tonne	$	13.72	$	13.14	$	14.39
$ that Pm > Pc	$	1.38	$	1.96	$	0.70
% Pm > Pc		10.06%		14.91%		4.89%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	4,540,167	6,446,414	2,316,211
Incremental Consumer surplus	12,658	25,519	3,294
Incremental Producer surplus	242,460	329,168	130,020
Excess returns and allocative efficiency	4,795,285	6,801,101	2,449,526
Productive efficiency	242,520	161,680	485,040
Dynamic efficiency	283,914	203,197	378,084
TOTAL	5,321,719	7,165,979	3,312,650

NOTE: Calculation of Appropriate Airfield Asset Base (Comparison to Draft Report)
($000s)

	Est. AIAL Pricing	Draft Report	Final Report
Land	173,038	126,481	70,344
Improvements - Runways, Taxiways and Aprons	60,986		
Buildings and Improvements	3,808		
Motor Vehicles and Plant	4,348		
Infrastructure	43,067	60,335	119,655
Revaluation of Assets Based on Inflation	-	-	-
	285,247	186,816	189,999

Benefits Analysis - AIAL 2002 Forecast

Increase in Landing Charges at 1 September 2001		5.00%				
Forecasted Data for the year ended 30 June 2002 (including 10 months of new charges)						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)						
Net Earnings (Scenario 1) $000s		19,966				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure						
Asset Disposals		-				
Depreciation						
Asset base ($000s)		336,439				
Pm per tonne	**$**	**15.72**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**6.46%**				
Marginal Cost	**$**	**0.50**				

	Midpoint	Lower Bound	Upper Bound
Appropriate WACC	***8.41%***	***7.21%***	***9.81%***

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**218,077,494**				
Net Earnings		**20,577,755**				
Pc per tonne	$	14.32	$	13.63	$	15.13
$ that Pm > Pc	$	1.40	$	2.09	$	0.59
% Pm > Pc		9.77%		15.35%		3.90%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	4,603,621	6,883,609	1,943,635
Incremental Consumer surplus	12,494	27,934	2,227
Incremental Producer surplus	246,904	350,681	110,338
Excess returns and allocative efficiency	4,863,018	7,262,223	2,056,200
Productive efficiency			
Dynamic efficiency	251,842	171,125	346,011
TOTAL			

Benefits Analysis - AIAL 2003 Forecast

Forecasted Data for the year ended 30 June 2003						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)						
Net Earnings (Scenario 1) $000s		20,615				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure						
Asset Disposals		-				
Depreciation						
Asset base ($000s)		350,882				
Pm per tonne	**$**	**15.85**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**6.13%**				
Marginal Cost	**$**	**0.50**				

		Midpoint		Lower Bound		Upper Bound
Appropriate WACC		**8.41%**		**7.21%**		**9.81%**

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**233,132,993**				
Net Earnings		**21,227,484**				
Pc per tonne	$	14.98	$	14.20	$	15.90
$ that Pm > Pc	$	0.87	$	1.65	-$	0.05
% Pm > Pc		5.78%		11.62%		-0.30%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	2,892,655	5,509,585	(160,430)
Incremental Consumer surplus	4,821	17,491	(15)
Incremental Producer surplus	161,243	290,501	(9,478)
Excess returns and allocative efficiency	3,058,719	5,817,577	(169,922)
Productive efficiency			
Dynamic efficiency	251,842	171,125	346,011
TOTAL			

Benefits Analysis - AIAL 2004 Forecast

Forecasted Data for the year ended 30 June 2004						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)						
Net Earnings (Scenario 1) $000s		21,408				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure						
Asset Disposals		-				
Depreciation						
Asset base ($000s)		368,128				
Pm per tonne	**$**	**15.85**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**6.10%**				
Marginal Cost	**$**	**0.50**				

		Midpoint		**Lower Bound**		**Upper Bound**
Appropriate WACC		**8.41%**		**7.21%**		**9.81%**

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**250,990,491**				
Net Earnings		**22,020,445**				
Pc per tonne	$	15.15	$	14.33	$	16.09
$ that Pm > Pc	$	0.70	$	1.52	-$	0.25
% Pm > Pc		4.64%		10.58%		-1.52%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	2,419,827	5,217,423	(844,035)
Incremental Consumer surplus	3,276	15,228	(399)
Incremental Producer surplus	136,402	277,767	(49,862)
Excess returns and allocative efficiency	2,559,505	5,510,418	(894,295)
Productive efficiency			
Dynamic efficiency	251,842	171,125	346,011
TOTAL			

Benefits Analysis - AIAL 2005 Forecast

Forecasted Data for the year ended 30 June 2005						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)						
Net Earnings (Scenario 1) $000s		22,687				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure		-				
Asset Disposals		-				
Depreciation		-				
Asset base ($000s)		359,373				
Pm per tonne	**$**	**15.85**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**6.16%**				
Marginal Cost	**$**	**0.50**				

		Midpoint		Lower Bound		Upper Bound
Appropriate WACC		**8.41%**		**7.21%**		**9.81%**

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**242,847,990**				
Net Earnings		**23,298,979**				
Pc per tonne	$	15.23	$	14.39	$	16.22
$ that Pm > Pc	$	0.62	$	1.46	-$	0.37
% Pm > Pc		4.05%		10.17%		-2.28%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	2,196,995	5,208,881	(1,316,871)
Incremental Consumer surplus	2,609	14,665	(937)
Incremental Producer surplus	124,571	278,388	(77,795)
Excess returns and allocative efficiency	2,324,176	5,501,935	(1,395,604)
Productive efficiency	-	-	-
Dynamic efficiency	251,842	171,125	346,011
TOTAL			

Benefits Analysis - AIAL 2006 Forecast

Forecasted Data for the year ended 30 June 2006						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)		-				
Net Earnings (Scenario 1) $000s		24,010				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure		-				
Asset Disposals		-				
Depreciation		-				
Asset base ($000s)		350,619				
Pm per tonne	**$**	**15.85**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**6.68%**				
Marginal Cost	**$**	**0.50**				

		Midpoint		**Lower Bound**		**Upper Bound**
Appropriate WACC		**8.41%**		**7.21%**		**9.81%**

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**234,705,488**				
Net Earnings		**24,622,263**				
Pc per tonne	$	14.71	$	13.92	$	15.63
$ that Pm > Pc	$	1.14	$	1.93	$	0.22
% Pm > Pc		7.76%		13.88%		1.40%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	4,204,859	7,119,035	804,987
Incremental Consumer surplus	9,233	26,466	338
Incremental Producer surplus	229,938	367,629	46,878
Excess returns and allocative efficiency	4,444,030	7,513,130	852,204
Productive efficiency	-	-	-
Dynamic efficiency	251,842	171,125	346,011
TOTAL			

Benefits Analysis - AIAL 2007 Forecast

Forecasted Data for the year ended 30 June 2007						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)						
Net Earnings (Scenario 1) $000s		25,380				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure		-				
Asset Disposals		-				
Depreciation		-				
Asset base ($000s)		341,864				
Pm per tonne	**$**	**15.85**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**7.24%**				
Marginal Cost	**$**	**0.50**				
		Midpoint		**Lower Bound**		**Upper Bound**
Appropriate WACC		**8.41%**		**7.21%**		**9.81%**
Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation						
Appropriate asset base		**226,562,987**				
Net Earnings		**25,991,857**				
Pc per tonne	$	14.21	$	13.47	$	15.07
$ that Pm > Pc	$	1.64	$	2.38	$	0.78
% Pm > Pc		11.55%		17.67%		5.17%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - AIAL

Excess returns = Net Earnings - (AAB x WACC)	6,259,032	9,075,498	2,973,156
Incremental Consumer surplus	19,766	41,558	4,460
Incremental Producer surplus	330,224	453,026	166,721
Excess returns and allocative efficiency	6,609,023	9,570,082	3,144,337
Productive efficiency	-	-	-
Dynamic efficiency	251,842	171,125	346,011
TOTAL			

Effects of Asset Base Decisions on Historical Return Analysis - AIAL

	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	1989-2001 Average	1997-2001 Average	2001 PV
Change in Excess Returns $000s																
Scenario 2 - Commission Optimisation																
Lower Bound	(8,318)	(9,177)	(7,998)	6,428	(1,696)	(6,737)	(7,060)	(2,965)	3,314	1,155	10,188	7,362	7,166	**(641)**	**5,837**	**(46,670)**
Midpoint	(8,318)	(9,010)	(7,698)	6,879	(1,264)	(6,191)	(6,386)	(2,149)	4,235	2,197	11,338	8,481	8,285	**31**	**6,907**	**(34,884)**
Upper Bound	(8,318)	(8,816)	(7,349)	7,406	(760)	(5,553)	(5,600)	(1,197)	5,310	3,412	12,680	9,787	9,591	**815**	**8,156**	**(21,135)**
Scenario 3 - OC Land																
Lower Bound	(3,432)	(4,517)	(3,967)	1,922	(1,232)	(3,465)	(3,585)	(1,882)	694	(318)	3,313	2,308	2,247	**(917)**	**1,649**	**(32,160)**
Midpoint	(3,432)	(4,518)	(3,912)	2,033	(1,128)	(3,336)	(3,401)	(1,637)	984	(9)	3,652	2,659	2,598	**(727)**	**1,977**	**(28,957)**
Upper Bound	(3,432)	(4,518)	(3,847)	2,164	(1,007)	(3,185)	(3,187)	(1,352)	1,322	352	4,048	3,069	3,007	**(505)**	**2,359**	**(25,221)**
Scenario 4 - OC Non-Optimised Land																
Lower Bound	(3,432)	(4,517)	(3,967)	1,922	(1,232)	(3,465)	(3,585)	(1,882)	694	(318)	3,313	2,308	2,247	**(917)**	**1,649**	**(32,160)**
Midpoint	(3,432)	(4,518)	(3,912)	2,033	(1,128)	(3,336)	(3,401)	(1,637)	984	(9)	3,652	2,659	2,598	**(727)**	**1,977**	**(28,957)**
Upper Bound	(3,432)	(4,518)	(3,847)	2,164	(1,007)	(3,185)	(3,187)	(1,352)	1,322	352	4,048	3,069	3,007	**(505)**	**2,359**	**(25,221)**
Scenario 5 - HC Specialised Assets																
Lower Bound	(2,832)	(3,366)	(2,953)	1,892	(805)	(2,659)	(2,769)	(1,375)	747	(119)	2,709	2,525	2,414	**(507)**	**1,655**	**(21,566)**
Midpoint	(2,832)	(3,332)	(2,874)	2,015	(690)	(2,524)	(2,591)	(1,148)	1,009	158	3,010	2,792	2,671	**(334)**	**1,928**	**(18,514)**
Upper Bound	(2,832)	(3,292)	(2,782)	2,159	(556)	(2,367)	(2,383)	(884)	1,316	481	3,360	3,103	2,972	**(131)**	**2,246**	**(14,954)**
Scenario 6 - HC Specialised Assets																
Lower Bound	(2,832)	(3,366)	(2,953)	1,892	(805)	(2,659)	(2,769)	(1,375)	747	(119)	2,709	2,525	2,414	**(507)**	**1,655**	**(21,566)**
Midpoint	(2,832)	(3,332)	(2,874)	2,015	(690)	(2,524)	(2,591)	(1,148)	1,009	158	3,010	2,792	2,671	**(334)**	**1,928**	**(18,514)**
Upper Bound	(2,832)	(3,292)	(2,782)	2,159	(556)	(2,367)	(2,383)	(884)	1,316	481	3,360	3,103	2,972	**(131)**	**2,246**	**(14,954)**

Historical Return Analysis - AIAL

	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	1989-2001 Average	1997-2001 Average	2001 PV
1 Yr Govt Stock Rate @ y/e	13.32%	13.48%	11.86%	9.27%	6.52%	6.44%	8.89%	9.25%	6.78%	8.33%	4.41%	6.96%	5.67%			
Excess Returns $000s																
Scenario 1 - Airport Company (ODRC) Adjusted																
Lower Bound	5,596	10,866	10,108	(13,486)	5,377	13,064	15,708	10,516	74	4,776	(9,549)	(5,123)	(5,380)	**3,273**	**(3,040)**	**91,509**
Midpoint	4,137	9,258	8,297	(15,536)	3,388	10,911	13,334	7,883	(2,757)	1,773	(12,828)	(8,564)	(9,014)	**791**	**(6,278)**	**43,248**
Upper Bound	2,436	7,381	6,185	(17,927)	1,067	8,398	10,564	4,812	(6,060)	(1,730)	(16,655)	(12,578)	(13,253)	**(2,105)**	**(10,055)**	**(13,056)**
Scenario 2 - Airport Company (ODRC) with Commission Optimisation																
Lower Bound	(2,722)	1,689	2,110	(7,058)	3,681	6,328	8,648	7,551	3,388	5,931	639	2,239	1,786	**2,631**	**2,797**	**44,839**
Midpoint	(4,181)	247	599	(8,657)	2,124	4,720	6,948	5,734	1,478	3,970	(1,490)	(83)	(729)	**822**	**629**	**8,364**
Upper Bound	(5,882)	(1,435)	(1,163)	(10,522)	307	2,844	4,964	3,615	(750)	1,683	(3,974)	(2,791)	(3,663)	**(1,290)**	**(1,899)**	**(34,190)**
Scenario 3 - ODRC Specialised Assets, OC Land																
Lower Bound	2,163	6,349	6,141	(11,564)	4,146	9,599	12,123	8,634	769	4,458	(6,236)	(2,815)	(3,133)	**2,356**	**(1,392)**	**59,349**
Midpoint	705	4,740	4,386	(13,502)	2,260	7,575	9,933	6,246	(1,773)	1,765	(9,177)	(5,905)	(6,416)	**64**	**(4,301)**	**14,291**
Upper Bound	(997)	2,863	2,339	(15,764)	60	5,213	7,377	3,460	(4,738)	(1,378)	(12,607)	(9,510)	(10,246)	**(2,610)**	**(7,696)**	**(38,276)**
Scenario 4 - ODRC Specialised Assets, OC Land with Commission Optimisation																
Lower Bound	(6,155)	(2,828)	(1,857)	(5,136)	2,450	2,863	5,063	5,669	4,082	5,613	3,951	4,547	4,033	**1,715**	**4,445**	**12,679**
Midpoint	(7,613)	(4,270)	(3,312)	(6,623)	996	1,384	3,546	4,097	2,462	3,961	2,162	2,576	1,869	**95**	**2,606**	**(20,593)**
Upper Bound	(9,315)	(5,953)	(5,010)	(8,358)	(700)	(341)	1,777	2,263	572	2,034	73	277	(655)	**(1,795)**	**460**	**(59,411)**
Scenario 5 - HC Specialised Assets, OC Land																
Lower Bound	(669)	2,983	3,188	(9,673)	3,341	6,940	9,354	7,259	1,515	4,339	(3,527)	(290)	(720)	**1,849**	**264**	**37,783**
Midpoint	(2,128)	1,408	1,512	(11,488)	1,570	5,050	7,341	5,097	(764)	1,923	(6,167)	(3,113)	(3,745)	**(269)**	**(2,373)**	**(4,223)**
Upper Bound	(3,829)	(429)	(443)	(13,605)	(495)	2,845	4,994	2,576	(3,422)	(896)	(9,247)	(6,406)	(7,274)	**(2,741)**	**(5,449)**	**(53,230)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation																
Lower Bound	(8,987)	(6,194)	(4,810)	(3,245)	1,645	204	2,294	4,294	4,829	5,494	6,661	7,072	6,446	**1,208**	**6,101**	**(8,887)**
Midpoint	(10,446)	(7,602)	(6,186)	(4,609)	306	(1,140)	955	2,949	3,472	4,120	5,171	5,368	4,540	**(239)**	**4,534**	**(39,107)**
Upper Bound	(12,147)	(9,245)	(7,792)	(6,199)	(1,256)	(2,708)	(607)	1,379	1,888	2,516	3,433	3,381	2,316	**(1,926)**	**2,707**	**(74,365)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation WITH FULL AIRPORT REVALUATION GAINS INCLUDED AS INCOME																
Lower Bound	5,596	12,980	14,364	(6,756)	10,016	18,837	23,088	19,687	11,040	15,486	2,227	6,303	5,683	**10,658**	**8,148**	**223,863**
Midpoint	4,137	11,572	12,988	(8,119)	8,678	17,493	21,749	18,342	9,683	14,112	738	4,599	3,776	**9,211**	**6,581**	**193,643**
Upper Bound	2,436	9,929	11,382	(9,710)	7,116	15,926	20,188	16,772	8,099	12,508	(1,000)	2,611	1,552	**7,524**	**4,754**	**158,385**

AUCKLAND INTERNATIONAL AIRPORT LIMITED **AIRFIELD ACTIVITIES**

($000s)	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	
						Adjusted to 12 months									
Revenue															
Landing Charges		25,490	30,514	32,098	30,935	32,767	33,477	37,551	41,318	41,697	42,644	42,029	44,157	49,486	
Other Revenue		*500*	*500*	*500*	*500*	*500*	579	611	1,587	806	821	828	796	182	
		25,990	31,014	32,598	31,435	33,267	34,056	38,162	42,905	42,503	43,465	42,857	44,953	49,668	
Proportion of Airfield Income to Total AIAL Income		39.77%	37.40%	36.66%	35.26%	26.72%	32.26%	32.49%	33.02%	30.34%	28.13%	26.72%	26.44%	26.23%	
Expenses															
Employee Remuneration and Benefits		*6,004*	*5,887*	*6,099*	*7,335*	*5,700*	*6,429*	*6,755*	*7,555*	*7,951*	*7,342*	*7,470*	8,016	9,640	44.76%
Repairs and Maintenance		*2,599*	*2,685*	*2,985*	*2,394*	*2,149*	*2,436*	*2,569*	*3,148*	*3,074*	*2,652*	*2,774*	2,410	1,533	13.46%
Depreciation		*3,108*	*3,312*	*4,106*	*4,074*	*3,726*	*3,923*	*4,546*	*5,166*	*6,091*	*6,458*	*5,795*	5,619	6,763	19.06%
General		*930*	*984*	*942*	*1,284*	*1,019*	*1,719*	*1,755*	*1,662*	*1,406*	*2,118*	*2,316*	2,265	4,675	26.52%
Rates and Insurance		*1,376*	*1,405*	*1,496*	*699*	*463*	*700*	*744*	*725*	*696*	*592*	*521*	500	320	26.52%
		14,017	14,272	15,627	15,785	13,057	15,206	16,369	18,256	19,219	19,162	18,876	18,810	22,931	
EBIT		**11,973**	**16,742**	**16,971**	**15,650**	**20,211**	**18,850**	**21,793**	**24,648**	**23,285**	**24,303**	**23,981**	**26,143**	**26,737**	
Taxation (@ effective tax rate)		*3,755*	*5,683*	*5,868*	*5,966*	*7,972*	*6,720*	*7,338*	*8,824*	*7,568*	*8,505*	*7,941*	*8,630*	*8,848*	
Earnings Before Interest After Tax, Opex and Depreciation		**8,218**	**11,059**	**11,103**	**9,684**	**12,239**	**12,130**	**14,455**	**15,824**	**15,716**	**15,798**	**16,039**	**17,512**	**17,889**	
Airfield Activities Assets												*implied 00*	*discl 00*	*pricing 01*	
Freehold Land	35,000	36,067	37,259	40,146	43,430	51,445	59,461	67,476	75,491	90,006	107,874	181,807	181,976	168,613	
Buildings (including fixed plant)	-	*885*	*897*	*910*	*826*	*881*	*845*	*924*	*1,362*	*1,751*	*1,794*	2,325	2,184	2,126	0.68%
Runways, Taxiways and Aprons	86,538	83,893	82,593	81,142	77,441	75,441	69,580	64,698	58,797	52,959	50,041	60,985	78,201	99,408	
Vehicles and Plant (NB: not revalued, at DHC)	-	*462*	*618*	*593*	*611*	*422*	*374*	*521*	*1,077*	*871*	*1,006*	1,278	1,365	1,114	12.47%
Infrastructure	-	-	-	-	-	-	-	-	-	-	-	40,326	39,090	37,711	
Non current assets per AIAL	***121,538***	***121,307***	***121,367***	***122,791***	***122,308***	***128,189***	***130,259***	***133,619***	***136,727***	***145,587***	***160,716***	***286,721***	***302,816***	***308,972***	
Current Assets													6,357		
Total													***309,173***	***335,238***	

Returns:

(1) Airport Company (ODRC) Adjusted

	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	
Provision for Runway Repairs		-	-	1,781	283	791	790	790	790	790	-	-	-	-	
Actual revaluations		-	-	-	-	-	-	-	-	-	-	(108,566)	(108,566)	(98,992)	
Assessed revaluations (cumulative)		12,745	29,502	46,259	43,190	50,507	66,792	84,965	98,418	103,846	112,578	108,566	108,566	98,992	**Average**
Adjusted NCA		**134,052**	**150,868**	**170,830**	**165,782**	**179,487**	**197,841**	**219,374**	**235,935**	**250,223**	**273,295**	**286,721**	**302,816**	**308,972**	
Asset revaluation		12,745	16,757	16,757	(3,068)	7,316	16,285	18,173	13,453	5,428	8,733	(4,012)	-	-	
Net Earnings		**20,963**	**27,816**	**27,860**	**6,616**	**19,555**	**28,415**	**32,628**	**29,277**	**21,145**	**24,531**	**12,027**	**17,512**	**17,889**	
Net Earnings to NCA		**17.25%**	**20.75%**	**18.47%**	**3.87%**	**11.80%**	**15.83%**	**16.49%**	**13.35%**	**8.96%**	**9.80%**	**4.40%**	**6.11%**	**5.91%**	**11.77%**
Inflation (All Groups CPI)		4.0%	7.0%	4.5%	0.8%	1.3%	1.1%	4.6%	2.0%	1.1%	1.7%	-0.4%	2.0%	3.2%	
Inflation (Housing Group of CPI for Auckland Region)		5.4%	7.1%	7.1%	-1.3%	3.1%	6.9%	7.7%	5.7%	2.3%	3.7%	-1.7%	n/a	n/a	
Spreading of Land Revaluation		9,912	13,033	13,033	(2,386)	5,690	12,666	14,134	10,463	4,222	6,792	(3,121)	-	-	
Spreading of Revaluations of Non-Land Assets		2,832	3,724	3,724	(682)	1,626	3,619	4,039	2,990	1,206	1,941	(892)	-	-	
Assessed Revaluations		12,745	16,757	16,757	(3,068)	7,316	16,285	18,173	13,453	5,428	8,733	(4,012)	-	-	
												108,566			

(2) Airport Company (ODRC) with Commission Optimisation

	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01
Optimisation of Second Runway Land		(1,067)	(1,192)	(2,887)	(3,285)	(8,015)	(8,015)	(8,015)	(8,015)	(8,015)	(11,368)	(36,757)	(36,757)	(36,757)
Optimisation of Seabed		-	-	-	-	-	-	-	-	-	-	(30,113)	(30,113)	(9,800)
Optimisation of Seawall (from Land Values)		-	-	-	-	-	-	-	-	-	-	(9,787)	(9,787)	-
Optimisation of Wiroa Island		(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(4,641)	(4,641)	(2,825)
Optimisation of Eastern Approaches		(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(9,213)	(9,213)	(11,957)	(11,957)	(11,957)
Reduction in assessed revaluations (cumulative)		(8,318)	(19,255)	(30,192)	(28,189)	(32,964)	(43,593)	(55,454)	(64,234)	(67,777)	(73,476)	-	-	-
Adjusted NCA		**120,138**	**125,893**	**133,223**	**129,779**	**133,979**	**141,704**	**151,376**	**159,157**	**163,402**	**177,421**	**193,466**	**209,561**	**247,634**

($000s)	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	
Associated adjustment to asset revaluation		(8,318)	(10,937)	(10,937)	2,003	(4,775)	(10,629)	(11,861)	(8,780)	(3,543)	(5,699)	2,619	-	-	
Net Earnings		**12,645**	**16,879**	**16,924**	**8,618**	**14,780**	**17,786**	**20,767**	**20,497**	**17,602**	**18,831**	**14,646**	**17,512**	**17,889**	
Net Earnings to NCA		**10.40%**	**14.05%**	**13.44%**	**6.47%**	**11.39%**	**13.28%**	**14.66%**	**13.54%**	**11.06%**	**11.52%**	**8.25%**	**9.05%**	**8.54%**	**11.20%**
Land Acquisions for 2nd Runway per AIAL Asset Files		1,825	213	2,900	680	8,091					5,735				
Proportion to Total 2nd Runway Area that is Airfield		**$ 36,757**	**58%**												
Total 2nd Runway Area Valuation	of	**$ 62,870**													
Historial Value of Second Runway Land Acquired		1,067	125	1,695	398	4,731	-	-	-	-	3,353				
Historial Value of Second Runway Land included in Accounts		1,067	1,192	2,887	3,285	8,015	8,015	8,015	8,015	8,015	11,368	36,757	36,757	36,757	
(3) ODRC Specialised Assets, OC Land															
Adjustment to second runway land valuation		-	-	-	-	-	-	-	-	-	-	-	-	-	
Reduction in assessed revaluations SR land (cumulative)		-	-	-	-	-	-	-	-	-	-				
Adjustment to operational airfield land valuation		-	-	-	-	-	-	-	-	-	-	(29,239)	(29,239)	(36,931)	
Reduction in assessed revaluations OAL land (cumulative)		(3,432)	(7,945)	(12,458)	(11,632)	(13,603)	(17,989)	(22,883)	(26,506)	(27,968)	(30,320)	-	-	-	
Holding Costs		-	-	-	-	-	-	-	-	-	-	-	-	-	
Levelling Costs		-	-	-	-	-	-	-	-	-	-	-	-	-	
Seawall Construction Costs		3,465	3,308	3,150	2,993	2,835	2,678	2,520	2,363	2,205	2,048	-	-	-	
Reclamation Costs		-	-	-	-	-	-	-	-	-	-	-	-	-	
Adjusted NCA		**134,085**	**146,231**	**161,522**	**157,142**	**168,720**	**182,530**	**199,011**	**211,792**	**224,460**	**245,022**	**257,482**	**273,577**	**272,042**	
Associated adjustment to asset revaluation SR land		-	-	-	-	-	-	-	-	-	-	-	-	-	
Associated adjustment to asset revaluation OAL land		(3,432)	(4,513)	(4,513)	826	(1,970)	(4,386)	(4,894)	(3,623)	(1,462)	(2,352)	1,081	-	-	
Net Earnings		**17,531**	**23,303**	**23,347**	**7,442**	**17,585**	**24,029**	**27,733**	**25,654**	**19,683**	**22,179**	**13,108**	**17,512**	**17,889**	
Net Earnings to NCA		**14.42%**	**17.38%**	**15.97%**	**4.61%**	**11.19%**	**14.24%**	**15.19%**	**12.89%**	**9.29%**	**9.88%**	**5.35%**	**6.80%**	**6.54%**	**11.06%**
(4) ODRC Specialised Assets, OC Land with Commission Optimisation															
Adjusted NCA		**120,171**	**121,255**	**123,914**	**121,140**	**123,211**	**126,393**	**131,013**	**135,013**	**137,639**	**149,149**	**164,227**	**180,322**	**210,703**	
Net Earnings		**9,213**	**12,366**	**12,411**	**9,444**	**12,810**	**13,400**	**15,872**	**16,874**	**16,140**	**16,479**	**15,726**	**17,512**	**17,889**	
Net Earnings to NCA		**7.58%**	**10.29%**	**10.24%**	**7.62%**	**10.57%**	**10.88%**	**12.56%**	**12.88%**	**11.95%**	**11.97%**	**10.54%**	**10.66%**	**9.92%**	**10.59%**
(5) HC Specialised Assets, OC Land															
Adjustment to specialised assets valuation (ODRC to HC)		-	-	-	-	-	-	-	-	-	-	(24,127)	(24,127)	(24,127)	
Reduction in assessed revaluations (cumulative)		(2,832)	(6,556)	(10,280)	(9,599)	(11,225)	(14,844)	(18,882)	(21,872)	(23,078)	(25,019)	-	-	-	
Seawall Construction Costs												2,048	2,048	2,048	
Associated adjustment to depreciation		-	-	-	-	-	-	-	-	-	-	(158)	612	1,376	
Adjusted NCA		**131,252**	**139,674**	**151,242**	**147,544**	**157,495**	**167,687**	**180,129**	**189,919**	**201,382**	**220,003**	**235,244**	**252,109**	**251,338**	
Associated adjustment to asset revaluation		(2,832)	(3,724)	(3,724)	682	(1,626)	(3,619)	(4,039)	(2,990)	(1,206)	(1,941)	892	-	-	
Associated adjustment to depreciation expense		-	-	-	-	-	-	-	-	-	-	(158)	770	764	
Net Earnings		**14,698**	**19,579**	**19,623**	**8,124**	**15,959**	**20,410**	**23,695**	**22,664**	**18,476**	**20,238**	**13,842**	**18,282**	**18,653**	
Net Earnings to NCA		**12.09%**	**14.92%**	**14.05%**	**5.37%**	**10.82%**	**12.96%**	**14.13%**	**12.58%**	**9.73%**	**10.05%**	**6.29%**	**7.77%**	**7.40%**	**10.63%**
(6) HC Specialised Assets, OC Land with Commission Optimisation															
Adjusted NCA		**117,338**	**114,699**	**113,634**	**111,541**	**111,987**	**111,550**	**112,131**	**113,141**	**114,560**	**124,130**	**141,989**	**158,854**	**189,999**	
Net Earnings		**6,380**	**8,642**	**8,687**	**10,126**	**11,184**	**9,781**	**11,834**	**13,884**	**14,933**	**14,539**	**16,460**	**18,282**	**18,653**	
Net Earnings to NCA		**5.25%**	**7.11%**	**7.15%**	**8.33%**	**9.20%**	**8.05%**	**9.74%**	**11.42%**	**12.29%**	**11.96%**	**13.54%**	**15.04%**	**15.35%**	**10.34%**

(6) HC Specialised Assets, OC Land with Commission Optimisation

Reconciliation

($000s)	Vesting	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01
Airfield Activities Assets per AIAL														
Freehold Land	35,000	36,067	37,259	40,146	43,430	51,445	59,461	67,476	75,491	90,006	107,874	181,807	181,976	168,613
Total Non-land assets	86,538	85,240	84,108	82,645	78,878	76,744	70,799	66,143	61,236	55,581	52,842	104,914	120,840	140,359
	121,538	***121,307***	***121,367***	***122,791***	***122,308***	***128,189***	***130,259***	***133,619***	***136,727***	***145,587***	***160,716***	***286,721***	***302,816***	***308,972***
Land														
Value per AIAL	35,000	36,067	37,259	40,146	43,430	51,445	59,461	67,476	75,491	90,006	107,874	181,807	181,976	168,613
Plus Revaluations to ORC	-	9,912	22,945	35,978	33,592	39,282	51,948	66,083	76,546	80,768	87,559	-	-	-
	35,000	45,979	60,204	76,124	77,022	90,728	111,409	133,558	152,037	170,774	195,434	181,807	181,976	168,613
Less Optimisation														
Optimisation of Second Runway Land	-	(1,067)	(1,192)	(2,887)	(3,285)	(8,015)	(8,015)	(8,015)	(8,015)	(8,015)	(11,368)	(36,757)	(36,757)	(36,757)
Optimisation of Seabed	-	-	-	-	-	-	-	-	-	-	-	(30,113)	(30,113)	(9,800)
Optimisation of Seawall (from Land Values)	-	-	-	-	-	-	-	-	-	-	-	(9,787)	(9,787)	-
Optimisation of Wiroa Island	-	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(1,816)	(4,641)	(4,641)	(2,825)
Optimisation of Eastern Approaches	-	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(2,713)	(9,213)	(9,213)	(11,957)	(11,957)	(11,957)
Reduction in Revaluations	-	(8,318)	(19,255)	(30,192)	(28,189)	(32,964)	(43,593)	(55,454)	(64,234)	(67,777)	(73,476)	-	-	-
	35,000	32,065	35,228	38,516	41,019	45,219	55,272	65,560	75,258	83,952	99,560	88,552	88,721	107,274
Less Revaluations Above Opportunity Cost														
Adjustment to operational airfield land valuation	-	-	-	-	-	-	-	-	-	-	-	(29,239)	(29,239)	(36,931)
Reduction in assessed revaluations OAL land (cumulative)	-	(3,432)	(7,945)	(12,458)	(11,632)	(13,603)	(17,989)	(22,883)	(26,506)	(27,968)	(30,320)	-	-	-
Value of Airfield Land (Scenario 6) $140k OC	**35,000**	**28,633**	**27,283**	**26,058**	**29,387**	**31,617**	**37,283**	**42,677**	**48,752**	**55,984**	**69,240**	**59,313**	**59,482**	**70,344**
Ha Airfield Land	352	352	352	352	352	352	352	352	352	352	352	352	352	352
Opportunity Cost of Land per Ha	99,432	81,408	77,570	74,086	83,553	89,891	106,002	121,338	138,611	159,173	196,861	168,636	169,117	199,999
Historic Cost of Land per Ha	74,091	86,634	89,668	93,055	101,263	110,602	133,391	156,179	178,968	201,756	243,026	213,155	213,635	220,312
Inflationary increase in asset values		4,001	6,435	7,107	(1,438)	3,638	8,994	12,484	11,252	5,323	9,603			
Indexed Historic Cost of Land per Ha		90,635	100,104	110,599	117,369	130,346	162,128	197,401	231,441	259,553	310,426			
Non-Land Assets														
Value per AIAL	86,538	85,240	84,108	82,645	78,878	76,744	70,799	66,143	61,236	55,581	52,842	104,914	120,840	140,359
Plus Provision for Runway Repairs	-	-	-	1,781	283	791	790	790	790	790	-	-	-	-
Plus Revaluations to ODRC	-	2,832	6,556	10,280	9,599	11,225	14,844	18,882	21,872	23,078	25,019	-	-	-
	86,538	88,073	90,664	94,706	88,760	88,759	86,433	85,816	83,898	79,449	77,861	104,914	120,840	140,359
Plus Adjustments in Connection With OC Valuation														
Holding Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Levelling Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Seawall Construction Costs	-	3,465	3,308	3,150	2,993	2,835	2,678	2,520	2,363	2,205	2,048	-	-	-
Reclamation Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	86,538	91,538	93,972	97,857	91,752	91,595	89,110	88,336	86,261	81,654	79,908	104,914	120,840	140,359
Less Revaluations Above DHC														
Adjustment to specialised assets valuation (ODRC to HC)	-	-	-	-	-	-	-	-	-	-	-	(24,127)	(24,127)	(24,127)
Reduction in assessed revaluations (cumulative)	-	(2,832)	(6,556)	(10,280)	(9,599)	(11,225)	(14,844)	(18,882)	(21,872)	(23,078)	(25,019)	-	-	-
Seawall Construction Costs	-	-	-	-	-	-	-	-	-	-	-	2,048	2,048	2,048
Associated adjustment to depreciation	-	-	-	-	-	-	-	-	-	-	-	(158)	612	1,376
Value of Non-Land Assets (Scenario 6)	**86,538**	**88,705**	**87,416**	**87,576**	**82,154**	**80,370**	**74,267**	**69,453**	**64,389**	**58,576**	**54,889**	**82,677**	**99,372**	**119,655**
Total Airfield Assets (Scenario 6)	**121,538**	**117,338**	**114,699**	**113,634**	**111,541**	**111,987**	**111,550**	**112,131**	**113,141**	**114,560**	**124,130**	**141,989**	**158,854**	**189,999**

AIAL Land - Vesting to date

		Hectares	$/Ha	$000s	
Vesting					
	Total Land	986.44		128,574	
	Airfield Portion	777.87	*44,995*	35,000	
	Includes:				
	Seabed (Tidal Land)	252.957		4,220	
	Future Runway Land	101.523		4,700	??
Acquisitions Since Vesting					
1997	Puhinui Rd "Eastern Approach Land"	110.51		6,500	
31/01/1989	Second Runway Land	1.832	44,005	81	
22/02/1991	Second Runway Land	54.938	66,340	3,645	
01/04/1992	Second Runway Land	33.555	76,603	2,570	
01/06/1998	Second Runway Land	9.229	131,314	1,212	
08/05/1992	Second Runway Land	0.4046	616,241	249	
08/05/1992	Second Runway Land	0.5094	616,241	314	
08/05/1992	Second Runway Land	0.9105	616,241	561	
01/04/1992	Second Runway Land	22.475	89,506	2,012	
01/04/1992	Second Runway Land	10.0219	74,577	747	
26/03/1991	Second Runway Land	3.74	101,663	380	
26/03/1991	Second Runway Land	10.919	101,663	1,110	
19/04/1991	Second Runway Land	1.58	112,023	177	
01/11/1997	Second Runway Land	2.438	132,000	322	
		152.5524		13,380	
1999 Valuation					
	Operational Airfield Land	278.4692	305,000	84,933	*
	Second Runway Land	262.551	140,000	36,757	
	Eastern Approaches	170.8081	70,000	11,957	
	Wiroa Island	40.36	115,000	4,641	**
	Seawall			9,787	
	Ground Handling Area	3.1851	650,000	2,070	
	Seabed (titled, untitled and reclaimed)	430.18	70,000	30,113	
				180,258	

* $273,000 is base figure of $140,000 + holding costs of $133,000.
Additional $32,000 of levelling costs is added to get to $305,000 ORC figure.

**Reduced for pricing to $70,000 per ha

*** Total reclaimed seabed since airport was established in 1960's is 181.44 ha

1999 Valuation (used for pricing 2001)					*Change in Revaluation*
	Operational Airfield Land	278.4692	305,000	84,933	-
	+ Reclaimed Seabed (OAL)	73.2513	305,000	22,342	*17,214*
	Second Runway Land	262.551	140,000	36,757	-
	Eastern Approaches	170.8081	70,000	11,957	-
	Wiroa Island	40.36	70,000	2,825	*(1,816)*
	Seawall			-	*(9,787)*
	Seabed (Western Approaches)	140	70,000	9,800	*(15,185)*
				168,614	*(9,574)*

Breakdown of 1999 AIAL Revaluation and 1998, 2000-2001 Asset Values

($000s)

		1998	1999		2000			2001	
		AIAL	AIAL	Airfield	AIAL	Airfield		AIAL A/cs	Airfield Pricing
Freehold Land									
	At valuation		313,996	181,807	313,996	181,807		313,996	
	At cost	208,397			(1,057)	169		(2,377)	
		208,397	313,996	181,807	312,939	181,976	58%	311,619	168,613
	Revaluation		*145,207*	*84,439*	-	-		-	*(9,574)*
Buildings									
	At valuation		271,627	2,325	271,627	2,325		271,627	2,325
	At cost	382,611			4,309	26	1%	19,221	116
	Accumulated depreciation	(118,235)			(19,128)	(167)	1%	(36,078)	(315)
		264,376	271,627	2,325	256,808	2,184	1%	254,770	2,126
	Revaluation		*56,607*	*481*	-	-	*22%*	-	-
							23%		
Infrastructure									
	At valuation	-	105,624	40,326	105,624	40,326		105,624	40,326
	At cost	-			7,662	130	2%	12,928	219
	Accumulated depreciation	-			(4,295)	(1,366)	32%	(8,911)	(2,834)
		-	105,624	40,326	108,990	39,090	36%	109,641	37,711
	Revaluation		*49,443*	*17,733*	-	-	*45%*	-	-
							47%		
Runways Taxiways and Aprons									
	At valuation		60,985	60,985	60,985	60,985		60,985	60,985
	At cost	106,432			20,794	20,794		45,894	45,894
	Accumulated depreciation	(56,391)			(3,578)	(3,578)		(7,471)	(7,471)
		50,041	60,985	60,985	78,201	78,201	100%	99,408	99,408
	Revaluation		*5,913*	*5,913*	-	-	*8%*	-	-
							6%		
Plant									
	At cost	24,745	35,770	6,365	38,838	6,911	18%	41,926	7,460
	Accumulated depreciation	(16,673)	(25,519)	(5,087)	(27,821)	(5,546)	20%	(31,837)	(6,347)
		8,072	10,251	1,278	11,017	1,365	12%	10,089	1,114
	Revaluation		-	-	-	-		-	-
TOTAL	**Assets** (excl investment properties)	**530,886**	**762,483**	**286,721**	**767,955**	**302,816**		**785,527**	**308,972**
	Revaluation		**257,170**	**108,566**	-	-		-	**(9,574)**
	Depreciation for year		**8,846**		**29,303**			**29,475**	
	c.f. Depreciation Expense	31,857	30,094		29,488			30,730	
	c.f. Revaluation per annual report		258,545						

But Revaluation Includes Optimised Assets				
Revalued Value for 2nd Runway	36,757			
Less Original Cost	11,368	Purchased in 13 transactions		
Revaluation of Optimised assets	25,389			
Revaluation of Seawall	9,787			
Less Original Cost not in Vesting valuation	-			
	9,787			
Revaluation of Seabed	30,113			
Less Original Cost not in Vesting valuation	-			
	30,113		65,289	-
Therefore Airfield Revaluations adjusted for Commission optimisation				
Freehold Land	28,937			
Buildings	481			
Infrastructure	7,946			
Runways Taxiways and Aprons	5,913			
Plant	-			
	43,277			

Computation of Adjustments to AIAL's Asset Base with the Adoption of Opportunity Cost

Inflation (CPI):		*AKL Housing Gp*	
	Jun-88	783	(closest to 1/4/88 vesting)
	Jun-99	1220	

Reclamations Undertaken at Auckland International Airport

Area	Activity	Date/Period	Area (Ha)	Cost per Ha ($)	
Wiroa Island	Airfield	between 1960-1988	3.25		
Wiroa Island	Airfield	between 1960-1988	1.47		
Current Runway (western runway extension)	Airfield	between 1960-1988	30.9		
Current Runway	Airfield	between 1960-1988	70.7467		
Current Runway (southeast end)	Airfield	between 1960-1988	2.95		
Current Runway (eastern end)	Airfield	between 1960-1988	10.55		
Commercial Areas (northeast)	Commercial	between 1960-1988	21.72		
Two areas adjacent to Lagoon infill	Airfield	between 1960-1988	10.865		
Western Lagoon	Airfield	1995-1999	28.9883	588,900	4,783,070
			181.44		
		Airfield only total	*159.72*	305,000	

Levelling Costs

Area	Source	Date	Area (Ha)	Levelling Costs per Ha ($)
Operational Airfield	AIAL Valuation	30-Jun-99	351.7205	32,000

Seawall Construction Costs

Area	Construction	Date	GRC ($)	ODRC ($)	Depn pa
Seawall (Current Runway)	1965	30-Jun-99	12,270,300	9,787,000	

NB: In 30/6/99 valuation, AIAL included $9,787,000 ODRC amount twice, once as part of land value and secondly as part of infrastructure (civil works). In 22/8/00 pricing, figure removed from land, but kept in infrastructure.

Seawall Construction Costs in 1988 Dollars	7,875,621	157,512

Holding Costs

Area	Source	Valuation Date	Area (Ha)	Holding Costs per Ha ($)
Operational Airfield	AIAL Valuation	30-Jun-99	351.7205	133,000

Computed as follows:
Based on land being purchased at $140,000 per Ha undeveloped land figure, development over 7.5 years, with holding costs of 9% per annum and (??) real value increases in land value of 5.88% pa

	L V Index	Value per Ha ($)
1999	4,710	140,000
1993	2,207	65,601

	WACC	Interest Factor	$
1993	15.38%	115.38%	
1994	13.71%	131.20%	
1995	16.08%	152.30%	
1996	15.85%	176.43%	
1997	15.53%	203.83%	
1998	14.57%	233.53%	
1999	13.29%	264.57%	
2000	14.44%	302.77%	133,021

AIAL - STATEMENT OF FINANCIAL PERFORMANCE

For the period ended	Jun-01	Jun-00	Jun-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	15 months Jun-93	Mar-92	Mar-91	Mar-90	Mar-89
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
REVENUE													
Airport Development Charge	30,298	25,499	24,055	23,176	24,534	22,478	20,674	19,297	22,036	12,748	12,181	11,857	10,784
Landing Charges	51,128	45,897	44,902	42,644	41,697	41,318	37,551	33,477	40,959	30,935	32,098	30,514	25,490
Terminal Services Charges	15,149	13,599	14,433	13,751	11,977	8,965	7,822	7,676	7,843	5,349	5,157	7,463	4,510
Rental Income	18,936	16,999	16,037	14,833	11,378	9,225	8,366	8,316	10,458	8,202	7,824	5,804	3,987
Carpark Income	11,362	11,899	9,622	8,343	7,027	6,237	5,850	5,224	5,727	4,547	4,712	4,643	4,314
Concession Income	56,809	50,997	46,506	41,563	34,634	34,042	30,999	25,375	29,381	18,008	16,805	16,086	10,850
Utilities and General	5,681	5,100	4,811	10,198	8,827	7,666	6,184	6,203	8,092	9,361	10,136	6,551	5,425
OPERATING REVENUE	189,363	169,990	160,366	154,509	140,074	129,930	117,446	105,568	124,496	89,149	88,914	82,919	65,359
INTEREST INCOME	653	110	207	477	288	1,253	1,119	1,047	1,589	2,862	3,314	1,543	637
TOTAL REVENUE	190,016	170,100	160,573	154,986	140,362	131,183	118,565	106,616	126,085	92,011	92,228	84,462	65,996
EXPENSES													
Audit Fees	113	76	45	171	46	36	36	36	37	39	38	34	36
Depreciation	30,730	29,488	30,094	31,857	27,859	21,712	19,415	16,874	24,187	16,033	15,541	12,288	10,845
Directors' Fees	375	215	292	175	135	121	110	110	138	110	110	100	96
Repairs, Maintenance and Supplies	16,657	17,908	20,399	18,521	19,909	18,731	15,538	14,837	19,750	13,339	15,996	14,103	12,845
Utilities and General	10,940	8,250	8,304	7,162	4,440	4,861	5,241	5,166	4,580	3,482	2,413	2,489	2,200
Rates, Tax and Insurance	2,016	1,885	1,943	2,098	2,286	2,189	2,282	2,163	2,159	1,976	4,067	3,744	3,449
Staff and Associated Costs	20,156	17,908	16,513	15,419	15,480	13,517	12,281	11,774	15,752	12,289	9,828	9,298	8,920
Interest	20,445	18,632	19,754	12,774	10,741	9,170	7,990	9,110	13,357	14,485	19,786	20,347	21,077
TOTAL EXPENSES	101,431	94,361	97,343	88,177	80,896	70,337	62,893	60,070	79,960	61,753	67,779	62,404	59,468
Net Profit Before Extraordinaries	88,585	75,739	63,230	66,809	59,466	60,846	55,672	46,546	46,125	30,258	24,449	22,058	6,528
Extraordinary Items													
Profit on disposal of subsidiary	-	-	-	-	-	-	-	4,995	-	-	-	-	-
Costs of Initial Public Offering (IPO)	-	-	-	(3,536)	-	-	-	-	-	-	-	-	-
NET PROFIT BEFORE TAX (NPBT)	88,585	75,739	63,230	63,273	59,466	60,846	55,672	51,541	46,125	30,258	24,449	22,058	6,528
Income Tax	29,332	25,005	20,962	22,389	19,277	22,005	21,059	18,589	18,951	12,130	8,713	8,605	2,734
NET PROFIT AFTER TAX (NPAT)	**59,253**	**50,734**	**42,268**	**40,884**	**40,189**	**38,841**	**34,613**	**32,952**	**27,174**	**18,128**	**15,736**	**13,453**	**3,794**
Share of After Tax Profit of Associates	(143)	319	148	205	321	189	210	323	91	9	41	-	-
NET PROFIT AFTER TAX INCLUDING ASSOCIATES	59,110	51,053	42,416	41,089	40,510	39,030	34,823	33,275	27,265	18,137	15,777	13,453	3,794
Effective Tax Rate	33%	33%	33%	35%	33%	36%	34%	36%	39%	38%	35%	34%	31%

AIAL - STATEMENT OF MOVEMENTS IN EQUITY

For the period ended	Jun-01	Jun-00	Jun-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Mar-92	Mar-91	Mar-90	Mar-89
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
EQUITY AT THE BEGINNING OF THE YEAR	499,946	510,189	220,051	324,765	308,510	292,895	278,967	259,006	242,891	231,999	222,522	213,794	210,000
Operating Surplus After Tax	59,110	51,053	42,416	41,089	40,510	39,030	34,823	33,275	27,265	18,137	15,777	13,453	3,794
Increase in Asset Revaluation Reserve	112	2,544	281,322	-	-	-	-	-	-	-	-	-	-
Dividends to Shareholders	(21,000)	(63,840)	(33,600)	(145,803)	(24,255)	(23,415)	(20,895)	(13,314)	(10,920)	(7,245)	(6,300)	(4,725)	-
Increase in Shares	2,000	-	-	-	-	-	-	-	-	-	-	-	-
Prior Period Adjustment - Associated Company	-	-	-	-	-	-	-	-	(230)	-	-	-	-
EQUITY AT THE END OF THE YEAR	**540,168**	**499,946**	**510,189**	**220,051**	**324,765**	**308,510**	**292,895**	**278,967**	**259,006**	**242,891**	**231,999**	**222,522**	**213,794**

AIAL - STATEMENT OF FINANCIAL POSITION

As at	Jun-01	Jun-00	Jun-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Mar-92	Mar-91	Mar-90	Mar-89	Vesting Value
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	
EQUITY														
Share Capital	212,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	
Asset Revaluation Reserve	283,978	283,866	281,322	-	-	-	-	-	-	-	-	-	-	
Retained Earnings	44,190	6,080	18,867	10,051	114,765	98,510	82,895	68,967	49,006	32,891	21,999	12,522	3,794	
Total Equity	540,168	499,946	510,189	220,051	324,765	308,510	292,895	278,967	259,006	242,891	231,999	222,522	213,794	
NON-CURRENT LIABILITIES														
Long-Term Borrowing (coupon bonds, promissory notes)	320,000	290,000	265,800	156,200	153,400	113,500	79,350	87,000	110,000	130,000	152,050	141,495	141,330	
Other Term Borrowings	551	538	537	805	554	526	538	1,256	2,484	4,610	-	-	-	
Total Non-Current Liabilities	320,551	290,538	266,337	157,005	153,954	114,026	79,888	88,256	112,484	134,610	152,050	141,495	141,330	
CURRENT LIABILITIES														
Bank Overdraft	136	1,186	1,029	-	-	-	-	-	-	-	-	-	-	
Accounts Payable	12,490	17,781	13,664	8,851	9,295	8,782	7,061	4,264	1,971	3,596	2,866	2,360	1,973	
Provision for Runway Repairs	-	-	-	-	790	790	790	790	791	283	1,781	-	-	
Employee Entitlements (Leave Provision)	2,155	1,815	1,509	1,532	1,457	1,342	1,347	1,346	1,059	1,138	868	831	1,114	
Goods and Services Tax	767	1,224	466	489	118	50	444	535	686	447	294	864	1,066	
Proposed Dividend	-	21,840	21,420	134,988	13,440	12,600	12,495	8,064	7,770	4,620	3,675	4,725	-	
Taxation Payable	396	516	522	1,101	-	35	1,030	715	628	1,178	1,502	1,325	2,734	
Fixed Asset Payables and Retentions	7,625	6,477	8,779	9,926	13,772	12,417	6,994	2,532	3,333	2,268	-	-	-	
Other Payables		-	-	8,425	3,252	1,612	1,505	5,761	3,808	3,443	5,440	4,256	5,330	
Total Current Liabilities	23,569	50,839	47,389	165,312	42,124	37,628	31,666	24,007	20,046	16,973	16,426	14,361	12,217	
TOTAL EQUITY AND LIABILITIES	**884,288**	**841,323**	**823,915**	**542,368**	**520,843**	**460,164**	**404,449**	**391,230**	**391,536**	**394,474**	**400,475**	**378,378**	**367,341**	
NON-CURRENT ASSETS (@ cost less accumlated depreciation)														
Freehold Land	311,619	312,939	313,996	208,397	190,965	179,799	171,156	164,491	158,860	156,916	147,711	134,278	132,310	128,574
Buildings	254,770	256,808	271,627	264,376	258,024	200,640	136,208	124,498	129,749	121,664	134,025	132,102	130,395	128,504
Runways, Taxiways and Aprons	99,408	78,201	60,985	50,041	52,959	58,797	64,698	69,580	75,441	77,441	81,142	82,593	83,893	86,538
Vehicles and Plant	10,089	11,017	10,251	8,072	6,983	8,643	4,177	2,999	3,387	4,904	4,760	4,961	3,707	2,012
Infrastructure	109,641	108,990	105,624	-	-	-	-	-	-	-	-	-	-	
Investment Properties	81,192	59,933	50,600	-	-	-	-	-	-	-	-	-	-	-
Total Non-Current Assets	866,719	827,888	813,083	530,886	508,931	447,879	376,239	361,568	367,437	360,925	367,638	353,934	350,305	345,628
CURRENT ASSETS														
Cash and Bank Balances	-	-	-	57	108	294	20	284	133	(118)	170	(57)	211	
Bank Deposits	-	-	-	-	-	-	-	2,400	13,700	20,200	23,363	13,018	4,460	
NZ Government Stock	-	-	-	-	-	-	15,000	15,000	-	-	-	-	-	
Receivables (@ net realisable value)	12,833	7,562	6,936	8,580	6,924	9,314	8,013	5,858	4,855	5,321	5,952	8,087	12,083	
Prepayments	2,194	3,320	1,258	486	1,136	845	1,092	2,430	1,640	2,486	221	309	189	
Inventories	446	314	186	55	58	54	55	64	68	68	48	45	93	
Taxation Receivable	-	-	-	-	1,588	-	-	-	-	-	-	-	-	
Total Current Assets	15,473	11,196	8,380	9,178	9,814	10,507	24,180	26,036	20,396	27,957	29,754	21,402	17,036	
Investment in Associates (50% Marriott-AIAL & Waste Resources)	2,096	2,239	2,452	2,304	2,098	1,778	4,030	3,626	3,703	5,592	3,083	3,042	-	
TOTAL ASSETS	**884,288**	**841,323**	**823,915**	**542,368**	**520,843**	**460,164**	**404,449**	**391,230**	**391,536**	**394,474**	**400,475**	**378,378**	**367,341**	

AIAL Cost of Capital

per CC	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	Jun-02
Price resets	01-Nov-88		01-Apr-90		01-Apr-92				01-Jul-96	01-Jul-97			01-Sep-00	01-Sep-01

Non - Contestable/Airfield Activities

	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	Jun-02
Lower Bound														
Equity														
Rfr	14.16%	14.16%	13.13%	13.13%	8.34%	8.34%	8.34%	8.34%	8.90%	7.35%	7.35%	7.35%	7.04%	6.33%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Equity beta	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
PTMRP	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Return on Equity	***13.22%***	***13.22%***	***12.53%***	***12.53%***	***9.32%***	***9.32%***	***9.32%***	***9.32%***	***9.70%***	***8.66%***	***8.66%***	***8.66%***	***8.45%***	***7.97%***
Debt														
Debt margin	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Tax	28%	28%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Cost of debt	***15.16%***	***15.16%***	***14.13%***	***14.13%***	***9.34%***	***9.34%***	***9.34%***	***9.34%***	***9.90%***	***8.35%***	***8.35%***	***8.35%***	***8.04%***	***7.33%***
WACC														
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***12.64%***	***12.64%***	***11.77%***	***11.77%***	***8.55%***	***8.55%***	***8.55%***	***8.55%***	***8.93%***	***7.89%***	***7.89%***	***7.89%***	***7.68%***	***7.21%***
Midpoint														
Equity														
Rfr	14.16%	14.16%	13.13%	13.13%	8.34%	8.34%	8.34%	8.34%	8.90%	7.35%	7.35%	7.35%	7.04%	6.33%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Equity beta	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
PTMRP	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Return on Equity	***14.82%***	***14.82%***	***14.13%***	***14.13%***	***10.92%***	***10.92%***	***10.92%***	***10.92%***	***11.30%***	***10.26%***	***10.26%***	***10.26%***	***10.05%***	***9.57%***
Debt														
Debt margin	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Tax	28%	28%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Cost of debt	***15.16%***	***15.16%***	***14.13%***	***14.13%***	***9.34%***	***9.34%***	***9.34%***	***9.34%***	***9.90%***	***8.35%***	***8.35%***	***8.35%***	***8.04%***	***7.33%***
WACC														
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***13.84%***	***13.84%***	***12.97%***	***12.97%***	***9.75%***	***9.75%***	***9.75%***	***9.75%***	***10.13%***	***9.09%***	***9.09%***	***9.09%***	***8.88%***	***8.41%***

AIAL Cost of Capital

per CC	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	Jun-02
Price resets	01-Nov-88		01-Apr-90		01-Apr-92				01-Jul-96	01-Jul-97			01-Sep-00	01-Sep-01

Non - Contestable/Airfield Activities

	Mar-89	Mar-90	Mar-91	Mar-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	Jun-02
Upper Bound														
Equity														
Rfr	14.16%	14.16%	13.13%	13.13%	8.34%	8.34%	8.34%	8.34%	8.90%	7.35%	7.35%	7.35%	7.04%	6.33%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Equity beta	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PTMRP	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Return on Equity	***16.69%***	***16.69%***	***16.00%***	***16.00%***	***12.78%***	***12.78%***	***12.78%***	***12.78%***	***13.16%***	***12.13%***	***12.13%***	***12.13%***	***11.92%***	***11.44%***
Debt														
Debt margin	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Tax	28%	28%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Cost of debt	***15.16%***	***15.16%***	***14.13%***	***14.13%***	***9.34%***	***9.34%***	***9.34%***	***9.34%***	***9.90%***	***8.35%***	***8.35%***	***8.35%***	***8.04%***	***7.33%***
WACC														
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***15.24%***	***15.24%***	***14.37%***	***14.37%***	***11.15%***	***11.15%***	***11.15%***	***11.15%***	***11.53%***	***10.49%***	***10.49%***	***10.49%***	***10.28%***	***9.81%***

APPENDIX 14 – ACTIVITIES UNDERTAKEN BY WIAL

The activities undertaken by are classified and grouped in terms of the three identified airport activities (defined in the Airport Authorities Amendment Act) and an additional grouping headed “other airport activities”, as follows:

Airfield activities at Wellington International Airport, and those undertaken by WIAL, are as follows:

Airfield Activities at Wellington International Airport

Element of Activity	Undertaken by WIAL	Undertaken by Third Party	Assets owned by WIAL	Prices charged or revenue derived by WIAL
Airfields, runways, taxiways, and parking aprons for aircraft	All.	None.	Land and land improvements to runway, taxiways, aprons and grassed areas.	Landing charges (except rescue fire component).
Facilities and services for air traffic control	None.	Airways provide all air traffic control from an off-airport site.	None.	None.
Facilities and services for parking apron control	Partly by WIAL.	Undertaken by airlines.	Apron supervision vehicles.	None.
Airfield associated lighting	Some facilities provided by WIAL.	Airways own all lighting and navigation aids.	WIAL owns stand lighting and Nose in Guidance units.	Component of landing charges.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Contracted out by WIAL.	Major maintenance undertaken by outside contractors with supervision by airport.	None.	Component of landing charges.
Rescue, fire, safety, and environmental hazard control services	Provision of rescue fire service and airside services team. The airside services team monitor the safety of the apron, conduct runway checks, co-ordinate airside works, look after bird and hazard control, and monitor airside rules.	Airport Noise Committee (council, airlines, Airways and WIAL).	Land and buildings, vehicles and equipment, and noise monitoring system.	Rescue fire component of landing charges.

Element of Activity	Undertaken by WIAL	Undertaken by Third Party	Assets owned by WIAL	Prices charged or revenue derived by WIAL
Airfield supervisory and security services	Provision and maintenance of security fencing, perimeter patrols, and management of systems.	AVSEC provides airside security, security between airside and landside, and international passenger screening.	Security fencing, access control system, and CCTV monitors.	Component of landing charges.
Facilities/ assets held for future activities	Residential properties bordering airfield (for resource management).	None.	Residential properties bordering airfield.	Rent from residential properties.

Aircraft and freight activities at Wellington International Airport, and that undertaken by WIAL, are as follows:

Aircraft and Freight Activities at Wellington International Airport

Element of Activity	Undertaken by WIAL	Undertaken by Third Party	Assets owned by WIAL	Prices charged or revenue derived by WIAL
Hangars	Provision of land and buildings.	Air NZ and GA hangers.	Rex hangar, Gibson hangar, and Westside 1 hangar.	Rent.
Facilities and services for refuelling of aircraft	Provision of land and access to airfield.	Mobil & BP have a joint facility (JUFF) with underground hydrants. Shell supplies fuel by tanker or through JUFF.	Land.	Rent.
Facilities and services for flight catering	Provision of land and access to airfield.	Provided by Air NZ flight Kitchen (on-airport).	Land for Air NZ flight kitchen.	Rent.
Facilities and services for waste disposal	Provision of land.	Medical Waste provide facilities for quarantine waste.	Effluent disposal facility for domestic operations.	None. Airlines pay for service direct.
Facilities and services for the storing of freight	Provision of land.	Freight buildings provided by Air NZ, and NZ Post.	Land for international cargo building.	Rent.
Security services for freight	Provision of terminal space.	Airside security provided by AVSEC and airport security provided by Police.	Spaced leased to AVSEC and NZ Police.	Rent.
Customs services for freight	Provision of terminal space.	Provided by NZ Customs.	Space leased to NZ Customs.	Rent.
Quarantine services for freight	Provision of terminal space.	Provided by MAF.	Space leased to MAF.	Rent.
Facilities/ assets held for future activities	Land.	None.	Land.	None.

Element of Activity	Undertaken by WIAL	Undertaken by Third Party	Assets owned by WIAL	Prices charged or revenue derived by WIAL
Other Ground handling	WIAL provides ground maintenance vehicles and access to airfield.	Undertaken by Sky Care, Aviation Ground Services, Airlines, and Capital Jet Services who own their own mobile plant.	Ground maintenance vehicles.	None.

Specified passenger terminal activities at Wellington International Airport, and those undertaken by WIAL, are as follows:

Specified Passenger Terminal Activities at Wellington International Airport

Element of Activity	Undertaken by WIAL	Undertaken by Third Party	Assets owned by WIAL	Prices charged or revenue derived by WIAL
Passenger seating areas, thoroughfares	Provides public areas in terminal.	RNZAF and Aero Club.	Land and terminal building, plus furniture in common areas.	Terminal services charge (TSC) and international passenger departure charge.
Airbridges	All.	None, although the airlines provide mobile stairs.	Airbridges.	TSC.
Flight information and public address systems	Information systems.	Airlines provide source data.	Public FIDS screens, hardware and software for terminal.	TSC.
Facilities and services for the operation of customs	Space leased to NZ Customs.	Provided by NZ Customs.	Statutory space.	Rent for sole use space.
Facilities and services for the operation of immigration	Space leased to Immigration.	Provided by Immigration.	Statutory space.	Rent for sole use space.
Facilities and services for the operation of quarantine checks and control	Space leased to MAF.	Provided by MAF.	Statutory space.	Rent for sole use space.
Facilities for the collection of duty-free items	Space leased for collection of duty-free.	Duty Free Stores	Terminal Space	Rent for sole use space.
Facilities and services for the operation of security	Space leased to AVSEC.	AVSEC provide security between airside and landside, and international passenger screening.	Common use space used for this purpose. Security cameras and access control system.	Rent for sole use space.

Element of Activity	Undertaken by WIAL	Undertaken by Third Party	Assets owned by WIAL	Prices charged or revenue derived by WIAL
Facilities and services for the operation of Police services	Space leased to NZ Police.	Provided by NZ Police.	Terminal space.	Rent for sole use space.
Passenger check-in areas	Provide airline check-in areas.	Check-in services provided by Airlines.	Check-in counters.	Rent for check-in counters.
Baggage Handling	Provide baggage handling system.	Operated by airlines.	Baggage handling system.	Costs recovered from airlines.
Facilities/ assets held for future activities	Land.	None.	Land.	None.

Other airport activities at Wellington International Airport, and those undertaken by WIAL, are as follows:

Other Airport Activities at Wellington International Airport

Activity	Undertaken by WIAL	Undertaken by Third Party	Assets owned by WIAL	Prices charged or revenue derived by WIAL
Utilities (electricity, telecommunications, water etc)	WIAL provides some infrastructure and also supplies some services.	Wellington City Council owns drainage and sewerage lines. HV network and gas lines owned United Networks.	Some infrastructure and utility services. WIAL owns electricity cables within the terminal building.	Some electricity, telecommunications and other utility costs are on-charged to tenants. Some tenants also directly billed by suppliers at tenants option.
Roading	WIAL provides internal roads and road access links.	Wellington City Council provides adjacent public roads.	Roads.	Costs recovered from various airport activities.
Car parking	WIAL provides all parking facilities and at airport.	Car parks are managed under contract by Condrens Car Parks International Limited.	Land and parking facilities	Public and staff parking charges (less costs to have operation contracted out).
Commercial property portfolio	WIAL leases out land and buildings landside to various aviation and non-aviation related businesses.	None.	Land and buildings.	Rent.
Office space	Provide office space in terminal buildings.	None.	Terminal space.	Rent.
Conference facilities	Conference facilities for hire in terminal.	Some facilities in airline club lounges.	Terminal space and facilities.	Rent.

Activity	Undertaken by WIAL	Undertaken by Third Party	Assets owned by WIAL	Prices charged or revenue derived by WIAL
Concessions	Offer concessions to third parties around and within the terminals for the following: • Retail shops. • Duty-free shops. • Food and beverages. • Rental cars. • Banking and money exchange services.	Third parties operate concessions around and within the terminals.	Terminal space and facilities.	Rate for each concession is calculated on the basis of the greater of a minimum base rental amount and a percentage (e.g. 25%) of the concession's gross turnover i.e. pay base amount and where turnover exceeds a set level, pay a percentage of surplus turnover to WIAL.
Information	Provide airport information desk and airport service officers who provide assistance and customer service to airport users.	Some airlines have their own customer service desks.	Terminal space and furniture.	Costs recovered from specified terminal activities.
Public space and facilities in terminals	All. The terminal services team maintain buildings, plant and equipment. They also run the operations centre and systems, co-ordinating on-airport communications.	None.	Terminal space and facilities.	Costs recovered from specified terminal activities.
Passenger vehicle operators	Provide facilities and space for taxis, buses, shuttles, valet parking etc; tendering out rights to operate some services.	Successful tenders operate pick-up bus, taxi and shuttle services, unlimited operators undertake drop-off services. Airlines operate valet parking services.	Facilities and land for taxis, buses, shuttles, valet parking etc.	Licence fees and fees per pick-up.

Airfield activities provided by third parties tend to be undertaken on-aiport (and on airport company land). However, Airways Corporation provide the bulk of their air traffic control service from an off-airport location. Also, in limited instances, third parties provide other activities from an off-airport location. Examples include rental cars, car parking (airline valet and long-term), airline catering, freight facilities, waste disposal. However, while these businesses may operate from premises off-airport, they need to obtain access to the airport in order to pick-up or drop-off customers or goods. While these entities may avoid paying rent to the airport company for a site on-airport, they typically pay fees to access the airport instead.

APPENDIX 15 – WIAL ANALYSIS

Net Acquirers Benefits ($) - WIAL

	Actual Mar-01	Forecast Mar-02	Forecast Mar-03	Average
Benefits to Acquirers				
Allocative Inefficiency (Consumer Surplus)				
At Lower Bound of WACC	6,369	1,138	10,679	6,062
At Point Estimate of WACC	1,871	(12)	4,763	2,207
At Upper Bound of WACC	0	(2,206)	839	(455)
Excess Returns				
At Lower Bound of WACC	1,465,005	596,974	1,976,986	1,346,322
At Point Estimate of WACC	794,133	(62,102)	1,320,312	684,114
At Upper Bound of WACC	11,449	(831,024)	554,192	(88,461)
Productive Inefficiency				
At 0% of Opex-Depn	-	-	-	-
At 0.5% of Opex-Depn	27,975	-	-	27,218
At 1% of Opex-Depn	55,950	-	-	54,437
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Total Benefits				
At Lower Bound	1,471,374			1,471,374
At Point Estimate	823,980			823,980
At Upper Bound	67,400			67,400
Costs to Acquirers				
Allocative Inefficiency (Consumer Surplus)				
At Lower Bound of WACC	2,786	498	4,672	2,652
At Point Estimate of WACC	819	(5)	2,084	966
At Upper Bound of WACC	0	(965)	367	(199)
Excess Returns				
At Lower Bound of WACC	366,251	149,244	494,247	336,580
At Point Estimate of WACC	198,533	-	330,078	176,204
At Upper Bound of WACC	2,862	-	138,548	47,137
Productive Inefficiency				
At 0% of Opex-Depn	-	-	-	-
At 1% of Opex-Depn	55,950	-	-	54,437
At 2% of Opex-Depn	111,900	-	-	108,873
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Direct Costs				
Lower Bound	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000
Total Costs				
At Lower Bound	989,038			959,233
At Point Estimate	1,225,302			1,201,606
At Upper Bound	1,434,763			1,475,811
Net Benefits to Acquirers				
At Lower Bound	482,336			393,151
At Point Estimate	(401,322)			(488,066)
At Upper Bound	(1,367,363)			(1,510,291)

Net Public Benefits ($) - WIAL

	Actual Mar-01	Forecast Mar-02	Forecast Mar-03	Average
Benefits				
Allocative Inefficiency				
(1) Consumer Surplus				
At Lower Bound of WACC	6,369	1,138	10,679	6,062
At Point Estimate of WACC	1,871	(12)	4,763	2,207
At Upper Bound of WACC	0	(2,206)	839	(455)
(2) Producer Surplus				
At Lower Bound of WACC	105,383	45,846	137,715	96,315
At Point Estimate of WACC	60,287	(5,006)	96,709	50,663
At Upper Bound of WACC	922	(66,990)	42,913	(7,718)
Productive Inefficiency				
At 0% of Opex-Depn	-	-	-	-
At 0.5% of Opex-Depn	27,975	-	-	27,218
At 1% of Opex-Depn	55,950	-	-	54,437
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Total Benefits				
At Lower Bound	111,753			111,753
At Point Estimate	90,134			90,134
At Upper Bound	56,873			56,873
Costs				
Allocative Inefficiency				
(1) Consumer Surplus				
At Lower Bound of WACC	2,786	498	4,672	2,652
At Point Estimate of WACC	819	(5)	2,084	966
At Upper Bound of WACC	0	(965)	367	(199)
(2) Producer Surplus				
At Lower Bound of WACC	26,346	11,462	34,429	24,079
At Point Estimate of WACC	15,072	(1,252)	24,177	12,666
At Upper Bound of WACC	231	(16,748)	10,728	(1,930)
Productive Inefficiency				
At 0% of Opex-Depn	-	-	-	-
At 1% of Opex-Depn	55,950	-	-	54,437
At 2% of Opex-Depn	111,900	-	-	108,873
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Direct Costs				
Lower Bound	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000
Total Costs				
At Lower Bound	649,132			646,731
At Point Estimate	1,041,841			1,038,068
At Upper Bound	1,432,131			1,426,744
Net Public Benefits				
At Lower Bound	(537,380)			(544,354)
At Point Estimate	(951,707)			(957,979)
At Upper Bound	(1,375,258)			(1,380,482)

Net Acquirers Benefits ($) - WIAL Specialised Assets at ODRC

425

	Actual	Forecast	Forecast	
	Mar-01	Mar-02	Mar-03	**Average**
Benefits to Acquirers				
Allocative Inefficiency (Consumer Surplus)				
At Lower Bound of WACC	(3,122)	(16,323)	(1,793)	(7,079)
At Point Estimate of WACC	(11,837)	(33,008)	(8,378)	(17,741)
At Upper Bound of WACC	(29,083)	(59,822)	(22,179)	(37,028)
Excess Returns				
At Lower Bound of WACC	(1,025,766)	(2,260,513)	(809,999)	(1,365,426)
At Point Estimate of WACC	(1,997,200)	(3,214,526)	(1,751,130)	(2,320,952)
At Upper Bound of WACC	(3,130,539)	(4,327,541)	(2,849,116)	(3,435,732)
Productive Inefficiency				
At 0% of Opex-Depn	-	-	-	-
At 0.5% of Opex-Depn	27,975	-	-	27,218
At 1% of Opex-Depn	55,950	-	-	54,437
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Total Benefits				
At Lower Bound	(1,028,889)			(1,028,889)
At Point Estimate	(1,981,062)			(1,981,062)
At Upper Bound	(3,103,672)			(3,103,672)
Costs to Acquirers				
Allocative Inefficiency (Consumer Surplus)				
At Lower Bound of WACC	(1,366)	(7,141)	(784)	(3,097)
At Point Estimate of WACC	(5,179)	(14,441)	(3,666)	(7,762)
At Upper Bound of WACC	(12,724)	(26,172)	(9,703)	(16,200)
Excess Returns				
At Lower Bound of WACC	-	-	-	-
At Point Estimate of WACC	-	-	-	-
At Upper Bound of WACC	-	-	-	-
Productive Inefficiency				
At 0% of Opex-Depn	-	-	-	-
At 1% of Opex-Depn	55,950	-	-	54,437
At 2% of Opex-Depn	111,900	-	-	108,873
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Direct Costs				
Lower Bound	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000
Total Costs				
At Lower Bound	618,634			616,903
At Point Estimate	1,020,771			1,016,675
At Upper Bound	1,419,176			1,412,674
Net Benefits to Acquirers				
At Lower Bound	(1,647,523)			(1,989,408)
At Point Estimate	(3,001,833)			(3,328,149)
At Upper Bound	(4,522,848)			(4,830,997)

Effects of Asset Base Decisions on Forecast Return Analysis - WIAL

	Actual Mar-01	Forecast Mar-02	Forecast Mar-03	Average
Change in Excess Returns $000s				
Scenario 2 - Commission Optimisation				
Lower Bound	211	211	211	**211**
Midpoint	243	243	243	**243**
Upper Bound	279	279	279	**279**
Scenario 3 - OC Land				
Lower Bound	1,035	1,035	1,035	**1,035**
Midpoint	1,188	1,188	1,188	**1,188**
Upper Bound	1,368	1,368	1,368	**1,368**
Scenario 4 - OC Land				
Lower Bound	1,035	1,035	1,035	**1,035**
Midpoint	1,188	1,188	1,188	**1,188**
Upper Bound	1,368	1,368	1,368	**1,368**
Scenario 5 - HC Specialised Assets				
Lower Bound	2,491	2,857	2,787	**2,712**
Midpoint	2,791	3,152	3,071	**3,005**
Upper Bound	3,142	3,497	3,403	**3,347**
Scenario 6 - HC Specialised Assets				
Lower Bound	2,491	2,857	2,787	**2,712**
Midpoint	2,791	3,152	3,071	**3,005**
Upper Bound	3,142	3,497	3,403	**3,347**

Forecast Return Analysis - WIAL

	Actual Mar-01	Forecast Mar-02	Forecast Mar-03	Average
Net Earnings $000s				
1	5,509	4,158	5,521	
2	5,509	4,158	5,521	
3	5,509	4,158	5,521	
4	5,509	4,158	5,521	
5	5,978	5,031	6,395	
6	5,978	5,031	6,395	
WACC				
Lower Bound	8.07%	8.07%	8.07%	
Midpoint	9.27%	9.27%	9.27%	
Upper Bound	10.67%	10.67%	10.67%	
Asset Base $000s				
1	94,936	93,862	94,412	
2	92,317	91,244	91,794	
3	82,120	81,046	81,596	
4	79,501	78,428	78,978	
5	57,542	57,341	58,765	
6	54,923	54,723	56,146	
Excess Returns $000s				
Scenario 1 - Airport Company (ODRC) Adjusted				
Lower Bound	(2,272)	(3,507)	(2,056)	**(2,611)**
Midpoint	(3,428)	(4,646)	(3,182)	**(3,752)**
Upper Bound	(4,778)	(5,975)	(4,496)	**(5,083)**
Scenario 2 - Airport Company (ODRC) with Commission Optimisation				
Lower Bound	(2,060)	(3,295)	(1,845)	**(2,400)**
Midpoint	(3,186)	(4,403)	(2,940)	**(3,509)**
Upper Bound	(4,498)	(5,695)	(4,217)	**(4,804)**
Scenario 3 - ODRC Specialised Assets, OC Land				
Lower Bound	(1,237)	(2,472)	(1,021)	**(1,577)**
Midpoint	(2,240)	(3,457)	(1,994)	**(2,564)**
Upper Bound	(3,410)	(4,607)	(3,129)	**(3,715)**
Scenario 4 - ODRC Specialised Assets, OC Land with Commission Optimisation				
Lower Bound	(1,026)	(2,261)	(810)	**(1,365)**
Midpoint	(1,997)	(3,215)	(1,751)	**(2,321)**
Upper Bound	(3,131)	(4,328)	(2,849)	**(3,436)**
Scenario 5 - HC Specialised Assets, OC Land				
Lower Bound	1,254	386	1,766	**1,135**
Midpoint	551	(305)	1,077	**441**
Upper Bound	(268)	(1,110)	275	**(368)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation				
Lower Bound	1,465	597	1,977	**1,346**
Midpoint	794	(62)	1,320	**684**
Upper Bound	11	(831)	554	**(88)**

Benefits Analysis - WIAL 2001 Result

Data for year ended 31 March 2001						
Tonnes Landed (MCTOW x Landings)		1,299,611				
Airfield Revenue ($000s)		14,153				
Current asset base ($000s)		94,936				
Airfield Expenses (including depreciation) ($000s)		7,264				
Net Earnings (Scenario 1) $000s		5,509				
Pm per tonne	**$**	**10.89**				
Qm (tonnes)		**1,299,611**				
Elasticity (Weighted Average)						
Net Earnings/Total Assets		**5.72%**				
Marginal Cost	**$**	**0.44**				
		Midpoint		**Lower Bound**		**Upper Bound**
Appropriate WACC (at 1/7/97)		**9.27%**		**8.07%**		***10.67%***
WIAL Target WACC (when prices set 1/7/97 - use 9/98 est.)		**7.39%**				
Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation						
Appropriate asset base		**54,923,027**				
Net Earnings		**5,978,238**				
Pc per tonne	$	10.28	$	9.76	$	10.88
$ that Pm > Pc	$	0.61	$	1.13	$	0.01
% Pm > Pc		5.94%		11.55%		0.08%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - WIAL

Excess returns = Net Earnings - (AAB x WACC)	794,133	1,465,005	11,449
Incremental Consumer surplus	1,871	6,369	0
Incremental Producer surplus	60,287	105,383	922
Excess returns and allocative efficiency	856,292	1,576,757	12,372
Productive efficiency	27,975	-	55,950
Dynamic efficiency	-	-	-
TOTAL	884,267	1,576,757	68,322

NOTE: Calculation of Appropriate Airfield Asset Base (Comparison to Draft Report)
($000s)

	WIAL 31/3/00	**Draft Report**	**Final Report**
Land	29,978	29,978	33,849
Improvements - Runways, Taxiways and Aprons	60,584		
Buildings and Improvements	2,623		
Motor Vehicles	1,011		
Plant and Office Equipment	1,014	38,826	21,075
Capital work in progress	1,177	-	-
Revaluation of Assets Based on Inflation	-	-	-
	96,387	68,804	54,923

Benefits Analysis - WIAL 2002 Forecast

Forecasted Data for the year ended 31 March 2002						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)						
Net Earnings (Scenario 1) $000s		4,158				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure						
Asset Disposals		-				
Depreciation						
Asset base ($000s)		93,862				
Pm per tonne	**$**	**10.84**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**4.38%**				
Marginal Cost	**$**	**0.44**				
		Midpoint		**Lower Bound**		**Upper Bound**
Appropriate WACC (at 1/7/97)		**9.27%**		**8.07%**		**10.67%**
WIAL Target WACC (when prices set 1/7/97)		**7.39%**				
Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation						
Appropriate asset base		**54,722,854**				
Net Earnings		**5,030,855**				
Pc per tonne	$	10.89	$	10.34	$	11.52
$ that Pm > Pc	-$	0.05	$	0.49	-$	0.68
% Pm > Pc		-0.47%		4.76%		-5.94%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - WIAL

Excess returns = Net Earnings - (AAB x WACC)	(62,102)	596,974	(831,024)
Incremental Consumer surplus	(12)	1,138	(2,206)
Incremental Producer surplus	(5,006)	45,846	(66,990)
Excess returns and allocative efficiency	(67,120)	643,959	(900,221)
Productive efficiency			
Dynamic efficiency	-	-	-
TOTAL			

Benefits Analysis - WIAL 2003 Forecast

Forecasted Data for the year ended 31 March 2003						
Tonnes Landed (MCTOW x Landings)						
Airfield Revenue ($000s)						
Airfield Expenses (including depreciation) ($000s)						
Net Earnings (Scenario 1) $000s		5,521				
Revaluations of Land		-				
Revaluations of Specialised Assets		-				
Capital Expenditure						
Asset Disposals		-				
Depreciation		-				
Asset base ($000s)		94,412				
Pm per tonne	**$**	**11.87**				
Qm (tonnes)		**-**				
Elasticity						
Net Earnings/Total Assets		**5.88%**				
Marginal Cost	**$**	**0.50**				

		Midpoint		Lower Bound		Upper Bound
Appropriate WACC (at 1/7/97)		**9.27%**		**8.07%**		**10.67%**
WIAL Target WACC (when prices set 1/7/97)		**7.39%**				

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**56,146,181**				
Net Earnings		**6,394,708**				
Pc per tonne	$	10.85	$	10.34	$	11.44
$ that Pm > Pc	$	1.02	$	1.53	$	0.43
% Pm > Pc		9.40%		14.76%		3.74%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - WIAL

Excess returns = Net Earnings - (AAB x WACC)	1,320,312	1,976,986	554,192
Incremental Consumer surplus	4,763	10,679	839
Incremental Producer surplus	96,709	137,715	42,913
Excess returns and allocative efficiency	1,421,784	2,125,380	597,944
Productive efficiency			
Dynamic efficiency	-	-	-
TOTAL			

Effects of Asset Base Decisions on Historical Return Analysis - WIAL

	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Mar-99	Mar-00	Mar-01	1991-2001 Average	1997-2001 Average	2001 PV
Change in Excess Returns $000s														
Scenario 2 - Commission Optimisation														
Lower Bound	(113)	(21)	(66)	(299)	(297)	(258)	6	(85)	166	118	211	**(58)**	**83**	**(1,225)**
Midpoint	(113)	(20)	(64)	(297)	(290)	(247)	21	(69)	184	136	243	**(47)**	**103**	**(1,083)**
Upper Bound	(113)	(18)	(62)	(293)	(283)	(235)	38	(50)	205	156	279	**(34)**	**126**	**(917)**
Scenario 3 - OC Land														
Lower Bound	1,266	774	(201)	(3,265)	(1,693)	(2,556)	261	(626)	1,637	1,767	1,035	**(146)**	**815**	**(3,367)**
Midpoint	1,266	806	(174)	(3,233)	(1,619)	(2,456)	401	(478)	1,805	1,929	1,188	**(51)**	**969**	**(2,095)**
Upper Bound	1,266	845	(142)	(3,196)	(1,532)	(2,339)	564	(304)	2,002	2,118	1,368	**59**	**1,149**	**(611)**
Scenario 4 - OC Land														
Lower Bound	1,266	774	(201)	(3,265)	(1,693)	(2,556)	261	(626)	1,637	1,767	1,035	**(146)**	**815**	**(3,367)**
Midpoint	1,266	806	(174)	(3,233)	(1,619)	(2,456)	401	(478)	1,805	1,929	1,188	**(51)**	**969**	**(2,095)**
Upper Bound	1,266	845	(142)	(3,196)	(1,532)	(2,339)	564	(304)	2,002	2,118	1,368	**59**	**1,149**	**(611)**
Scenario 5 - HC Specialised Assets														
Lower Bound	(7,982)	(1,487)	(4,667)	1,917	(13,092)	(4,281)	3,619	4,694	4,967	9,706	2,491	**(374)**	**5,095**	**(20,558)**
Midpoint	(7,982)	(1,391)	(4,542)	2,109	(12,907)	(3,924)	4,058	5,128	5,379	10,092	2,791	**(108)**	**5,490**	**(16,855)**
Upper Bound	(7,982)	(1,279)	(4,396)	2,333	(12,692)	(3,506)	4,571	5,634	5,860	10,542	3,142	**202**	**5,950**	**(12,536)**
Scenario 6 - HC Specialised Assets														
Lower Bound	(7,982)	(1,487)	(4,667)	1,917	(13,092)	(4,281)	3,619	4,694	4,967	9,706	2,491	**(374)**	**5,095**	**(20,558)**
Midpoint	(7,982)	(1,391)	(4,542)	2,109	(12,907)	(3,924)	4,058	5,128	5,379	10,092	2,791	**(108)**	**5,490**	**(16,855)**
Upper Bound	(7,982)	(1,279)	(4,396)	2,333	(12,692)	(3,506)	4,571	5,634	5,860	10,542	3,142	**202**	**5,950**	**(12,536)**

Historical Return Analysis - WIAL

	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Mar-99	Mar-00	Mar-01	1991-2001 Average	1997-2001 Average	2001 PV
1 Yr Govt Stock Rate @ y/e	9.40%	6.91%	6.52%	6.44%	8.89%	9.25%	6.78%	6.18%	4.39%	6.65%	5.74%			
Excess Returns $000s														
Scenario 1 - Airport Company (ODRC) Adjusted														
Lower Bound	(989)	(1,985)	1,151	(780)	15,414	3,709	(3,168)	(3,421)	(2,994)	(8,659)	(2,272)	**(363)**	**(4,103)**	**509**
Midpoint	(1,601)	(2,582)	536	(1,492)	14,623	2,692	(4,321)	(4,540)	(4,151)	(9,820)	(3,428)	**(1,280)**	**(5,252)**	**(13,033)**
Upper Bound	(2,315)	(3,278)	(181)	(2,322)	13,701	1,505	(5,666)	(5,846)	(5,501)	(11,175)	(4,778)	**(2,351)**	**(6,593)**	**(28,831)**
Scenario 2 - Airport Company (ODRC) with Commission Optimisation														
Lower Bound	(1,102)	(2,006)	1,085	(1,080)	15,117	3,451	(3,162)	(3,505)	(2,828)	(8,541)	(2,060)	**(421)**	**(4,019)**	**(716)**
Midpoint	(1,714)	(2,601)	472	(1,789)	14,333	2,445	(4,300)	(4,609)	(3,967)	(9,684)	(3,186)	**(1,327)**	**(5,149)**	**(14,115)**
Upper Bound	(2,428)	(3,296)	(243)	(2,616)	13,418	1,270	(5,629)	(5,897)	(5,295)	(11,019)	(4,498)	**(2,385)**	**(6,468)**	**(29,748)**
Scenario 3 - ODRC Specialised Assets, OC Land														
Lower Bound	277	(1,212)	950	(4,045)	13,721	1,153	(2,906)	(4,047)	(1,357)	(6,892)	(1,237)	**(509)**	**(3,288)**	**(2,859)**
Midpoint	(335)	(1,775)	363	(4,725)	13,004	236	(3,920)	(5,018)	(2,346)	(7,891)	(2,240)	**(1,332)**	**(4,283)**	**(15,128)**
Upper Bound	(1,049)	(2,433)	(323)	(5,518)	12,168	(834)	(5,102)	(6,151)	(3,499)	(9,057)	(3,410)	**(2,292)**	**(5,444)**	**(29,442)**
Scenario 4 - ODRC Specialised Assets, OC Land with Commission Optimisation														
Lower Bound	164	(1,233)	884	(4,345)	13,424	895	(2,901)	(4,132)	(1,191)	(6,773)	(1,026)	**(567)**	**(3,204)**	**(4,083)**
Midpoint	(448)	(1,795)	299	(5,021)	12,714	(11)	(3,899)	(5,087)	(2,162)	(7,755)	(1,997)	**(1,378)**	**(4,180)**	**(16,211)**
Upper Bound	(1,162)	(2,451)	(385)	(5,811)	11,886	(1,068)	(5,065)	(6,201)	(3,294)	(8,900)	(3,131)	**(2,326)**	**(5,318)**	**(30,359)**
Scenario 5 - HC Specialised Assets, OC Land														
Lower Bound	(7,706)	(2,698)	(3,716)	(2,128)	629	(3,129)	712	648	3,610	2,814	1,254	**(883)**	**1,808**	**(23,417)**
Midpoint	(8,318)	(3,167)	(4,179)	(2,616)	97	(3,688)	138	110	3,034	2,201	551	**(1,440)**	**1,207**	**(31,983)**
Upper Bound	(9,032)	(3,713)	(4,719)	(3,185)	(523)	(4,340)	(531)	(517)	2,361	1,485	(268)	**(2,089)**	**506**	**(41,977)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation														
Lower Bound	(7,819)	(2,719)	(3,782)	(2,427)	332	(3,386)	718	563	3,776	2,932	1,465	**(941)**	**1,891**	**(24,641)**
Midpoint	(8,431)	(3,186)	(4,243)	(2,912)	(193)	(3,935)	159	41	3,218	2,337	794	**(1,486)**	**1,310**	**(33,066)**
Upper Bound	(9,145)	(3,731)	(4,781)	(3,479)	(806)	(4,575)	(494)	(567)	2,567	1,642	11	**(2,123)**	**632**	**(42,895)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation WITH FULL AIRPORT REVALUATION GAINS INCLUDED AS INCOME														
Lower Bound	(989)	(708)	2,244	825	17,296	7,035	1,046	601	1,031	(4,855)	996	**2,229**	**(236)**	**36,554**
Midpoint	(1,601)	(1,174)	1,783	340	16,771	6,487	487	80	473	(5,451)	325	**1,683**	**(817)**	**28,129**
Upper Bound	(2,315)	(1,719)	1,245	(227)	16,158	5,847	(166)	(529)	(179)	(6,146)	(457)	**1,047**	**(1,495)**	**18,300**

WELLINGTON INTERNATIONAL AIRPORT LIMITED **AIRFIELD ACTIVITIES**

($000s)	Vesting	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Mar-99	Mar-00	Mar-01	
		Adjusted to 12 months								Adjusted to 12 months			
Revenue													
Landing Charges		9,232	11,678	11,521	12,158	12,629	13,272	13,448	14,241	14,289	12,985	13,850	
Other Revenue		*200*	*200*	*200*	271	193	241	159	201	157	259	303	
		9,432	11,878	11,721	12,429	12,822	13,513	13,607	14,442	14,447	13,244	14,153	
Proportion of Airfield Income to Total WIAL Income		70.82%	55.32%	54.78%	55.95%	53.70%	53.95%	52.64%	52.16%	66.42%	42.38%	39.54%	
Expenses													
Employee Remuneration and Benefits		*738*	*669*	*768*	922	1,437	1,616	1,911	1,993	2,044	2,427	2,466	29.22%
Repairs and Maintenance		*877*	*704*	*823*	561	750	384	260	409	708	778	568	72.95%
General		*6,462*	*5,659*	*5,833*	4,545	2,088	2,696	2,641	2,517	2,617	1,358	2,561	69.72%
Depreciation		*1,284*	*1,049*	*1,107*	2,002	2,129	1,915	2,361	2,913	2,813	1,989	1,669	53.70%
		9,361	8,081	8,530	8,030	6,404	6,611	7,173	7,832	8,183	6,552	7,264	
EBIT		**70**	**3,797**	**3,191**	**4,399**	**6,418**	**6,902**	**6,434**	**6,610**	**6,264**	**6,692**	**6,889**	
Taxation (@ effective tax rate)		*23*	*1,430*	*1,145*	*1,769*	*2,531*	*2,521*	*2,275*	*2,255*	*1,032*	*1,387*	*1,784*	
Earnings Before Interest After Tax, Opex and Depreciation		**47**	**2,366**	**2,045**	**2,630**	**3,887**	**4,381**	**4,159**	**4,355**	**5,232**	**5,305**	**5,105**	
Airfield Activities Assets													
Land	26,000	26,000	27,028	19,510	24,925	30,487	28,402	27,845	29,083	30,333	29,978	28,783	
Improvements - Runways, Taxiways and Aprons	21,100	*14,624*	*13,871*	35,245	34,364	47,906	61,947	61,213	64,430	63,335	60,584	60,330	95.44%
Buildings and Improvements	400	*1,371*	*1,221*	1,140	1,189	1,455	1,512	1,375	1,326	1,578	2,624	3,448	6.43%
Motor Vehicles, Plant and Office Equipment	3,500	*2,729*	*2,622*	3,411	4,032	4,932	4,240	2,972	1,890	1,806	2,025	2,374	61.86%
Capital work in progress	-	-	-	-	-	-	-	-	-	-	1,177	-	
Non current assets per WIAL	***51,000***	***44,724***	***44,742***	***59,305***	***64,510***	***84,780***	***96,101***	***93,405***	***96,729***	***97,052***	***96,388***	***94,936***	
Current Assets											2,731	2,924	
Total											***99,119***	***97,860***	

Returns:

(1) Airport Company (ODRC) Adjusted

	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Mar-99	Mar-00	Mar-01	
Actual revaluations	-	-	(9,972)	(10,234)	(28,745)	(35,290)	(36,259)	(36,237)	(35,741)	(29,304)	(29,708)	
Assessed revaluations (cumulative)	4,986	6,503	9,972	11,610	28,745	35,290	36,145	35,901	35,456	29,304	29,708	Average
Adjusted NCA	**49,709**	**51,245**	**59,305**	**65,885**	**84,780**	**96,101**	**93,291**	**96,393**	**96,767**	**96,388**	**94,936**	
Asset revaluation	4,986	1,517	3,468	1,638	17,135	6,545	855	(244)	(445)	(6,152)	405	
Net Earnings	**5,033**	**3,884**	**5,514**	**4,268**	**21,022**	**10,926**	**5,013**	**4,111**	**4,787**	**(847)**	**5,509**	
Net Earnings to NCA	**9.87%**	**7.81%**	**10.76%**	**7.20%**	**31.91%**	**12.89%**	**5.22%**	**4.41%**	**4.97%**	**-0.88%**	**5.72%**	**9.08%**
Inflation (All Groups CPI)	2.8%	1.0%	1.3%	1.1%	4.6%	2.0%	1.1%	1.7%	-0.1%	1.5%	3.1%	
Inflation (Housing Group of CPI for Wellington Region)	2.3%	0.7%	1.6%	6.5%	7.0%	6.8%	2.0%	3.9%	-0.9%	n/a	n/a	
Spreading of Land Revaluation	(2,997)	(912)	(2,085)	1,376	1,482	(1,401)	(114)	(222)	51	(85)	-	(4,907)
Spreading of Revaluations of Non-Land Assets	7,982	2,429	5,553	262	15,654	7,946	969	(22)	(496)	(6,067)	405	34,615
Assessed Revaluations	4,986	1,517	3,468	1,638	17,135	6,545	855	(244)	(445)	(6,152)	405	
											29,708	

(2) Airport Company (ODRC) with Commission Optimisation

	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Mar-99	Mar-00	Mar-01
Optimisation of Leased Airfield Land	-	-	-	-	-	-	-	-	-	(2,619)	(2,619)
Reduction in assessed revaluations (cumulative)	(113)	(147)	(225)	(544)	(887)	(1,220)	(1,318)	(1,509)	(1,465)	-	-
Adjusted NCA	**49,597**	**51,098**	**59,080**	**65,341**	**83,893**	**94,881**	**91,973**	**94,884**	**95,302**	**93,769**	**92,317**

($000s)	Vesting	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Mar-99	Mar-00	Mar-01	
Associated adjustment to asset revaluation		(113)	(34)	(78)	(319)	(343)	(333)	(98)	(191)	44	-	-	
Net Earnings		**4,920**	**3,850**	**5,435**	**3,950**	**20,679**	**10,593**	**4,915**	**3,919**	**4,831**	**(847)**	**5,509**	
Net Earnings to NCA		**9.65%**	**7.76%**	**10.64%**	**6.69%**	**31.65%**	**12.63%**	**5.18%**	**4.26%**	**5.09%**	**-0.89%**	**5.88%**	**8.96%**
(3) ODRC Specialised Assets, OC Land													
Adjustment to land valuation		-	-	-	-	-	-	-	-	-	7,684	7,684	
Increase in assessed revaluations (cumulative)		1,266	1,718	2,305	2,802	4,881	5,785	6,283	7,051	7,006	-	-	
Holding Costs		-	-	-	-	-	-	-	-	-	-	-	
Levelling Costs		-	-	-	-	-	-	-	-	-	-	-	
Exclusion of Seawall from Civil Works		(3,991)	(3,991)	(4,973)	(8,962)	(13,258)	(17,431)	(18,659)	(21,052)	(20,500)	(20,500)	(20,500)	
Reclamation Costs		-	-	-	-	-	-	-	-	-	-	-	
Adjusted NCA		**46,984**	**48,972**	**56,638**	**59,726**	**76,403**	**84,455**	**80,915**	**82,391**	**83,273**	**83,571**	**82,120**	
Associated adjustment to asset revaluation (opportunity cost)		1,266	452	588	497	2,079	904	497	768	(45)	678	-	
Associated adjustment to asset revaluation (seawall)		-	-	(982)	(3,989)	(4,296)	(4,173)	(1,227)	(2,394)	552	-	-	
Net Earnings		**6,298**	**4,336**	**5,119**	**776**	**18,805**	**7,657**	**4,283**	**2,485**	**5,295**	**(169)**	**5,509**	
Net Earnings to NCA		**12.35%**	**9.23%**	**10.45%**	**1.37%**	**31.49%**	**10.02%**	**5.07%**	**3.07%**	**6.43%**	**-0.20%**	**6.59%**	**8.72%**
(4) ODRC Specialised Assets, OC Land with Commission Optimisation													
Adjusted NCA		**46,872**	**48,825**	**56,413**	**59,182**	**75,517**	**83,235**	**79,597**	**80,882**	**81,808**	**80,953**	**79,501**	
Net Earnings		**6,185**	**4,302**	**5,041**	**458**	**18,462**	**7,324**	**4,185**	**2,294**	**5,339**	**(169)**	**5,509**	
Net Earnings to NCA		**12.13%**	**9.18%**	**10.32%**	**0.81%**	**31.20%**	**9.70%**	**5.03%**	**2.88%**	**6.60%**	**-0.21%**	**6.81%**	**8.59%**
(5) HC Specialised Assets, OC Land													
Adjustment to specialised assets valuation (ODRC to HC)		-	-	(15,965)	(16,227)	(31,881)	(39,827)	(40,795)	(40,773)	(40,277)	(34,211)	(34,615)	
Reduction in assessed revaluations (cumulative)		(7,982)	(10,412)	-	-	-	-	-	-	-	-	-	
Associated adjustment to depreciation		-	-	-	821	2,071	3,197	4,667	6,422	8,121	9,164	10,037	
Adjusted NCA		**39,002**	**38,560**	**40,673**	**44,319**	**46,593**	**47,826**	**44,786**	**48,041**	**51,116**	**58,524**	**57,542**	
Associated adjustment to asset revaluation		(7,982)	(2,429)	(5,553)	(262)	(15,654)	(7,946)	(969)	22	496	6,067	(405)	
Associated adjustment to depreciation expense		-	-	-	821	1,250	1,127	1,469	1,756	1,698	1,043	873	
Net Earnings		**(1,684)**	**1,906**	**(434)**	**1,335**	**4,402**	**838**	**4,784**	**4,263**	**7,489**	**6,941**	**5,978**	
Net Earnings to NCA		**-3.30%**	**4.89%**	**-1.12%**	**3.28%**	**9.93%**	**1.80%**	**10.00%**	**9.52%**	**15.59%**	**13.58%**	**10.21%**	**6.76%**
(6) HC Specialised Assets, OC Land with Commission Optimisation													
Adjusted NCA		**38,889**	**38,413**	**40,448**	**43,775**	**45,706**	**46,606**	**43,468**	**46,531**	**49,651**	**55,906**	**54,923**	
Net Earnings		**(1,797)**	**1,872**	**(512)**	**1,016**	**4,059**	**505**	**4,686**	**4,072**	**7,533**	**6,941**	**5,978**	
Net Earnings to NCA		**-3.52%**	**4.81%**	**-1.33%**	**2.51%**	**9.27%**	**1.10%**	**10.05%**	**9.37%**	**16.19%**	**13.98%**	**10.69%**	**6.65%**

WELLINGTON INTERNATIONAL AIRPORT LIMITED **AIRFIELD ACTIVITIES**

($000s)	Vesting	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Mar-99	Mar-00	Mar-01
(6) HC Specialised Assets, OC Land with Commission Optimisation												
Reconciliation												
Airfield Activities Assets per WIAL												
Freehold Land	26,000	26,000	27,028	19,510	24,925	30,487	28,402	27,845	29,083	30,333	29,978	28,783
Total Non-land assets	25,000	18,724	17,714	39,796	39,585	54,293	67,699	65,560	67,646	66,719	66,409	66,153
	51,000	***44,724***	***44,742***	***59,305***	***64,510***	***84,780***	***96,101***	***93,405***	***96,729***	***97,052***	***96,388***	***94,936***
Land												
Value per WIAL	26,000	26,000	27,028	19,510	24,925	30,487	28,402	27,845	29,083	30,333	29,978	28,783
Plus Revaluations to ORC	-	(2,997)	(3,909)	-	-	-	-	-	-	-	-	-
	26,000	23,003	23,119	19,510	24,925	30,487	28,402	27,845	29,083	30,333	29,978	28,783
Less Optimisation												
Optimisation of Leased Airfield Land	-	-	-	-	-	-	-	-	-	-	(2,619)	(2,619)
Reduction in Revaluations	-	(113)	(147)	(225)	(544)	(887)	(1,220)	(1,318)	(1,509)	(1,465)	-	-
	26,000	22,891	22,972	19,284	24,381	29,600	27,182	26,527	27,574	28,868	27,360	26,165
Plus Revaluations to Opportunity Cost												
Adjustment to operational airfield land valuation	-	-	-	-	-	-	-	-	-	-	7,684	7,684
Increase in assessed revaluations OAL land (cumulative)	-	1,266	1,718	2,305	2,802	4,881	5,785	6,283	7,051	7,006	-	-
Value of Airfield Land (Scenario 6)	**26,000**	**24,156**	**24,690**	**21,589**	**27,183**	**34,481**	**32,967**	**32,809**	**34,625**	**35,874**	**35,043**	**33,849**
Ha Airfield Land	88	88	94	94	94	94	94	94	94	94	78	78
Opportunity Cost of Land per Ha	294,718	273,819	262,911	229,895	289,462	367,176	351,052	349,371	368,701	382,000	450,000	434,657
Historic Cost of Land per Ha	294,718	294,718	287,807	271,566	329,231	358,032	350,744	344,813	357,996	371,307	447,965	432,623
Non-Land Assets												
Value per WIAL	25,000	18,724	17,714	39,796	39,585	54,293	67,699	65,560	67,646	66,719	66,409	66,153
Plus Revaluations to ODRC	-	7,982	10,412	-	1,376	-	-	(114)	(336)	(285)	-	-
	25,000	26,706	28,126	39,796	40,960	54,293	67,699	65,446	67,310	66,434	66,409	66,153
Plus Adjustments in Connection With OC Valuation												
Holding Costs	-	-	-	-	-	-	-	-	-	-	-	-
Levelling Costs	-	-	-	-	-	-	-	-	-	-	-	-
Exclusion of Seawall from Civil Works	-	(3,991)	(3,991)	(4,973)	(8,962)	(13,258)	(17,431)	(18,659)	(21,052)	(20,500)	(20,500)	(20,500)
Reclamation Costs	-	-	-	-	-	-	-	-	-	-	-	-
	25,000	22,715	24,135	34,823	31,999	41,035	50,268	46,787	46,257	45,934	45,909	45,653
Less Revaluations Above DHC												
Adjustment to specialised assets valuation (ODRC to HC)	-	-	-	(15,965)	(16,227)	(31,881)	(39,827)	(40,795)	(40,773)	(40,277)	(34,211)	(34,615)
Reduction in assessed revaluations (cumulative)	-	(7,982)	(10,412)	-	-	-	-	-	-	-	-	-
Associated adjustment to depreciation	-	-	-	-	821	2,071	3,197	4,667	6,422	8,121	9,164	10,037
Value of Non-Land Assets (Scenario 6)	**25,000**	**14,733**	**13,723**	**18,858**	**16,592**	**11,225**	**13,638**	**10,659**	**11,907**	**13,777**	**20,863**	**21,075**
Total Airfield Assets (Scenario 6)	**51,000**	**38,889**	**38,413**	**40,448**	**43,775**	**45,706**	**46,606**	**43,468**	**46,531**	**49,651**	**55,906**	**54,923**

WIAL Land - Vesting to date

		Hectares	$/Ha Avg	$
Vesting				
	Total Land	106		
	Airfield Portion	88.22	294,718	26,000,000
	Non-Airfield Portion	17.78	1,012,000	

Note: Included in civil works (land improvements) is seawall $2,153,107 and breakwater $1,837,500 (at DRC).

Acquisitions Since Vesting

		Hectares	Price		Current Value
1992	Wexford Road Land & Buildings	5.69	1,028,000	includes buildings	853,035
Various	Western Boundary Residential Props	0.95	Unknown		1,589,000

2000 Valuation

(1) Zonal Approach

	Hectares	$/Ha Avg	$	
North Eastern Industrial	7.1822	433,396	3,112,735	
Residential	1.51	1,309,563	1,977,440	
Roads and Parking	9.4585	600,000	5,675,100	
Runway and Taxiway	54.289	600,000	32,573,400	
South Eastern Industrial	10.2884	607,463	6,249,820	
Terminal Apron and Gates	15.0918	600,000	9,055,080	
Terminal	1.814	2,500,000	4,535,000	
Western Industrial	11.8384	500,000	5,919,200	
Total Land	111	619,865	69,097,775	*
Airfield Portion				
Common Airfield				
Runway and Taxiway	54.0854	600,000	32,451,240	
Terminal Apron and Gates	15.0918	600,000	9,055,080	
Airport Fire Station (North Eastern Industrial)	0.2906	700,000	203,420	
Airside Roads (Roads and Parking)	0.2908	599,175	174,240	
Western Aprons (Western Industrial)	5.6172	600,000	3,370,320	
	75.3758		45,254,300	
Leased Airfield				
111 Wexford Road (North Eastern Industrial)	5.7668	200,000	1,153,360	**
Residential Properties	0.7299	1,274,360	930,155	
Runway and Taxiway	0.2036	600,000	122,160	
Western Industrial	0.8257	500,000	412,850	
	7.526		2,618,525	
Shared Assets				
Roads and Parking	4.3202	599,792	2,591,220	
South Eastern Industrial	0.0911	800,000	72,880	
Western Industrial	0.1061	500,000	53,050	
	4.5174		2,717,150	
Allocation of Shared Assets to Airfield	*2.4982*	*55.30%*	*1,502,631*	
	85.4		49,375,456	*

* Includes Seawall of $20.5m. In the financial accounts this transferred to civil works.

** Not to be included by WIAL for pricing purposes

(1) Hypothetical Subdivision Approach

	WIAL	$ per Ha	Airfield	Excluded Seawall & Land
Hectares	111		85.4	
Gross Realisation	146,941,240	1,323,795	104,522,230	
Less Selling Costs (Agents Fees)	(4,408,237)	(39,714)	(3,135,667)	
Less Legal Fees	(560,696)	(5,051)	(398,834)	
Net Realisation	141,972,307	1,279,030	100,987,729	

Less Profit and Risk	(28,394,461)	(255,806)	(20,197,545)	
Less Development Costs	(29,156,199)	(262,668)	(20,739,385)	
Less Interest Costs	(45,431,138)	(409,290)	(32,316,073)	
Estimated Block Value	38,990,508	351,266	27,734,725	12,985,924
Plus Adjustments for Airport Use				
Planning Approval	4,000,000	36,036	2,845,280	1,332,214
Holding Costs	5,089,461	45,851	3,620,235	1,695,063
Financing Costs	21,333,884	192,197	15,175,216	7,105,324
Market Value Existing Use	69,413,853 *		49,375,456 *	23,118,525
			71.13%	*46.82%*

	Area (Ha)	$ per Ha	$000s
Residential 1 (30%)	33.4147	2,150,000	72,028
Residential 2 (20%)	22.2945	2,780,000	61,929
Industrial/Commercial (20%)	22.2945	1,250,000	27,868
Reserve Contribution (10%)	11.1472		-
Roads (20%)	22.2945		-
Less GST			(14,884)
Gross Realisation	110		146,941

Breakdown of 1993-2001 Asset Values and Revaluations

($000s)	1991	1992	1993 Pre-Revaluation		1993		1994			1995			1996	
	WIAL A/cs	WIAL A/cs	WIAL A/cs	Airfield	WIAL A/cs	Airfield	WIAL A/cs	Airfield		WIAL A/cs	Airfield		WIAL A/cs	Airfield
Land and Civil Works (Combined per A/cs)														
At valuation	-	-	-		71,743	52,850	70,536	51,961		99,502	78,393		113,102	90,349
At cost	60,709	62,952	68,735	47,671	-	-	11,342	8,355		-	-		-	-
Accumulated depreciation	(546)	(1,335)	(2,123)	(2,026)	-	-	(1,395)	(1,028)		-	-		-	-
	60,163	61,617	66,612	49,070	71,743	52,850	80,483	59,289	74%	99,502	78,393	79%	113,102	90,349
Revaluation	-	-	-	-	*5,131*	*3,780*	*274*	*202*		*19,740*	*15,552*		*6,369*	*5,088*
Freehold Land														
At valuation	-	-	-		34,813	19,510	34,813	19,510		49,201	30,487		46,877	28,402
At cost	44,840	44,840	47,083	25,503	-	-	-	-		-	-		-	-
Acquisitions during year	-	2,243	1,420		-		9,663			104			248	
Transfer to another asset cat.			(2,996)											
	44,840	47,083	45,507	25,503	34,813	19,510	44,476	24,925	56%	49,305	30,487	62%	47,125	28,402
Revaluation	-	-	-		*(10,694)*	*(5,993)*	-	-		*4,621*	*2,857*		*(2,324)*	*(1,401)*
Civil Works (Sealed Surfaces)														
At valuation	-	-	-		36,930	35,245	37,204	35,506		50,197	47,906		65,977	61,947
At cost	15,869	15,869	23,228	22,168	-	-	198	189		-	-		-	-
Accumulated depreciation	(546)	(1,335)	(2,123)	(2,026)	-	-	(1,395)	(1,331)		-	-		-	-
	15,323	14,534	21,105	20,142	36,930	35,245	36,007	34,364	95%	50,197	47,906	95%	65,977	61,947
Revaluation	-	-	-	-	*15,825*	*15,103*	*274*	*261*		*15,119*	*14,429*		*8,693*	*8,162*
Buildings														
At valuation	-	-	-		17,743	1,140	17,589	1,130		22,774	1,455		17,793	1,512
At cost	21,741	20,001	17,772	1,142	-	-	1,994	128		-	-		-	-
Accumulated depreciation	(413)	(1,000)	(1,633)	(105)	-	-	(1,081)	(69)		-	-		-	-
	21,328	19,001	16,139	1,037	17,743	1,140	18,502	1,189	6%	22,774	1,455	6%	17,793	1,512
Revaluation	-	-	-	-	*1,604*	*103*	*32*	*2*		*4,958*	*317*		*(3,797)*	*(323)*
Plant, Equipment and Motor Vehicles														
At valuation	-	-	-		5,514	3,411	5,500	3,402		6,767	4,932		5,787	4,240
At cost	4,791	5,212	5,945	3,678	-	-	2,220	1,373		-	-		-	-
Accumulated depreciation	(379)	(973)	(1,658)	(1,026)	-	-	(1,202)	(744)		-	-		-	-
	4,412	4,239	4,287	2,652	5,514	3,411	6,518	4,032	62%	6,767	4,932	73%	5,787	4,240
Revaluation	-	-	-	-	*1,227*	*759*	*(2)*	*(1)*		*1,246*	*908*		*145*	*106*
Work in Progress	-	-	-	-	-	-	-	-		1,501	-		7,778	-
TOTAL **Assets**	**85,903**	**84,857**	**87,038**	**49,334**	**95,000**	**59,305**	**105,503**	**64,510**		**130,544**	**84,780**		**144,460**	**96,101**
Revaluation	-	-	-	-	7,962	9,972	304	262		25,944	18,511		2,717	6,545
Depreciation for year							**3,678**							
c.f. Depreciation Expense					2,105		3,728			3,964			4,477	
Airfield Revaluations ??						*10,182*		*487*			*16,777*			*4,883*

Breakdown of 1993-2001 Asset Values and Revaluations

($000s)			1997 WIAL A/cs	1997 Airfield		1998 WIAL A/cs	1998 Airfield		1999 WIAL A/cs	1999 Airfield		2000 WIAL A/cs	2000 Airfield Disclosure		2001 WIAL A/cs	2001 Airfield Pricing	
Land and Civil Works (Combined per A/cs)																	
	At valuation		113,052	87,573		113,031	89,464		113,031	88,824		105,758	84,372		113,517	88,239	
	At cost		3,103	2,404		7,269	5,753		9,874	7,759		13,020	10,387		2,415	1,877	
	Accumulated depreciation		(1,186)	(919)		(2,153)	(1,704)		(3,710)	(2,915)		(5,261)	(4,197)		(1,291)	(1,004)	
		80%	114,969	89,058	77%	118,147	93,513	79%	119,195	93,668	79%	113,517	90,562	80%	114,641	89,113	78%
	Revaluation		*1,348*	*1,044*		*(21)*	*(17)*		*(551)*	*(433)*		*(7,273)*	*(5,802)*		*548*	*426*	
Freehold Land																	
	At valuation		46,877	27,563		46,877	28,529		46,877	29,133		48,208	29,758		48,208	28,413	
	At cost		248	146		479	292		910	566		-	-		357	210	
	Acquisitions during year		231			431			1,021			357	220		271		
	Transfer to another asset cat.																
		60%	47,356	27,845	59%	47,787	29,083	61%	48,808	30,333	62%	48,565	29,978	62%	48,836	28,783	59%
	Revaluation		-	-		-	-		-	-		*(600)*	*(370)*		-	-	
Civil Works (Sealed Surfaces)																	
	At valuation		67,325	60,952		67,304	61,632		66,753	60,065		60,080	56,040		60,628	55,584	
	At cost		1,474	1,334		5,209	4,770		7,344	6,608		10,133	9,452		6,468	5,930	
	Accumulated depreciation		(1,186)	(1,074)		(2,153)	(1,972)		(3,710)	(3,338)		(5,261)	(4,907)		(1,291)	(1,184)	
		94%	67,613	61,213	91%	70,360	64,430	92%	70,387	63,335	90%	64,952	60,584	93%	65,805	60,330	92%
	Revaluation		*1,348*	*1,220*		*(21)*	*(19)*		*(551)*	*(496)*		*(6,673)*	*(6,224)*		*548*	*502*	
Buildings																	
	At valuation		17,628	1,363		17,564	873		17,564	1,069		24,987	561		116,167	3,507	
	At cost		1,569	121		12,272	610		12,510	762		99,027	2,225		2,272	69	
	Accumulated depreciation		(1,409)	(109)		(3,169)	(158)		(4,152)	(253)		(7,251)	(163)		(4,217)	(127)	
		8%	17,788	1,375	8%	26,667	1,326	5%	25,922	1,578	6%	116,763	2,624	2%	114,222	3,448	3%
	Revaluation		*(893)*	*(69)*		*(57)*	*(3)*		-	-		*7,422*	*167*		*78*	*2*	
Plant, Equipment and Motor Vehicles																	
	At valuation		5,725	2,947		5,724	1,920		3,755	1,240		3,755	724		11,344	2,526	
	At cost		1,879	967		3,901	1,308		4,913	1,622		11,394	2,198		1,191	265	
	Accumulated depreciation		(1,830)	(942)		(3,990)	(1,338)		(3,198)	(1,056)		(4,652)	(897)		(1,872)	(417)	
		73%	5,774	2,972	51%	5,635	1,890	34%	5,470	1,806	33%	10,497	2,025	19%	10,663	2,374	22%
	Revaluation		*(355)*	*(183)*		*1*	-		-	-		*(48)*	*(9)*		*(450)*	*(100)*	
Work in Progress			21,948	-		38,172	-		74,485	-		1,330	1,177		1,143	-	
TOTAL	**Assets**		**160,479**	**93,405**		**188,621**	**96,729**		**225,072**	**97,052**		**242,107**	**96,388**		**240,669**	**94,936**	
	Revaluation		100	969		(77)	(22)		(551)	(496)		101	(6,437)		176	405	
	Depreciation for year		**4,425**			**4,887**			**1,748**			**6,104**			**(9,784)**		
	c.f. Depreciation Expense		4,671			5,098			3,594			6,579			7,353		
															c.f. disclosure	95,186	
	Airfield Revaluations ??			*792*			*(15)*			*(182)*			*(1,609)*			*(763)*	

WIAL- STATEMENT OF FINANCIAL PERFORMANCE

For the period ended	Mar-02	Mar-01	Mar-00	9 months Mar-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Jun-92	8.5 months Jun-91
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
REVENUE												
Airport Charges (Landing Charge & Terminal Services Charg	17,555	17,046	15,826	12,333	16,118	15,134	14,788	14,106	13,540	13,566	14,111	8,251
Rental, Lease and Concession	9,696	9,410	7,276	4,135	5,277	4,977	4,991	4,814	4,133	3,944	3,658	2,764
Airport Development Charge	3,810	3,969	3,698	2,683	2,929	2,389	2,168	1,929	1,769	1,662	1,552	965
Carparking Services	5,166	4,603	3,948	2,225	2,954	2,873	2,584	2,442	2,276	2,048	1,651	1,178
Other	858	766	500	376	408	478	514	584	495	178	501	159
OPERATING REVENUE	37,085	35,794	31,248	21,752	27,686	25,851	25,045	23,875	22,213	21,398	21,473	13,317
INTEREST INCOME	155	71	24	39	41	14	9	48	765	167	229	81
TOTAL REVENUE	37,240	35,865	31,272	21,791	27,727	25,865	25,054	23,923	22,978	21,565	21,702	13,398
EXPENSES												
Audit Fees	34	33	32	32	32	26	26	31	31	32	21	25
Business Development Costs	-	-	573	883	491	478	540	-	-	-	-	-
Depreciation	7,418	7,353	6,579	3,594	5,098	4,671	4,477	3,964	3,728	2,105	1,975	1,338
Directors' Fees	165	165	165	103	118	115	115	105	105	101	105	74
Employee Remuneration and Benefits	3,803	4,073	4,709	4,212	5,330	4,761	4,292	3,911	3,155	2,685	2,317	1,413
Interest	13,770	14,547	8,445	4,361	3,817	2,970	2,097	2,472	1,736	2,381	2,797	2,950
Rental and Leasing Costs	66	127	141	119	132	110	66	-	-	-	-	-
Repairs and Maintenance	1,552	1,604	1,424	742	776	731	742	1,306	769	1,152	976	673
Other Operating Costs	6,846	6,221	5,109	3,587	5,213	5,926	5,387	4,595	6,383	8,413	8,085	5,088
TOTAL EXPENSES	33,654	34,123	27,177	17,633	21,007	19,788	17,742	16,384	15,907	16,869	16,276	11,561
NET PROFIT BEFORE TAX (NPBT)	3,586	1,742	4,095	4,158	6,720	6,077	7,312	7,539	7,071	4,696	5,426	1,837
Income Tax	178	(577)	(185)	(29)	2,335	2,219	2,744	3,129	2,913	1,750	2,164	626
NET PROFIT AFTER TAX (NPAT)	**3,408**	**2,319**	**4,280**	**4,187**	**4,385**	**3,858**	**4,568**	**4,410**	**4,158**	**2,946**	**3,262**	**1,211**
Effective Tax Rate	27%	26%	21%	16%	34%	35%	37%	39%	40%	36%	38%	33%

WIAL - STATEMENT OF MOVEMENTS IN EQUITY

For the period ended	Mar-02	Mar-01	Mar-00	Mar-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Jun-92	Jun-91
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
EQUITY AT THE BEGINNING OF THE YEAR	61,641	65,146	115,717	111,530	108,106	105,791	100,509	71,940	70,625	59,718	57,761	56,550
Operating Surplus After Tax	3,408	2,319	4,280	4,187	4,385	3,858	4,568	4,410	4,158	2,946	3,262	1,211
Increase in Revaluation Reserve	74,470	176	149	-	-	-	2,541	25,923	-	7,961	-	-
Repurchase of Shares	-	-	(47,500)	-	-	-	-	-	-	-	-	-
Dividends to Shareholders	(6,000)	(6,000)	(7,500)	-	(961)	(1,543)	(1,827)	(1,764)	(2,843)	-	(1,305)	-
EQUITY AT THE END OF THE YEAR	**133,519**	**61,641**	**65,146**	**115,717**	**111,530**	**108,106**	**105,791**	**100,509**	**71,940**	**70,625**	**59,718**	**57,761**

WIAL - STATEMENT OF FINANCIAL POSITION

As at	Mar-02	Mar-01	Mar-00	Mar-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Jun-92	Jun-91	Vesting Value
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	
EQUITY													
Share Capital (56.55 m ordinary shares @ $1)	9,050	9,050	9,050	56,550	56,550	56,550	56,550	56,550	56,550	56,550	56,550	56,550	
Revaluation Reserve	110,391	36,675	36,499	36,398	36,949	37,026	36,926	34,209	8,265	7,961	-	-	
Retained Earnings	14,078	15,916	19,597	22,769	18,031	14,530	12,315	9,750	7,125	6,114	3,168	1,211	
Total Equity	133,519	61,641	65,146	115,717	111,530	108,106	105,791	100,509	71,940	70,625	59,718	57,761	
NON-CURRENT LIABILITIES													
Bank Loans	119,049	120,374	118,700	105,492	75,000	47,000	36,900	27,500	28,400	31,000	30,450	30,450	
Subordinated Debt	55,000	55,000	55,000	-	-	-	-	-	-	-	-	-	
Rental in Advance	-	-	-	-	-	146	323	598	1,235	706	-	-	
Land Acquisitions	-	-	-	-	-	-	-	-	1,500	-	-	-	
Total Non-Current Liabilities	174,049	175,374	173,700	105,492	75,000	47,146	37,223	28,098	31,135	31,706	30,450	30,450	
CURRENT LIABILITIES													
Bank Overdraft/Advance	4,855	564	4,147	1,641	252	4,300	526	-	-	-	-	-	
Trade Creditors	1,001	3,432	2,552	5,920	1,873	1,341	1,231	651	979	1,584	705	439	
Accruals and Other Liabilities	3,010	1,595	3,856	333	4,620	1,885	1,568	1,728	660	524	1,148	1,258	
Employee Entitlements	354	332	340	824	553	404	307	-	-	-	202	276	
Rental in Advance	-	-	-	-	-	-	-	-	618	664	-	-	
Goods and Services Tax	-	-	-	-	-	-	-	-	93	188	897	349	
Land Acquisitions	-	-	-	-	-	-	-	1,500	6,634	-	-	-	
Taxation Payable	-	-	-	-	135	40	-	-	-	319	-	201	
Proposed Dividend	-	3,960	-	-	-	768	893	838	976	-	1,305	-	
Total Current Liabilities	9,220	9,883	10,895	8,718	7,433	8,738	4,525	4,717	9,960	3,279	4,257	2,523	
TOTAL EQUITY AND LIABILITIES	**316,788**	**246,898**	**249,741**	**229,927**	**193,963**	**163,990**	**147,539**	**133,324**	**113,035**	**105,610**	**94,425**	**90,734**	
NON-CURRENT ASSETS													
Land (@ net current value)	135,851	48,836	48,565	48,808	47,787	47,356	47,125	49,305	44,476	34,813	47,083	44,840	44,840
Runways, Taxiways and Aprons (Land Improvements)		65,805	64,952	70,387	70,360	67,613	65,977	50,197	36,007	36,930	14,534	15,323	22,215
Buildings (@ net current value)	164,429	114,222	116,763	25,922	26,667	17,788	17,793	22,774	18,502	17,743	19,001	21,328	15,395
Vehicles, Plant and Equipment (@ net current value)	10,338	10,663	10,497	5,470	5,635	5,774	5,787	6,767	6,518	5,514	4,239	4,412	4550
Capital work in progress	407	1,143	1,330	74,485	38,172	21,948	7,778	1,501	-	-	-	-	-
Deferred Tax	-	-	-	-	-	-	-	50	32	13	(2,106)	75	-
Total Non-Current Assets	311,025	240,669	242,107	225,072	188,621	160,479	144,460	130,594	105,535	95,013	82,751	85,978	87,000
CURRENT ASSETS													
Cash and Bank	-	-	1	2	400	333	2	221	410	206	54	3	
Short Term Deposits	-	-	-	-	-	-	-	-	887	-	3,250	1,548	
Prepayments	1,451	1,710	1,624	505	1,214	631	221	252	935	981	163	123	
Trade Accounts Receivable	3,580	3,655	3,785	2,511	2,734	2,248	2,168	1,882	1,702	9,392	8,207	2,837	
Sundry Accounts Receivable	-	-	68	1,157	994	299	297	226	3,497	18	-	245	
Taxation Receivable	732	864	2,156	680	-	-	390	148	69	-	-	-	
Total Current Assets	5,763	6,229	7,634	4,855	5,342	3,511	3,078	2,729	7,500	10,597	11,674	4,756	
TOTAL ASSETS	**316,788**	**246,898**	**249,741**	**229,927**	**193,963**	**163,990**	**147,538**	**133,323**	**113,035**	**105,610**	**94,425**	**90,734**	

WIAL Cost of Capital

per CC	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Mar-99	Mar-00	Mar-01
Price resets	01-Jan-91		01-Jul-92					01-Jul-97			

Non - Contestable/Airfield Activities

Lower Bound											
Equity											
Rfr	13.19%	13.19%	8.28%	8.28%	8.28%	8.28%	8.28%	7.62%	7.62%	7.62%	7.62%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Equity beta	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
MRP	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Return on Equity	***12.57%***	***12.57%***	***9.28%***	***9.28%***	***9.28%***	***9.28%***	***9.28%***	***8.84%***	***8.84%***	***8.84%***	***8.84%***
Debt											
Debt margin	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Cost of debt	***14.19%***	***14.19%***	***9.28%***	***9.28%***	***9.28%***	***9.28%***	***9.28%***	***8.62%***	***8.62%***	***8.62%***	***8.62%***
WACC											
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***11.81%***	***11.81%***	***8.51%***	***8.51%***	***8.51%***	***8.51%***	***8.51%***	***8.07%***	***8.07%***	***8.07%***	***8.07%***
Midpoint											
Equity											
Rfr	13.19%	13.19%	8.28%	8.28%	8.28%	8.28%	8.28%	7.62%	7.62%	7.62%	7.62%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Equity beta	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
MRP	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Return on Equity	***14.17%***	***14.17%***	***10.88%***	***10.88%***	***10.88%***	***10.88%***	***10.88%***	***10.44%***	***10.44%***	***10.44%***	***10.44%***
Debt											
Debt margin	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Cost of debt	***14.19%***	***14.19%***	***9.28%***	***9.28%***	***9.28%***	***9.28%***	***9.28%***	***8.62%***	***8.62%***	***8.62%***	***8.62%***
WACC											
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***13.01%***	***13.01%***	***9.71%***	***9.71%***	***9.71%***	***9.71%***	***9.71%***	***9.27%***	***9.27%***	***9.27%***	***9.27%***

WIAL Cost of Capital

per CC	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Mar-99	Mar-00	Mar-01
Price resets	01-Jan-91		01-Jul-92					01-Jul-97			

Non - Contestable/Airfield Activities

Upper Bound											
Equity											
Rfr	13.19%	13.19%	8.28%	8.28%	8.28%	8.28%	8.28%	7.62%	7.62%	7.62%	7.62%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Equity beta	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
MRP	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Return on Equity	***16.04%***	***16.04%***	***12.75%***	***12.75%***	***12.75%***	***12.75%***	***12.75%***	***12.31%***	***12.31%***	***12.31%***	***12.31%***
Debt											
Debt margin	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Cost of debt	***14.19%***	***14.19%***	***9.28%***	***9.28%***	***9.28%***	***9.28%***	***9.28%***	***8.62%***	***8.62%***	***8.62%***	***8.62%***
WACC											
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***14.41%***	***14.41%***	***11.11%***	***11.11%***	***11.11%***	***11.11%***	***11.11%***	***10.67%***	***10.67%***	***10.67%***	***10.67%***

APPENDIX 16 – ACTIVITIES UNDERTAKEN BY CIAL

The activities undertaken by are classified and grouped in terms of the three identified airport activities (defined in the Airport Authorities Amendment Act) and an additional grouping headed "other airport activities", as follows:

Airfield activities at Christchurch International Airport, and those undertaken by CIAL, are as follows:

Airfield Activities at Christchurch International Airport

Element of Activity	Undertaken by CIAL	Undertaken by Third Party	Assets owned by CIAL	Prices charged or revenue derived by CIAL
Airfields, runways, taxiways, and parking aprons for aircraft	All land and sealed surfaces except those undertaken by third parties.	Aprons provided by Air NZ and NZ Post (part only).	All land and all sealed surfaces except those undertaken by third parties.	Landing charge and rent.
Facilities and services for air traffic control	Provision of Control Tower.	All air traffic control provided by Airways.	Airways office space and control tower.	Rent.
Facilities and services parking apron control	None.	Air NZ allocates gates for all flights.	None.	None.
Airfield associated lighting	Apron flood lighting.	Airfield lighting provided by Airways.	Apron flood lighting.	Landing charge.
Services to maintain and repair airfields, runways, taxiways, and parking aprons for aircraft	Grass moving, pavement sweeping, and patching. Provide 24 hour, 7 days a week maintenance service for all airport facilities, grounds and surfaces.	Contractors used for major maintenance e.g. resealing and pavement rehabilitation	Maintenance yard land, buildings plant and machinery.	Landing charge.
Rescue, fire, safety, and environmental hazard control services	All.	None.	Land, buildings, equipment and vehicles relating to rescue fire service.	Rescue fire component of landing charge.
Airfield supervisory and security services	Provision and maintenance of security fencing and perimeter patrols.	AVSEC provides airside security, security between airside and landside, and international passenger control.	Security fencing.	Landing charge.
Facilities/ assets held for future activities	Holding of land.	None.	Land.	Rental from current users of land (e.g. farmers).

Aircraft and freight activities at Christchurch International Airport, and those undertaken by CIAL, are as follows:

Aircraft and Freight Activities at Christchurch International Airport

Element of Activity	Undertaken by CIAL	Undertaken by Third Party	Assets owned by CIAL	Prices charged or revenue derived by CIAL
Hangars	Provide old Qantas NZ Heavy Maintenance Hanger No. 2 and land for other hangars.	Hangers are provided by Air NZ and the US National Guard.	Old Qantas NZ Heavy Maintenance Hanger No. 2 and land for other hangars.	Rent.
Facilities and services for refuelling of aircraft	Land.	Oil companies own all refuelling facilities including pipes and other fixtures.	Land.	Rent.
Facilities and services for flight catering	Provide Air NZ Flight Kitchen facilities on Wairaki Road.	Air NZ provide their own catering services.	Air NZ Flight Kitchen on Wairaki Road.	Rent.
Facilities and services for waste disposal	Waste Disposal Facility.	Waste Disposal contracted out to Medical Waste Group.	Waste Disposal Facility.	Quarantine centre component of terminal charge.
Facilities and services for the storing of freight	Land and landside freight forwarding facilities leased to operators.	Airlines own some hangers and some freight buildings.	Land and landside freight forwarding facilities.	Rent.
Security services for freight	Space leased to AVSEC and NZ Police.	Airside security provided by AVSEC and airport security provided by Police.	Space leased to AVSEC and NZ Police.	Rent.
Customs services for freight	Space leased to NZ Customs.	Provided by NZ Customs.	Space occupied by NZ Customs.	Rent.
Quarantine services for freight	Space leased to MAF.	Provided by MAF.	Space occupied by MAF.	Rent.
Facilities/ assets held for future activities	Holding of Land.	None.	Land.	Rental from current users of land (e.g. farmers).
Other Ground handling	 CIAL provides access to airfield.	 Undertaken by Airlines, who own mobile plant.	 Land.	 Airfield component of landing charge.

Specified passenger terminal activities at Christchurch International Airport, and those undertaken by CIAL, are as follows:

Specified Passenger Terminal Activities at Christchurch International Airport

Element of Activity	Undertaken by CIAL	Undertaken by Third Party	Assets owned by CIAL	Prices charged or revenue derived by CIAL
Passenger seating areas, thoroughfares	Terminal buildings and improvements. Own and manage public areas, including seating.	Improvements and fit-outs in the lounges are owned and provided by the airlines.	Terminal buildings and improvements, plus public areas, including seating.	Terminal charge and rent for airline lounges.

Element of Activity	Undertaken by CIAL	Undertaken by Third Party	Assets owned by CIAL	Prices charged or revenue derived by CIAL
Airbridges	International air-bridges.	Air NZ own and operate the domestic air-bridges and also operate the international air-bridges. Mobile stairs provided by airlines.	International air-bridges.	Recovered as part of the terminal charge.
Flight information and public address systems	Own and maintain the FIDS in terminals.	Day-to-day operation of CIAL's system by airlines	FIDS in the terminals.	Recovered as part of the terminal charge.
Facilities and services for the operation of customs	Space leased to NZ Customs.	Provided by NZ Customs.	Space occupied by NZ Customs.	Rent paid on offices plus costs of arrivals and departures areas recovered as part of terminal charge.
Facilities and services for the operation of immigration	Space leased to Immigration.	Provided by Immigration.	Space occupied by Immigration.	Rent paid on offices plus costs of arrivals and departures areas recovered as part of terminal charge.
Facilities and services for the operation of quarantine checks and control	Space leased to MAF.	Provided by MAF.	Space occupied by MAF	No rental paid on areas in arrivals hall or any office space. Costs recovered as part of terminal charge.
Facilities for the collection of duty-free items	Collection facility is operated by CIAL for off-airport and non-DFS Ltd sales.	DFS provide on-airport duty free shopping.	Space occupied by collection point.	Charge to retailers using the service.
Facilities and services for the operation of security	Space leased to AVSEC.	AVSEC provide security between airside and landside, and international passenger control.	Space occupied by AVSEC.	Rent.
Facilities and services for the operation of Police services	Space leased to NZ Police.	Provided by NZ Police.	Space occupied by NZ Police.	Rent.
Passenger check-in	Provide airline check-in areas.	Check-in services provided by Airlines.	Check-in counters.	Rent.
Baggage handling	Provide baggage handling system.	Operated by airlines.	Baggage handling system.	Costs recovered from airlines.
Facilities/ assets held for future activities	Holding of land.	None.	Land.	Rental from current users of land (e.g. farmers).

Other airport activities at Christchurch International Airport, and those undertaken by CIAL, are as follows:

Other Airport Activities at Christchurch International Airport

Activity	Undertaken by CIAL	Undertaken by Third Party	Assets owned by CIAL	Prices charged or revenue derived by CIAL
Utilities (electricity, telecommunications, water etc)	CIAL supplies electricity to some tenants at cost. Generates electricity for control period demand purposes to offset cost of imported energy. Provide water and sewerage.	Orion owns external electricity network at airport (overhead and underground power cables). Electricity retailers supply some tenants with power.	Some infrastructure and utility services, including stand-by electricity generators and electrical cabling in buildings.	Tenants who purchase electricity from third parties pay a delivery charge to access CIAL's "lines" in the terminal. Electricity supplied to other tenants at cost. Charges for water and sewerage.
Roading	CIAL provides internal roads and road access links.	Christchurch City Council provides adjacent public roads.	Roads.	Costs recovered from various airport activities.
Car parking	CIAL provides and operates all parking facilities and at airport.	None.	Land and parking facilities	Public and staff parking charges.
Commercial property portfolio	CIAL leases out land and buildings landside to various aviation and non-aviation related businesses.	None.	Land and buildings.	Rent.
Office space	Provide office space in terminal buildings.	None.	Terminal space.	Rent.
Conference facilities	Conference facilities for hire in terminal.	None.	Terminal space and facilities.	Rent.
Concessions	Offer concessions to third parties around and within the terminals for the following: • Retail shops. • Duty-free shops. • Food and beverages. • Rental cars. • Banking and money exchange services.	Third parties operate concessions around and within the terminals.	Terminal space and facilities.	Rate for each concession is calculated on the basis of the greater of a minimum base rental amount and a percentage of the concession's gross turnover i.e. pay base amount and where turnover exceeds a set level, pay a percentage of surplus turnover to CIAL.
Information	CIAL provides free customer services and travel and information centre.	Some airlines have their own customer service desks.	Terminal space and furniture.	Rent for space used by airlines.
Public space and facilities in terminals	All.	None.	Terminal space and facilities.	Terminal component of airport charges.

Activity	Undertaken by CIAL	Undertaken by Third Party	Assets owned by CIAL	Prices charged or revenue derived by CIAL
Passenger vehicle operators	Provide facilities and space for taxis, buses, shuttles, valet parking etc; tendering out rights to operate some services.	Successful tenders operate pick-up bus, taxi and shuttle services, unlimited operators undertake drop-off services. Airlines operate valet parking services.	Facilities and land for taxis, buses, shuttles, valet parking etc.	Licence fees and fees per pick-up.
Sheep farm	Land held for development or in respect of noise control is farmed.	Farm is operated by CIAL.	Land.	Farm revenue.

Any airfield activities provided by third parties are still undertaken on-aiport (and on airport company land). In limited instances, third parties provide other activities from an off-airport location. Examples include rental cars, car parking (airline valet and long-term), airline catering, freight facilities, waste disposal. However, while these businesses may operate from premises off-airport, they need to obtain access to the airport in order to pick-up or drop-off customers or goods. While these entities may avoid paying rent to the airport company for a site on-airport, they typically pay fees to access the airport instead.

APPENDIX 17 – CIAL ANALYSIS

Net Acquirers Benefits ($) - CIAL

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Average
Benefits to Acquirers				
Allocative Inefficiency (Consumer Surplus)				
At Lower Bound of WACC	(5,397)	5,462	853	306
At Point Estimate of WACC	(9,221)	2,747	39	(2,145)
At Upper Bound of WACC	(14,970)	747	(424)	(4,882)
Excess Returns				
At Lower Bound of WACC	(1,453,435)	1,571,616	620,226	246,136
At Point Estimate of WACC	(1,899,869)	1,114,574	132,092	(217,734)
At Upper Bound of WACC	(2,420,708)	581,359	(437,397)	(758,915)
Productive Inefficiency				
At 1% of Opex-Depn	83,470	74,560	80,960	79,663
At 1.5% of Opex-Depn	125,205	111,840	121,440	119,495
At 2% of Opex-Depn	166,940	149,120	161,920	159,327
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Total Benefits				
At Lower Bound	(1,375,362)	1,651,638	702,039	326,105
At Point Estimate	(1,783,885)	1,229,162	253,571	(100,384)
At Upper Bound	(2,268,738)	731,227	(275,901)	(604,471)
Costs to Acquirers				
Allocative Inefficiency (Consumer Surplus)				
At Lower Bound of WACC	(2,361)	2,390	373	134
At Point Estimate of WACC	(4,034)	1,202	17	(938)
At Upper Bound of WACC	(6,549)	327	(186)	(2,136)
Excess Returns				
At Lower Bound of WACC	-	392,904	155,056	182,653
At Point Estimate of WACC	-	278,644	33,023	103,889
At Upper Bound of WACC	-	145,340	-	48,447
Productive Inefficiency				
At 0% of Opex-Depn	-	-	-	-
At 1% of Opex-Depn	83,470	74,560	80,960	79,663
At 2% of Opex-Depn	166,940	149,120	161,920	159,327
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Direct Costs				
Lower Bound	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000
Total Costs				
At Lower Bound	617,639	1,015,294	775,430	802,787
At Point Estimate	1,049,436	1,324,406	1,084,000	1,152,614
At Upper Bound	1,480,391	1,614,787	1,481,734	1,525,637
Net Benefits to Acquirers				
At Lower Bound	(1,993,001)	636,344	(73,391)	(476,682)
At Point Estimate	(2,833,321)	(95,244)	(830,429)	(1,252,998)
At Upper Bound	(3,749,129)	(883,560)	(1,757,636)	(2,130,108)

Net Public Benefits ($) - CIAL

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	**Average**
Benefits				
Allocative Inefficiency				
(1) Consumer Surplus				
At Lower Bound of WACC	(5,397)	5,462	853	306
At Point Estimate of WACC	(9,221)	2,747	39	(2,145)
At Upper Bound of WACC	(14,970)	747	(424)	(4,882)
(2) Producer Surplus				
At Lower Bound of WACC	(82,052)	78,759	33,681	10,130
At Point Estimate of WACC	(107,254)	58,108	7,459	(13,896)
At Upper Bound of WACC	(136,658)	31,680	(24,956)	(43,311)
Productive Inefficiency				
At 1% of Opex-Depn	83,470	74,560	80,960	79,663
At 1.5% of Opex-Depn	125,205	111,840	121,440	119,495
At 2% of Opex-Depn	166,940	149,120	161,920	159,327
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Total Benefits				
At Lower Bound	(3,978)	158,781	115,494	90,099
At Point Estimate	8,730	172,695	128,938	103,454
At Upper Bound	15,313	181,548	136,540	111,133
Costs				
Allocative Inefficiency				
(1) Consumer Surplus				
At Lower Bound of WACC	(2,361)	2,390	373	134
At Point Estimate of WACC	(4,034)	1,202	17	(938)
At Upper Bound of WACC	(6,549)	327	(186)	(2,136)
(2) Producer Surplus				
At Lower Bound of WACC	(20,513)	19,690	8,420	2,532
At Point Estimate of WACC	(26,814)	14,527	1,865	(3,474)
At Upper Bound of WACC	(34,164)	7,920	(6,239)	(10,828)
Productive Inefficiency				
At 0% of Opex-Depn	-	-	-	-
At 1% of Opex-Depn	83,470	74,560	80,960	79,663
At 2% of Opex-Depn	166,940	149,120	161,920	159,327
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Direct Costs				
Lower Bound	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000
Total Costs				
At Lower Bound	597,126	642,079	628,793	622,666
At Point Estimate	1,022,622	1,060,289	1,052,842	1,045,251
At Upper Bound	1,446,226	1,477,367	1,475,496	1,466,363
Net Public Benefits				
At Lower Bound	(601,104)	(483,298)	(513,299)	(532,567)
At Point Estimate	(1,013,893)	(887,594)	(923,904)	(941,797)
At Upper Bound	(1,430,914)	(1,295,820)	(1,338,955)	(1,355,229)

Net Acquirers Benefits ($) - CIAL Specialised Assets at ODRC

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Average
Benefits to Acquirers				
Allocative Inefficiency (Consumer Surplus)				
At Lower Bound of WACC	(21,968)	(178)	(5,680)	(9,275)
At Point Estimate of WACC	(33,290)	(345)	(11,849)	(15,161)
At Upper Bound of WACC	(49,461)	(3,113)	(21,881)	(24,818)
Excess Returns				
At Lower Bound of WACC	(2,932,448)	283,848	(1,600,608)	(1,416,403)
At Point Estimate of WACC	(3,609,848)	(394,752)	(2,311,872)	(2,105,491)
At Upper Bound of WACC	(4,400,148)	(1,186,452)	(3,141,680)	(2,909,427)
Productive Inefficiency				
At 1% of Opex-Depn	83,470	74,560	80,960	79,663
At 1.5% of Opex-Depn	125,205	111,840	121,440	119,495
At 2% of Opex-Depn	166,940	149,120	161,920	159,327
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Total Benefits				
At Lower Bound	(2,870,946)	358,230	(1,525,328)	(1,346,015)
At Point Estimate	(3,517,932)	(283,256)	(2,202,281)	(2,001,157)
At Upper Bound	(4,282,669)	(1,040,445)	(3,001,641)	(2,774,918)
Costs to Acquirers				
Allocative Inefficiency (Consumer Surplus)				
At Lower Bound of WACC	(9,611)	(78)	(2,485)	(4,058)
At Point Estimate of WACC	(14,564)	(151)	(5,184)	(6,633)
At Upper Bound of WACC	(21,639)	(1,362)	(9,573)	(10,858)
Excess Returns				
At Lower Bound of WACC	-	70,962	-	23,654
At Point Estimate of WACC	-	-	-	-
At Upper Bound of WACC	-	-	-	-
Productive Inefficiency				
At 0% of Opex-Depn	-	-	-	-
At 1% of Opex-Depn	83,470	74,560	80,960	79,663
At 2% of Opex-Depn	166,940	149,120	161,920	159,327
Dynamic Inefficiency				
Dynamic Inefficiency	-	-	-	-
Direct Costs				
Lower Bound	620,000	620,000	620,000	620,000
Mid Point	970,000	970,000	970,000	970,000
Upper Bound	1,320,000	1,320,000	1,320,000	1,320,000
Total Costs				
At Lower Bound	610,389	690,884	617,515	639,596
At Point Estimate	1,038,906	1,044,409	1,045,776	1,043,030
At Upper Bound	1,465,301	1,467,758	1,472,347	1,468,469
Net Benefits to Acquirers				
At Lower Bound	(3,481,335)	(332,654)	(2,142,843)	(1,985,611)
At Point Estimate	(4,556,838)	(1,327,665)	(3,248,057)	(3,044,187)
At Upper Bound	(5,747,970)	(2,508,203)	(4,473,988)	(4,243,387)

Effects of Asset Base Decisions on Forecast Return Analysis - CIAL

	Actual	Forecast	Forecast	
	Jun-01	Jun-02	Jun-03	**Average**
Change in Excess Returns $000s				
Scenario 2 - Commission Optimisation				
Lower Bound	-	-	-	**-**
Midpoint	-	-	-	**-**
Upper Bound	-	-	-	**-**
Scenario 3 - OC Land				
Lower Bound	(1,267)	(1,267)	(1,267)	**(1,267)**
Midpoint	(1,464)	(1,464)	(1,464)	**(1,464)**
Upper Bound	(1,695)	(1,695)	(1,695)	**(1,695)**
Scenario 4 - OC Land				
Lower Bound	(1,267)	(1,267)	(1,267)	**(1,267)**
Midpoint	(1,464)	(1,464)	(1,464)	**(1,464)**
Upper Bound	(1,695)	(1,695)	(1,695)	**(1,695)**
Scenario 5 - HC Specialised Assets				
Lower Bound	1,479	1,288	2,221	**1,663**
Midpoint	1,710	1,509	2,444	**1,888**
Upper Bound	1,979	1,768	2,704	**2,151**
Scenario 6 - HC Specialised Assets				
Lower Bound	1,479	1,288	2,221	**1,663**
Midpoint	1,710	1,509	2,444	**1,888**
Upper Bound	1,979	1,768	2,704	**2,151**

Forecast Return Analysis - CIAL

	Actual Jun-01	Forecast Jun-02	Forecast Jun-03	Average
Net Earnings $000s				
1	1,405	4,629	2,954	
2	1,405	4,629	2,954	
3	1,405	4,629	2,954	
4	1,405	4,629	2,954	
5	1,405	4,498	3,746	
6	1,405	4,498	3,746	
WACC				
Lower Bound	7.68%	7.68%	7.68%	
Midpoint	8.88%	8.88%	8.88%	
Upper Bound	10.28%	10.28%	10.28%	
Asset Base $000s				
1	40,067	42,789	43,830	
2	40,067	42,789	43,830	
3	56,550	59,272	60,313	
4	56,550	59,272	60,313	
5	38,087	40,678	42,511	
6	38,087	40,678	42,511	
Excess Returns $000s				
Scenario 1 - Airport Company (ODRC) Adjusted				
Lower Bound	(1,666)	1,550	(334)	**(150)**
Midpoint	(2,145)	1,070	(847)	**(641)**
Upper Bound	(2,705)	509	(1,447)	**(1,214)**
Scenario 2 - Airport Company (ODRC) with Commission Optimisation				
Lower Bound	(1,666)	1,550	(334)	**(150)**
Midpoint	(2,145)	1,070	(847)	**(641)**
Upper Bound	(2,705)	509	(1,447)	**(1,214)**
Scenario 3 - ODRC Specialised Assets, OC Land				
Lower Bound	(2,932)	284	(1,601)	**(1,416)**
Midpoint	(3,610)	(395)	(2,312)	**(2,105)**
Upper Bound	(4,400)	(1,186)	(3,142)	**(2,909)**
Scenario 4 - ODRC Specialised Assets, OC Land with Commission Optimisation				
Lower Bound	(2,932)	284	(1,601)	**(1,416)**
Midpoint	(3,610)	(395)	(2,312)	**(2,105)**
Upper Bound	(4,400)	(1,186)	(3,142)	**(2,909)**
Scenario 5 - HC Specialised Assets, OC Land				
Lower Bound	(1,453)	1,572	620	**246**
Midpoint	(1,900)	1,115	132	**(218)**
Upper Bound	(2,421)	581	(437)	**(759)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation				
Lower Bound	(1,453)	1,572	620	**246**
Midpoint	(1,900)	1,115	132	**(218)**
Upper Bound	(2,421)	581	(437)	**(759)**

Benefits Analysis - CIAL 2001 Result

NB: Increase in Landing Charges at 1 January 2001

Data for year ended 30 June 2001 (including 6 months of new charges)				
Tonnes Landed (MCTOW x Landings)	1,779,665			
Airfield Revenue ($000s)	11,939			
Current asset base ($000s)	40,067			
Airfield Expenses (including depreciation) ($000s)	9,840			
Net Earnings (Scenario 1) $000s	1,405			
Pm per tonne	**$**	**6.71**		
Qm (tonnes)		**1,779,665**		
Elasticity (Weighted Average)				
Net Earnings/Total Assets		**3.52%**		
Marginal Cost	**$**	**0.50**		

	Midpoint	Lower Bound	Upper Bound
Appropriate WACC	**8.88%**	**7.68%**	***10.28%***
CIAL Target WACC (when prices set 1/1/01)	**10.15%**		

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**38,086,800**				
Net Earnings		**1,405,340**				
Pc per tonne	$	7.78	$	7.53	$	8.07
$ that Pm > Pc	-$	1.07	-$	0.82	-$	1.36
% Pm > Pc		-13.73%		-10.85%		-16.86%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - CIAL

Excess returns = Net Earnings - (AAB x WACC)	(1,899,869)	(1,453,435)	(2,420,708)
Incremental Consumer surplus	(9,221)	(5,397)	(14,970)
Incremental Producer surplus	(107,254)	(82,052)	(136,658)
Excess returns and allocative efficiency	(2,016,344)	(1,540,883)	(2,572,335)
Productive efficiency	125,205	83,470	166,940
Dynamic efficiency	-	-	-
TOTAL	(1,891,139)	(1,457,413)	(2,405,395)

NOTE: Calculation of Appropriate Airfield Asset Base (Comparison to Draft Report)
($000s)

	Est. CIAL Pricing	Draft Report	Final Report
Land	9,690	9,690	26,173
Improvements - Runways, Taxiways and Aprons	29,907		
Buildings and Improvements	474		
Motor Vehicles	11		
Plant and Office Equipment	1,176		
Furniture	291	25,001	11,914
Revaluation of Assets Based on Inflation	-	-	-
	41,549	34,691	38,087

Benefits Analysis - CIAL 2002 Forecast

Forecasted Data for the year ended 30 June 2002					
Tonnes Landed (MCTOW x Landings)		1,779,665			
Airfield Revenue ($000s)		13,792			
Airfield Expenses (including depreciation) ($000s)		8,696			
Net Earnings (Scenario 1) $000s		4,629	*sealed surfaces only*		
			ODRC		*HC*
Revaluations of Land		294	-		
Revaluations of Specialised Assets		921	*865*		
Capital Expenditure		3,540	*1,730*		
Asset Disposals		3,481	*1,730*		
Depreciation		2,033	*1,642*		*852*
Asset base ($000s)		42,789	*29,502*		
Pm per tonne	**$**	**7.75**			
Qm (tonnes)		**1,779,665**			
Elasticity					
Net Earnings/Total Assets		**11.55%**			
Marginal Cost	**$**	**0.50**			

	Midpoint	**Lower Bound**	**Upper Bound**
Appropriate WACC	**8.88%**	**7.68%**	**10.28%**
CIAL Target WACC (when prices set 1/1/01)	**10.15%**		

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base		**40,677,800**				
Net Earnings		**4,498,320**				
Pc per tonne	$	7.12	$	6.87	$	7.42
$ that Pm > Pc	$	0.63	$	0.88	$	0.33
% Pm > Pc		8.79%		12.86%		4.40%
Qc (tonnes)						
Tonnes that Qc > Qm						
# Boeing 737 Landings						

Potential Benefits - CIAL

Excess returns = Net Earnings - (AAB x WACC)	1,114,574	1,571,616	581,359
Incremental Consumer surplus	2,747	5,462	747
Incremental Producer surplus	58,108	78,759	31,680
Excess returns and allocative efficiency	1,175,430	1,655,837	613,787
Productive efficiency	111,840	74,560	149,120
Dynamic efficiency	-	-	-
TOTAL	1,287,270	1,730,397	762,907

Benefits Analysis - CIAL 2003 Forecast

Forecasted Data for the year ended 30 June 2003		*sealed surfaces only*	
		ODRC	*HC*
Tonnes Landed (MCTOW x Landings)	1,779,665		
Airfield Revenue ($000s)	13,758		
Airfield Expenses (including depreciation) ($000s)	9,349		
Net Earnings (Scenario 1) $000s	2,954		
Revaluations of Land	-	-	
Revaluations of Specialised Assets	-	-	
Capital Expenditure	3,085	*2,725*	
Asset Disposals	2,552	*2,251*	
Depreciation	2,044	*1,648*	*856*
Asset base ($000s)	43,830	*30,579*	

Pm per tonne	**$ 7.73**
Qm (tonnes)	**1,779,665**
Elasticity	
Net Earnings/Total Assets	**6.90%**
Marginal Cost	**$ 0.50**

	Midpoint	**Lower Bound**	**Upper Bound**
Appropriate WACC	**8.88%**	**7.68%**	**10.28%**
CIAL Target WACC (when prices set 1/1/01)	**10.15%**		

Selected Scenario: 6 - Historic Cost Sealed Surfaces, Opportunity Cost Land, Optimisation

Appropriate asset base	**42,510,800**		
Net Earnings	**3,746,030**		
Pc per tonne	$ 7.66	$ 7.38	$ 7.98
$ that Pm > Pc	$ 0.07	$ 0.35	-$ 0.25
% Pm > Pc	0.97%	4.72%	-3.08%
Qc (tonnes)			
Tonnes that Qc > Qm			
# Boeing 737 Landings			

Potential Benefits - CIAL

Excess returns = Net Earnings - (AAB x WACC)	132,092	620,226	(437,397)
Incremental Consumer surplus	39	853	(424)
Incremental Producer surplus	7,459	33,681	(24,956)
Excess returns and allocative efficiency	139,590	654,760	(462,777)
Productive efficiency	121,440	80,960	161,920
Dynamic efficiency	-	-	-
TOTAL	261,030	735,720	(300,857)

Effects of Asset Base Decisions on Historical Return Analysis - CIAL

	Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	**1989-2001 Average**	**1997-2001 Average**	**2001 PV**
Change in Excess Returns $000s																
Scenario 2 - Commission Optimisation																
Lower Bound	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
Midpoint	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
Upper Bound	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**
Scenario 3 - OC Land																
Lower Bound	1,885	2,228	880	(1,338)	1,062	1,863	2,377	1,329	34	344	(1,843)	(1,322)	(1,267)	**479**	**(811)**	**15,865**
Midpoint	1,885	2,205	828	(1,407)	1,002	1,784	2,268	1,184	(138)	159	(2,047)	(1,520)	(1,464)	**364**	**(1,002)**	**13,887**
Upper Bound	1,885	2,179	767	(1,488)	932	1,692	2,140	1,014	(339)	(56)	(2,284)	(1,751)	(1,695)	**230**	**(1,225)**	**11,579**
Scenario 4 - OC Land																
Lower Bound	1,885	2,228	880	(1,338)	1,062	1,863	2,377	1,329	34	344	(1,843)	(1,322)	(1,267)	**479**	**(811)**	**15,865**
Midpoint	1,885	2,205	828	(1,407)	1,002	1,784	2,268	1,184	(138)	159	(2,047)	(1,520)	(1,464)	**364**	**(1,002)**	**13,887**
Upper Bound	1,885	2,179	767	(1,488)	932	1,692	2,140	1,014	(339)	(56)	(2,284)	(1,751)	(1,695)	**230**	**(1,225)**	**11,579**
Scenario 5 - HC Specialised Assets																
Lower Bound	(2,291)	(2,708)	(1,070)	1,627	(1,291)	(2,264)	(2,889)	(1,616)	(41)	(418)	2,240	1,607	1,479	**(587)**	**973**	**(19,340)**
Midpoint	(2,291)	(2,680)	(1,006)	1,710	(1,218)	(2,169)	(2,756)	(1,439)	168	(193)	2,488	1,847	1,710	**(448)**	**1,204**	**(16,946)**
Upper Bound	(2,291)	(2,648)	(933)	1,808	(1,133)	(2,057)	(2,601)	(1,232)	412	69	2,776	2,128	1,979	**(286)**	**1,473**	**(14,152)**
Scenario 6 - HC Specialised Assets																
Lower Bound	(2,291)	(2,708)	(1,070)	1,627	(1,291)	(2,264)	(2,889)	(1,616)	(41)	(418)	2,240	1,607	1,479	**(587)**	**973**	**(19,340)**
Midpoint	(2,291)	(2,680)	(1,006)	1,710	(1,218)	(2,169)	(2,756)	(1,439)	168	(193)	2,488	1,847	1,710	**(448)**	**1,204**	**(16,946)**
Upper Bound	(2,291)	(2,648)	(933)	1,808	(1,133)	(2,057)	(2,601)	(1,232)	412	69	2,776	2,128	1,979	**(286)**	**1,473**	**(14,152)**

Historical Return Analysis - CIAL

	Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	1989-2001 Average	1997-2001 Average	2001 PV
1 Yr Govt Stock Rate @ y/e	13.32%	17.12%	9.40%	6.91%	6.52%	6.44%	8.89%	9.25%	6.78%	8.33%	4.41%	6.96%	5.67%			
Excess Returns $000s																
Scenario 1 - Airport Company (ODRC) Adjusted																
Lower Bound	(362)	1,479	(378)	(3,129)	161	1,439	3,924	2,469	390	1,576	(2,357)	(1,152)	(1,666)	**184**	**(642)**	**4,984**
Midpoint	(712)	1,121	(769)	(3,525)	(212)	1,024	3,479	1,983	(121)	1,043	(2,945)	(1,650)	(2,145)	**(264)**	**(1,164)**	**(4,028)**
Upper Bound	(1,119)	702	(1,226)	(3,988)	(647)	538	2,959	1,417	(717)	421	(3,631)	(2,232)	(2,705)	**(787)**	**(1,773)**	**(14,543)**
Scenario 2 - Airport Company (ODRC) with Commission Optimisation																
Lower Bound	(362)	1,479	(378)	(3,129)	161	1,439	3,924	2,469	390	1,576	(2,357)	(1,152)	(1,666)	**184**	**(642)**	**4,984**
Midpoint	(712)	1,121	(769)	(3,525)	(212)	1,024	3,479	1,983	(121)	1,043	(2,945)	(1,650)	(2,145)	**(264)**	**(1,164)**	**(4,028)**
Upper Bound	(1,119)	702	(1,226)	(3,988)	(647)	538	2,959	1,417	(717)	421	(3,631)	(2,232)	(2,705)	**(787)**	**(1,773)**	**(14,543)**
Scenario 3 - ODRC Specialised Assets, OC Land																
Lower Bound	1,523	3,707	503	(4,467)	1,223	3,303	6,301	3,798	424	1,920	(4,200)	(2,474)	(2,932)	**664**	**(1,453)**	**20,849**
Midpoint	1,174	3,326	59	(4,933)	790	2,808	5,746	3,167	(259)	1,202	(4,992)	(3,171)	(3,610)	**101**	**(2,166)**	**9,858**
Upper Bound	766	2,881	(459)	(5,476)	285	2,231	5,099	2,430	(1,056)	365	(5,915)	(3,983)	(4,400)	**(556)**	**(2,998)**	**(2,964)**
Scenario 4 - ODRC Specialised Assets, OC Land with Commission Optimisation																
Lower Bound	1,523	3,707	503	(4,467)	1,223	3,303	6,301	3,798	424	1,920	(4,200)	(2,474)	(2,932)	**664**	**(1,453)**	**20,849**
Midpoint	1,174	3,326	59	(4,933)	790	2,808	5,746	3,167	(259)	1,202	(4,992)	(3,171)	(3,610)	**101**	**(2,166)**	**9,858**
Upper Bound	766	2,881	(459)	(5,476)	285	2,231	5,099	2,430	(1,056)	365	(5,915)	(3,983)	(4,400)	**(556)**	**(2,998)**	**(2,964)**
Scenario 5 - HC Specialised Assets, OC Land																
Lower Bound	(768)	1,000	(567)	(2,841)	(68)	1,038	3,412	2,183	382	1,502	(1,960)	(867)	(1,453)	**76**	**(479)**	**1,509**
Midpoint	(1,117)	646	(948)	(3,222)	(428)	639	2,990	1,728	(91)	1,009	(2,504)	(1,323)	(1,900)	**(348)**	**(962)**	**(7,087)**
Upper Bound	(1,525)	233	(1,391)	(3,668)	(847)	174	2,498	1,198	(644)	434	(3,139)	(1,855)	(2,421)	**(843)**	**(1,525)**	**(17,116)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation																
Lower Bound	(768)	1,000	(567)	(2,841)	(68)	1,038	3,412	2,183	382	1,502	(1,960)	(867)	(1,453)	**76**	**(479)**	**1,509**
Midpoint	(1,117)	646	(948)	(3,222)	(428)	639	2,990	1,728	(91)	1,009	(2,504)	(1,323)	(1,900)	**(348)**	**(962)**	**(7,087)**
Upper Bound	(1,525)	233	(1,391)	(3,668)	(847)	174	2,498	1,198	(644)	434	(3,139)	(1,855)	(2,421)	**(843)**	**(1,525)**	**(17,116)**
Scenario 6 - HC Specialised Assets, OC Land with Commission Optimisation WITH FULL AIRPORT REVALUATION GAINS INCLUDED AS INCOME																
Lower Bound	(362)	1,528	(265)	(3,001)	272	1,586	4,063	2,655	609	1,842	(2,064)	(867)	(1,453)	**349**	**(387)**	**7,925**
Midpoint	(712)	1,174	(646)	(3,383)	(88)	1,187	3,641	2,200	135	1,349	(2,608)	(1,323)	(1,900)	**(75)**	**(869)**	**(671)**
Upper Bound	(1,119)	761	(1,089)	(3,828)	(508)	721	3,149	1,670	(418)	773	(3,243)	(1,855)	(2,421)	**(570)**	**(1,433)**	**(10,699)**

CHRISTCHURCH INTERNATIONAL AIRPORT LIMITED

AIRFIELD ACTIVITIES

($000s)	Vesting	Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	
		Adjusted to 12 months		Adjusted to 12 months											
Revenue															
Landing Charges		7,149	8,495	8,322	8,089	8,792	9,324	10,114	10,522	10,542	10,485	10,680	10,081	11,332	
Other Revenue		*200*	*200*	*200*	*200*	*200*	*200*	*200*	*200*	*200*	216	205	399	607	
		7,349	8,695	8,522	8,289	8,992	9,524	10,314	10,722	10,742	10,701	10,885	10,480	11,939	
Proportion of Airfield Income to Total CIAL Income		38.27%	32.70%	25.01%	29.04%	26.71%	25.61%	25.76%	25.49%	23.90%	22.37%	21.26%	19.17%	21.10%	
Expenses															
Employee Remuneration and Benefits		2,270	2,725	2,660	2,838	3,143	3,040	3,272	3,313	3,398	3,231	3,199	3,367	3,754	
Repairs and Maintenance		1,222	1,040	964	1,639	1,692	1,726	1,480	1,631	1,529	2,451	1,126	1,279	1,296	
General		351	759	765	809	1,032	1,155	1,073	1,244	1,169	1,154	1,311	1,247	3,297	
Depreciation		2,280	1,714	1,739	1,057	1,462	1,453	1,231	1,206	1,388	1,378	1,464	1,362	1,493	
		6,123	6,238	6,128	6,343	7,329	7,374	7,055	7,394	7,483	8,214	7,100	7,255	9,840	
EBIT		**1,227**	**2,457**	**2,394**	**1,946**	**1,663**	**2,150**	**3,259**	**3,328**	**3,259**	**2,487**	**3,785**	**3,225**	**2,099**	
Taxation (@ effective tax rate)		*516*	*908*	*859*	*590*	*564*	*788*	*1,049*	*1,137*	*1,314*	*783*	*1,160*	*1,043*	*694*	
Earnings Before Interest After Tax, Opex and Depreciation		**711**	**1,549**	**1,535**	**1,356**	**1,099**	**1,362**	**2,210**	**2,191**	**1,946**	**1,704**	**2,626**	**2,182**	**1,405**	
Airfield Activities Assets												*pricing*	*pricing*	*forecast*	
Land	5,049	4,347	4,967	5,056	5,054	5,059	5,203	5,241	8,436	8,625	8,637	9,690	9,690	9,690	
Buildings	79	515	548	552	574	568	562	529	523	506	490	476	462	447	1.98%
Sealed Surfaces (After Provision for Resealing)	22,670	20,760	18,522	15,696	15,060	13,484	11,389	9,900	8,153	8,921	10,360	29,909	28,387	28,549	
Plant and Equipment		411	632	906	919	892	865	852	811	628	413	292	457	615	6.44%
Furniture	1,329	31	25	18	15	12	9	15	11	10	7	11	14	27	0.57%
Motor Vehicles		475	348	261	210	2,402	2,017	1,706	1,438	1,319	1,180	1,175	957	739	58.53%
Non current assets per CIAL	***29,127***	***26,538***	***25,042***	***22,489***	***21,833***	***22,416***	***20,045***	***18,243***	***19,372***	***20,009***	***21,087***	***41,553***	***39,967***	***40,067***	
Current Assets															
Total															

Returns:

(1) Airport Company (ODRC) Adjusted

		Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	
Reseal reserve		650	1,359	2,290	2,035	2,781	3,958	4,769	5,776	5,696	5,796	-	-	-	
Actual revaluations		-	-	-	-	-	-	-	(3,195)	(3,384)	(3,384)	(24,469)	(24,469)	(24,469)	
Assessed revaluations (cumulative)		2,711	6,242	8,259	7,187	9,457	13,114	17,464	20,616	22,084	25,518	24,469	24,469	24,469	**Average**
Adjusted NCA		**29,899**	**32,642**	**33,038**	**31,055**	**34,653**	**37,116**	**40,476**	**42,569**	**44,404**	**49,017**	**41,553**	**39,967**	**40,067**	
Asset revaluation		2,711	3,531	2,017	(1,072)	2,270	3,657	4,350	3,152	1,468	3,434	(1,049)	-	-	
Net Earnings		**3,422**	**5,079**	**3,553**	**284**	**3,369**	**5,019**	**6,560**	**5,344**	**3,413**	**5,139**	**1,576**	**2,182**	**1,405**	
Net Earnings to NCA		**11.75%**	**16.99%**	**10.88%**	**0.86%**	**10.85%**	**14.48%**	**17.67%**	**13.20%**	**8.02%**	**11.57%**	**3.22%**	**5.25%**	**3.52%**	**9.87%**
Inflation (All Groups CPI)		4.0%	7.0%	2.8%	1.0%	1.3%	1.1%	4.6%	2.0%	1.1%	1.7%	-0.4%	2.0%	3.2%	
Inflation (Housing Group of CPI for Christchurch Region)		4.3%	5.6%	3.2%	-1.7%	3.6%	5.8%	6.9%	5.0%	2.4%	3.6%	-1.1%	n/a	n/a	
Spreading of Land Revaluation		420	547	313	(166)	352	567	674	489	189	1,517	(463)	-	-	
Spreading of Sealed Surfaces Revaluation		2,291	2,983	1,705	(906)	1,918	3,090	3,676	2,664	1,279	1,918	(586)	-	-	
Assessed Revaluations		2,711	3,531	2,017	(1,072)	2,270	3,657	4,350	3,152	1,468	3,434	(1,049)	-	-	
												24,469			

(2) Airport Company (ODRC) with Commission Optimisation

		Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01
Optimisation of Development/Non-Operational Land		-	-	-	-	-	-	-	-	-	-	-	-	-
Reduction in assessed revaluations (cumulative)		-	-	-	-	-	-	-	-	-	-	-	-	-
Adjusted NCA		**29,899**	**32,642**	**33,038**	**31,055**	**34,653**	**37,116**	**40,476**	**42,569**	**44,404**	**49,017**	**41,553**	**39,967**	**40,067**

($000s)	Vesting	Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	
Associated adjustment to asset revaluation		-	-	-	-	-	-	-	-	-	-	-	-	-	
Net Earnings		**3,422**	**5,079**	**3,553**	**284**	**3,369**	**5,019**	**6,560**	**5,344**	**3,413**	**5,139**	**1,576**	**2,182**	**1,405**	
Net Earnings to NCA		**11.75%**	**16.99%**	**10.88%**	**0.86%**	**10.85%**	**14.48%**	**17.67%**	**13.20%**	**8.02%**	**11.57%**	**3.22%**	**5.25%**	**3.52%**	**9.87%**
(3) ODRC Specialised Assets, OC Land															
Adjustment to operational airfield land valuation		-	-	-	-	-	-	-	-	-	-	16,483	16,483	16,483	
Increase in assessed revaluations OAL land (cumulative)		1,885	4,340	5,743	4,998	6,576	9,118	12,143	14,335	15,387	16,965	-	-	-	
Holding Costs		-	-	-	-	-	-	-	-	-	-	-	-	-	
Levelling Costs		-	-	-	-	-	-	-	-	-	-	-	-	-	
Adjusted NCA		**31,784**	**36,982**	**38,781**	**36,053**	**41,229**	**46,234**	**52,619**	**56,904**	**59,791**	**65,982**	**58,036**	**56,450**	**56,550**	
Associated adjustment to asset revaluation OAL land		1,885	2,455	1,403	(745)	1,578	2,543	3,025	2,192	1,052	1,578	(482)	-	-	
Net Earnings		**5,307**	**7,534**	**4,955 -**	**461**	**4,947**	**7,562**	**9,585**	**7,536**	**4,465**	**6,717**	**1,094**	**2,182**	**1,405**	
Net Earnings to NCA		**18.22%**	**23.70%**	**13.40%**	**-1.19%**	**13.72%**	**18.34%**	**20.73%**	**14.32%**	**7.85%**	**11.23%**	**1.66%**	**3.76%**	**2.49%**	**11.40%**
(4) ODRC Specialised Assets, OC Land with Commission Optimisation															
Adjusted NCA		**31,784**	**36,982**	**38,781**	**36,053**	**41,229**	**46,234**	**52,619**	**56,904**	**59,791**	**65,982**	**58,036**	**56,450**	**56,550**	
Net Earnings		**5,307**	**7,534**	**4,955**	**(461)**	**4,947**	**7,562**	**9,585**	**7,536**	**4,465**	**6,717**	**1,094**	**2,182**	**1,405**	
Net Earnings to NCA		**18.22%**	**23.70%**	**13.40%**	**-1.19%**	**13.72%**	**18.34%**	**20.73%**	**14.32%**	**7.85%**	**11.23%**	**1.66%**	**3.76%**	**2.49%**	**11.40%**
(5) HC Specialised Assets, OC Land															
Adjustment to specialised assets valuation (ODRC to HC)		-	-	-	-	-	-	-	-	-	-	(20,031)	(20,031)	(20,031)	
Reduction in assessed revaluations (cumulative)		(2,291)	(5,274)	(6,979)	(6,073)	(7,991)	(11,081)	(14,757)	(17,421)	(18,699)	(20,617)	-	-	-	
Associated adjustment to depreciation		-	-	-	-	-	-	-	-	-	-	-	784	1,568	
Reseal reserve		-	-	-	-	-	-	-	-	-	-	-	-	-	
Adjusted NCA		**29,494**	**31,708**	**31,802**	**29,979**	**33,238**	**35,153**	**37,862**	**39,483**	**41,092**	**45,365**	**38,005**	**37,203**	**38,087**	
Associated adjustment to asset revaluation		(2,291)	(2,983)	(1,705)	906	(1,918)	(3,090)	(3,676)	(2,664)	(1,279)	(1,918)	586	-	-	
Associated adjustment to depreciation expense		-	-	-	-	-	-	-	-	-	-	-	-	-	
Net Earnings		**3,016**	**4,551**	**3,251**	**444**	**3,029**	**4,472**	**5,909**	**4,872**	**3,187**	**4,799**	**1,680**	**2,182**	**1,405**	
Net Earnings to NCA		**10.36%**	**15.62%**	**11.16%**	**1.53%**	**10.40%**	**15.35%**	**20.29%**	**16.73%**	**10.94%**	**16.48%**	**5.77%**	**7.49%**	**4.82%**	**11.30%**
(6) HC Specialised Assets, OC Land with Commission Optimisation															
Adjusted NCA		**29,494**	**31,708**	**31,802**	**29,979**	**33,238**	**35,153**	**37,862**	**39,483**	**41,092**	**45,365**	**38,005**	**37,203**	**38,087**	
Net Earnings		**3,016**	**4,551**	**3,251**	**444**	**3,029**	**4,472**	**5,909**	**4,872**	**3,187**	**4,799**	**1,680**	**2,182**	**1,405**	
Net Earnings to NCA		**10.36%**	**15.43%**	**10.25%**	**1.40%**	**10.10%**	**13.45%**	**16.81%**	**12.87%**	**8.07%**	**11.68%**	**3.70%**	**5.74%**	**3.78%**	**9.51%**

($000s)	Vesting	Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01
(6) HC Specialised Assets, OC Land with Commission Optimisation														
Reconciliation														
Airfield Activities Assets per CIAL														
Freehold Land	5,049	4,347	4,967	5,056	5,054	5,059	5,203	5,241	8,436	8,625	8,637	9,690	9,690	9,690
Total Non-land assets	24,078	22,192	20,075	17,433	16,779	17,357	14,842	13,002	10,936	11,384	12,450	31,863	30,277	30,377
	29,127	***26,538***	***25,042***	***22,489***	***21,833***	***22,416***	***20,045***	***18,243***	***19,372***	***20,009***	***21,087***	***41,553***	***39,967***	***40,067***
Land														
Value per CIAL	5,049	4,347	4,967	5,056	5,054	5,059	5,203	5,241	8,436	8,625	8,637	9,690	9,690	9,690
Plus Revaluations to Market Value	-	420	967	1,280	1,114	1,466	2,032	2,707	-	-	1,517	-	-	-
	5,049	4,767	5,934	6,336	6,168	6,525	7,235	7,948	8,436	8,625	10,153	9,690	9,690	9,690
Less Optimisation														
Optimisation of Development/Non-Operational Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reduction in Revaluations	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5,049	4,767	5,934	6,336	6,168	6,525	7,235	7,948	8,436	8,625	10,153	9,690	9,690	9,690
Plus Revaluations to Opportunity Cost														
Adjustment to operational airfield land valuation	-	-	-	-	-	-	-	-	-	-	-	16,483	16,483	16,483
Increase in assessed revaluations OAL land (cumulative)	-	1,885	4,340	5,743	4,998	6,576	9,118	12,143	14,335	15,387	16,965	-	-	-
Value of Airfield Land (Scenario 6)	**5,049**	**6,652**	**10,274**	**12,079**	**11,166**	**13,100**	**16,353**	**20,091**	**22,771**	**24,012**	**27,119**	**26,173**	**26,173**	**26,173**
Ha Airfield Land	324	358	363	363	363	371	373	373	373	374	374	374	374	374
Opportunity Cost of Land per Ha	15,589	18,573	28,298	33,280	30,741	35,296	43,812	53,824	61,006	64,221	72,529	70,000	70,000	70,000
Historic Cost of Land per Ha	12,639	12,137	13,681	13,931	13,916	13,630	13,938	14,041	14,041	14,017	14,048	14,048	14,048	14,048
Non-Land Assets														
Value per CIAL	24,078	22,192	20,075	17,433	16,779	17,357	14,842	13,002	10,936	11,384	12,450	31,863	30,277	30,377
Plus Reseal Reserve	-	650	1,359	2,290	2,035	2,781	3,958	4,769	5,776	5,696	5,796	-	-	-
Plus Revaluations to ODRC	-	2,291	5,274	6,979	6,073	7,991	11,081	14,757	17,421	18,699	20,617	-	-	-
	24,078	25,133	26,708	26,702	24,887	28,129	29,881	32,528	34,133	35,779	38,863	31,863	30,277	30,377
Plus Adjustments in Connection With OC Valuation														
Holding Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Levelling Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24,078	25,133	26,708	26,702	24,887	28,129	29,881	32,528	34,133	35,779	38,863	31,863	30,277	30,377
Less Revaluations Above DHC														
Adjustment to specialised assets valuation (ODRC to HC)	-	-	-	-	-	-	-	-	-	-	-	(20,031)	(20,031)	(20,031)
Reduction in assessed revaluations (cumulative)	-	(2,291)	(5,274)	(6,979)	(6,073)	(7,991)	(11,081)	(14,757)	(17,421)	(18,699)	(20,617)	-	-	-
Associated adjustment to depreciation	-	-	-	-	-	-	-	-	-	-	-	-	784	1,568
Value of Non-Land Assets (Scenario 6)	**24,078**	**22,842**	**21,434**	**19,723**	**18,814**	**20,138**	**18,800**	**17,771**	**16,712**	**17,080**	**18,246**	**11,832**	**11,030**	**11,914**
Total Airfield Assets (Scenario 6)	**29,127**	**29,494**	**31,708**	**31,802**	**29,979**	**33,238**	**35,153**	**37,862**	**39,483**	**41,092**	**45,365**	**38,005**	**37,203**	**38,087**

CIAL Land - Vesting to date

		Hectares	$/Ha	$
Vesting				
	Total Land	587.6241		31,202,778
	Airfield Portion	312.8723		3,573,540
	AFS Portion	11.0289		520,400
	Airfield Development Land Portion	122.2358		955,274
		446.137		5,049,214
Acquisitions Since Vesting				
1990	Operational Airfield	0.6292	879	553
1989	Operational Airfield	2.4689	748	1,847
1989	Operational Airfield	4.8967	1,239	6,069
	Fire Training Area	0.1012	6,499	658
	Fire Training Area	0.1012	6,499	658
	Fire Training Area	2.1911	6,499	14,240
		10.3883		24,024
1989	Sterile Airfield End Zone	1.9438	30,986	60,230
1996	Apron Redevelopment South Sub RW	2.0439	40,171	82,105
1995	Sterile Airfield End Zone NW Sub RW	5.8791	24,664	145,000
1995	Sterile Airfield End Zone NW Sub RW	6.8106	16,959	115,500
1995	Noise Buffer NZ Sub Runway	9.6077	18,163	174,500
		26.2851		577,335
1999 Valuation				
	Runways, Taxiways and Grass	328.0865	10,000	3,280,000
	Lessors Interest	32.8764		361,000
	Canty Aero Club	1.4426	500,000	721,000
	Lessors Interest	0.525		328,000
	Terminal Apron	9.0269	500,000	4,513,000
	Pavement (Roading)	1.9426	250,000	486,000
		373.9		9,690,000
	Development Land	176.47		2,972,000
		550.37		12,662,000

Breakdown of 1998-2001 Asset Values and Revaluations

($000s)

	1995		1996		1997	
	CIAL A/cs	Airfield	CIAL A/cs	Airfield	CIAL A/cs	Airfield
Freehold Land						
At valuation (see Note *)	-	-	55,437	8,436	55,840	8,625
At cost	34,440	5,241	-	-	840	-
	34,440	5,241	55,437	8,436	56,680	8,625
Revaluation	-	-	*20,797*	*3,195*	*680*	*189*

	1998		1999		2000		2001	
	CIAL A/cs	Airfield	CIAL A/cs	Airfield Pricing	CIAL A/cs	Airfield Pricing	CIAL A/cs	Airfield Pricing *Forecast*
Freehold Land								
At valuation (see Note *)	55,647	8,625	83,207	9,690	83,207	9,690	83,207	9,690
At cost	1,109	12	-	-	3,300	-	3,300	-
	56,756	8,637	83,207	9,690	86,507	9,690	86,507	9,690
Revaluation	*(70)*	-	*26,128*	*1,053*	-	-	-	-
Buildings								
At valuation	-	-	-	-	-	-	-	-
At cost	106,715	597	121,921	600	121,532	600	124,227	600
Accumulated depreciation	(10,737)	(107)	(19,164)	(124)	(24,320)	(139)	(30,940)	(154)
	95,978	490	102,757	476	97,212	462	93,287	447
Revaluation	-	-	-	-	-	-	-	-
Sealed Surfaces - CIAL figs at HC, Airfield figs at ODRC 1999-								
At valuation	-	-	-	59,303	-	59,303	-	59,303
At cost	29,019	26,807	31,819	-	32,192	-	33,038	-
Accumulated depreciation	(11,302)	(10,651)	(12,167)	(29,394)	(13,002)	(30,915)	(13,857)	(30,754)
Est. Future Resealing Expense	(5,796)	(5,796)	(5,827)	-	(6,633)	-	(7,439)	-
	11,921	10,360	13,825	29,909	12,557	28,387	11,742	28,549
Depreciation Expense (ODRC values)				1,621		1,621		1,621
Depreciation Expense (HC values)		687		837		837		837
Revaluation	-		-	*20,031*	-	-	-	-
Plant and Equipment								
At cost	14,310	1,069	16,141	1,304	16,275	1,345	8,905	1,422
Accumulated depreciation	(7,898)	(655)	(9,482)	(1,013)	(11,068)	(889)	(5,627)	(808)
	6,412	413	6,659	292	5,207	457	3,278	615
Revaluation	-	-	-	-	-	-	-	-
Furniture								
At cost	3,124	52	3,282	60	3,654	65	6,280	75
Accumulated depreciation	(1,937)	(45)	(2,176)	(49)	(2,360)	(50)	(4,721)	(48)
	1,187	7	1,106	11	1,294	14	1,559	27
Revaluation	-		-	-	-	-	-	-
Motor Vehicles								
At cost	4,729	3,064	4,728	3,275	5,007	3,275	4,900	3,275
Accumulated depreciation	(2,713)	(1,884)	(2,956)	(2,100)	(3,144)	(2,318)	(3,255)	(2,537)
	2,016	1,180	1,772	1,175	1,863	957	1,645	739
Revaluation	-	-	-	-	-	-	-	-
TOTAL **Assets**	**174,270**	**21,087**	**209,326**	**41,553**	**204,640**	**39,967**	**198,018**	**40,067**
Revaluation	**-**	-	**26,128**	**21,084**	**-**	**-**	**-**	**-**
Depreciation for year			**11,358**		**7,949**		**4,506**	
c.f. Depreciation Expense	7,532		9,515		9,778		9,287	
c.f. Disclosure Accounts (only land revalued)						24,678		23,494
Assets (with Sealed Surfaces at HC)		22,648		25,469		24,137		23,260

NOTE

* $9,960,000 figure relates only to operational airfield land. Land held for future development is another $2,972,000 (excluded by CIAL for pricing)

CIAL Airfield Asset Register

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
Land														
Opening BV	-	4,346,718	4,967,134	5,056,461	5,054,330	5,058,896	5,202,701	5,240,897	8,436,109	8,625,262	8,636,827	9,690,000	9,690,000	
Additions	4,346,718	*620,416*	*89,327*	*(2,130)*	*4,565*	*143,805*	*38,196*		-	*11,565*	-	-	-	905,744
Revaluations	-	-	-	-	-	-	-	3,195,212	189,153	-	1,053,173	-	-	4,437,538
Closing BV	4,346,718	4,967,134	5,056,461	5,054,330	5,058,896	5,202,701	5,240,897	8,436,109	8,625,262	8,636,827	9,690,000	9,690,000	9,690,000	
Buildings														
Opening BV	-	514,847	548,490	551,532	573,968	567,996	562,024	528,572	522,601	506,464	490,324	474,184	458,044	
Additions	520,047	38,876	10,117	28,126	-	-	-	-	-	-	-	-	-	
Depreciation	5,200	5,233	7,075	5,690	5,972	5,972	33,452	5,971	16,137	16,140	16,140	16,140	16,140	
Closing BV	514,847	548,490	551,532	573,968	567,996	562,024	528,572	522,601	506,464	490,324	474,184	458,044	441,904	
Sealed Surfaces														
Opening BV	-	21,410,421	19,881,306	17,986,296	17,095,214	16,264,621	15,346,584	14,669,420	13,929,307	14,616,513	16,156,000	15,704,800	15,146,894	
Additions	22,925,222	-	16,472	33,109	90,201	4,751	62,636	-	1,447,718	2,226,665	235,476	179,707	53,797	
Depreciation	1,514,801	1,529,115	1,911,482	924,191	920,794	922,788	739,800	740,113	760,512	687,178	686,676	737,613	739,798	
Closing BV	21,410,421	19,881,306	17,986,296	17,095,214	16,264,621	15,346,584	14,669,420	13,929,307	14,616,513	16,156,000	15,704,800	15,146,894	14,460,893	
Reseal Provision	650,000	709,000	931,000	(255,000)	746,000	1,177,000	811,000	1,007,000	(80,000)	100,000	31,000	806,000	806,000	
	20,760,421	18,522,306	15,696,296	15,060,214	13,483,621	11,388,584	9,900,420	8,153,307	8,920,513	10,360,000	9,877,800	8,513,894	7,021,893	
Computers														
Opening BV	-	-	-	-	-	-	-	-	-	-	-	-	373	
Additions	-	-	-	-	-	-	-	-	-	-	-	389	-	
Depreciation	-	-	-	-	-	-	-	-	-	-	-	16	95	
Closing BV	-	-	-	-	-	-	-	-	-	-	-	373	278	
Furniture and Fittings														
Opening BV	-	30,818	24,654	18,490	14,792	11,834	9,467	15,000	11,312	9,570	6,743	5,984	10,768	
Additions	38,522	-	-	-	-	-	13,205	-	-	-	2,110	6,926	40,977	
Depreciation	7,704	6,164	6,164	3,698	2,958	2,367	7,672	3,688	1,742	2,827	2,869	2,142	6,161	
Closing BV	30,818	24,654	18,490	14,792	11,834	9,467	15,000	11,312	9,570	6,743	5,984	10,768	45,584	
Motor Vehicles														
Opening BV	-	474,693	347,503	260,628	210,250	2,401,505	2,016,957	1,705,859	1,437,594	1,318,799	1,179,903	1,043,385	906,867	
Additions	590,871	(47,252)	-	(40,109)	2,578,876	(15,233)	-	(9,000)	5,829	-	-	-	37,408	
Depreciation	116,178	79,938	86,875	10,269	387,621	369,315	311,098	259,265	124,624	138,896	136,518	136,518	136,447	
Closing BV	474,693	347,503	260,628	210,250	2,401,505	2,016,957	1,705,859	1,437,594	1,318,799	1,179,903	1,043,385	906,867	807,828	
Plant and Equipment														
Opening BV	-	410,996	631,820	905,694	919,319	891,740	864,988	852,338	811,155	628,352	413,241	217,242	185,951	
Additions	426,069	243,649	323,903	42,058	-	-	-	-	32,926	-	10,162	3,969	50,972	
Depreciation	15,073	22,825	50,029	28,433	27,580	26,752	12,650	41,183	215,729	215,111	206,161	35,260	36,990	
Closing BV	410,996	631,820	905,694	919,319	891,740	864,988	852,338	811,155	628,352	413,241	217,242	185,951	199,933	
Total Assets	**26,538,493**	**25,041,907**	**22,489,101**	**21,832,874**	**22,415,591**	**20,044,720**	**18,243,085**	**19,372,077**	**20,008,960**	**21,087,038**	**21,308,595**	**19,765,897**	**18,207,420**	

CIAL - STATEMENT OF FINANCIAL PERFORMANCE

For the period ended	Jun-01	Jun-00	Jun-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Jun-92	15 months Jun-91	Mar-90	9 months Mar-89
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
REVENUE													
Airport Charges (Landing Charge & Terminal Services Charge)	19,007	19,475	20,116	19,361	19,588	19,332	18,456	17,171	16,191	14,896	19,158	15,644	9,874
Passenger Departure Charge	8,629	8,160	7,430	7,020	6,022	4,678	4,299	3,980	3,469	2,357	2,590	2,205	1,907
Lease Rentals and Concessions	21,636	19,123	16,561	14,720	13,369	12,279	11,759	10,919	9,855	9,441	9,889	6,992	5,426
Vehicle Parking	3,086	2,931	2,553	2,460	2,272	2,076	1,759	1,565	1,380	1,135	1,453	1,118	1,105
Antarctic Visitor Centre / Other	4,228	4,978	4,546										
Antarctic Visitor Centre				2,719	2,568	2,644	2,710	2,748	2,373	-	-	-	-
Other				1,560	1,122	1,057	1,052	754	391	714	985	631	890
Realised Gain on Sale of Fixed Assets	-	-	-	-	-	-	-	46	-	-	-	-	-
OPERATING REVENUE	56,586	54,667	51,206	47,840	44,941	42,066	40,035	37,183	33,659	28,543	34,075	26,590	19,202
Short Term Bank Deposits	207	229	129	297	368	271	106	54	46	75	22	294	247
Other Deposits	69	7	26	340	205	3	71	69	74	96	148	108	931
INTEREST INCOME	276	236	155	637	573	274	177	123	120	171	170	402	1,178
TOTAL REVENUE	56,862	54,903	51,361	48,477	45,514	42,340	40,212	37,306	33,779	28,714	34,245	26,992	20,380
EXPENSES													
Audit Fees	46	32	35	30	30	25	25	25	22	23	34	43	20
Depreciation	9,287	9,778	9,515	7,532	6,605	4,230	3,680	3,883	3,730	2,690	4,353	3,680	2,695
Directors' Fees	135	135	124	122	104	95	95	95	84	84	105	84	84
Employee Remuneration	8,364	8,336	7,921	7,783	8,068	7,756	7,553	6,923	7,061	6,291	7,317	6,040	5,031
Financing and Interest Costs	5,635	5,420	4,959	4,883	3,145	2,424	2,478	2,579	3,236	3,809	6,760	5,119	5,034
Other Administrative Expenses	4,945	2,990	3,189	2,863	2,709	2,928	2,254	2,318	2,183	1,633	1,755	1,221	-
Electrictity, Fuel & Oil	1,225	1,175	1,157	1,107	811	845	829	828	868	925	1,148	973	-
Maintenance - Buildings & Plant	1,268	1,348	2,293	3,265	2,509	1,125	1,050	1,061	1,201	950	938	931	-
Maintenance - Sealed Surfaces	1,088	904	690	1,652	887	1,142	987	1,136	1,033	1,009	649	475	-
Other Operating Costs	3,842	4,093	3,738	2,982	2,975	2,205	2,260	2,286	1,388	1,015	1,354	1,285	5,901
Movement in Provision for Future Expenses in Resealing Surfaces	806	806	31	100	(80)	1,007	811	1,177	746	745	931	709	650
TOTAL EXPENSES	36,641	35,017	33,652	32,319	27,763	23,782	22,022	22,311	21,552	19,174	25,344	20,560	19,415
Net Profit Before Extraordinaries	20,221	19,886	17,709	16,158	17,751	18,558	18,190	14,995	12,227	9,540	8,901	6,432	965
Extraordinary Items													
Provision for Depreciation re Terminal Expansion	-	-	-	-	8,746	-	-	-	-	-	-	-	-
NET PROFIT BEFORE TAX (NPBT)	20,221	19,886	17,709	16,158	9,005	18,558	18,190	14,995	12,227	9,540	8,901	6,432	965
Income Tax	6,685	6,658	5,553	5,233	3,946	6,471	5,952	5,583	4,174	2,797	3,712	2,800	947
NET PROFIT AFTER TAX (NPAT)	**13,536**	**13,228**	**12,156**	**10,925**	**5,059**	**12,087**	**12,238**	**9,412**	**8,053**	**6,743**	**5,189**	**3,632**	**18**
Effective Tax Rate	33%	32%	31%	31%	40%	34%	32%	37%	34%	30%	36%	37%	42%

CIAL - STATEMENT OF MOVEMENTS IN EQUITY

For the period ended	Jun-00	Jun-00	Jun-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Jun-92	Jun-91	Mar-90	Mar-89
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
EQUITY AT THE BEGINNING OF THE YEAR	120,966	145,687	114,661	110,302	112,909	84,863	77,521	71,853	66,966	62,872	59,757	57,618	57,600
SURPLUS AND REVALUATIONS													
Operating Surplus After Tax	13,536	13,228	12,156	10,925	5,059	12,087	12,238	9,412	8,053	6,743	5,189	3,632	18
Increase in Capital Reserve	-	-	-	-	-	-	-	-	2	-	-	7	-
Increase in Asset Revaluation Reserve	-	-	26,128	-	628	20,797	-	-	-	-	-	-	-
Total Recognised Revenues and Expenses	13,536	13,228	38,284	10,925	5,687	32,884	12,238	9,412	8,055	6,743	5,189	3,639	18
Dividends to Shareholders	(8,295)	(37,949)	(7,258)	(6,566)	(8,294)	(4,838)	(4,896)	(3,744)	(3,168)	(2,649)	(2,074)	(1,500)	-
EQUITY AT THE END OF THE YEAR	**126,207**	**120,966**	**145,687**	**114,661**	**110,302**	**112,909**	**84,863**	**77,521**	**71,853**	**66,966**	**62,872**	**59,757**	**57,618**

CIAL - STATEMENT OF FINANCIAL POSITION

As at	Jun-00	Jun-00	Jun-99	Jun-98	Jun-97	Jun-96	Jun-95	Jun-94	Jun-93	Jun-92	Jun-91	Mar-90	Mar-89	
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	
EQUITY														
Share Capital (57.6 m ordinary shares @ $1)	57,600	57,600	57,600	57,600	57,600	57,600	57,600	57,600	57,600	57,600	57,600	57,600	57,600	
Asset Revaluation Reserve	47,483	47,483	47,483	21,355	21,425	20,797	-	-	-	-	-	-	-	
Capital Reserve	366	366	366	366	366	366	366	366	320	7	7	7	-	
Retained Earnings	20,758	15,517	40,238	35,340	30,911	34,146	26,897	19,555	13,933	9,359	5,265	2,150	18	
Total Equity	126,207	120,966	145,687	114,661	110,302	112,909	84,863	77,521	71,853	66,966	62,872	59,757	57,618	
NON-CURRENT LIABILITIES														
90-day Short Term Notes (@ discounted value)	73,923	82,606	63,259	70,390	47,149	29,348	31,269	32,746	38,311	39,568	37,224	35,520	35,520	
Other Term Borrowings	-	-	-	-	-	-	-	26	62	1,160	1,209	1,297	-	
Total Non-Current Liabilities	73,923	82,606	63,259	70,390	47,149	29,348	31,269	32,772	38,373	40,728	38,433	36,817	35,520	
CURRENT LIABILITIES														
Trade Creditors	1,214	2,893	1,355	1,796	916	1,013	1,200	1,156	1,951	2,517	1,249	2,540	1,911	
Construction Creditors	-	-	776	3,001	6,589	526	-	-	-	-	-	-	-	
Employee Entitlements	669	666	751	725	577	613	560	618	596	519	929	1,004	616	
Goods and Services Tax	331	218	264	127	-	188	186	216	174	47	319	165	814	
Accrued Expenses	1,646	1,084	1,347	912	2,098	1,341	862	979	-	-	-	-	12	
Proposed Dividend	-	3,917	4,147	3,566	4,608	2,362	2,707	1,958	1,670	1,382	461	776	-	
Taxation Payable	706	199	-	-	-	-	-	180	136	237	1,072	686	47	
Current Portion of Term Borrowing	-	-	-	-	-	-	-	2,031	2,059	2,048	2,043	-	-	
Total Current Liabilities	4,566	8,977	8,640	10,127	14,788	6,043	5,515	7,138	6,586	6,750	6,073	5,171	3,400	
TOTAL EQUITY AND LIABILITIES	**204,696**	**212,549**	**217,586**	**195,178**	**172,239**	**148,300**	**121,647**	**117,431**	**116,812**	**114,444**	**107,378**	**101,745**	**96,538**	
NON-CURRENT ASSETS (unless stated, @ cost of acquisition from Christchurch Airport Authority less accumlated depreciatior														**Vesting Value**
Land (@ current valuation)	86,507	86,507	83,207	56,756	56,680	55,437	34,440	34,189	33,244	33,214	33,228	32,641	28,564	31,203
Buildings	23,654	23,527	24,284	24,770	24,034	49,471	49,685	47,125	45,378	43,123	43,036	35,318	35,453	24,651
Terminal Facilities	69,633	73,685	78,473	71,208	23,237	-	-	-	-	-	-	-	-	-
Sealed Surfaces (after provision for future resealing expenses)	11,742	12,557	13,825	11,921	12,553	11,604	13,436	14,624	16,745	17,959	18,635	21,257	20,984	25,397
Plant and Equipment	3,278	5,207	6,659	6,412	7,451	9,273	10,684	11,122	11,734	7,114	7,512	5,067	3,496	
Furniture	1,559	1,294	1,106	1,187	1,285	1,895	2,100	1,812	1,741	1,086	1,175	1,569	980	3,881
Motor Vehicles	1,645	1,863	1,772	2,016	2,196	2,100	2,232	2,625	2,910	855	966	1,294	1,559	
Work in Progress	1,164	1,768	651	12,505	34,801	10,710	1,701	1,432	1,410	7,632	820	2,502	-	-
Total Non-Current Assets	199,182	206,408	209,977	186,775	162,237	140,490	114,278	112,929	113,162	110,983	105,372	99,648	91,036	85,131
CURRENT ASSETS														
Cash	-	-	-	-	13	9	11	10	7	4	3	2	93	
Bank and Short Term Deposits	2,448	1,823	2,651	4,275	2,611	2,769	3,255	155	123	269	(1,148)	(1,232)	2,000	
Receivables and Prepayments (@ net realisable value)	2,666	3,416	3,572	3,189	4,253	4,079	3,183	3,757	3,028	2,680	2,939	3,198	3,263	
Taxation Receivable	-	-	532	193	1,562	321	232	-	-	-	-	-	-	
Future Income Tax Benefit	-	-	-	-	950	-	-	-	-	-	-	-	-	
Inventories (@ lower of weighted average cost or NRV)														
- Materials	241	221	228	202	107	115	126	121	117	108	157	87	112	
- Retail Stock	78	604	547	459	419	442	487	389	328	54	-	-	-	
- Livestock (@ IRD rates)	81	77	79	85	87	75	75	70	47	46	55	42	34	
Total Current Assets	5,514	6,141	7,609	8,403	10,002	7,810	7,369	4,502	3,650	3,161	2,006	2,097	5,502	
TOTAL ASSETS	**204,696**	**212,549**	**217,586**	**195,178**	**172,239**	**148,300**	**121,647**	**117,431**	**116,812**	**114,144**	**107,378**	**101,745**	**96,538**	

CIAL Cost of Capital

per CC	Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01
Price resets	01-Oct-88	01-Oct-89		01-Jun-91			*01-Jun-94*			*01-Jun-97*			01-Jan-01
Non - Contestable/Airfield Activities													
Lower Bound													
Equity													
Rfr	14.67%	13.28%	13.28%	10.99%	10.99%	10.99%	6.04%	6.04%	6.04%	7.39%	7.39%	7.39%	7.04%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Equity beta	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
PTMRP	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Return on Equity	***13.56%***	***12.63%***	***12.63%***	***11.10%***	***11.10%***	***11.10%***	***7.78%***	***7.78%***	***7.78%***	***8.68%***	***8.68%***	***8.68%***	***8.45%***
Debt													
Debt margin	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Tax	28%	28%	28%	33%	33%	33%	28%	28%	28%	28%	28%	28%	33%
Cost of debt	***15.67%***	***14.28%***	***14.28%***	***11.99%***	***11.99%***	***11.99%***	***7.04%***	***7.04%***	***7.04%***	***8.39%***	***8.39%***	***8.39%***	***8.04%***
WACC													
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***12.99%***	***12.04%***	***12.04%***	***10.33%***	***10.33%***	***10.33%***	***7.10%***	***7.10%***	***7.10%***	***8.02%***	***8.02%***	***8.02%***	***7.68%***
Midpoint													
Equity													
Rfr	14.67%	13.28%	13.28%	10.99%	10.99%	10.99%	6.04%	6.04%	6.04%	7.39%	7.39%	7.39%	7.04%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Equity beta	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
PTMRP	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Return on Equity	***15.16%***	***14.23%***	***14.23%***	***12.70%***	***12.70%***	***12.70%***	***9.38%***	***9.38%***	***9.38%***	***10.28%***	***10.28%***	***10.28%***	***10.05%***
Debt													
Debt margin	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Tax	28%	28%	28%	33%	33%	33%	28%	28%	28%	28%	28%	28%	33%
Cost of debt	***15.67%***	***14.28%***	***14.28%***	***11.99%***	***11.99%***	***11.99%***	***7.04%***	***7.04%***	***7.04%***	***8.39%***	***8.39%***	***8.39%***	***8.04%***
WACC													
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***14.19%***	***13.24%***	***13.24%***	***11.53%***	***11.53%***	***11.53%***	***8.30%***	***8.30%***	***8.30%***	***9.22%***	***9.22%***	***9.22%***	***8.88%***

CIAL Cost of Capital

per CC	Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01
Price resets	01-Oct-88	01-Oct-89		01-Jun-91			*01-Jun-94*			*01-Jun-97*			01-Jan-01

Non - Contestable/Airfield Activities

	Mar-89	Mar-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01
Upper Bound													
Equity													
Rfr	14.67%	13.28%	13.28%	10.99%	10.99%	10.99%	6.04%	6.04%	6.04%	7.39%	7.39%	7.39%	7.04%
Tax	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Asset beta	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Equity beta	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PTMRP	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Return on Equity	***17.03%***	***16.09%***	***16.09%***	***14.56%***	***14.56%***	***14.56%***	***11.25%***	***11.25%***	***11.25%***	***12.15%***	***12.15%***	***12.15%***	***11.92%***
Debt													
Debt margin	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Tax	28%	28%	28%	33%	33%	33%	28%	28%	28%	28%	28%	28%	33%
Cost of debt	***15.67%***	***14.28%***	***14.28%***	***11.99%***	***11.99%***	***11.99%***	***7.04%***	***7.04%***	***7.04%***	***8.39%***	***8.39%***	***8.39%***	***8.04%***
WACC													
Debt / (Debt+Equity)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Nominal - after tax	***15.59%***	***14.64%***	***14.64%***	***12.93%***	***12.93%***	***12.93%***	***9.70%***	***9.70%***	***9.70%***	***10.62%***	***10.62%***	***10.62%***	***10.28%***

APPENDIX 18 – LALLY ADVICE ON WACC

THE COST OF CAPITAL FOR THE AIRFIELD ACTIVITIES OF NEW ZEALAND'S INTERNATIONAL AIRPORTS

Martin Lally

November 2001

EXECUTIVE SUMMARY

In accordance with the Airport Authorities Act 1966, the international airports of Auckland, Wellington and Christchurch are required to consult with their customers in the setting of airfield landing charges, with a frequency of at least every five years. A significant factor in setting these landing charges is their cost of capital. Estimates have been offered by all three airports and challenged by the airlines in a number of respects, namely the riskfree rate, the cost of debt premium, the market risk premium, and the asset beta. This paper surveys the views expressed on these four issues and then offers conclusions on them.

First I favour a riskfree rate of .0704 for AIAL and CIAL, representing an average of yields on three year government stock over the six month period preceding the point at which AIAL's new prices came into effect. In general, I favour an average on government bond yields over the period in which consultation occurred, ending with the point at which the new prices came into effect, and with a maturity on the bonds matching the point at which the new prices will be reviewed. With respect to WIAL's current prices, this would retrospectively imply a riskfree rate of .0762, being the five year riskfree rate averaged over the first six months of 1997. Second, I favour a debt risk premium of .01 over the riskfree rate, along with AIAL's leverage of .25. Third, I favour a market risk premium of .08, with bounds of .07 to .09. Finally, I favour an asset beta for all three airfields of .50 (with a band of .40 to .60), although the reasoning for WIAL differs from that for AIAL and CIAL. These parameter values imply a WACC value for CIAL and AIAL of .089, with bounds of .077 to .103. In respect of WIAL, the riskfree rate differs, leading to a WACC of .093 with bounds of .081 to .107.

These conclusions presume that (WIAL's Deed aside) the airfields are in a de facto price cap situation, i.e., prices are not adjusted within the cycle and are adjusted at the end of the cycle so as to fully reflect forecast costs and volumes at that time. In respect of CIAL there is some doubt as to whether they seek to adjust prices at the end of the cycle in this way. In so far as they do not, they bear greater risk and therefore would warrant a greater asset beta. However, due to the uncertainties about their intentions, no adjustment is proposed here.

1. Introduction

In accordance with the Airport Authorities Act 1966, the international airports of Auckland, Wellington and Christchurch are required to consult with their customers in the setting of airfield landing charges, with a frequency of at least every five years. A significant factor in setting these landing charges is their cost of capital. Estimates have been offered by all three airports and challenged by the airlines in a number of respects, namely the riskfree rate, the cost of debt premium, the market risk premium, and the asset beta. This paper surveys the views expressed on these four issues and then offers conclusions. We commence with a brief description of the model that is generally accepted by all parties as appropriate, and then consider each of the four parameters in dispute. Having done this, WACC estimates are then offered for each airport.

2. The Model

The cost of capital is generally agreed by the parties to be a weighted average of the costs of debt and equity, i.e.

$$WACC = k_e(1-L) + k_d(1-T_c)L$$

where k_e is the cost of equity capital, k_d the current interest rate on debt capital, T_c the corporate tax rate and L the leverage ratio. It is also generally agreed that k_d should be estimated as the sum of the current riskfree rate (R_f) and a premium (p) to reflect marketability and exposure to the possibility of default, i.e.,

$$k_d = R_f + p$$

In respect of the cost of equity, it is generally agreed that it should be determined by a simplified version of the Brennan-Lally version of the Capital Asset Pricing Model (Lally, 1992), i.e.,

$$k_e = R_f(1-T_I) + \phi\beta_e \tag{1}$$

where T_I is the average tax rate on interest income, ϕ the market risk premium, and β_e the beta of equity capital. The equity beta is sensitive to the leverage ratio L, and it is generally agreed that the relationship is

$$\beta_e = \beta_a \left\{1 + \frac{L}{1-L}\right\}$$

(2)

where β_a is the asset beta, i.e., the equity beta in the absence of debt.

It is generally agreed that the parameters T_I and T_c are both .33. Finally it is generally agreed that, with the cost of equity determined in this fashion, the leverage ratio L exerts little effect upon the *WACC* calculation. This leaves four parameters, to which *WACC* is sensitive and there is divergence of opinion: the riskfree rate R_f, the debt premium p, the market risk premium ϕ, and the asset beta β_a.

3. The Riskfree Rate

In respect of this parameter, the airports have suggested figures ranging from .067 to .073, whilst the airlines favour .065. The choice affects not only the cost of equity but also serves as a benchmark for setting the cost of debt. Consequently, a variation of .006 in the riskfree rate will generate almost the same variation in the WACC. There is agreement amongst the parties that the yields on government bonds offer a good proxy for the riskfree rate. Debate revolves around two questions: what is the appropriate maturity date for the government bonds and the point at which the rate is set.

In respect of the first question, the alternatives suggested are a maturity corresponding to the end of the review period and a maturity corresponding to the duration of the airports' assets. The former leads to the use of three or five year government bonds, and the latter to the use of ten year ones. There is little difference between the rates on such bonds at the time the rate was chosen. Consequently a decision here has no immediate implications. However, on future occasions, yields may differ, and the issue will then need to be faced. The appropriate bonds are those corresponding to the review period (period 1) rather than the duration of the airports assets (period 2), and the reason is thus. If yields for the two periods differ, this is due to either an expected change in yields after the end of period 1 (expectations hypothesis) or a reward for bearing risk after the end of period 1. Since landing charges are set for the first period, and are intended to reflect expected costs and risks over that period, they should not be affected by expectations of interest rates or risks after that period. The CIAL submission (2001a) notes the second of these factors.

On behalf of WIAL, LECG (2001) contend that this reasoning is appropriate if the price resetting yields a predictable value for the airfield, but is not appropriate if that value is uncertain. Given that the value is uncertain they then argue for use of the ten year government bond rate. However the argument presented above is valid even when the price resetting process is imperfect. To illustrate this point, suppose that the period for which prices are set is five years commencing now, i.e., from time 0 till time 5. In five years, prices will be reset then for a further five years, and so on. Also, suppose that the five year bond rate is currently 5% and the ten year bond rate is currently 7.5%, the latter due to expectations that interest rates in five years will be 10%. Suppose these expectations are vindicated in the sense that, in 5 years, the bond rate is 10%, for all terms to maturity. Under the proposal presented here the rate of 5% would be used for the next five years, followed by the use of 10% thereafter. Under the LECG proposal, the rate used would be 7.5% for the first five year period, followed by 10% thereafter. The LECG proposal then leads to double-dipping in the sense of the airport being rewarded for future high interest rates not only when they occur but also in anticipation of it. The fact that there is uncertainty now about the value of the airfield assets in five years does not warrant the use of the ten year government bond rate. The uncertainty is simply akin to the toss of a coin at that time, and is therefore a risk that is unrelated to the current term structure of interest rates.

In respect of the second issue, the obvious point at which to select the rate is the point at which the new prices come into effect, because the prices are supposed to reflect costs (of which this is one). However the precise day has no fundamental significance, and was to some extent controlled by the airports. Furthermore the prices were set prior to them coming into effect, based on costs at that time. Finally there is variation in riskfree rates from day to day. All of this suggests that the rate should not be chosen on the day on which the new prices came into effect. Instead it should be averaged over the preceding consultation period. This prevents inequitable results arising from freakish rates on one day, prevents the airports choosing the time at which new prices come into effect in an attempt to benefit from unusually high riskfree rates at that time, and reflects the riskfree rate underlying the new prices at the time the latter were set. In respect of AIAL, the bulk of the consultation was over the period from February till August 2000, and the new prices took affect on 1.9.2000. Consistent with this, AIAL (2001) have averaged the weekly yields over the period March till September 2000, for government stock maturing around the end of the three year period for which prices are set. This figure is .0692. However, as pointed out by LECG (2001), this figure reflects “simple” interest. Allowance for compounding raises it to .0704. In respect of CIAL, consultation effectively commenced in February 2000 and prices came into effect on 1.1.2001. Thus the consultation period was very similar. Consistency suggests use of the same riskfree rate for both airports. Accordingly I recommend the same figure for CIAL. In respect of WIAL, their current prices came into effect on 1.7.1997. Consistent with the practice recommended for the other two airports, I retrospectively recommend use of the average government stock yield over the 6 months preceding 1.7.1997, using five year government bonds (this five year span corresponds to the duration of the new prices). This figure is .0747 (Reserve Bank website). Again this figure reflects "simple" interest. If appropriate compounding is applied, the result is .0762.

In summary I recommend a riskfree rate of .0704 for AIAL and CIAL. In respect of WIAL, and future price setting by the other two airports, I recommend use of the average government stock yield over the 6 months preceding the point at which the new prices take effect, using bonds whose maturity coincides with the period for which the new prices apply. Retrospectively, this is .0762 for WIAL.

4. The Debt Premium

As indicated in section 2, this is a premium added to the riskfree rate to generate the current cost of debt for an airport. The airports have suggested figures ranging from .50% to 1.5%, whilst the airlines have suggested .80% for AIAL and WIAL, and .50% for CIAL. The range of figures is then 1%. With a leverage ratio of 25% (see below), and a company tax rate of .33, this would imply a variation in the WACC of only .20%. This is not substantial.

Various sources of evidence are offered on this figure, including regulatory judgements, empirical studies relating yields to debt ratings, and market yields on AIAL bonds relative to government stock of the same maturity. [

] Air New Zealand (2000a) argues for a premium of .80% based on an unspecified study of American companies' credit ratings. The high figure of 1.5% comes from the WIAL submission (2001), and is not accompanied by any supporting evidence. The low figure of .50% comes from the BARNZ submission (2001a), and is similarly unaccompanied by any supporting evidence. The AIAL submission (2001) argues for 1%, based on ACCC decisions for Australian airports. Bowman (2000) notes that the empirically determined figures reflect all airport operations, and the appropriate number for aeronautical activities will be less.

The best evidence offered here is that from Marsden (2000a), in respect of AIAL, and it differs only trivially from that argued for by the airlines for AIAL. I agree with Bowman's point that it will overestimate the appropriate figure for aeronautical activities, but the required adjustment is not apparent and I do not think it would be substantial. In support of this are margins for similarly low default risk businesses, such as .90% for Transpower and 1% for Housing New Zealand (data from the Debt Management Office of The Treasury). Consequently I favour a figure of 1% for AIAL. This rate reflects the actual leverage level of AIAL, and therefore must be coupled with it. There are numerous references to a leverage ratio of .40 for AIAL, but this does not reflect market leverage and this is the appropriate concept. In mid

2000, AIAL's equity had a market value of about $1b (data from NBR). In addition the 2000 Financial Statements of AIAL record debt of around $300m (Commerce Commission, 2001, p. 47), and will be a good proxy for its market value. This implies a leverage of about .25, and the figure for the preceding year is similar. Thus a leverage ratio of .25 rather than .40 should be ascribed to AIAL.

LECG (2001) argues that WIAL's debt margin is currently higher (1.5%), and its current leverage is also higher (50%). If this were impounded into the calculation of WACC, the figure would be raised by about .17%. However the data should reflect the 1997 rather than the current situation, and LECG seem to acknowledge this (ibid, p. 26). In this case the leverage falls to 29% (at least on book value) and information on the 1997 debt margin is not supplied. Given the considerably lower leverage, the debt margin would presumably have been much less, possibly little different to the 1% for AIAL. In view of this, I favour applying AIAL's data on the debt margin and leverage to WIAL. The same principle applies to CIAL.

One final point is thus. The debt margin of 1% should be coupled with the riskfree rate suggested in the previous section, to generate the airport's cost of debt. That riskfree rate is associated with the review period for the landing charges rather than the duration of the company's debt or its assets. Consequently the estimated cost of debt is that for the review period rather than the duration of the firm's actual debt or the duration of its assets. The argument for doing so corresponds to that in the previous section - landing charges should reflect expected costs and risks over the review period.

5. The Market Risk Premium

Given the tax environment generally agreed upon, the definition of the market risk premium in the present version of the CAPM is

$$MRP_{BL} = k_m - R_f(1 - .33) \tag{3}$$

where k_m is the expected rate of return on the market portfolio. All three airports agree on a value for this market risk premium of .09 whilst the airlines favour a value of .08. The difference of .01 translates into a WACC difference of about the same.

There are a number of ways of estimating this parameter. The most widely used is to observe the ex-post annual counterparts to each term comprising the market risk premium, and then arithmetically average over a large number of years. The methodology was first applied by Ibbotson and Sinquefield (1976) to the market risk premium in the standard version of the Capital Asset Pricing Model (CAPM: Sharpe, 1964; Lintner, 1965; Mossin, 1966). PricewaterhouseCoopers (hereafter PwC, 2000) have applied it to a similar version of the CAPM to that used here, and generated an estimate of .08 using data from 1925. LECG (2001) correctly note that the tax assumptions invoked by PwC in generating their estimate are subtlety different to those assumed in equation (1), and the effect is to raise the estimate slightly to .082. Interestingly both the airports and airlines refer to the PwC work, with the figure of .09 arising from PwC's earlier estimates, which involved a shorter time period. The choice of time span involves a trade-off between more data (which improves the statistical precision of the estimate, assuming the true value has not changed over time) and potentially less relevant data (in so far as the true value has changed over time). I favour the longer time span, and hence the .082 estimate.

Period aside, there are also issues arising from whether geometric or arithmetic averaging should be employed, and Cooper's (1996) analysis supports arithmetic averaging. Furthermore there are also questions arising from the choice of term for the riskfree rate used in these calculations. Whichever period, definition of the riskfree rate and form of averaging is used, there are a number of more fundamental concerns with the methodology. The most significant may be the statistical uncertainty surrounding the estimate. Chay et. al (1993, Table 5) give a standard deviation for the annual figures used in estimating the New Zealand market risk premium for the standard CAPM of .22, for the years 1931-92. The corresponding figure for the PwC data should be very similar. This implies a 95% confidence interval on the .08 estimate of about

$$.08 \pm 2\frac{.22}{\sqrt{75}} = .08 \pm .05$$

This is a very large interval. Other concerns with the methodology include the use of listed equity as a proxy for the market portfolio (Roll, 1977; Roll and Ross, 1994; Lally, 1995), potential biases arising from unexpected inflation in the post WWII period (Siegel, 1999), and changes over time in the true value, arising from changes in such factors as market volatility. The last two of these factors each suggest that the results from historical averaging overestimate the current value of the market risk premium.

The second approach to estimation of the market risk premium involves consideration of estimates of the market risk premium in the standard CAPM (denoted MRP_S), subject to correcting for differences in the definitions. [ ], the relationship between the two market risk premiums is

$$MRP_{BL} = MRP_S + R_f(.33) \tag{4}$$

[

]

Substitution into equation (4), along with our selected riskfree rate of .0704, then yields estimates for MRP_{BL} of .088 to .11, and this supports use of .09 rather than .08. The New Zealand results are useful in providing a cross check on the PwC work, which is not published. The foreign results are useful in providing a cross check on New Zealand results, which could be skewed by shocks peculiar to that market. However there are a number of problems with this approach. First, in respect of the foreign markets, their true market risk premiums may differ from that of New Zealand, and therefore estimates of such will be biased estimates of the true value for New Zealand. For example, Merton (1980) notes that the market risk premium is a positive function of market volatility, and the latter differ markedly across markets. The (standard) market risk premium is also dependent upon the personal tax regime, and these markets also vary in this way. Thus the averaging over these markets without any allowance for differences in the underlying causal factors is problematic.

Second, many of these markets have switched to some version of dividend imputation during the period for which returns were collected; this would have led to a reduction in k_m relative to R_f, and hence a reduction in the true standard market risk premium. However, much of the data used reflects the earlier tax regime and therefore generates an estimate of the standard market risk premium that is biased up. With insertion into equation (4), the estimate for MRP_{BL} will also be biased up. The PwC approach referred to earlier is free of this problem, as well as having the advantage of being based on New Zealand data[1]. To illustrate this problem, we invoke the Chay results for New Zealand, and use them to generate a direct estimate of MRP_{BL}. With the assumption that capital gains are tax free, then MRP_{BL} would be

$$MRP_{BL} = k_m - D_m T_m - R_f(1 - T_I)$$

where D_m is the dividend yield on the market portfolio and T_m is the tax rate on dividends (Lally, 1992). If dividend imputation operates or dividends are tax exempt, then T_m is zero; otherwise $T_m = T_I$. A direct estimate of this, following PwC, would be to compute the ex-post outcome for each year and then average over it. This is equivalent to calculating the average over each of the terms on the right hand side of the last equation, i.e., letting $AV\{\ \}$ denote the average of { }, and R_m the actual rate of return on the market portfolio, then

$$AV\{R_m - D_m T_m - R_f(1 - T_I)\} = AV\{R_m - R_f\} - AV\{D_m T_m\} + AV\{R_f T_I\}$$

Chay et al (1993, 1995) estimates the first term on the right hand side as .065, and their average value for R_f over their time-series is .0661 (Chay et al, 1995, Table 2). I will assume the current value for T_I of .33 is also applicable to the entire period of the Chay et al study (1931-1994). Dividends were exempt from tax in New Zealand until 1958, and dividend imputation operated from 1988; consequently T_m takes the value .33 for 30 of the 63 years in the time series, and zero for the remainder. A plausible estimate for the market dividend yield is .04 for the entire period (Lally, 2000, p. 6, gives the current value as .04). Inserting this data into the last equation yields a direct estimate of MRP_{BL} of

$$M\hat{R}P_{BL} = .065 - .04(.33)\frac{30}{63} + .0661(.33) = .081$$

This is almost identical to the PwC figure mentioned earlier, of .082[2]. By contrast, if one simply inserts the Chay et al estimate for the standard market risk premium of .065 into equation (4), the resulting estimate for MRP_{BL} is .088. This is larger by .007. To generate an estimate of MRP_{BL} through the process employed here that matches the figure of .088, one must either lower the average market dividend yield

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[1] There are no estimates of MRP_{BL} from foreign markets.

[2] This is unsurprising in view of the fact that the time spans used in the two papers are very similar, and the methodology applied here matches that used by PwC (although their estimates for tax parameters and dividend yields will be more precise).

over the 63 years or raise the average value of T_I over that period. The average market dividend yield would have to be lowered below zero; alternatively the average value of T_I would have to be raised to .50. The former is impossible and the latter implausible. It follows that insertion of the Chay et al result into equation (4) overestimates MRP_{BL}.

Finally, in respect of using equation (4) and a variety of estimates for the standard market risk premium across countries, different time spans are used and, as pointed out by Dimson et al (2000), there are also substantial differences in methodology. Mindful of these concerns, LECG (2001) invoke Dimson's results, in which consistent methodology is applied to twelve major markets (not including New Zealand) for the period 1900-2000. In particular they invoke the Dimson estimates arrived at by geometric differencing, and take the median of these twelve numbers, yielding .071. They then convert from geometric to arithmetic differencing, to yield a figure of .076. Inserting this figure into equation (4), along with a riskfree rate of .0692, then yields an estimate for New Zealand's MRP_{BL} of .099. On this basis they then argue for the use of .09 rather than .08. However their approach is still subject to the first two concerns raised in respect of Marsden's approach. In addition, there is a further difficulty arising from their use of geometric differencing. Whilst this has the desirable property of ensuring that the resulting market risk premium measure is invariant to the choice of currency, so do many other transformations. The key issue is whether the transformation is in accord with the arithmetic differencing definition of the market risk premium in the CAPM. Only arithmetic differencing has this crucial property. Using arithmetic differencing (Dimson, 2000, Table 5), the median of the results across the twelve countries is .071, and substitution into equation (4) then yields .094 rather than the .099 suggested by LECG.

The third approach to estimating the market risk premium recognizes that the market risk premium changes over time and utilizes historical data to estimate the relationship between the market risk premium and certain underlying factors. The seminal paper in this area is that of Merton (1980), who suggests that the market risk premium (in the standard version of the CAPM) is proportional to either market variance or standard deviation. In respect of New Zealand data, and the version of the CAPM considered here, Credit Suisse First Boston (1998) have applied this approach and generated an estimate of .075. This work has been referred to by the airlines in support of their view. However the methodology used here differs in some ways from that of Merton, is not fully disclosed and has not yet appeared in the financial economics academic literature. [ ] Other concerns with the methodology include statistical uncertainty, and whether the market risk premium is proportional to variance or some other measure of market risk. Notwithstanding this, the estimate is remarkably consistent with the PwC estimate of .08.

A fourth approach to estimating the market risk premium eschews historical returns data in favour of the current value of the market portfolio, current market dividends and estimates of growth in them. Letting DIV_m denote current market dividends, g_1, g_2…denote the expected growth rate in dividends to current shareholders, and k_m the discount rate on such, then the current value of the market portfolio is the present value of these future dividends, i.e.,

$$P_m = \frac{DIV_m(1+g_1)}{1+k_m} + \frac{DIV_m(1+g_1)(1+g_2)}{\{1+k_m\}^2} + ...$$

Thus

$$1 = \frac{D_m(1+g_1)}{1+k_m} + \frac{D_m(1+g_1)(1+g_2)}{\{1+k_m\}^2} + ... \tag{5}$$

where D_m is the market dividend yield. Substituting in the current market dividend yield and the set of estimated growth rates, this equation is then solved for k_m. Substitution of this into equation (3), along with the current riskfree rate, then yields an estimate for the market risk premium. Surprisingly, neither the airlines nor airports have referred to this approach. Variants of this "forward-looking" approach arise according to whether short-term forecasts of earnings per share are extrapolated indefinitely or whether they are assumed to converge on a long-run expected growth rate. Cornell (1999, Ch. 4) argues that the long-run expected growth rate in dividends must equal the long-run growth rate in the economy, and short-term (five year) forecasts in earnings per share typically exceed this. The latter must then converge to the former over some period, and Cornell suggests 20 years.

At the relevant time (mid 2000), estimates of EPS growth in the NZSE40 companies were 20%, 18% and 12% for the next 3 years, along with a current market dividend yield of .04 (data from Ord Minnett, 2000). In addition, as of mid 2000, a long-term forecast of nominal GDP growth is around 4%[3]. If convergence to this takes 20 years then equation (5) implies an estimate for k_m of .123. Substitution of this into equation (3), along with our riskfree rate of .0704, yields an estimate of the market risk premium of .076. These calculations will tend to overestimate the market risk premium because they ignore the documented tendency for analyst's earnings forecasts to be optimistic (Claus and Thomas, 2001). In addition the long-run growth rate is that for dividends to both existing and subsequently issued shares, and therefore overestimates the long-run growth rate in dividends on existing shares. Thus the estimate of the market risk premium arising from this approach should be viewed as an upper bound. In obtaining an estimate of the market risk premium that is below that suggested by historical averaging, the result here is consistent with US results (Lally, 2000, pp. 19-20, surveys this evidence).

Like the earlier approaches, this forward-looking approach has a number of drawbacks. These include uncertainty about expected dividend growth rates and the period of convergence towards the long-run rate, the assumption that the observed market price of the market portfolio is rationally set, and that the model used by the market in setting k_m corresponds to that invoked here in equation (1). Bearing these concerns in mind, the above results of its application favours an estimate of the market risk premium of less than .08. LECG (2001) appear to dismiss approaches of this kind due to the considerable uncertainties involved in assessing various

[3] The NZIER offers forecasts for the next five years. As of June 2000, their five year ahead forecasts for real GDP growth and inflation were .022 and .017 respectively (NZIER, 2000). This implies a nominal growth rate of almost .04.

parameters. However they are free of the wide confidence intervals that characterize historical averaging, and LECG themselves (ibid, p. 7) acknowledge this problem with historical averaging.

The last approach to estimating the market risk premium is that of survey evidence. AIAL (2001) mentions survey evidence from Welch (2000), yielding a figure of .06-.07. However the range mentioned arises according to whether the risk premium is measured relative to a long-term or a very short-term riskfree rate. The riskfree rate used in the PwC report is long-term. Consequently, the relevant Welch figure is .06, and this is translated by equation (4) into a market risk premium of .083. These points aside, and as indicated earlier, all foreign estimates are subject to the problem of inter-country differences relevant to market risk premiums, such as market volatilities and personal taxes.

In summary, we have considered a range of methodologies for estimating the market risk premium in equation (3). The PwC estimate is .082. Estimates of the standard market risk premium for a variety of markets, corrected for the difference in definitions, yields a median of .094. However these are likely to be biased up relative to the PwC estimate by up to .01, suggesting a figure of less than .09. The estimate from use of the Merton approach is .075. Application of one version of the forward-looking approach yields an estimate of .076, and is biased up to some degree. Finally, US based survey evidence points to a figure of .083. All of these estimates have limitations. Unlike LECG, I do not favour placing great weight on any one method. Estimation difficulties in this area point to an estimate to the nearest percentage point. Accordingly I favour an estimate of .08. Plausible bounds on this are .07 to .09. These bounds reflect the range in results across the various methods considered here, coupled with some recognition of the wide statistical confidence intervals on the first two methods.

6. Asset Beta

6.1 Introduction

The final parameter in dispute is the asset beta. The airports favour values from .40 to .70 whilst the airlines favour a value of about .30. The difference, of up to .40, translates into a WACC difference of around .03. Accordingly it is the most significant parameter under dispute.

Both parties support their positions by reference to estimated asset betas of "comparable" companies along with the judgements of others. The comparable companies suggested are AIAL (the only listed New Zealand airport), three foreign listed airports, port companies in various countries, and utilities in various countries. Judgements that are referred to include Australian regulatory decisions for airports, gas and electricity, Airways Corporation, Transpower, and Commerce Commission Ruling 266 on the gas distribution business of NGC. We start by examining these comparators. A fundamental step in the selection of comparable companies is some knowledge of what underlies betas, and we start with a review of these determinants.

6.2 Determinants of Betas

Rosenberg and Guy (1976a) suggest that betas arise from the sensitivity of an asset's price to macro-economic shocks ("factors") affecting the returns of most assets in an economy. Chen, Roll and Ross (1986) suggest that these factors are unexpected changes in real GNP, inflation, market risk aversion and the long term real interest rate. Dybvig and Ross (1985) show that the beta of an asset is a linear function of its coefficients against the factors. Differences in betas would then arise from differences in these factor coefficients. Amongst equities, sensitivities to the last three of the factors mentioned – inflation, market risk aversion and the long-term real interest rate – should be similar. However, sensitivities to the first factor (real GNP) may differ. Thus differences in equity betas across assets should arise from differences in the sensitivity of their returns to real GNP shocks. Such shocks should be further decomposed into local and world shocks, with the former having a greater effect upon the return on the local market portfolio, and hence a greater effect upon the beta. We then ask what governs the sensitivity of equity returns to real GNP shocks. The following are suggested:

(1) Industry, i.e. the nature of the product or service. Firms producing products with low income elasticity of demand (necessities) should have lower sensitivity to real GNP shocks than firms producing products with high income elasticity of demand (luxuries), because demand for their product will be less sensitive to real GNP shocks. Rosenberg and Guy (1976b, Table 2) document statistically significant differences in industry betas after allowing for various firm specific characteristics, and these differences accord with intuition about the income elasticities of demand. For example energy suppliers have particularly low betas whilst recreational travel is particularly high. In respect of airfields, much of the demand is recreational travel, for which betas are particularly high.

(2) Nature of the customer. There are a number of aspects to this. One of them is the split between private and public sector demand. Firms producing a product whose demand arises exclusively from the public sector should have lower sensitivity to real GNP shocks than for firms producing a similar product demanded exclusively by the private sector, because demand should then be less sensitive to real GNP shocks. This has no apparent implications for airfields or any suggested comparators. A second aspect of customer composition is the residency mix. Demand for air travel by New Zealanders should be sensitive to local GNP shocks, whilst demand from foreigners should be sensitive to world GNP shocks. The former shocks should be more closely related to the performance of the New Zealand market portfolio. Consequently airfields with a larger proportion of New Zealand customers should have higher betas. A third aspect of customer composition is the personal/business mix, with the former being more sensitive to GNP shocks.

(3) Pricing Structure. Firms with revenues comprising both fixed and variable elements should have lower sensitivity to real GNP shocks than firms whose revenues are entirely variable. Some power and telecommunications companies' revenues have these fixed components.

(4) Duration of contract prices with suppliers and customers. The effect of this on beta will depend upon the type of shock and the firm's reaction to it in the absence of a temporarily fixed price. For example, an output price fixed for a period prevents a firm from exploiting a positive demand shock, through raising its output price, and this reduces the firm's beta. By contrast, if a negative demand shock arises from an adverse cost shock to an economy, the same restriction on output price also prevents a firm from raising its output price in response to the adverse cost shock, and this magnifies its beta. In addition, in the presence of a negative demand shock, a restriction on output price prevents a firm that would otherwise have raised price to counteract the demand shock from doing so; the price restriction then raises its beta. The last two examples here would seem to be relevant to airfields. Thus, in respect of airfields, the longer the period for which output prices are fixed, the higher is their beta.

(5) Presence of price or rate of return regulation. Firms subject to rate of return regulation should have lower sensitivity to real GNP shocks, because the regulatory process is geared towards achieving a "fair" rate of return. Rosenberg and Guy (1976b, Table 2) find that such industries have amongst the lowest betas after allowing for various firm specific variables. Price regulation will have a similar effect, providing prices are frequently reset. However, as the reset interval increases, such a firm tends to resemble one with an output price contractually fixed for a long period. As indicated in (4), this is likely to increase the beta of an airfield. Consistent with this, Alexander et al. (1996) show that utilities subject to UK style regulation (in which prices are set for five years) have significantly larger average asset betas than for utilities subject to US regulation (in which prices are set for only one year). Lally (2001) attributes part of the difference in asset betas to market leverage differences, but this still leaves a substantial residue, apparently attributable to the difference in regulatory regimes.

(6) Degree of monopoly, i.e. price elasticity of demand. So long as firms act to maximise their cash flows, theory offers ambiguous results – Subrahmanyam and Thomadakis (1980) conclude that monopoly power reduces beta whilst Conine (1983) concludes that the direction of impact depends upon various other parameters. By contrast, if monopolists do not optimise their cash flow, in the sense of reacting to demand shocks by varying the cushion provided by suboptimal pricing and cost control more than do non-monopolists, then their returns should exhibit less sensitivity to demand, and hence to real GNP shocks. The empirical results in this area are equally mixed – Sullivan (1978, 1982) concludes that increased market concentration is associated with lower asset betas whilst Curley et al (1982) finds no relationship. In respect of airfields, their monopoly power may be diluted by the countervailing power of airlines.

(7) Nature of the firm's real options. The existence of options permitting expansions of the firm (adopting a new product, expanding existing operations etc) should increase the firm's sensitivity to real GNP shocks, as the values of these growth options should be more sensitive to real GNP shocks than equity value exclusive of them, and these two value components should be positively correlated. Chung and Chareonwong (1991) model the relationship between beta and growth options, and find empirical support for a positive relationship. By contrast, the

existence of options permitting contractions of the firm should reduce the firm's sensitivity to real GNP shocks, because the option value should be negatively correlated with equity value exclusive of it. Black and Scholes (1973) show that the sensitivity of an option value to an underlying variable (and hence that of a firm possessing one) will vary with the term to maturity of the option and with how close it is to "the money".

(8) Operating leverage. If firms have linear production functions and demand for their output is the only random variable, then firms with greater operating leverage (higher fixed to total operating costs) should have greater sensitivity to real GNP shocks because their cash flows will be more sensitive to own demand, and hence to real GNP shocks. A number of papers including Rubinstein (1973), Lev (1974) and Mandelker and Rhee (1986) have modeled this. However the assumptions noted above, which underlie this work, are very restrictive. Booth (1991), by contrast, examines a perfectly competitive firm facing price uncertainty, and reaches the opposite conclusion about the sign of the relationship between operating leverage and beta. In respect of empirical work, Lev (1974) shows that operating leverage is positively correlated with equity beta, for each of three industries. Mandelker and Rhee (1974) refine the procedure and reach the same conclusion in respect of a set of firms spanning numerous industries. However Lev's conclusions are specific to the three industries examined. Furthermore Mandelker and Rhee's conclusions are at best valid for the majority of firms included in the data set, i.e. some industries may exhibit the opposite pattern but are outweighed in the data set. These concerns about lack of generality of the results are prompted and supported by the theoretical literature just surveyed. Nevertheless, the situation facing airfields would seem to correspond to that modeled by Rubinstein et. al., and this implies that the high operating leverage of airfields should magnify their betas.

(9) Market weight. Increasing an industry's weight in the market proxy against which its beta is defined will draw its beta towards 1, although not necessarily in a monotonic fashion (Lally and Swidler, 1997). Even for a market weight as low as 5%, the effect can be substantial. Airfields and possible comparators have limited weights in market indexes. Consequently this point is not relevant.

(10) Capital structure. Firms with greater financial leverage will have greater sensitivity of equity returns to real GNP shocks because cash flows to equityholders will be more sensitive to own demand, and hence to real GNP, shocks. Hamada (1972) and Conine (1980) have modelled this, and Hamada (1972), Mandelker and Rhee (1984) and Bhandari (1988) provide empirical support. Ehrhardt and Shrieves (1995) extend this to convertible debt and warrants. Lally (2001) shows that firm leverage matters only in relation to market leverage. Thus, ceteris paribus, firms in different markets that have different market leverages will have different betas.

Prima facie, comparators will need to be similar in the above respects. However, so long as differences can be corrected for, this will not be necessary (and will therefore expand the set of comparators, with resulting improvement in the statistical reliability of the beta estimate). Comparators need not be individual firms ("pure plays"). They can be subunits of a firm. Estimates of the "pure-play" betas can be extracted from the overall company betas by the process suggested by Ehrhardt and Bhagwat (1991). In addition, standard practice is to correct for financial leverage, and the appropriate formula is that shown in equation (2). Correction should also be made for differences in market leverage, if beta estimates are drawn from different economies (see Lally, 2001). Correction for other factors affecting beta is problematic, due to lack of theoretical formulas or to significant controversy about the appropriate formula.

6.3 Arguments Presented

We now assess the arguments and data presented by the various parties. The first type of comparator suggested is AIAL itself. Air New Zealand (2000b, p. 63) cites an estimated equity beta for AIAL of .63, and translates this into an asset beta of .51. They add that it has been trending down since listing. They also add that capital repayments are expected, so that conversion to an asset beta should use "..a more normal gearing ratio.." Doing so yields an asset beta of about .40. The claim concerning trending down should be disregarded – any trend will most probably be a reflection of statistical estimation error rather than the underlying true value. In respect of a normal gearing level, the appropriate gearing ratio to use is the actual average over the period in which the equity beta was estimated (see Lally, 1998a). If this is unusually high then so too will the equity beta, and the de-gearing must therefore reflect the actual rather than the normal gearing level. Thus, the figure of .51 should be treated as the estimated asset beta for the whole business, which includes non-aeronautical activities (retailing, etc).

Air New Zealand goes on to suggest that non-aeronautical activities warrant a higher asset beta, leading to them deducting .05 from the .40 to yield an estimated asset beta for aeronautical activities of .35. The weights used in this exercise are not disclosed but are implicitly .50 each. [

] and the CIAL submission (2001) cites a figure of .72. [

] The fact that the three separate estimates differ as much as they do is simply an illustration of this fact. Furthermore such statistical uncertainty is aggravated by the short period for which AIAL has been listed (betas are typically estimated from five years of data).

The second type of comparator suggested is foreign airports. [
], and CIAL (2001a) cites estimates for the same three companies, with an average of .53[4]. In addition, LECG (2001) cite estimates for five airports in Alexander et al (1999), with an average of .61. However, there are a number of problems with these estimates. First, in so far as these foreign airports have substantial non-aeronautical activities, their asset betas

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may be poor proxies for that of aeronautical activities. For example, in respect of the three foreign airports referred to by CIAL, Crighton Seed (1999, p. 11) notes that one of them (BAA) derives only 30% of its revenues from aeronautical services. This information, along with the weighting on aeronautical services, could be used to deduce the "pure-play" betas, following the procedure of Ehrhardt and Bhagwat (1991). However, even if this were done, the small number of companies would imply a statistically unreliable estimate.

Second, there are concerns about whether the equity betas from which these asset betas are derived are "raw" numbers or have been adjusted towards 1 (Lally, 1998b, shows that such adjustments are unwarranted and would have the effect here of overestimating the appropriate asset beta). Third, there is no correction of the foreign asset betas for market leverage differences. Lally (2001) shows that such differences can exert a substantial effect upon asset betas, CIAL (2000, p. 68) acknowledges the need for such adjustments, and Lawriwsky (2001, Table 4) undertakes such adjustments when examining airlines.

Finally, neither Marsden nor CIAL provide information about the regulatory regime under which the foreign airfields operate, and point (5) in the previous section indicates the significance of this issue. In respect of this last point, both Air New Zealand (2000b) and BARNZ (2001a) claim that overseas airfields that are subject to regulation are not good comparators because AIAL can reset prices at any time subject to consultation. However the precise nature of the regulatory regime under which these foreign airfields operate is not disclosed. What does seem clear is that AIAL and CIAL cannot reset landing charges at will. Resetting is bound by consultation requirements and these do not seem to be trivial. Furthermore I understand that the New Zealand airports have not historically exercised this power within the five-year reset points, at least in respect of demand or cost shocks[5]. In addition, their charges are fixed in nominal terms so that they face inflation risk over the period between price reviews. By contrast, the foreign regulated airfields may resemble Australian or UK regulated firms, in that the inflation uncertainty is borne by customers. WIAL is in a rather different situation, with a Deed (WIAL, 1997) that allows it to vary charges in accordance with realized levels of inflation and demand. On this account its risk will therefore be less than AIAL or CIAL. However it is not apparent that the risk for the latter two is less than the foreign airfields offered as comparators. LECG (2001) do provide information on the regulatory regimes facing various foreign airfields. They vary considerably, implying an even smaller sample set when companies with a different regulatory regime are excluded.

The third type of comparator suggested is ports. CIAL (2001a) suggests that port companies are comparable to airports on the grounds of being in the same (transport) industry, enjoying regional monopolies and a mix of contestable and non-contestable activities. They then present asset betas for eight such companies (four New Zealand and four British) with an average asset beta of .72[6]. Based on this they ascribe an

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[5] AIAL did temporarily raise prices to finance a major construction project.

[6] Crighton Seed (1999) also report figures on these British companies, and they are generally larger than the CIAL ones. Since the former are obtained from LBS, who adjust betas towards 1 using the Vasicek (1973) method, this is unsurprising. It also illustrates the need to check whether such adjustments are embodied in the beta estimates accessed.

asset beta of .70 to airports. In addition they conjecture an asset beta for contestable activities of .80. These two figures along with the fact that 55% of CIAL's revenue was derived from non-contestable sources is then claimed to imply an asset beta for aeronautical activities of .60.

There are a number of difficulties with this approach. First, as noted before, the asset betas for the foreign companies referred to here require correction for market leverage, and this has not been done. Second, CIAL's process for converting the airport asset beta of .70 to an aeronautical activities beta of .60 is flawed, in that it treats the latter as derived from the former. The reality is the complete reverse. An airport's beta is a weighted average of the betas for aeronautical and contestable activities, with the weights (and hence the overall beta) varying over airports. Thus one would need to take the asset betas of port companies and deduce the asset beta of core port activities from them, following the Ehrhardt and Bhagwat (1991) process described earlier. The latter beta could then be applied to the aeronautical activities of airports, without any need to consider the contestable activities of airports.

Third, it is doubtful that ports and airports are in the same industry. Ports are concerned with transporting goods whilst aeronautical activities largely involve transporting people[7]. In respect of non-business traffic, this is essentially a luxury good rather than a transport activity. Following point (1) in the previous section, this should imply a higher asset beta than for pure transport activities. In respect of business traffic, this is an intermediary good, but with rather more discretion over incurrence of the expense than for the transportation of goods. Thus it too may have a higher asset beta than port companies. CIAL also claim that both airports and ports have strong regional monopoly powers. However the monopoly power of airports would seem to be greater, because the charges are paid by an intermediary (the airlines) and the charge is a very small proportion of the total cost of air travel. Thus, if the charges rise, it will be essentially undetectable by the passengers who ultimately determine where aircraft land. By contrast, if ports raise their charges, the party paying the bill also makes the decision as to which port is used. This suggests that airports have greater monopoly power, i.e., lower price elasticity of demand. Whether this raises or lowers beta is unclear. In addition, the airports but not the ports are subject to defacto price regulation, and this is likely to affect their betas. Finally, as noted by Lawriwsky (2001, p. 15), there will be wide variation in the asset betas of ports according to the nature of their cargoes. Auckland's cargoes include imported goods whose demand is sensitive to New Zealand's GNP; by contrast, the port of Tauranga is largely concerned with the export of logs and woodchip, whose demand is invariant to New Zealand's GNP. Accordingly, different asset betas should apply.

The fourth type of comparators suggested are a combination of US electric utilities and airlines. Lawriwsky (2001), on behalf of CIAL, argues that the appropriate betas for airfields lie between these two types of firms, with airlines relevant because they handle the same passengers as airfields. However, airlines are not rate of return regulated and this gives rise to a comparability problem. Lawriwsky seeks to overcome this by seeking to estimate their asset beta if they were so regulated. Having done so, by invoking the results of a study dealing with the deregulation of US airlines around 1980, he then estimates the airfield beta as midway between these

[7] The transport of freight represents a small proportion of airline, and hence airfield, revenue.

two bounds. Finally, since this estimate reflects rate of return regulation, he increases it to reflect price fixing for a three year period. He also undertakes estimates for both local and foreign passenger traffic, and combines these estimates according to the airfield's mix of local and foreign passenger traffic. This produces beta estimates for AIAL and CIAL of .63 and .70 respectively.

The approach is subject to a number of difficulties, as follows. First, the belief that imposing rate of return regulation upon airlines today would raise their asset beta by .20-.30 is based solely upon the results of one study over one deregulatory event (Cunningham et al, 1988)[8]. Because it reflects just one deregulatory event, and the result is not clearly supported by theory, it may be due to an unrelated phenomenon. Even Cunningham et al (ibid, p. 346) note that the evidence on this question across a number of industries is mixed. Second, the beta change of .30 in the Cunningham paper is an equity beta rather than an asset beta, and the associated asset beta change would be less, depending upon the leverage of the airlines[9]. If their leverage was 50% then the asset beta change would be only .15 rather than .30. Third, whilst the authors report the difference of .30 as statistically significant, their test appears to have been conducted upon a set of observations (beta changes for each of a set of firms) that are not statistically independent; accordingly the test of statistical significance would seem to be invalid. The study is crucial to Lawriwsky's analysis, in the sense that treating the differential as zero would produce asset beta estimates for CIAL and AIAL under his approach that were less than those suggested in this report.

Fourth, the contention that imposing rate of return regulation upon a business would raise its beta is somewhat remarkable, and is attributed by Lawriwsky to the resulting undermining of various flexibilities such as the ability to exit markets, form alliances and change routes. Even if this is true, it is a phenomena characteristic of airlines rather than airfields, and yet it has the computational effect in his calculations of driving up the beta of an airfield. Fifth, in conducting his analysis, Lawriwsky attributes an asset beta of .25 to airlines that are concerned solely with transporting foreign passengers. Such airlines do not of course exist, and Lawriwsky must estimate this figure from the average asset beta of airlines concerned largely with transporting local passengers (.66), the average of airlines concerned with transporting both passenger types (.42), and an assumed weight of 35% for foreign passengers on the latter airlines. The source of this 35% weight is not revealed, the number of firms used to generate the averages of .66 and .42 are only six each, and the figure of .25 cannot be reconciled with the other numbers; in fact the other three numbers imply that the asset beta for airlines involved in transporting only foreign passengers would be -.03 rather than .25. Finally, in his Table 7 in which betas for CIAL and AIAL are deduced from their mix of local and foreign passengers, the statistics used for measuring this mix are in fact the mix of passengers on international and domestic flights. This is a different concept altogether and leads to CIAL being ascribed a higher beta than AIAL when the reverse may be warranted.

The last type of comparator suggested is gas and electricity companies, [

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[8] Cunningham et al. report a decline in the average airlines beta of .30 from pre to post deregulation, and Lawriwsky reduces this to .20-.30 in the interests of conservatism.

[9] Lawriwsky (ibid, p. 6) clearly believes that the .30 figure is a change in asset betas.

] However, as noted earlier, estimates from foreign markets require correction for market leverage differences, and this has not been done. There is also the question of comparability in the regulatory regimes. As indicated in point (5) of the previous section, there is considerable variation and the effect can be substantial. Finally, the products seem different, in the income elasticity of demand sense, i.e., utilities versus services whose consumption involves a significant discretionary element, in respect of both business and personal travel. Nevertheless, as we shall see, I consider these firms to be useful comparators, but on the grounds of regulatory regime rather than monopoly power (the latter is largely nullified by the former).

To summarise this evidence from allegedly comparable companies, we firstly have various estimates of the asset beta for AIAL of .50 to .72, and these are not greatly complicated by AIAL's non-aeronautical activities. However a sample size of one is too small to offer reliable results. Secondly, we have asset beta estimates for five foreign airports, with averages of .53 to .61. These are complicated by lack of correction for market leverage differences, different regulatory regimes, potentially significant non-aeronautical activities with different betas, and a sample size of only five. Thirdly, we have asset beta estimates for four New Zealand and four British ports. The latter are not corrected for market leverage differences. Furthermore these do not seem to be in the same industry as airfields, there are differences in respect of monopoly powers and regulatory regime, and port betas may be quite sensitive to the nature of their cargoes. Fourthly, we have an approach that combines beta estimates for airlines and electric utilities. This approach rests on only one empirical study, there are concerns over statistical significance at various points, equity betas seem to be incorrectly interpreted as asset betas, and the source of various numbers is unclear. Finally, we have asset betas for a set of gas and electricity companies. However market leverage corrections are lacking for the foreign data, and there are potentially significant differences in regulatory regimes.

In addition to this evidence from comparators, there are numerous references to others' judgements. CIAL (2001a) cites the ACCC decisions over asset betas for five Australian airports, ranging from .60 to .70. However AIAL (2001) notes that the degearing process for both Sydney and Adelaide does not correspond to equation (2). Invoking equation (2), the figures of .60 and .61 become .51 and .55. Lovick (2000) asserts that the regulatory regimes in the two countries are quite different, in that the New Zealand review period is shorter (three versus five years), the New Zealand airports do not need regulatory approval to raise charges, and they can also recoup the effects of adverse shocks since the last review. Clearly the current review period for AIAL and CIAL is three rather than five years, and this should lower risk. It is also true that New Zealand airports are subject to a periodic consultation process rather than a price imposed by a regulator. This may lower risk, in so far as it enables recouping of the effects of adverse shocks since the last review (which is Lovick's third point). On this matter, the prices put forward by the airports are at least notionally based on current rather than past costs. However, in the absence of prices decreed by a regulator, there is presumably some latitude in this process for covertly recouping the effects of past adverse shocks. Nevertheless there should be significant restraints on this. In addition, the Australian prices are set in real terms, so that their customers rather than the airports face inflation risk. By contrast, the New Zealand prices are set in nominal terms and therefore the airports face inflation risk. However this does not seem to be a substantial source of risk in the current environment. In summary it would seem that AIAL and CIAL face less risk on account of their regulatory regime than their Australian counterparts.

Notwithstanding all of this, the significance of any comparison with the Australian situation will depend upon the weight given to the ACCC decisions. For example, the ACCC's Adelaide decision (ACCC, 1999, pp. 25-26) is based on the asset betas of only four foreign airports (the same four noted earlier here). In addition most of the weight seems to assigned to one of the four airports (AIAL), in contravention of the principle that beta estimates for individual companies have such high standard errors as to be very unreliable. Furthermore there are no corrections for market leverage differences in respect of these foreign betas, and no discussion of differences in regulatory regimes. None of this suggests that strong weight should be given to the ACCC decisions over and above the underlying arguments and data presented, and the latter have been addressed earlier. The same applies to other judgements, involving asset betas for Airways Corporation (.30), Transpower (.30), and Commerce Commission Ruling 266 on the gas distribution business of NGC (.275).

In summary, the comparators offered are subject to a number of concerns, and the judgements considered do not mitigate these. We now proceed to offer estimates for the three airfields.

6.4 Estimating the Asset Betas of AIAL and CIAL

In seeking to estimate the asset beta for any industry, two benchmarks are worth noting. The first are US firms engaged in electricity generation and/or distribution, which are subject to rate of return regulation designed to almost guarantee their rate of return[10]. Unsurprisingly this industry appears to have the lowest asset beta that can be reliably estimated (due to the large number of firms). Recent estimates typically lie in the .25 -.30 range; for example, Alexander et. al (1996) give a figure of .30, and Lally (2001) converts this into an Australian equivalent of .36 by correcting for market leverage differences. Since Australian and New Zealand market leverages are similar (Ernst and Young, 2000, estimate both at .19) then the .30 also converts to a New Zealand figure of .36. This represents a lower bound on the asset beta of any New Zealand industry. A second useful benchmark is the asset beta of an average New Zealand firm. Since the average equity beta is 1, and market leverage is .19, equation (2) implies an average New Zealand asset beta of .81. This benchmark is useful as an upper bound on the asset beta of an apparently low risk industry.

The nine factors underlying betas that were listed earlier in section 6.2 are now considered[11]. We start with AIAL and CIAL, and then later consider WIAL because its regulatory environment is significantly different. Of the nine factors, the de-facto regulation faced by the airfields is crucial. This has two aspects. The first is the defacto restriction on raising prices within the current three year cycle, which arises

[10] Substantial rate of return shocks are possible for them, such as disallowing price allowances for cost overruns on plant construction. However these type of shocks are unsystematic risks. Systematic risks appear to be largely protected against through frequent price resetting.

[11] The last of them (financial leverage) is dealt with through a focus on asset betas and correcting for market leverage differences in respect of foreign beta estimates. This leaves nine factors to consider.

from the need to consult with the airlines. As indicated earlier the airfields have not adjusted prices within a cycle in the past. This fact, along with the constraint arising from the need to consult, suggests that prices will not be adjusted within a cycle. The second aspect of their situation is their apparent power to vary prices at the end of the current cycle so as to fully reflect forecast costs and volumes at that time. It appears that AIAL operates in this way (transcript, pp. 92-96). The situation at CIAL is less clear. Its landing charges have remained fixed for 11 years (Lawriwsky, 2001, p. 14). Furthermore its CEO, Mr Bellew, contended that the chief shareholder (Christchurch City Council) encouraged him to expand air traffic, on account of the favourable flow-on effects for the city. This suggests that CIAL is less inclined to raise prices at the end of a cycle so as to fully reflect forecasts costs and volumes at that time. Nevertheless, for the present, I will assume that it does seek to adjust prices in that way. These two aspects of the operations of AIAL and CIAL imply that they are in a pure price cap situation, with a cycle of three years.

In this respect, comparators are then available in the form of electricity companies subject to US and UK style regulation. The former operate under a one year cycle, and the latter a five year cycle (which exposes them to more risk). The risk situation facing AIAL and CIAL then places the airfields midway between these two comparators. This suggests an asset beta for the airfields that is midway between the asset betas of the two comparators. However there are two points of difference between the airfields and these electric utilities, as follows. First, the fact that the airfield prices at the end of a cycle are arrived at by consultation rather than being decreed by a regulator gives the airfields some power to covertly recoup the effects of past adverse shocks. This lowers the airfields' risk relative to the electric utilities. Second, the UK regime passes inflation risk to the customer rather than the firm whilst the New Zealand regime passes it to the airfields. This raises the airfields' risk relative to the UK regime. My judgement is that these two points offset. Accordingly, in respect of regulation, I conclude that the airfields warrant an asset beta that is mid-way between the US and UK firms.

Alexander et. al. compare the US and UK regimes, using data from the early 1990s, and cite average asset betas of .30 and .60 respectively, for electricity distributors/generators[12]. The difference is then .30, and this is in the direction suggested by theory. However this difference is contaminated by differences in market leverages. Lally (2001) converts these figures into Australian equivalents of .36 and .56. Since Australian and New Zealand market leverages are similar (Ernst and Young, 2000), the same figures can be ascribed to New Zealand. Thus the effect of moving from US to UK style regulation would seem to be to raise the asset beta by about .20. Having argued that AIAL and CIAL lie mid-way between these two bounds (before consideration of factors other than regulation), this implies an asset beta of .46 for them.

It is desirable to temper this result with further data. In respect of the figure for the US firms, the Alexander estimate of .30 (with a NZ counterpart of .36) is towards the high end of the scale of recent estimates that I have seen. Recent estimates that I am

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[12] LECG (2001, p. 24) argue that the electricity generators should be excluded from the UK set referred to in Alexander. However the effect is merely to reduce the UK figure from .60 to .58. This is not only immaterial but would lead to a lower rather than a higher asset beta for airfields.

aware of have ranged from .25 to .30, with New Zealand equivalents of .31 to .36. Using the mid-point of .33, and then (as above) adding half of the differential of .20, yields an estimate for AIAL and CIAL of .435. So as not to suggest more precision than is actually present, I round this to .45. Further data on the differential between the US and UK firms is also desirable. Whilst US data is available for several decades, UK data does not exist until the privatizations around 1990. Furthermore, at the time of the first UK price reviews around 1995, there was a shift towards hybrid price/revenue caps rather than pure price caps (Alexander et al, 1996, p. 10-11). Data from that point could not then be pooled with the earlier data. Consequently, for purposes of empirically assessing the differential between the asset betas for rate of return and price-capped electric utilities, data additional to that of Alexander et al does not seem to be available.

This figure of .45 is potentially subject to modification to reflect differences between airfield activities and electricity distribution other than regulation. Any such differences will be reflected in the remaining eight factors listed in section 6.2. In respect of the nature of the product, the airfields appear to supply a product (business and personal travel) whose demand faces more exposure to real GNP shocks in that market. This points to a higher asset beta for airfield activities. A mitigating factor is that landing charges are based on seats rather than passengers landed. In respect of customer type, much of the demand for airfield services arises from foreign tourists whose demand is sensitive to home country rather than New Zealand GNP shocks, and this should dilute the conclusion arising from the nature of the product. In respect of price structure, the airfields appear to face greater exposure to real GNP shocks because their revenue lacks an explicit fixed component whereas electric utilities typically have fixed components in their revenues. The fact that airfield revenue is determined by seats rather than passengers landed may have the same effect, but this point has already been recognized above. Collectively these points suggest that the demand for airfield services is more sensitive to New Zealand GNP shocks than is the case for electricity, and Lawriwsky (2001, p. 22) presents data consistent with this. In respect of contract duration, this point is subsumed within the regulatory regime. In respect of monopoly powers (i.e., price elasticity of demand), the two industries appear to be similar; for the airfields, this is only because the landing charges represent such a small component of the total cost of air travel. However this point is overshadowed by the regulatory regime, which largely obstructs exercise of monopoly power. In respect of real options, both industries appear to have only modest exposure. In respect of operating leverage, both industries have high levels of this. Finally, in respect of market weight effects, both industries have generally small market weights, and are therefore comparable in this respect.

In summary, AIAL and CIAL have regulatory regimes that appear to place them between US and UK electric utilities. Absent any other points of difference this would suggest an asset beta of .45. Taking account of other factors affecting beta, the only potentially significant point is that demand shocks between successive price resets are greater for airfield activities, pointing to a higher asset beta. It is difficult to quantify this effect upon beta, but it is limited to a maximum of three years, and this suggests that the effect will be modest. In this respect an analogy can be drawn with a bond having a maturity of three years and interest payments that are determined by the level of airfield activity. Even if the interest payments are quite uncertain the value of the bond is dominated by the face value to be paid in three years.

Accordingly the overall interest rate on the bond should be close to the government stock rate. Similarly, in respect of an airfield, the cash flows over the next three years may be quite uncertain, but the value of the airfield (and therefore its cost of capital) is dominated by its value in three years time. This value in three years is not of course certain but it is not exposed to demand and cost shocks during the first three years, because landing charges can be reset at the end of the three year period to compensate for any such shocks. Thus, even if it is true that the cash flows of an airfield over the period until the next price resetting are considerably riskier than those of an electric utility, it does not follow that the beta of an airfield will be significantly larger. In view of all this I propose raising the beta estimate from the earlier figure of .45 to .50. There is some uncertainty about the latter figure, due to uncertainties about the asset beta for US electric utilities, the increment for UK electric utilities, and the positions of AIAL/CIAL relative to the boundary figures. Accordingly I suggest bounds on the estimate of .40 to .60.

The conclusion reached here is premised on both AIAL and CIAL operating under a pure price cap regime with a three year cycle. This involves no price adjustment during the cycle along with adjustment of prices at the end of the cycle so as to fully reflect forecast costs and volumes at that time. However there is some doubt as to whether CIAL does seek to adjust prices at the end of the cycle in this way. In so far as they do not, they bear greater risk and therefore would warrant a greater beta. However, due to the uncertainties about their intentions, no adjustment is proposed here.

A final point here is as follows. Marsden (2001) contends that AIAL's traffic on both domestic and international flights contains a higher proportion of New Zealand travelers than CIAL's, and travel by New Zealanders should be more sensitive to New Zealand real GNP shocks than travel by foreigners. This suggests that the asset beta for AIAL should be higher than that for CIAL. By contrast Lawriwsky (2001, p. 29) presents graphs that suggest the opposite conclusion, at least during the 1990s. However the latter graphs do not suggest that the difference is substantial. Furthermore any difference would be limited to a term of only three years, after which price resetting would deal with the shock. In view of this I do not recommend any difference in the asset betas for CIAL and AIAL.

6.5 Estimating the Asset Beta of WIAL

Subject to the provisions of its Deed, WIAL appears to operate in a regulatory environment similar to that of AIAL and CIAL, except that the price cap has a cycle of five years. However, WIAL's Deed provides for some adjustments to its landing charges within the five-yearly cycle, in response to specified demand and cost shocks. These adjustments are of two forms. The first relates to inflation shocks. In particular, WIAL can adjust its landing charges at the end of a year if CPI inflation for that year lies outside the 0-2% band, but the adjustment is only to the extent that the inflation rate lies outside the 0-2% band. Thus, if inflation is 3%, WIAL can then raise its prices by 1% rather than 3%. If it were able to adjust its prices by 3%, then it would enjoy the same inflation protection as UK electric utilities. Thus, in this respect, it experiences slightly more risk than the UK firms, although less risk than AIAL/CIAL (which have no inflation protection between price resets).

The second adjustment provided for in WIAL's Deed relates to volume shocks. In particular, if activity measured by MCTOW varies from that in the base year by more than a specified amount, the landing charges shift in an inverse fashion. Three features are significant:

(a) If the reduction relative to the base level is more than 5%, or the increase greater than a level varying over the life of the Deed, then the Deed does not provide for any adjustment, in which event negotiation arises. This situation has arisen and the resulting negotiation seems to have produced an outcome similar to that suggested by extrapolation of the Deed to that activity level (transcript, p. 476).

(b) The central band within which there is no adjustment expands over time through the upper limit on that central band rising whilst the lower limit remains unchanged. By the fourth year this band has become 97.5% to 120%.

(c) The percentage adjustment to the landing charge is less in absolute terms (about half) than the percentage volume shock that gives rise to the adjustment. For example, if activity falls by 3.75% in the first year, the landing charge for large aircraft rises by only 1.3%; if activity rises by 12.5% in the first year, the landing charge falls by only 6%. The results are similar for smaller aircraft.

The last of thee points suggests that the Deed has the effect of placing WIAL in a risk position midway between that of US and UK electric utilities. Point (b) suggests that their risk is closer to that of the price-capped UK firms, which have no protection against volume shocks. If the discussion concerning AIAL and CIAL in the previous section is reviewed, there is a further point concerning the regulatory regimes facing the airfields and the electric utilities, as follows. WIAL's landing charges at the end of the current five year cycle will be arrived at through consultation rather than being decreed by a regulator, and this gives WIAL some power to covertly recoup the (uncompensated) effects of past adverse shocks. This lowers risk relative to the UK regime.

To summarise, in regulatory terms, there are four points of distinction between WIAL and the electric utilities. First, point (c) above implies that WIAL experiences risk midway between that of the US and UK firms. Second, point (b) in conjunction with (c) above suggests that they face more risk than a midway position. Third, the inflation protection available to WIAL is inferior to that enjoyed by the UK (and US) firms, and this points to more risk than the midway position. Finally, the fact that WIAL's landing charges at the end of the current five year cycle will be arrived at through consultation, rather than being decreed by a regulator, gives WIAL some power to covertly recoup the (uncompensated) effects of past adverse shocks, and this lowers risk relative to the UK (and US) regimes. My judgement is that the last three points are offsetting. Thus, in regulatory terms, I conclude that WIAL lies midway between US and UK electric utilities. This is identical to the conclusion reached for AIAL and CIAL, although the reasoning is different. Thus the same asset beta of .45 is indicated.

To this must be added allowance for factors other than regulation that differentiate the airfields from electric utilities. As discussed in the previous section, the airfields face greater demand shocks on account of the nature of their product. This effect is limited to the term until price resetting occurs, and for that reason an upward adjustment of .05 was recommended in the previous section. The same adjustment is warranted here. Accordingly, the recommended asset beta for WIAL is .50. As with AIAL and CIAL there is some uncertainty about this figure, due to uncertainties about the beta for US electric utilities, the increment for UK electric utilities, and the position of WIAL relative to the boundary figures. Accordingly I suggest bounds on the estimate of .40 to .60.

6.6 Counter Arguments

I now consider some contrary arguments raised in respect of the conclusions just presented. Marsden (2001) contends that UK electric utilities should be used as comparators rather than both UK and US firms, on the grounds that the airfields are very similar to the UK firms. Firstly, Marsden argues that regulatory risks are similar in that regulators may attempt to claw back upside and politicians may vary their stance on regulation, and these may be related to the state of the economy. By contrast he suggests that US-style regulation is enshrined in case law and therefore less subject to political influences. The crucial point here is whether these regulatory risks are systematic in the CAPM sense. Marsden suggests that they are related to the state of the economy, but no evidence is offered on this point.

Secondly, Marsden (2001) contests the conclusion in section 6.4 that, because the airport prices are arrived at by consultation rather than being decreed by a regulator, then the airfields have some power to covertly recoup the effects of past adverse shocks. He contends that the current regulatory process would prevent it from occurring. Lawriwsky (2001, p. 16) concurs with this. I think the most that can be said is that the current process will prevent significant recouping of past adverse shocks. The information asymmetry in favour of the airfields must provide some opportunities for the airfields to recoup.

Lawriwsky (2001, p. 16) contests the conclusion in section 6.4 that the five year interval between price resetting for UK electric utilities relative to the three year interval for AIAL implies a lower asset beta for AIAL. His argument is that most GDP shocks are contained in a three year period. Implicit in this argument is the assumption that shocks commence shortly after prices are reset. However there is no reason to suppose this; shocks can arise at any time. If a shock lasting three years commences two years after prices are reset, an entity that can reset its price after three years is exposed to the shock for only one year. By contrast, an entity that must wait five years before resetting its price is exposed to the shock for the full three years. This suggests that the exposure to shocks is approximately proportional to the length of the interval between price resetting, and therefore that UK electric utilities with five yearly resetting face greater risk than AIAL and CIAL with three yearly resetting.

The conclusions reached in the previous section are based upon the use of electric utilities as comparators for airfields. The essence of the argument is that regulation is a crucial factor, that there are strong similarities in this area between electric utilities and airfields, that the only other dimension in which a significant difference might arise is in the sensitivity of the entity’s cash flows to economic shocks, and that this latter factor exerts little effect because prices are reset frequently. Lawriwsky (2001) challenges this line of argument by presenting evidence pointing to significant differences between the asset betas of US telecommunications firms and electric utilities, even though they are subject to the same regulatory regimes. He concludes that the difference in asset betas (.30 versus .52) is attributable to differences in the income elasticities of demand for the products. By extension the difference in the income elasticities of demand for airfield services and electricity would imply a significant difference in asset betas, even under the same regulatory regime. However the number of telecommunications firms referred to in the analysis is only three, and this raises concerns about the statistical significance of the difference. Furthermore, at least some US telecommunications firms and some electric utilities are engaged in activities that are not subject to rate of return regulation. If the incidence of this is greater amongst the telecommunications firms, then the higher asset betas may be attributable to that rather than a difference in the income elasticity of demand. Finally, in respect of telecommunications but not electric utilities, real options appear to be substantial, and should contribute towards the difference in asset betas. To illustrate this, the substantial decline in the last two years in the values of telecommunications firms worldwide appears to be due largely to a reassessment of the values of their options to expand into new lines of business, such as third generation mobile networks. By contrast, airfields and electric utilities have comparably low real options. Thus, the evidence offered by Lawriwsky does not clearly support a significant difference in the betas for airfields and electric utilities.

CIAL (2001b, p. 17) contends that electric utilities will underestimate the asset betas of airfields because the customers of the latter (but not the former) wield considerable countervailing power. This countervailing power has a number of dimensions including a threat to abandon the use of an airfield in the face of increased landing charges, legal challenges and non-payment of increased charges. The extent of this countervailing power is a matter of debate. However, it is far from clear that it is significant. Furthermore, even allowing the possibility that it was, it would still be necessary to estimate the impact on the asset beta, or to suggest an alternative comparator subject to comparable countervailing power. Neither of these has been done by CIAL. In fact, their advisor (Lawriwsky, 2001) suggests electric utilities and airlines as comparators, and both of these are characterized by customers with low countervailing power. My judgement is that this is not a significant beta issue. Accordingly I do not propose any adjustment to the airfield betas to reflect the countervailing power of their customers.

The analysis in the previous section is premised on the UK electric utilities referred to in the Alexander et al (1996) paper being subject to pure price caps. LECG (2001, Table 3) contend that they were in fact subject to hybrid revenue/price caps rather than pure price caps during the relevant period; accordingly their beta estimates would require an upward adjustment to make them comparable with the airfields, which are subject to pure price caps. However this is not correct. The UK firms were privatized around 1990 and subject to price caps with a five year duration from that time. At the time of their first review (1995) there was a shift towards hybrid revenue/price caps, and Alexander refers to this (ibid, pp. 10-11). However the beta estimates presented by Alexander are from the 1990-95 period, and therefore reflect a pure price cap regime. In this respect they are comparable to the airfields. This point was acknowledged by LECG in questioning (transcript, pp. 530-31). However they added that, at that time, the regional electricity companies owned the transmission company, which was subject to a revenue cap, and this would have had a downward effect upon the betas of the regional electricity companies. Further investigation revealed that even this was not correct. Thus, in respect of price capping, the UK companies appear to be comparable to the airfields (subject to adjustments that have been made).

BARNZ (2001b) contends that US rate of return regulated utilities are better comparators for airfield activities than UK price-capped firms, on the grounds that the New Zealand regulatory environment allows airport companies to set prices at will. In respect of AIAL and CIAL, they add that these companies voluntarily chose to adopt fixed prices for periods of time, and should not therefore be compensated through a higher asset beta for doing so. If this line of reasoning was accepted, leading to a reduction in the asset betas, the result would be that the airlines benefited from lower landing charges but yet were still protected against variations in landing charges over a period of several years. Clearly, if the airlines objected to the fixing of landing charges for several years along with a higher level of charge to reflect the protection they enjoy, they could argue for reduction of the charge *and* removal of the protection. However they are not arguing for the combination, merely for a reduction in the charge. This is simply cherry-picking. Consequently I do not think that this argument is sustained.

7. WACC

We are now in a position to estimate the WACC for the three airports. For AIAL and CIAL, the parameters are a riskfree rate of .0704, a debt premium of .01, a market risk premium of .08, an asset beta of .50 and leverage of .25. Following the equations of section 2, this yields a WACC of .089. I have suggested bounds on the asset beta of .40 to .60, and bounds on the market risk premium of .07 to .09. This leads to WACC values ranging from .077 to .103.

In respect of WIAL, aside from the riskfree rate, the same parameters apply. The difference in riskfree rate is simply a reflection of when the current prices were set. If the same riskfree rate did apply then the point estimate and bands on WACC would match those of AIAL and CIAL above. By contrast, using the riskfree rate suggested for WIAL of .0762, the WACC is .093, with bounds from .081 to .107.

These conclusions presume that (WIAL's Deed aside) the airfields are in a de facto price cap situation, i.e., prices are not adjusted within the cycle and are adjusted at the end of the cycle so as to fully reflect forecast costs and volumes at that time. In respect of CIAL there is some doubt as to whether they seek to adjust prices at the end of the cycle in this way. In so far as they do not, they bear greater risk and therefore would warrant a greater asset beta. However, due to the uncertainties about their intentions, no adjustment is proposed here.

8. Conclusion

Differences of opinion between the parties to this consultation are limited to four parameter values. My views on them are as follows. First I favour a riskfree rate of .0704 for AIAL and CIAL, representing an average of yields on three year government stock over the six month period preceding the point at which AIAL's new prices came into effect. In general, I favour an average on government bond yields over the period in which consultation occurred, ending with the point at which the new prices came into effect, and with a maturity on the bonds matching the point at which the new prices will be reviewed. With respect to WIAL's current prices, this would retrospectively imply a riskfree rate of .0762, being the five year riskfree rate averaged over the first six months of 1997. Second, I favour a debt risk premium of .01 over the riskfree rate, along with AIAL's leverage of .25. Third, I favour a market risk premium of .08, with bounds of .07 to .09. Finally, I favour an asset beta for all three airfields of .50 (with a band of .40 to .60), although the reasoning for WIAL differs from that for AIAL and CIAL. These parameter values imply a WACC value for CIAL and AIAL of .089, with bounds of .077 to .103. In respect of WIAL, the riskfree rate differs, leading to a WACC of .093 with bounds of .081 to .107.

These conclusions presume that (WIAL's Deed aside) the airfields are in a de facto price cap situation, i.e., prices are not adjusted within the cycle and are adjusted at the end of the cycle so as to fully reflect forecast costs and volumes at that time. In respect of CIAL there is some doubt as to whether they seek to adjust prices at the end of the cycle in this way. In so far as they do not, they bear greater risk and therefore would warrant a greater asset beta. However, due to the uncertainties about their intentions, no adjustment is proposed here.

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APPENDIX 19 – LALLY ADVICE ON MEASURING EXCESS RETURNS

MEASURING EXCESS EARNINGS ON AIRFIELDS

Martin Lally

March 2002

EXECUTIVE SUMMARY

This paper addresses a number of issues posed by the Commerce Commission in the course of measuring excess accounting earnings or rates of profit. The principal points made are as follows:

(1) The accounting rate of profit and the earnings measures that are employed are appropriate for comparison with a *WACC* benchmark.

(2) Excess earnings are a better measure of performance than accounting rate of profit, because the former can be aggregated to form a performance measure across the entire time period studied (this is done by compounding the numbers forward to the end of the period of study). If desired this can be related to the average asset level over the evaluation period, to strip out scale effects. By contrast, it is not meaningful to aggregate, or even average, accounting rates of profit (although the Commission has done the latter in its Draft Report).

(3) In respect of land, revaluations should be fully reflected in the prices set by the airfields, following equation (5), or else their prices will tend to be too high. They should also be fully reflected in the Commission's measurement of excess earnings, regardless of whether the airfields have fully recognized them in setting their prices, partially recognized them in the asset values and depreciation figures, or completely disregarded them.

(4) In respect of other assets, there are pros and cons to fully incorporating revaluations into the prices set by the airfields and also to completely disregarding them. However both practices will generate revenues that are fair over the life of the assets. By contrast, partial recognition of revaluations in the fashion recently practiced by the airfields will lead to excessive revenues. The fact that the airfields disregarded revaluations in setting prices in earlier years argues for the Commission doing likewise in evaluating their excess earnings, so as to avoid spurious conclusions when conducting an evaluation part way through the asset life. By contrast, the fact that the airfields later partially recognized revaluations in setting prices argues for the Commission now doing otherwise, i.e., either fully recognizing revaluations or completely disregarding them. In the interests of consistent treatment over time, the Commission should then completely disregard revaluations on these assets in measuring excess earnings.

(5) In respect of depreciation, the numbers used by the airfields in setting their prices under formula (2) or (5) should accord with tax depreciation, so that revenues are fair. Regardless of whether this has been done, the Commission should use the same accounting depreciation numbers in its measurement of excess earnings as those used by the airfields in setting their prices (its calculation of the tax expense should however invoke tax depreciation). If it does otherwise then it is more at risk of reaching spurious conclusions about excess earnings when evaluating performance part way through an asset's life.

(6) In respect of operating expenditure, the Commission should calculate excess earnings using both actual and efficient expenditure. This will enable

conclusions to be drawn about both monopoly profits and (productive) efficiency.

(7) The tax expense for a subunit of a business should be calculated using tax depreciation and the statutory tax rate. However, if tax depreciation is unknown, an approximation is available by using accounting depreciation and the effective tax rate for the entire business. If the effective tax rate for the entire business applies equally to this subunit then the approximation will be exact.

1. Introduction

This paper addresses a number of issues posed by the Commerce Commission in the course of measuring excess accounting profits. One issue that recurs in these questions is that of how airfields set their landing charges. To facilitate subsequent discussion, two possibilities are examined in some detail. The first applies if assets are not revalued. It involves setting charges for a particular period, and hence expected revenues, so as to equal the sum of operating cost, depreciation and the cost of capital. The second method applies if assets are revalued. It involves setting charges for a particular period, and hence expected revenues, so as to equal the sum of the above terms less revaluations for that period. Before proceeding to deal with the questions raised, these two possibilities are outlined.

2. Approaches to Revenue Setting

For ease of illustration we assume that an airfield operation is established at time 0 at a cost of A_0, and that an appropriate period for assessing the net present value (*NPV*) of the operation is the first two years. We also assume that output prices are reset each year. After one year, the book value of the assets (inclusive of any revaluations) is A_1. After two years, it is A_2. Also, define

R_t = revenue in year t
C_t = operating cost in year t
D_t = depreciation in year t for purposes of revenue setting
$\hat{D}_t$ = depreciation allowed for tax purposes
k = appropriate discount rate
T_c = statutory company tax rate
S_2 = market value of the assets in two years

The present value now, V_0, of the after-tax cash flows received by the airfield operator over the next two years along with the terminal value of the assets is then

$$V_0 = \frac{E(R_1) - E(C_1) - T_c\left\{E(R_1) - E(C_1) - \hat{D}_1\right\}}{1+k} + \frac{E(R_2) - E(C_2) - T_c\left\{E(R_1) - E(C_2) - \hat{D}_2\right\} + E(S_2)}{(1+k)^2} \quad (1)$$

The net present value of the project is then $NPV = V_0 - A_0$. Revenue should be set so that the *NPV* is zero, i.e., revenue just covers cost including the cost of capital.

2.1 Price Setting with no Revaluations

One "building-block" approach to price setting, which assumes no asset revaluations, is such that expected revenues in year *t*, denoted $E(R_t)$, are as follows:

$$E(R_t) = \frac{kA_{t-1}}{1-T_c} + E(C_t) + D_t \quad (2)$$

If the depreciation figures used in revenue setting match those for tax purposes, and the terminal book value of the asset in two years A_2 matches its market value S_2, then the revenues determined by equation (2) produce an *NPV* of zero[13]. Thus, the revenues are "fair", i.e., they just cover costs including the cost of capital.

Ex-post, we measure "excess" earnings for year t as actual after-tax earnings less the product of the cost of capital k and the book value of the assets at the beginning of that year, i.e.,

$$Excess\ \mathrm{Pr}ofit_t = R_t - C_t - D_t - T_c\left\{R_t - C_t - \hat{D}_t\right\} - kA_{t-1}$$

The expected level is

$$E(Excess\ \mathrm{Pr}ofit_t) = E(R_t) - E(C_t) - D_t - T_c\left\{E(R_t) - E(C_t) - \hat{D}_t\right\} - kA_{t-1} \quad (3)$$

If the terminal book value A_2 equals the terminal market value of the assets S_2, then the present value of these excess earnings will be equal to the *NPV* of the project, for any choice of accounting depreciation D_t in equation (3). Call this property 1. This point is well recognized in the accounting and finance literature (see Ohlson, 1995). In addition, if this accounting depreciation matches tax depreciation, then the expected excess earnings will be zero in each year, i.e., in every year they match the *NPV* of zero[14]. Call this property 2. By contrast, if accounting and tax depreciation diverge, then expected excess earnings may be positive in some years and negative in others. Clearly these two properties of excess earnings are desirable in that they match the ex ante *NPV* calculation.

We now illustrate this. Suppose

A_0 = \$10m
A_1 = \$5m
$A_2 = 0 = S_2$
$D_1 = D_2 = \$5\text{m} = \hat{D}_1 = \hat{D}_2$
$E(C_1) = \$3.1m$
$E(C_2) = \$3.2m$
$T_c = .33$

Following equation (2), prices would be set so that the expected revenues in the two years were

$$E(R_1) = \frac{.10(\$10m)}{1-.33} + \$3.1m + \$5m = \$9.59m, \quad E(R_2) = \frac{.10(\$5m)}{1-.33} + \$3.2m + \$5m = \$8.95m \quad (4)$$

Substitution of these expected revenues into equation (1) yields a present value now for the cash flows and salvage value of

$$V_0 = \frac{\$9.59m - \$3.1m - .33(\$1.49m)}{1.1} + \frac{\$8.95m - \$3.2m - .33(\$.75m)}{(1.1)^2} = \$10m$$

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[13] Substituting equation (2) into (1), coupled with the two conditions mentioned, yields an *NPV* of zero.

[14] Substituting equation (2) into (3), and imposing the two conditions, yields (3) = 0 for each year.

So, the *NPV* is zero. Similarly, substitution of the expected revenues in (4) into equation (3) yields expected excess earnings in each year of zero, as follows:

$$E(Excess\,\Pr ofit_1) = \{\$9.59m - \$3.1m - \$5m\} - .33\{\$1.49m\} - .10(\$10m) = 0$$

$$E(Excess\,\Pr ofit_2) = \{\$8.95m - \$3.2m - \$5m\} - .33\{\$.75m\} - .10(\$5m) = 0$$

2.2 Price Setting with Revaluations

A second possible "building-block" approach to setting prices applies when asset revaluations have occurred. In this event, prices are set so that the expected revenue in year *t* is

$$E(R_t) = \frac{kA_{t-1} - E(REV_t)}{1 - T_c} + E(C_t) + D_t \tag{5}$$

where REV_t are the revaluations in year *t*. As before, if the depreciation figures used in revenue setting match those for tax purposes, and the terminal book value of the asset in two years A_2 matches its market value S_2, then the revenues determined by equation (5) produce an *NPV* of zero[15]. Thus, the revenues are "fair", i.e., they just cover costs including the cost of capital.

As before, we measure "excess" earnings for year *t* as actual profit less the product of the cost of capital *k* and the book value of the assets at the beginning of that year. Consistent with incorporating revaluations into the book value of the assets, these revaluations are also added to the actual earnings, i.e.,

$$Excess\,\Pr ofit_t = R_t - C_t - D_t - T_c\{R_t - C_t - \hat{D}_t\} + REV_t - kA_{t-1}$$

The expected level is

$$E(Excess\,\Pr ofit_t) = E(R_t) - E(C_t) - D_t - T_c\{E(R_t) - E(C_t) - \hat{D}_t\} + E(REV_t) - kA_{t-1} \tag{6}$$

As in the previous section, with no revaluations, if the terminal book value A_2 equals the terminal market value of the assets S_2, then the present value of these excess earnings will be equal to the *NPV* of the project, for any choice of accounting depreciation D_t in equation (6). In addition, if this accounting depreciation matches tax depreciation, then the expected excess earnings will be zero in each year, i.e., in each year they match the *NPV* of zero. These two properties of excess earnings are desirable in that they match the ex ante *NPV* calculation.

We now illustrate this. We employ the earlier figures except that the asset is expected to be revalued from \$5m to \$5.5m at the end of one year. Consequently the depreciation for year 2 is $D_2 = \hat{D}_2 = \$5.5m$. So, following equation (5), prices would be set so that the expected revenues in the two years were

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[15] Substituting equation (5) into (1), coupled with the two conditions mentioned, yields an *NPV* of zero.

$$E(R_1) = \frac{.10(\$10m) - \$.5m}{1-.33} + \$3.1m + \$5m = \$8.85m$$

$$E(R_2) = \frac{.10(\$5.5m)}{1-.33} + \$3.2m + \$5.5m = \$9.52m$$

Substitution of these expected revenues into equation (1) yields a present value now for the cash flows and salvage value of

$$V_0 = \frac{\$8.85m - \$3.1m - .33(\$.75m)}{1.1} + \frac{\$9.52m - \$3.2m - .33(\$.82m)}{(1.1)^2} = \$10m \qquad (7)$$

So, the *NPV* is zero. Similarly, substitution of the expected revenues in (5) into equation (6) yields expected excess profits in each year of zero, as follows:

$$E(Excess\,\Pr ofit_1) = \{\$8.85m - \$3.1m - \$5m\} - .33\{\$.75m\} + \$.5m - .10(\$10m) = 0$$

$$E(Excess\,\Pr ofit_2) = \{\$9.52m - \$3.2m - \$5.5m\} - .33\{\$.82m\} - .10(\$5.5m) = 0$$

2.3 Some Problems

We have shown that, if the depreciation figures used in revenue setting match those for tax purposes, and the book value of the asset at the end of the evaluation period matches its market value, then the two price setting methods described above are each fair in the sense of producing an *NPV* on the project of zero. Under the same two assumptions, for each of the two price setting methods, the formula for excess earnings corresponding to it has the desirable property that the excess earnings are expected to be zero in each year, and hence in each year match the *NPV* of zero. Finally, under the second of the two assumptions mentioned, excess earnings have the desirable property that the present value of the excess earnings equals the *NPV* of the project.

Three possible sources of difficulty are as follows. Firstly, if revaluations are not conducted, then it is may not be possible for the book value of the assets at the end of the evaluation period to match the market value. The classic example of this is in respect of land. If revaluations are not conducted, then the book value remains unchanged. However the market value will tend to rise. Consequently, revenues set in accordance with equation (2) will tend to be too high in the sense that their present value will exceed the initial investment, i.e., the *NPV* will be positive. In addition, the excess earnings properly measured should be positive as a result of *NPV* being positive; however, equation (3) will understate them because it excludes revaluations. So, revenues will be too large and the measurement of excess profits will fail to detect this. All of this argues for undertaking revaluations for land, and reflecting them in both price setting and measurement of excess earnings. For assets other than land, the issue is less significant because the terminal book value A_2 approaches the terminal market value as the evaluation period lengthens to cover the asset's entire life (land aside, at the end of an asset's life, A_2 = S_2 = salvage value). However complications can arise when an evaluation is conducted part way through the asset's life, and this will be elaborated upon later.

A second possible problem concerns accounting depreciation diverging from tax depreciation, even when revaluations do not arise. If airfields employ accounting depreciation that is slower relative to tax depreciation, when setting their prices in accordance with equation (2), then the present value of their cash flows in equation (1) will exceed the initial asset cost. Thus their revenues will be too high in the present value sense. The measure of excess earnings in equation (3) will detect this in the aggregate (i.e., the present value of the excess earnings will equal the *NPV*) but the measures for individual years will be positive in some years and negative in others. The latter is a potential problem because the Commission evaluates performance part way through the lives of some assets, and therefore will draw spurious conclusions about excess earnings at that point.

To illustrate this, we return to the example in section 2.1 and suppose that D_1 = \$1m and D_2 = \$9m, but tax depreciation remains \$5m in each year. Following equation (2), the expected revenues are then \$5.59m for year 1 and \$13.54m for year 2. Following equation (1), the present value of the cash flows is then \$10.1m, so NPV = \$0.1m. Following equation (3), the expected excess earnings are then

$$E(Excess\,Profit_1) = \$5.59m - \$3.1m - \$1m - .33\{\$5.59m - \$3.1m - \$5m\} - .10(\$10m) = \$1.32m$$

$$E(Excess\,Profit_2) = \$13.54m - \$3.2m - \$9m - .33\{\$13.54m - \$3.2m - \$5m\} - .10(\$9m) = -\$1.32m$$

The present value of these excess earnings is \$0.1m, which equals the *NPV*. Thus, the *NPV* is positive, and the expected excess earnings change sign over time. If the Commission evaluates performance after one year it will conclude that excess earnings are larger than is actually the case.

The third possible problem is as follows, and it arises when revaluations are carried out. As indicated, for revenues determined by equation (5) to generate an *NPV* of zero, and expected excess earnings under equation (6) to accord with *NPV*, the accounting depreciation figures used must accord with tax depreciation. However, one property that tax depreciation figures possess is that the aggregate depreciation allowed cannot exceed the asset cost. When revaluations are done, the accounting depreciation must rise to incorporate them; this will imply that the sum of the accounting depreciation will exceed the asset cost, and therefore accounting depreciation cannot match tax depreciation. Thus, if revaluations are undertaken, and revenues are set following equation (5) to incorporate depreciation figures inclusive of revaluations, the tax depreciation in equation (1) will be less than this. Consequently the *NPV* will be negative, i.e., the airfield operator will not fully cover their costs.

To illustrate this problem, we return to equation (7). The present value calculation there extrapolates accounting depreciation to tax depreciation. However the accounting depreciation is D_1 = \$5m and D_2 = \$5.5m. The sum exceeds the asset cost of \$10m, so the aggregate tax depreciation must be less than the accounting numbers. If the tax depreciation is still \$5m in each year, then the present value calculation in equation (7) becomes

$$V_0 = \frac{\$8.85m - \$3.1m - .33(\$.75m)}{1.1} + \frac{\$9.52m - \$3.2m - .33(\$1.32m)}{(1.1)^2} = \$9.87m$$

So, the *NPV* is -\$0.13m. This is a problem with a "building block" approach to revenue setting, as in equation (5). A solution to this is to set prices, and hence expected revenues, so that equation (1) yields a present value equal to the initial investment, i.e., a "DCF" approach to pricing is adopted (this is suggested by Seed, 2001).

Of these three potential problems, LECG (2001) refer to the first. The other two do not seem to have been mentioned by any of the parties. With this background, we can now turn to the questions posed by the Commission.

3. Questions

Question 1 Can the accounting rate of profit (earnings, excluding interest and its tax effect, as a proportion of the book value of assets) be compared with *WACC*, in assessing whether earnings are excessive?

The accounting rate of profit as calculated can be compared with the *WACC*, and the proof is as follows. The *WACC* is an average of the cost of equity capital and the after company tax cost of debt capital, weighted by their values. Its accounting rate of return counterpart must then be an average of the return on equity and the after company tax return on debt, weighted by their book values. Defining *EBIT* as earnings before interest and tax, *INT* as the interest expense, *TAX* as the tax expense, S_B as the book value of equity, and B_B as the book value of debt, then this weighted average accounting rate of return is

$$AR = \left\{\frac{EBIT - INT - TAX}{S_B}\right\}\frac{S_B}{S_B + B_B} + \frac{INT}{B_B}(1 - T_c)\frac{B_B}{S_B + B_B}$$

The tax expense can be expressed as the tax expense in the absence of debt (TAX_u) less the tax reduction arising from the interest payment, i.e.,

$$TAX = TAX_u - INT(T_c)$$

Substituting this equation into its predecessor yields

$$AR = \left\{\frac{EBIT - INT - TAX_u + INT(T_c)}{S_B}\right\}\frac{S_B}{S_B + B_B} + \frac{INT}{B_B}(1 - T_c)\frac{B_B}{S_B + B_B}$$

Simplifying this equation yields

$$AR = \frac{EBIT - TAX_u}{S_B + B_B} \qquad (8)$$

which is the formula used by the Commission. Consequently the formula used by the Commission is appropriate for comparison with the *WACC*.

Nevertheless it should be noted that this accounting rate of return formula is also the accounting rate of return formula that would arise if one wished to ignore the presence of debt, and this in turn is suitable for comparison with the unlevered cost of equity rather than *WACC*. Thus the same accounting rate of return formula is appropriate for comparison with both *WACC* and the unlevered cost of equity. If *WACC* were materially different from the unlevered cost of equity, this would give rise to interesting questions. However, the difference is slight when the cost of equity is calculated using the formula chosen by the Commission. To see this, the definition of *WACC* is

$$WACC = k_e(1-L) + k_d(1-T_c)L \tag{9}$$

where k_e is the cost of equity capital, k_d the current interest rate on debt capital, T_c the corporate tax rate and L the leverage ratio. The cost of debt k_d can be expressed as the sum of the current riskfree rate (R_f) and a premium (p) to reflect marketability and exposure to the possibility of default, i.e.,

$$k_d = R_f + p \tag{10}$$

In respect of the cost of equity, the model used was a simplified version of the Brennan-Lally version of the Capital Asset Pricing Model (Cliffe and Marsden, 1992; Lally, 1992), i.e.,

$$k_e = R_f(1-T_I) + \phi\beta_e \tag{11}$$

where T_I is the average tax rate on interest income, ϕ the market risk premium, and β_e the beta of equity capital. The equity beta is sensitive to the leverage ratio L, and the relationship generally accepted by the various parties is[16]

$$\beta_e = \beta_a\left\{1 + \frac{L}{1-L}\right\}$$

(12)

where β_a is the asset beta, i.e., the equity beta in the absence of debt. Finally it was generally agreed that the parameters T_I and T_c are both equal to .33. Substitution of these parameter values, and the last three equations, into equation (9) yields a *WACC* of

$$WACC = R_f(1-.33) + \phi\beta_a + p(1-.33)L$$

The first two terms on the right hand side are the cost of capital in the absence of debt, denoted k_u. So,

[16] This is a variant of the Hamada (1972) formula with corporate tax omitted. Lally (2000, p 32) discusses this issue in more detail.

$$WACC = k_u + p(1-.33)L \tag{13}$$

Thus, $WACC$ differs from the unlevered cost of capital by the product of p, (1-.33) and L. The values proposed by the Commission for p and L are .01 and .25 respectively. Substituting these into equation (13) yields a divergence between $WACC$ and the unlevered cost of capital of less than 0.2%. This is not substantial. Lally (1998) discusses this issue in more detail, and identifies general conditions under which equation (13) is valid.

Question 2 Is excess earnings a better measure of performance than a comparison of the accounting rate of profit with *WACC*?

Excess earnings are better because they can be aggregated to form a performance measure for the entire period of study (the aggregation is to compound the numbers forward to the end of the evaluation period). If desired this can be related to the average asset level over the evaluation period, to strip out scale effects. By contrast, it is not meaningful to aggregate, or even average, accounting rates of profit (although the Commission has done the latter in its Draft Report).

To illustrate the problem, we assume no debt. Suppose that the asset values at the beginning of years 1 and 2 are \$10m and \$20m. Also, the earnings for the two years are \$0.8m and \$2.4m respectively. It follows that the accounting rates of profit for the two years are 8% and 12% respectively. The *WACC* is 10% for each year. The (simple) average accounting rate of profit is then 10%, and this is equal to the *WACC* of 10%, suggesting no excess profits. However the excess earnings for the two years are -\$0.2m and \$0.4m. The compounded sum is positive (\$.18m). Thus, excess earnings are positive, contrary to the conclusion reached by averaging the accounting rates of profit. This result arises because the hypothetical airfield here earns more than *WACC* in some years and less in others, and this characterizes the situation at some of the actual airfields in question.

Question 3 Should the measurement of airfield earnings in the excess earnings calculation be based on airport figures or should adjustments be made to reflect the Commission's views on revaluations, depreciation and the appropriate level of operating expenses?

We consider revaluations, depreciation and operating expenditure in turn. In respect of revaluations we consider price setting using equation (2) and also a variant in which revaluations are included only in the asset values inserted into equation (2)[17]. We also consider both land and other assets separately because the conclusion about the appropriate course of action for the Commission differs between these two types of assets.

We start with revaluations on land. As discussed in section 2, it is important that prices are set that reflect appropriate revaluations, i.e., those that ensure that the book value of the assets at the end of the evaluation period approximates their market value. If the airfield does not do this in setting its revenues, then its revenues will be

[17] The first of these approaches was used by the airfields in earlier years and the latter approach more recently.

excessive. Given this, if the measurement of excess earnings does not include revaluations, then the measure of excess earnings will fail to detect the excessive revenues.

To illustrate this, we invoke the data presented in section 2.1 except that the asset is land. Suppose that no revaluations are undertaken by the airfield, so that the book value of the asset remains at the cost of \$10m. Suppose also that its market value at the end of the evaluation period is \$15m. Following equation (2), the airfield will set prices so that its expected revenues are

$$E(R_1) = \frac{.10(\$10m)}{1-.33} + \$3.1m = \$4.59m, \qquad E(R_2) = \frac{.10(\$10m)}{1-.33} + \$3.2m = \$4.69m$$

Following equation (1) the present value of the project is then

$$V_0 = \frac{\{\$4.59m - \$3.1m\}(1-.33)}{1.1} + \frac{\{\$4.69m - \$3.2m\}(1-.33) + \$15m}{(1.1)^2} = \$14.13m$$

The *NPV* of the project is then \$4.13m, and therefore the revenues are too high. If the Commission fails to undertake revaluations, in assessing excess earnings, it will fail to detect these excess revenues, i.e., following equation (3), the expected excess earnings will be zero in each year:

$$E(Excess\,\mathrm{Pr}\,ofit_1) = \$4.59m - \$3.1m - .33\{\$4.59m - \$3.1m\} - .10(\$10m) = 0$$

$$E(Excess\,\mathrm{Pr}\,ofit_2) = \$4.69m - \$3.2m - .33\{\$4.69m - \$3.2m\} - .10(\$10m) = 0$$

The correct course of action for the Commission is to include revaluations of \$5m in its measurement of excess earnings, and this will reveal the excess earnings. So, suppose that a revaluation of \$2.5m is undertaken at the end of years 1 and 2. Following equation (6), the expected excess earnings will be as follows:

$$E(Excess\,\mathrm{Pr}\,ofit_1) = \{\$4.59m - \$3.1m\}(1-.33) + \$2.5m - .10(\$10m) = \$2.5m$$

$$E(Excess\,\mathrm{Pr}\,ofit_2) = \{\$4.69m - \$3.2m\}(1-.33) + \$2.5m - .10(\$12.5m) = \$2.25m \tag{14}$$

The present value of these excess earnings equals the project *NPV* of \$4.13m. So, by recognizing revaluations in measuring excess earnings, the Commission generates results that reveal the underlying economic situation of excess revenues.

We now consider what happens if revaluations are partially allowed for in price setting by including them in the asset value in equation (2). Consistent with the above example, we assume a revaluation of \$2.5m at the end of each year. The expected revenues for each of the two years will then be

$$E(R_1) = \frac{.10(\$10m)}{1-.33} + \$3.1m = \$4.59m, \qquad E(R_2) = \frac{.10(\$12.5m)}{1-.33} + \$3.2m = \$5.07m$$

The expected revenue for the second year is then larger than before. Following equation (1) the present value of the project is then

$$V_0 = \frac{\{\$4.59m - \$3.1m\}(1-.33)}{1.1} + \frac{\{\$5.07m - \$3.2m\}(1-.33) + \$15m}{(1.1)^2} = \$14.34m$$

The *NPV* of the project is then \$4.34m, and therefore the revenues are even more excessive than before, i.e., partial allowance for revaluations in the way described here causes prices to be even more excessive than when revaluations are completely disregarded. If the Commission partially allows for revaluations in this way, in measuring excess earnings, then the expected excess earnings will be zero in each year, and therefore the Commission would fail to detect the excessive revenues, i.e., following equation (3)

$$E(Excess\,Profit_1) = \{\$4.59m - \$3.1m\}(1-.33) - .10(\$10m) = 0$$

$$E(Excess\,Profit_2) = \{\$5.07m - \$3.2m\}(1-.33) - .10(\$12.5m) = 0$$

The appropriate action for the Commission is to fully incorporate revaluations into its measurement of excess earnings, so as to fully reveal the overpricing. Following equation (6), the expected excess earnings will be as follows:

$$E(Excess\,Profit_1) = \{\$4.59m - \$3.1m\}(1-.33) + \$2.5m - .10(\$10m) = \$2.5m$$

$$E(Excess\,Profit_2) = \{\$5.07m - \$3.2m\}(1-.33) + \$2.5m - .10(\$12.5m) = \$2.5m \quad (14)$$

The present value of these excess earnings equals the project *NPV* of \$4.34m. So, by fully recognising revaluations in measuring excess earnings, the Commission generates results that reveal the underlying economic situation of excess revenues.

We now consider the revaluations issue in respect of other assets. As we have seen in section 2, regardless of whether the airfields disregard revaluations completely or fully recognize them in setting prices, the result is a set of expected revenues that are fair over the finite life of the asset (because the asset's book value will coincide with market value at the end of its life). Also, as we have seen in section 2, a measure of excess earnings that is consistent with pricing in either ignoring or fully recognizing revaluations will produce results that are expected to match the *NPV* of zero in each year. However a problem arises if the Commission adopts a different policy to that underlying pricing; the problem arises when the Commission conducts an assessment part way through the asset life. To illustrate this, suppose that an airfield completely disregards revaluations in price setting (as occurred in earlier years), and its expected revenues are then set in accordance with the example in section 2.1. The revenues will be fair over the asset life of two years and the expected excess earnings, measured by incorporating revaluations, are expected to be zero in each year (as shown in that section). Now suppose that the Commission incorporates the revaluations of \$0.5m at the end of year 1 in conducting its analysis of excess earnings (but the tax depreciation expense is unaffected). The expected results will then be

$$E(Excess\Pr ofit_1) = \{\$9.59m - \$3.1m - \$5m\} - .33\{\$1.49m\} + \$0.5m - .10(\$10m) = \$0.5m$$

$$E(Excess\Pr ofit_2) = \{\$8.95m - \$3.2m - \$5.5m\} - .33\{\$.75m\} - .10(\$5.5m) = -\$0.55m$$

The present value of these excess earnings is zero, i.e., the same as when the revaluations are included. However, at the end of the first year (i.e., part way through the asset's life), the Commission will conclude that there are positive excess earnings. This conclusion is spurious, and is a consequence of evaluating performance part way through the asset's life *and* measuring excess earnings using a different approach to that underlying the setting of prices. This points to the Commission disregarding revaluations for assets other than land if the airfield has not done so in price setting.

We now suppose that the airfields partially recognize revaluations, in that they are included in the asset value and depreciation in equation (2); the airfields have recently followed this practice. Returning to the previous example, they raise the asset value at the end of year 1 by \$0.5m and hence year 2 depreciation by the same. Following equation (2), the expected revenues in each year are then

$$E(R_1) = \frac{.10(\$10m)}{1-.33} + \$3.1m + \$5m = \$9.59m, \quad E(R_2) = \frac{.10(\$5.5m)}{1-.33} + \$3.2m + \$5.5m = \$9.52m$$

Following equation (1), and not changing the tax depreciation expense, the present value of these revenues is

$$V_0 = \frac{\$9.59m - \$3.1m - .33(\$1.49m)}{1.1} + \frac{\$9.52m - \$3.2m - .33(\$1.32m)}{(1.1)^2} = \$10.32m$$

The *NPV* is then \$0.32m. So, revenues are excessive as a result of the airfields employing the pricing strategy described. The Commission should then measure excess earnings in such a way as to reveal the excess revenues. Measuring them by treating revaluations in the same way as the airfields have in setting prices will not do this. The expected excess earnings will be as follows:

$$E(Excess\Pr ofit_1) = \{\$9.59m - \$3.1m - \$5m\} - .33\{\$1.49m\} - .10(\$10m) = 0$$

$$E(Excess\Pr ofit_2) = \{\$9.52m - \$3.2m - \$5.5m\} - .33\{\$1.32m\} - .10(\$5.5m) = -\$0.17m$$

The present value of these excess earnings is negative, despite the revenues being excessive. By contrast, measuring excess earnings so as to completely disregard revaluations or completely recognize them will produce excess earnings that have a present value equal to the *NPV* of \$.32m. For example, completely disregarding them yields expected excess earnings of

$$E(Excess\Pr ofit_1) = \{\$9.59m - \$3.1m - \$5m\} - .33\{\$1.49m\} - .10(\$10m) = 0$$

$$E(Excess\Pr ofit_2) = \{\$9.52m - \$3.2m - \$5m\} - .33\{\$1.32m\} - .10(\$5m) = \$0.38m$$

and the present value is \$.32m. Nevertheless an evaluation conducted at the end of the first year would suggest that there were no excess earnings.

Summarising the position for revaluations on assets other than land, the fact that the airfields disregarded revaluations in setting prices in earlier years argues for the Commission doing likewise in evaluating their excess earnings. By contrast, the fact that the airfields later partially recognized revaluations in setting prices now argues for the Commission doing otherwise, i.e., either fully recognizing them or completely disregarding them. In the interests of consistent treatment over time, the Commission should then completely disregard revaluations on these assets in measuring excess earnings.

We now turn to the issue of depreciation, and whether the Commission should adjust the airfield figures. As indicated in section 2, the depreciation D_t used by the airfields in setting their revenues should accord with tax depreciation to ensure that prices calculated in accordance with formula (2) or (5) are fair. Regardless of whether this is done it is desirable for the Commission to use these same accounting depreciation figures D_t in measuring earnings, so as to minimize the problem of drawing spurious conclusions about excess earnings whenever an evaluation occurs part way through an asset's life. To illustrate this, we revert to the example in section 2.1, except that the Commission uses accounting depreciation of \$7m in year 1 and \$3m in year 2 compared to a figure of \$5m per year used by the airfield in price setting. The result is that, instead of the expected excess earnings being zero in each year, the result is

$$E(Excess\,\Pr ofit_1) = \{\$9.59m - \$3.1m - \$7m\} - .33\{\$1.49m\} - .10(\$10m) = -\$2m$$

$$E(Excess\,\Pr ofit_2) = \{\$8.95m - \$3.2m - \$3m\} - .33\{\$0.75m\} - .10(\$3m) = \$2.2m$$

The present value of these excess earnings is zero but, at the end of the first year, the Commission would draw the spurious conclusion that excess earnings were negative.

Finally, on the question of whether actual or "efficient" operating expenses should be used by the Commission in measuring excess earnings, there are two distinct questions here. One is whether there are monopoly profits. The second question is whether the airfields are inefficient. These separate questions can be addressed by calculating excess earnings under two approaches – with actual expenses and with "efficient" expenses. The difference in results will reflect the degree of (productive) inefficiency.

Question 4 If adjustments are made to the airfields' reported revaluations and depreciation, should the asset value appearing in the benchmark earnings {the term kA_{t-1} in equations (3) and (6)} be adjusted also?

The answer here is yes, and is illustrated by the example concerned with land revaluations in the response to question 3 above. In particular, if the asset value is not increased to \$12.5m in equation (14) to reflect revaluations at the end of year 1, then the excess earnings measured for year 2 will be too high, i.e., the present value of the excess earnings will exceed the *NPV* of the project.

Question 5 Are the comparisons in equations (3) and (6) consistent in the sense that does *WACC* allow for returns in the form of both operating revenue and capital gain?

As shown in section 2, both equations (3) and (6) are capable of yielding results consistent with *NPV* under certain conditions. However, in respect of land, equation (3) is generally deficient because it excludes revaluations.

Question 6 If the airfields compute revenue in accordance with equation (2), which excludes revaluations, an inconsistency arises if the ex-post performance measure includes revaluations as per equation (6). How should this inconsistency be resolved?

As noted above, in the response to question 3, the failure of airfields to fully include revaluations in land in setting prices is undesirable in that it will lead to revenues being too high. Notwithstanding this, it is desirable for the Commission to include these land revaluations in measuring excess earnings; ignoring them would fail to detect the excess revenues. An example of this appears in the response to question 3 above, when addressing the land revaluations question.

In respect of other assets, the airfields completely ignored them in setting prices until recently, and then partially recognized them subsequently. As indicated in the response to question 3 above, the appropriate course of action for the Commission in respect of the first period is to also completely ignore these revaluations so as to avoid spurious conclusions about excess earnings in an evaluation part way through the life of the asset. By contrast, in respect of the second period, the Commission should either completely recognise revaluations in measuring excess earnings or completely ignore them. Either method ensures that the excess revenues will be revealed over the course of the asset's life but spurious conclusions can be drawn part way through the asset life. Consistency requires the same treatment over the two periods. Accordingly the Commission should completely ignore revaluations on assets other than land, in measuring excess earnings.

Question 7 The calculations as explained above exclude interest and its tax effect. Should it be included?

No. Interest and its tax effect should be excluded, as explained in the response to question 1 above.

Question 8 The accounting depreciation figures D_t used in equations (3) and (6) could be determined from tax depreciation or the different numbers used by the airfields. If the latter are used, then the depreciation figures used in computing the tax expense in equations (3) and (6) could be tax depreciation or accounting depreciation. Thus three possible treatments arise. Which is preferred?

The three possible treatments can be illustrated by assuming no revaluations and using the example in section 2.1, except that the accounting depreciation used by the airfield for setting prices is D_1 = \$1m and D_2 = \$9m. The tax depreciation remains at \$5m in each year. Following equation (2), the expected revenues are then \$5.59m for year 1 and \$13.54m for year 2. Following equation (1), the present value of the cash flows is then \$10.1m, so *NPV* = \$0.1m. The expected earnings could be calculated in one of three possible ways. Using the Commission's notation:

Scenario 1: Accounting depreciation is used everywhere, including for the purposes of calculating the tax obligations. Since accounting depreciation now matches tax depreciation, the expected excess earnings must now be zero in all years, i.e.,

$$E(Excess\,\Pr ofit_1) = \$5.59m - \$3.1m - \$1m - .33\{\$5.59m - \$3.1m - \$1m\} - .10(\$10m) = 0$$

$$E(Excess\,\Pr ofit_2) = \$13.54m - \$3.2m - \$9m - .33\{\$13.54m - \$3.2m - \$9m\} - .10(\$9m) = 0$$

The present value of these excess earnings is zero. This is clearly wrong because the *NPV* of the project is positive. Thus, earnings are understated, and this occurs because tax liabilities are misstated by acting as if tax depreciation equaled accounting depreciation.

Scenario 2: Tax depreciation is used everywhere in equation (3), including for the purposes of calculating the tax obligations. However the revenues have still been determined using different depreciation numbers. In this case, the present value of the excess earnings will equal the *NPV* of \$0.1m, but the expected excess earnings will be positive in some years and negative in others, i.e.,

$$E(Excess\,\Pr ofit_1) = \$5.59m - \$3.1m - \$5m - .33\{\$5.59m - \$3.1m - \$5m\} - .10(\$10m) = -\$2.68m$$

$$E(Excess\,\Pr ofit_2) = \$13.54m - \$3.2m - \$5m - .33\{\$13.54m - \$3.2m - \$5m\} - .10(\$5m) = \$3.08m$$

Scenario 3: Accounting depreciation is used in determining pre-tax earnings in equation (3), and tax depreciation is used in calculating the tax obligations. In this case, the present value of the excess earnings will equal the *NPV* of \$0.1m, but the expected excess earnings will be positive in some years and negative in others, i.e.,

$$E(Excess\,\Pr ofit_1) = \$5.59m - \$3.1m - \$1m - .33\{\$5.59m - \$3.1m - \$5m\} - .10(\$10m) = \$1.32m$$

$$E(Excess\,\Pr ofit_2) = \$13.54m - \$3.2m - \$9m - .33\{\$13.54m - \$3.2m - \$5m\} - .10(\$9m) = -\$1.32m$$

Of these three scenarios, the first must be rejected because it yields excess earnings whose present value diverges from the *NPV* of the project, i.e., the excess earnings in aggregate do not accord with the underlying economic situation. Of the remaining two scenarios, both satisfy this basic test, but are subject to the difficulty that the expected excess earnings change sign over time. The variation over time is less for scenario 3, because the depreciation used in measuring accounting earnings matches that used in price setting. Variation is a problem when the Commission measures excess earnings part way through the asset's life. In the above example, measurement by the Commission at the end of year 1 would suggest that there were excess profits; this conclusion would be spurious. Thus, to minimize this problem of variation in expected excess earnings over time, scenario 3 is preferred.

Question 9 If accounting depreciation is used in measuring earnings (i.e., scenario 2 is rejected), which of scenario 1 or 3 is preferred?

Since the scenario eliminated here (scenario 2) was not the preferred option in question 8, then the answer to question 8 remains, i.e., scenario 3 is preferred (the tax liability should be calculated in accordance with tax law).

One final comment is warranted here. The airports present financial statements covering their entire operations but not separate statements for the airfield activities. Consequently the Commission must estimate the portion of revenues and costs attributable to the airfields. A particular problem arises in respect of tax; this could be estimated by using tax depreciation for the assets, combining this with other revenues and costs, and then applying the statutory tax rate to this taxable income (the above formulas and calculations assume that this has been done). However there seem to be difficulties in obtaining this tax depreciation in earlier years. Accordingly, an alternative is to use accounting depreciation rather than tax depreciation. If this is done then one cannot continue to apply the statutory tax rate; instead one must use the "effective" tax rate, defined as the ratio of tax paid to pre-tax income, and this ratio is available for the aggregate airport activities in their financial statements. The effective rate for the airport as a whole would seem to be a good proxy for the airfield activities.

To illustrate this, suppose that an airport as a whole has profits before tax and depreciation of \$12m, accounting depreciation of \$4m and tax depreciation of \$3m (depreciation is assumed to be the only source of divergence between accounting and taxable incomes). The tax expense is actually calculated as

$$.33\{\$12m - \$3m\} = \$3m$$

The accounting profit before tax is \$12m - \$4m = \$8m, and the effective tax rate is then \$3m/\$8m = .375. Using this tax rate, the tax expense could also be represented as

$$.375\{\$12m - \$4m\} = \$3m$$

Thus, the actual tax expense arises from using tax depreciation and the statutory tax rate. The same answer will arise from using accounting depreciation and the effective tax rate. Thus, if tax depreciation is unknown for a subunit of a business, but accounting depreciation is *and* one is prepared to accept that the effective tax rate for the entire business will be a good proxy for this subunit, then the tax expense for the subunit could be estimated by the second method above.

4. Conclusions

The answers presented in the previous section overlap in a number of ways. The principal points made are as follows:

(1) The accounting rate of profit and the earnings measures that are employed are appropriate for comparison with a *WACC* benchmark.

(2) Excess earnings are a better measure of performance than accounting rate of profit, because the former can be aggregated to form a performance measure across the entire time period studied (this is done by compounding the numbers forward to the end of the period of study). If desired this can be related to the average asset level over the evaluation period, to strip out scale effects. By contrast, it is not meaningful to aggregate, or even average, accounting rates of profit (although the Commission has done the latter in its Draft Report).

(3) In respect of land, revaluations should be fully reflected in the prices set by the airfields, following equation (5), or else their prices will tend to be too high. They should also be fully reflected in the Commission's measurement of excess earnings, regardless of whether the airfields have fully recognized them in setting their prices, partially recognized them in the asset values and depreciation figures, or completely disregarded them.

(4) In respect of other assets, there are pros and cons to fully incorporating revaluations into the prices set by the airfields and also to fully disregarding them. However both practices will generate revenues that are fair over the life of the assets. By contrast, partial recognition in the fashion recently practiced by the airfields will lead to excessive revenues. The fact that the airfields disregarded revaluations in setting prices in earlier years argues for the Commission doing likewise in evaluating their excess earnings, so as to avoid spurious conclusions when conducting an evaluation part way through the asset life. By contrast, the fact that the airfields later partially recognized revaluations in setting prices argues for the Commission now doing otherwise, i.e., either fully recognizing revaluations or completely disregarding them. In the interests of consistent treatment over time, the Commission should then completely disregard revaluations on these assets in measuring excess earnings.

(5) In respect of depreciation, the numbers used by the airfields in setting their prices under formula (2) or (5) should accord with tax depreciation, so that revenues are fair. Regardless of whether this has been done, the Commission should use the same accounting depreciation numbers in its measurement of excess earnings as those used by the airfields in setting their prices (its calculation of the tax expense should however invoke tax depreciation). If it does otherwise then it is more at risk of reaching spurious conclusions about excess earnings when evaluating performance part way through an asset's life.

(6) In respect of operating expenditure, the Commission should calculate excess earnings using both actual and efficient expenditure. This will enable conclusions to be drawn about both monopoly profits and (productive) efficiency.

(7) The tax expense for a subunit of a business should be calculated using tax depreciation and the statutory tax rate. However, if tax depreciation is unknown, an approximation is available by using accounting depreciation and the effective tax rate for the entire business. If the effective tax rate for the entire business applies equally to this subunit then the approximation will be exact.

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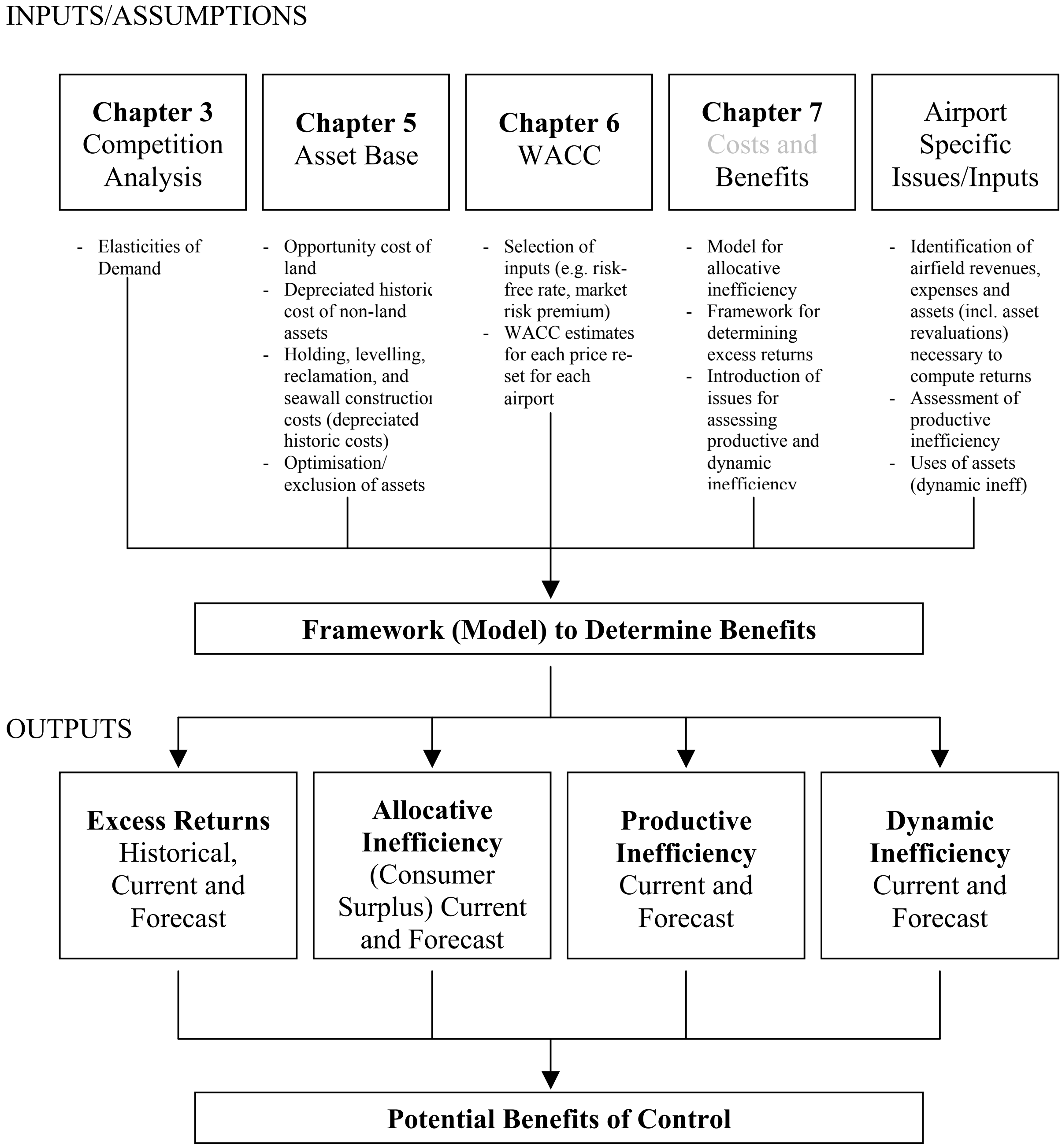
APPENDIX 20 – MODELS USED TO QUANTIFY BENEFITS

This appendix explains the construction of the models used by the Commission to assess the potential benefits of control (from the reduction of excess returns and allocative, productive and dynamic inefficiency). Readers may find it useful to refer to this when reviewing the results of the analysis of each airport presented in Appendices 13, 15 and 17.

Framework

The framework for the analysis is largely the same as that used in the Commission's draft report. However, changes have been made to a number of inputs into, and assumptions underpinning, the analysis. Substantive changes have not been to the framework as a whole.



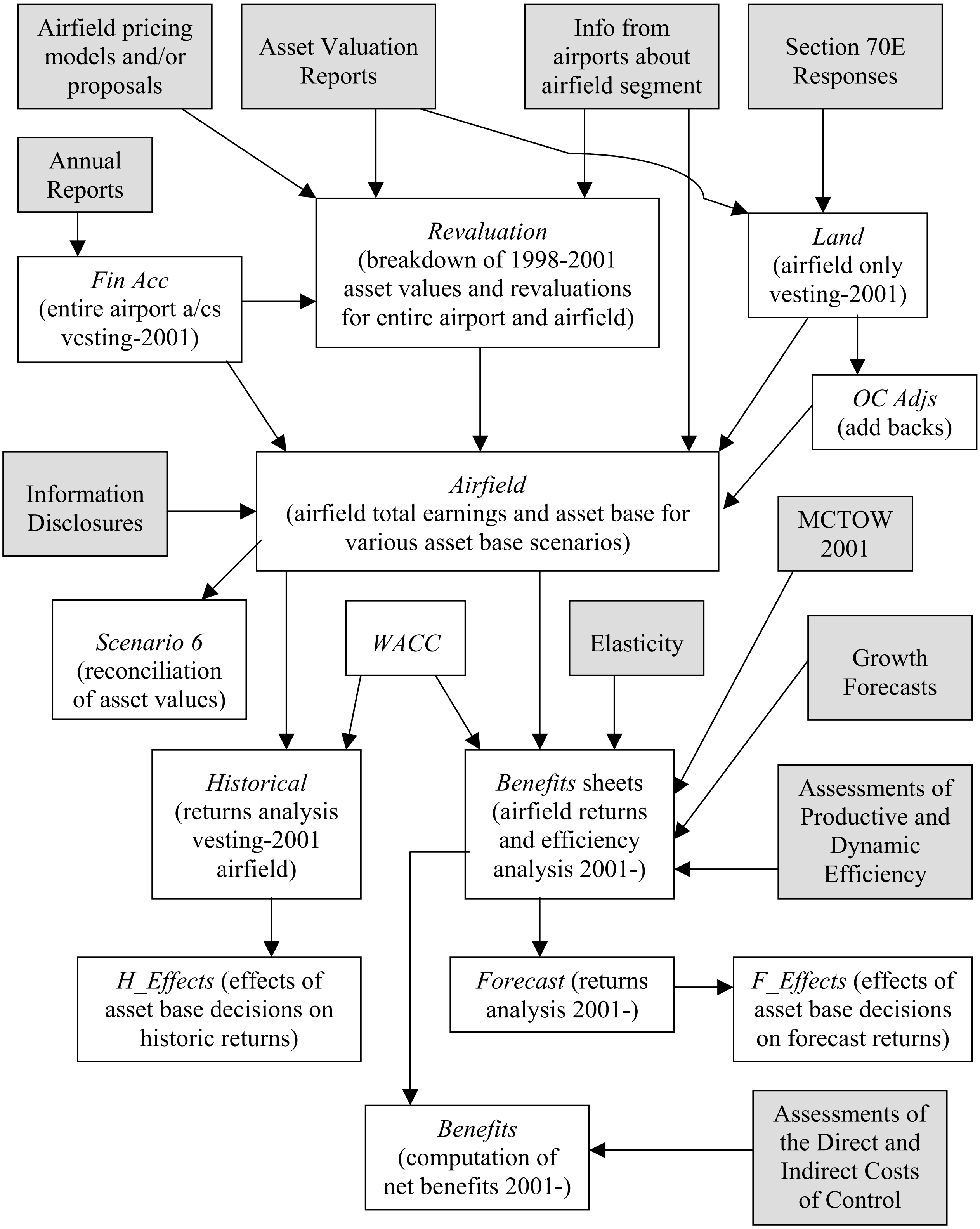
Construction of the Model

As noted above, the framework for the analysis is largely the same as that undertaken in the Commission's draft report. The excel spreadsheets that undertake the analysis have been revised and simplified, and the analysis has been updated to include the 2001 financial year results for each airport (unavailable at the time of the draft report).

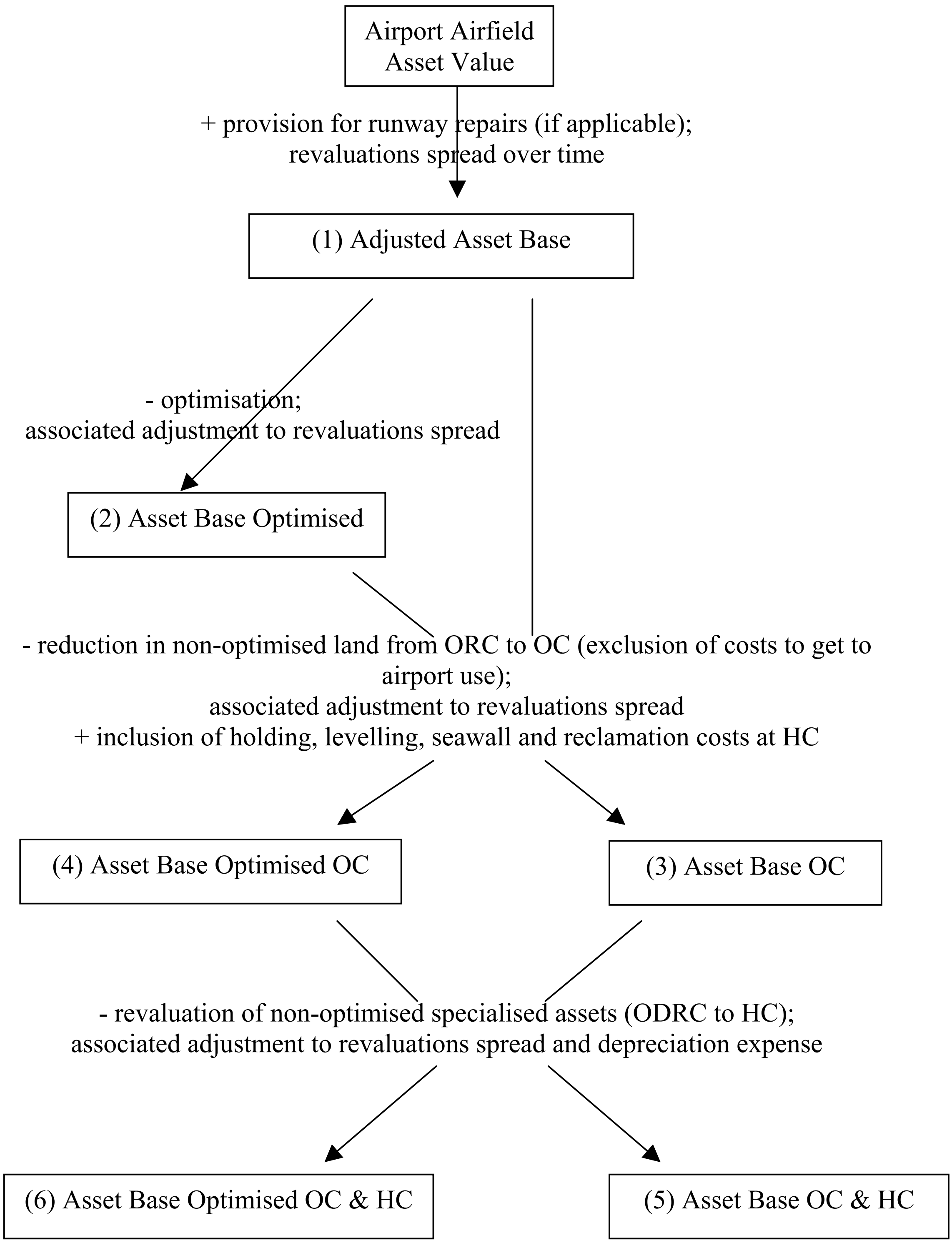
The models used in the draft report contained up to 19 spreadsheets, compared to 16 in the new simplified model (although the model for AIAL contains an extra 5 sheets, 4 for the forecasts from 2004-2007; and an extra 1 for CIAL). A number of sheets have been deleted entirely, as they are redundant in the new simplified model, but others have been added. The following is a comparison of the worksheets in the two models (draft report and revised model):

Draft Report Model		**Revised Model**
	new	Acquirers Benefits
	new	Public Benefits
	new	Acquirers Benefits ODRC
Benefits 00	*deleted*	
	new	F_Effects
	new	Forecast
Benefits Y1		Benefits 01
Benefits Y2		Benefits 02
Benefits Y3		Benefits 03
	new (AIAL only)	Benefits 04
	new (AIAL only)	Benefits 05
	new (AIAL only)	Benefits 06
	new (AIAL only)	Benefits 07
	new	H_Effects
Scenarios (summary)		Historical
1		
2		
3		
4		
5		Airfield
6		
7		
8		
9		
	new	Scenario 6
	new	Land
	new	Revaluation
	new (AIAL only)	OC Adjs
	new (CIAL only)	Airfield Asset Register
Fin Acc		Fin Acc
Asset Values	*deleted*	
Adj Fin Acc	*deleted*	
WACC-CC		WACC-CC
WACC-Airport	*deleted*	
WACC-Airlines	*deleted*	

The following diagram shows the links between the various sheets in the new simplified model, as well as external inputs into the sheets (the external inputs are the shaded boxes):



The *Airfield* sheet in the models contains 6 asset base scenarios. The following diagram shows how the framework incorporates various alternative asset base options, making adjustments to the airports' asset bases to take account of the factors referred to above.



APPENDIX 21 – TELFER YOUNG ADVICE ON OPPORTUNITY COST

Report to Commerce Commission

Auckland International Airport,
Wellington International Airport, and
Christchurch International Airport

For:

New Zealand Commerce Commission

Status: 29 July 2002

By:

Evan Gamby
TelferYoung (Auckland) Ltd

Chris Stanley
TelferYoung (Canterbury) Ltd

Executive Summary

1.0 General

Evan Gamby of TelferYoung (Auckland) Ltd and Chris Stanley of TelferYoung (Canterbury) Ltd (TelferYoung) were commissioned by the Commerce Commission to provide a written report on “opportunity cost” valuations at Auckland International Airport Ltd (AIAL), Wellington International Airport Ltd (WIAL) and Christchurch International Airport (CIAL).

Under a letter dated 6 June 2002 the Commerce Commission sought advice in determining the opportunity cost value of the land currently used by the airports for airfield activities and land held by Auckland and Christchurch for possible use as future airfield activities.

The Opportunity Cost value of the land was defined as “its value (the market price it would fetch) in its next best alternative use, assuming the airport ceases operations”.

The Commerce Commission approached the three Airport Companies and the Board of Airline Representatives of New Zealand (BARNZ) to ascertain their views on the application of opportunity cost principles to the valuation of airfield land.

In consulting with the relevant parties on the application of opportunity cost for valuing land the Commerce Commission provided views on a range of dollar values for the relevant land. The responses of the airports and airlines to the Commission’s consultation were provided to Telfer Young and reviewed as part of this work.

The Commerce Commission has specifically requested TelferYoung’s advice on the following:

1. The average per hectare value of the land currently used in airfield activities at each of the three airports in the best alternative use(s) the Commission has determined and the basis upon which the average is derived;

2. For Auckland and Christchurch, an average per hectare value of the land held for future airfield activities in the best alternative use(s) the Commission has determined (if this average is different from the average per hectare value of land currently used in airfield activities at these airports) and the basis upon which the average value is derived; and

3. For Auckland, whether an urban or rural zoning is more likely for the land in its next best alternative use.

The Commerce Commission has asked whether TelferYoung can provide a range of values for the land and a comment as to whether more weight can be attached to any particular value within this range.

The request has involved a discussion on a number of issues related to determining the best alternative use values on a per hectare basis, including:

+ The effect of such a quantity of land shifting to the next best alternative use(s).

+ The proximity of the land to the city and the existing infrastructure surrounding the airports.

+ Whether, taking into account Resource Management issues, all other present day conditions and circumstances would apply if the airport operations were to cease.

+ How the airport's existence may have affected the value of land surrounding the airport, if sales evidence from these areas were used as a proxy for determining the average value per hectare.

+ The date of the valuation advice.

Under the Commerce Commission's approach, the holding and levelling costs associated with accumulating the land and transforming it specifically for airfield use do not form part of the opportunity cost of land. We understand that the Commerce Commission has treated these costs separately and they are therefore not the subject of a request for our advice.

The request for advice is quite specific. TelferYoung were not asked to comment on the adoption of opportunity cost as a valuation methodology, but purely to provide advice based upon the parameters the Commerce Commission has established. It is on this basis we have furnished our response.

We have not been asked to value the airports. We have been asked to give advice as to the likely value range based upon the parameters established by the Commerce Commission. Opportunity cost, as determined by the Commission, is broadly synonymous with the valuation methodology "Alternative Use Value". Accordingly, our response is framed within our understanding that the two valuation approaches would be the same, if the option of using the land as an airport were to be excluded.

Instructions

2.0 Best Alternative Use

In its letter of instruction of 6 June 2002, the Commerce Commission set out the likely best alternative use(s) of the land at each of the three airports, as follows:

+ **Auckland:**
  Rural use (farming/ lifestyle blocks, assuming a rural zoning would eventuate), or urban use (residential/industrial assuming an urban zoning would eventuate).

+ **Wellington:**
  Urban use (residential/industrial, assuming an expected urban zoning).

+ **Christchurch:**
Rural use (farming/lifestyle blocks, assuming an expected rural zoning).

In the advice to CIAL by the Commission, there was also reference to the possibility of uses other than rural at Christchurch. Our response to the Commerce Commission has therefore looked at the possibility of urban uses at Christchurch.

We note that there has been no specific attention given by the valuers in their initial valuation advice to the assessment of an opportunity cost value at Wellington or Christchurch, although there was reference to overall values of $50,000 - $55,000 per hectare for the CIAL land.

In its submission of 27 April 2001, AIAL refer at section 9.38 to the cost it would have had to incur had it acquired the equivalent parcel of land with similar locational attributes and amenity on the open market. Based on advice it received from Seagars in a report dated 29 July 1999, this value was described as *"...the price which an independent purchaser could afford to pay to acquire an equivalent parcel of land in order to undertake a hypothetical highest and best use alternative development…"*

This might be interpreted as an opportunity cost assessment. However, in our opinion the focus of the value statement was directed to the cost that might have been incurred to acquire land and establish the airport, not the alternative highest and best use value that might eventuate should the airport cease to operate.

TelferYoung consider that, in the event valuations are required to be undertaken on an opportunity cost basis, then valuations substantially different to those that have already been presented in submissions before the Commerce Commission are likely to eventuate. This is because, among other considerations, it would be necessary for each of the airport companies and those with a financial interest in airport operations to address the zoning of land in terms of existing infrastructure and the environment, in far greater detail than would appear to be the case in terms of the existing adopted methodology.

As an example only, for Auckland airport, TelferYoung would expect the existing and potential planning of all of AIAL land to come under intense scrutiny by at least the Territorial Local Authority and Auckland Regional Council in addition to AIAL. The implications on Auckland's infrastructure of rezoning the land from Airport to an alternative use would become an issue of regional significance. The effect of urban development on the Manukau Harbour would become a key environmental issue. The desire by some to retain the undeveloped land surrounding the existing airfield operational land as a "green belt" outside the Auckland Metropolitan Urban limits would become a priority.

Conversely, there would be pressure to develop the land currently utilised as an operational airport in a manner that would complement the existing commercial and industrial activity already in place, with the balance of the land being suitable for residential development. We emphasise again that this synopsis is hypothetical and an example of the competing pressures for changed land use that could eventuate.

The likely planning outcome at each airport location, were the airport to cease operation, could be a full range of uses from high intensity commercial/industrial and residential through to low density residential, and for Auckland and Christchurch, rural. It is the allocation into the proportions of the land for each use that is likely to have the greatest effect on the value of total airfield land holdings by each airport, as the variations in value for different activities would be substantial.

For each airport, TelferYoung is not aware of any land of such substantial size that has been placed on the market at one time. It is therefore necessary to qualify the term opportunity cost to incorporate the ability to dispose of land under the principle of an “orderly sell down”. The timeframe over which an orderly sell down could occur would vary by location, potentially affected by the state of the regional and national economies at each date of valuation.

Stipulating a particular timeframe over which the orderly sell down should occur, as a benchmark could, all other things being equal, potentially result in significant differences in valuations at each assessment date. In our opinion, the term “orderly sell down” should not be quantified as being within a specific timeframe. Valuations should be made on the assumption that sale of the land could occur over such time as would be appropriate in each location to achieve the highest and best use opportunity cost land value.

It would not be appropriate in our opinion to apply high levels of opportunity cost value based on comparative sales of small areas of land, as this would create a strongly inflated level of value, out of line with the existing large airport land holdings in each location. Equally, it would be inappropriate to consider disposal in very large parcels, as this would deflate values. There is a strong argument that values of land holdings should be prepared in parcels of a size that would be economically manageable within their respective market and geographic locations.

TelferYoung has taken the approach of determining the value of land parcels in relation to their likely potential zoning, and within the context of a sustainable market, in each region.

TelferYoung’s advice has been prepared on the basis that all infrastructure both within the operational airport, adjoining the operational airport and outside airline company landholdings, remains in place and available should the airport operation be considered to cease.

The ranges of values per hectare considered do not acknowledge differences in dates of valuation. Sales evidence data referred to has been selected based on factors that include the size of parcels that would likely be sold through an orderly sell down and the time frame within which such land could be utilised. Without exception, land that is immediately suitable for development reflects a higher land value rate per hectare within its class than where deferment applies. We have not adopted these high levels of value.

Holding costs would be incurred during an orderly sell down of the land but we have taken these into account by adopting land values subject to zoning or use deferment.

Although the precise timeframe to complete a sale of all land at each location would vary, a period of four–six years in the size of parcels considered manageable by the market could be considered reasonable. Deductions for holding costs from our levels of value would be considered double counting. It is inherent in the market value of land that the value assessed includes provision for holding costs until development commences.

There are two approaches taken when considering the effect of holding costs on block unsubdivided land values. The first and simplest is an interest rate applied to the land over the holding period, adjusted to reflect the decreasing portfolio size over the selldown period. On the assumption that the various parcels sell evenly over, say, a fiveyear period, then the interest is taken at the nominated rate, likely to be around 8% currently, over half the land. The selection of the rate does not reflect the actual cost to a specific developer but rather a reasonable opportunity cost for funds they have yet to receive. The holding time frame interest cost accounts for part of the difference between the higher level of individual block values that have not been adopted and the lower level block values for larger land parcels that have been adopted.

A more refined approach involves the selection of a discount rate, currently in the order of 8-8.5%, applied at a monthly rate to the cash flows as they are likely to occur. The sell down would likely be a “lumpy” process with little cash flow in the first 12–24 months, followed by an increased period of settlements, and then sales tailing off towards the end of the sell down period. The discount rate selected accounts for part of the difference between the higher level of individual block values that have not been adopted and the lower level block values for larger land parcels that have been adopted.

A direct consideration of sales with similar timeframe attributes to the parcel of land being valued circumvents the need for holding cost deductions, as the sales for land parcels of similar time frame attributes already incorporate any issue of holding costs and no further adjustment is required.

There is no need to allow for subdivision costs as the block value ranges are sufficiently low that they reflect large land parcels values. This comment is made on the assumption that the titles for each airport parcel of land are available for reallocation by boundary adjustments. The value ranges and levels adopted by us are on the basis that any further infrastructure, including roading, infrastructure reticulation and further subdivision into smaller parcels, would be the responsibility of the purchaser.

Christchurch International Airport

4.0 CIAL:

4.1 General

TelferYoung have concluded that the best alternative use of the land at Christchurch would be for urban/lifestyle development, which would incorporate a range of uses including commercial, retail, industrial, low density residential and lifestyle blocks.

We have reached this conclusion based upon the proximity of the land to the city and the other surrounding amenities associated with Christchurch International Airport. The property is situated in the favoured north-western sector of the city adjacent to three golf courses, close to Clearwater Resort and close to other established residential amenities.

The airport land has excellent linkages with the city centre via Memorial Avenue and is situated on the boundary of State Highway 1, which provides a bypass north, south and west of the city.

The surrounding land at the present time is zoned rural in a number of degrees of intensity. In TelferYoung's opinion, this reflects the present use as an airport and the need to control the environment around the airport in terms of approach gradients, noise controls etc. If, as required under our letter of instruction we are to assume the airport ceases operations, we are strongly of the opinion that a reasonably intense form of urban development would be undertaken on the land due to its locational advantages and existing infrastructure.

In establishing average value per hectare rates for the airfield activities, we do not believe it is appropriate to focus upon land sales immediately adjacent to the airport as these may be either "blighted" or "tainted" due to existence of the airport being "deflated" by airfield activities or "inflated" to reflect the potential for adjoining owner/purchaser influence.

There is a significant volume of sales of large blocks of land around the periphery of Christchurch, which gives good guidance as to appropriate land value rates. These include large-scale industrial land holdings, residential and lifestyle.

We have adopted a similar average value per hectare for the existing airfield activities as well as land held for future airfield development as we believe that on an alternative use basis a similar intensity of use and therefore value, would result.

In our opinion, it would not be a simple matter to apply an overall rate per hectare for the whole of the Christchurch airport land without considering the weighting of land areas to be zoned for various uses. Any average basis could be influenced by Resource Management decisions and may vary from our estimated land use mix.

4.2 Data

Consideration was given to the evidence provided by CIAL.in the initial Land Valuation of 30 June 1999 prepared by Crighton Seed & Associates. In this report the Valuers identified appropriate land value rates for land uses within the Airport. The land values adopted were as follows:

+	*Terminal*	*$300/m2*
+	*Aircraft & Freight (Intensive)*	*$100 - $120/m2*
+	Commercial / Technology	$80 – $90/m2
+	Aircraft & Freight (Extensive)	$50/m2
+	Roading	$25/m2
+	Rural Intensive	$5/m2

+ Rural Extensive $10,000 - $12,000/ Ha

In the CIAL response to the Commerce Commission of 21 May 2002, no specific reference was made by CIAL to land sales evidence to be considered in an opportunity cost approach.

CIAL did, however, refer to the valuation prepared by Edward Rushton / Barratt – Boyes Jefferies on behalf of BARNZ, which produced an average value of $61,500 per hectare. This resulted in a value of approximately $23,000,000 if it was applied to the current airfield area of 373.9 hectares.

The $61,500 per hectare referred to by CIAL was a land value rate that Edward Rushton / Barratt – Boyes Jefferies had established by transposing a base bare land value from their valuation on AIAL and then applying adjustments as follows:

Base Bare Land Value	$30,000/ hectare
Premium as airport belt land	$16,500/ hectare
Site preparation allowance	$15,000/ hectare

The land value was not established by reference to Christchurch land sales and we are of the opinion it should not be utilised as a basis for calculating an opportunity cost – best alternative use value for the airfield land.

We have established indicative land value ranges by reference to block sales in the general Christchurch environs. Sales evidence deemed to be of particular relevance in establishing appropriate value levels include the following:

4.21 Residential:

Northwood. This is the sale of a residential block on the outskirts of the city between Redwood and Belfast. It is the sale of a former orchard developed by Applefields. The sale occurred in 2001 and was the result of action by the mortgagee. The transfer was subsequently the subject of litigation. The block has an area of 97.8805 hectares and sold for $13.7 million. The sale price equates to **$140,000 per hectare**. The land is being developed in stages.

Burwood. This is the sale of surplus land at Burwood Hospital. The land was sold by the Canterbury District Health Board to the Ngai Tahu Property Group in November 1999. The sale price was negotiated by the two parties after significant valuation, engineering and Resource Management advice. The block had a total area of 55.0411 hectares and was sold for $7.5 million. The sale price equates to **$136,000 per hectare**. The land has subsequently been developed in stages and is known as Tumara Park.

Halswell Junction Road. This is a large parcel of land on the outskirts of Christchurch. It is located in the Halswell residential area, a reasonably modern residential suburb of the city. The block has an area of 38.9644 hectares and sold in December 1999 for $8.5 million. The sale price equates to **$218,000 per hectare.**

Milns Road. A smaller block of land in the Halswell area developed in 2000 as Milns Estate. The block has an area of 10.9570 hectares and sold in December 1998 for $2,150,000. The sale price equates to **$196,000 per hectare**.

4.22 Industrial / Commercial:

Radcliffe Road. This is the sale of the land for the Northwood Supa Centre at Belfast. The land was purchased for $5.5 million in mid 1999 by the developer prior to obtaining Resource Consent. The sale price for the 7.3529 hectare site equates to **$748,000 per hectare.**

Clarence Street. This is the sale of the former Railways workshop land to the NgaiTahu Property Group. The land sold in June 1999 for $5.188 million with the sale price equating to **$366,600 per hectare** for the site of 14.1504 hectares.

Lester Lane. This is the sale of land from the Ngai Tahu to the Christchurch City Council. The land sold in December 2000 for $3.478 million for a land area of 4.6380. The sale price equates to **$750,000 per hectare.**

Shands Road. A sale of an industrial site on the outskirts of the city. The land sold in February 2000 for $950,000 for a site of 2.9559 hectares. The sale price equates to **$321,000 per hectare.**

4.23 Rural/Lifestyle.

Turners Road. A small holding of 4.025 hectares sold May 2001 for $228,500 equating to **$56,254 hectare**.

Turners Road. A vacant small holding of 4.0875 hectares sold in August 2001 for $230,000 equating to **$56,269 per hectare.**

Turners Road. A small holding of 4.1078 hectares sold in December 2000 for $240,000 equating to **$58,425 per hectare.**

Yaldhurst Road. A vacant block sold in March 2001 for $320,000 for a site of 4.8900 hectares equating to **$65,440 per hectare**.

Pound Road. A block of 3.6050 hectares sold in March 2002 for $265,000 equating to **$73,509 per hectare**.

Yaldhurst Road. A small holding of 3.8230 hectares sold in April 2001 for $295,000 equating to **$77,165 per hectare.**

Based upon the sales evidence available and adjusting for the scale of the Airfield land holdings we have established value ranges for the assumed mix of uses.

4.3 Value Range

We have determined a mix as follows:

Commercial/Industrial Development	10%
Residential Development	40%
Rural/Lifestyle Development	50%

It is possible that different parties (and their valuers) would take different positions on this mix. However, this mix, in our view, represents a reasonable one for the land in question.

We would suggest that the most probable rate for the Industrial/Commercial component would be in the range of **$145,000 to $155,000 per hectare**. The Residential component would have a most probable range of $**70,000 to $80,000 per hectare** and the Rural/ Lifestyle land **$45,000 to $55,000 per hectare**. These land value rates are based upon the examination of a wide body of sales evidence, a cross-section of which has been detailed above.

Based upon this use mix we have derived an average land value rate per hectare ranging from **$65,000 to $75,000 per hectare** for the airfield land area of 373.90 hectares.

In view of the scale of the land holding we believe the most probable value would lie within this range and for value calculation purposes we would suggest an appropriate land value rate of **$70,000 per hectare.**

We believe this would apply to both the land for current airfield activities and land held for future airfield activities.

A land value rate of $70,000 per hectare would result in a total indicative value on this basis of **$26,000,000.**

The assessment of value for the Christchurch Airport land is sensitive to the allocation of land to each zoning sector.

Wellington International Airport

5.0 WIAL:

5.1 General

TelferYoung have concluded that the best alternative use of the land at Wellington would be for reasonably intensive commercial and residential development on a similar basis as that referred to by both Ernst & Young (EY) and Barratt-Boyes Jefferies (BBJ). This would incorporate a range of commercial, industrial and residential activities.

TelferYoung have reached this conclusion due to the strategic position the land enjoys in relation to the central city and the shortage of flat land in Wellington. The airport site is of a size that would make it very attractive as a potential co-ordinated development with excellent linkages to the city.

If, as required under our letter of instruction, we are to assume the airport ceases operations, we are strongly of the opinion that a very intensive form of urban development would be undertaken on the land due to its locational advantages and existing infrastructure.

We do not have the benefit of detailed Resource Management advice, but in our view, logic would suggest that an intensive form of development would occur. This is supported by the fact that the valuers for both WIAL and BARNZ have developed their subdivisional budgets on the same basis.

In determining appropriate alternative use values under the opportunity cost concept, we have considered the submissions put forward by WIAL, BARNZ and their respective valuers.

WIAL and their Valuers, EY, have provided sales evidence as a starting point for the hypothetical subdivision budget. BBJ have, in broad terms, accepted this base data and adopted the section values derived by EY. These value levels, in our view, appear realistic.

5.2 Data

EY and WIAL have provided a large volume of land sales evidence to support the value levels utilised in the Hypothetical Subdivisional approach.

BBJ have commented on the value levels EY have extrapolated from the sales evidence, but appear to have adopted identical value levels in their report of 2 April 2002 addressed to BARNZ. In this report BBJ state: *"For most part such research supports the level of values adopted by WIAL, namely an average section value of $140,000 for the better sites and an average of $125,000 for the smaller less attractive lots, however, we must emphasise such research was only of a preliminary nature."*

WIAL, in their response to the Commission of 20 May 2002, refer to a wide range of sales evidence in sections 80 and 81 of the response. EY, in their valuation of WIAL as at 31 March 2000, quote sales of larger blocks to substantiate their value conclusions.

The sales evidence provided by EY and WIAL provides a reasonable cross-section of evidence, and gives an appropriate value on which to set value parameters for the sites in the subdivisional budget.

5.3 Value Range

EY and BBJ established a mix of uses. There was debate as to the appropriate mix of High and Medium density residential uses.

The EY hypothetical subdivision was based on the following mix:

Commercial/Industrial	20%
High Density Residential	30%

Medium Density Residential	20%
Reserves	10%
Roads Etc.	20%

It is possible that different parties (and their valuers) would take different positions on this mix. However, in our view, it represents a reasonable mix for the land in question.

Based upon this mix of urban uses, it is realistic to derive an average land value rate per hectare ranging from between **$410,000 per hectare to $470,000 per hectare** for the non-contestable airfield and associated land. This is based upon the land value rates utilised by the valuers in the subdivisional budgets.

In view of the unique nature of the site and its proximity to the city, we believe the most probable value would be towards the upper limit of this range, and for value calculation purposes we would suggest an appropriate land value rate of **$450,000 per hectare.**

Utilising the land area adopted by the Commerce Commission of 77.8737 hectares, this would establish an indicative land value for the airfield and associated land at Wellington Airport of **$35,000,000.**

This indicative value assumes that the seawall is in place and that the value or otherwise of the seawall is subsumed in the value of the land.

The assessment of value on an opportunity cost basis for the Wellington Airport land is sensitive to the allocation of land to each use. Telfer and Young consider the mix noted above to be reasonable for the land in question.

Auckland International Airport

6.0 AIAL:

6.1 General

TelferYoung have concluded that the next best alternative use of the land at Auckland would comprise a combination of urban and rural activities with a range of uses, including commercial, retail, industrial, high density residential, low density residential and heritage/rural. This would include the land held for future airfield activities.

TelferYoung have reached this conclusion based upon the existing infrastructure both within and surrounding the AIAL land, as well as the land's proximity to Central Auckland and access to motorway routes south to the Waikato. It is inescapable, in our opinion, that had Auckland International Airport not developed on the land, much of the land would have been zoned and utilised many years ago for urban activities. However, the advice from the Commerce Commission is to have regard to the situation now, being "all present day conditions and circumstances at the specified valuation date should the airport cease to operate".

Under a scenario that adopts present day conditions and circumstances, should the airport cease to operate, it is unlikely now that all of the land would be rezoned for urban purposes. In particular, the Mangere-Puhinui Heritage Rural and Rural Zoned land comprised in the eastern sector approaches and also to the North of Ihumatao Road is likely to retain its rural characteristics, although there would be continued pressure over time for urban activity to encroach further onto the rural or heritage zoned land. The environmental and pressure group issues surrounding planning decisions are problematic and this has been reflected in TelferYoung's conclusion that a range of uses is likely to develop in the event that the airport ceased to operate.

Land surrounding the airport was historically rural in character until the 1950's. It has progressively been rezoned as urban, with large areas of industrial land to the southeast, industrial land to the north and low cost housing more distant, through an arc in the east from south to north. Auckland International Airport thus remains as a "node" of special purpose zoned land, outside the metropolitan urban limits. If the airport operations were to be disregarded, much of the surrounding zoning is an anomaly in the Auckland metropolitan scene with other land, further removed from the airport and more distant from central Auckland, zoned, subdivided and developed for urban activities.

When establishing average value per hectare rates for activities other than those associated with the airport, we consider that it is not appropriate to focus upon land sales immediately adjacent to the airport in isolation as they have been either "blighted" and therefore "deflated", in the case of the Mangere-Puhinui Heritage Rural and Rural Zoned land, or "tainted" and potentially "inflated", in the case of the industrial zoned land to the north. Land zoned Mangere-Puhinui Heritage Rural and Rural has been frozen in terms of both its zoning and potential use to a rural fringe value level. Where sales have occurred between disinterested parties, values have steadily increased, but prices have remained below transaction prices to AIAL.

Conversely, the sales of industrial land to the north have been influenced by the existence of the airport operations. Uses that have established are frequently associated with airport activities. It is more probable that the land to the north would have been developed for urban residential purposes as an extension to low cost housing in the Mangere and Papatoetoe South Auckland locations. However, under the "conditions as they are today" approach there is a greater likelihood, in our opinion, that the industrial zoning would be extended and intensive urban development established on much of the airport land.

In determining appropriate alternative use values under the opportunity cost concept, we have considered the submissions put forward by both AIAL and BARNZ. Not surprisingly, given the zoning uncertainties, different perspectives have been adopted by the parties. In terms of the decision to consider an "orderly sell down" of landholdings, we believe that the result would err within a range of values towards the level considered appropriate by AIAL, as there should be ample time to explore the rezoning of land in a manner that contemplates all issues, including a logical and sustainable development for a range of commercial and other urban activities.

In essence, we believe that it would be logical to expect the following pattern to emerge (excluding the titled seabed considered to have a nil opportunity cost value):

Commercial/Industrial Development	20%
High Density Residential Development	10%
Low Density Residential Development	30%
Mangere-Puhinui Heritage Rural and Rural Zones	40%

We must add, however, that there would substantial pressure from a wide variety of groups with clearly divergent interests to advocate within a spectrum from total commercial/industrial and residential through to total rural rezoning. It is possible, therefore, that different parties (and their valuers) would take different positions on this mix. However, in our view, it represents a reasonable mix for the land in question.

6.2 Data

Indicative land value ranges have been established by reference to block sales in the Auckland metropolitan area and beyond. Sales of residential, industrial/commercial and rural, deemed to be of particular relevance in establishing appropriate value levels, are those with particular geographic location features, urban or rural potential and large land areas.

6.21 Residential and Deferred Residential

Long Bay Okura, North Shore City. This block of land in three titles comprises an area of 198.8 hectares. The sale price has never been formally recorded as the transaction involved a company sale. The transaction occurred in late 2000 at a price believed to be $27,750,000 million equivalent to **$140,000 per hectare**. This sale is of particular interest as it comprised the largest known tract of deferred residential land at the boundary of the Auckland Urban Metropolitan Limits, including approximately 32.8 hectare of land that is to retain a rural zoning being beyond the urban limits. The remaining 166.0 hectares is subject to a structure plan and yet to be released urban residential zoning by North Shore City. Potentially this property is a more desirable block of land than the subject. Parts of the land are on the coast adjoining a recreation reserve. Infrastructure would not be provided to the area for a period of 10 years. All holding costs would be at a cost to the developer in addition to the sale price.

Balance of Omaha, Peninsula. Although well removed from Auckland to the north, being 14 km east of Warkworth, this is also a very large block of land that has since been progressively subdivided and is now being marketed as a beach holiday location but without beach frontage sites. The total land area is 170 hectares. The block of land sold in May 1997 for $12,000,000 on a long-term agreement and equates **$70,600 per hectare,** overall including a large area set aside for reserve and an extended golf course. The land is level and extends the existing Omaha beach resort. The land was held at the developers cost from sale.

Balance of Gulf Harbour, Whangaparaoa. This sale in February 2001 comprises the remaining undeveloped land area of 97 hectares at Gulf Harbour on the

Whangaparaoa Peninsula north of Auckland. The sale price has remained confidential. Although it was reported in the NBR at a price in the vicinity of $55,000,000, our information is that the price was substantially higher. At the reported price the property reflects a price of **$567,000 per hectare** for land that is immediately suitable for residential development. This sale can be contrasted with the sale of the deferred residential land of Okura – Long Bay.

Catalina Point, Whangaparaoa. A property with an area of 24.24 hectares on the Whangaparaoa Peninsula adjoining Gulf Harbour sold in December 1998 for $5,250,000. The property was suitable for low-density semi-rural development and has since been subdivided into rural lifestyle holdings. The price reflects **$216,500 per hectare** and may be compared with the residential zoned land of Gulf Harbour to the East.

Schnapper Rock Road, Albany. Five adjoining holdings were acquired over an 18 months period in 2000 – 2001 totalling just under 22 hectares for $10,000,000 gross, including some improvements and with differing purchase agreement terms. The land was not immediately ripe for development and the analysed prices ranged from **$450,000 per hectare to $500,000 per hectare.** The purchaser has carried holding costs since the date of sale.

66 Flat Bush Road, Flat Bush. A block of Future Residential zoned land – zoned rural 2 - purchased for longer term future subdivision, subject to an 8 year estimated deferment period. The price paid in April 2000 of $4,500,000 for 16.27 hectares reflects **$276,500 per hectare.**

78 Jeffs Road, Flat Bush. This property on an elevated ridge sold on the basis of $12,400,000 with $2,400,000 deposit and the balance interest free for 3 years. Discounting the balance at 9% p.a. the residual price plus the deposit reflects a price of $10,121,834, of **$266,500 per hectare**.

187 Flat Bush Road, Flat Bush. This block of 47.8436 hectares sold in December 2000 for $8,907,350. This is a development block, zoned rural 2. Council purchased the property for reserve. Approximately 16 hectares is bush and low-lying land used for stormwater retention. The deferment is for a period of 9 – 10 years. The sale analyses to approximately **$186,200 per hectare**.

6.22 Industrial / Commercial Land

286 Mt Wellington Highway. The Northern half of former Sylvia Park, bisected by the South Eastern Arterial Road flyover and formerly zoned for industrial business activity purposes was purchased by Kiwi Income Property Trust, Kiwi also owns the 11.88 hectares site to the south. The site was rezoned Business 8, after the purchase, and objections were outstanding for at least 4 years. The sale price of $20,000,000 reflects a rate of **$2,200,000 per hectare.** There is income from the existing buildings on the land pending redevelopment.

SH1 & Oteha Valley Road, Albany. A sale in April 1996 of 23.4650 hectares forming part of the Albany subregional centre now developed as a bulk retail centre.

The property sold at a price of $23,800,000, reflecting **$1,140,000 per hectare**. Development occurred soon after sale.

Ti Rakau & Botany Downs Road Botany. AMP bought 17.5891 hectares in 1997 to develop a regional shopping centre at the intersection of the new Ti Irirangi Drive and Ti Rakau Drive for $20,000,000, but after inducements the equivalent cash purchase price is $17,890,000 reflecting **$1,017,000 per hectare**. A new shopping centre has since been constructed, with commencement of construction shortly after sale date.

133 George Bolt Memorial Drive Mangere. This large triangular shaped 24.0906 hectares block of land at the intersection of Montgomerie Road is zoned for business activity purposes and sold in November 1999 for $9,362,250, reflecting **$388,500 per hectare**, for land that is close to the Auckland International Airport to the north. Development of the block occurred soon after the sale date.

100 Ormiston Road, East Tamaki. This is a 48.0525 hectares block of future industrial land that sold in May 1999 for $7,000,000. Flood protection works affects approximately 12.16 hectares. The land that is only partly usable artificially reduces the overall rate per hectare to $145,700. The sale otherwise reflects **$175,000 per hectare** if the flood protection land is taken at one-third value. The price includes deferment of land use with holding costs until the development being to the purchaser.

19 Ormiston Road, East Tamaki. A desirable 21.4436 hectares block of industrial zoned land of easy contour that sold in September 1997 for $6,000,000 reflecting **$279,800 per hectare**.

27 Waiouru Road, East Tamaki. This is a level to easy contoured 45.6250 hectares block of industrial zoned land with secondary access off Stonedon Drive. The property sold in August 1997 for $7,000,000, reflecting approximately **$153,400 per hectare.**

6.23 Rural and Heritage zoned Land

316 Puhinui Road Papatoetoe. This property of 31.233 hectares rolling Mangere – Puhinui Rural zoned land, immediately below the eastern approaches flight path to the airport, but outside the immediate airport influence on values, sold in December 1997 for $2,000,000 reflecting an overall rate of $59,392 per hectare. However 2.896 hectares is not usable and the effective rate per hectare is **$70,500 per hectare** for 28.337 hectares. Land compensation for an area taken by Transit was determined at **$80,000 per hectare** in 2001. The land is used for rural cropping purposes.

Puhinui Road "Confidential". [

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526 Massey Road, Mangere. This block of 19.2175 Hectares of land is zoned Main Residential as to 6.0 hectares and Mangere-Puhinui Heritage as to the balance of 13.2176 hectares. The property sold in March 1999 for $2,600,000, reflecting a price paid of **$135,300 per hectare**. The block of land is situated geographically close to the Auckland. International Airport but in an inferior location. It is a long and narrow block with part creek frontage. An alternative analysis would indicate that the Mangere-Puhinui Heritage zone land shows a value of **$60,500 per hectare** and the Main Residential land a rate of **$300,000 per hectare.**

87 Price Road Mangere. This 57.6171 hectares block of land is located adjacent to the eastern approaches to the Auckland International Airport. It is zoned Mangere-Puninui Rural Heritage. The sale in July 2000 at $3,555,555 reflects a rate of **$61,700 per hectare.**

6.30 Value Range

Based upon the mix of uses above, we have derived average land value rates per hectare of between **$65,000 and $75,000 per hectare** at the rural end of the spectrum for the Mangere-Puhinui Heritage Rural and Rural zones. Our view is that **$70,000 per hectare** is the appropriate value level.

For the land currently used operationally, this, in our view, is likely to have an intensive urban zoning for commercial/industrial or residential use. The range is likely to be **$175,000 -$250,000 per hectare** at the high-density residential and commercial use end of the spectrum for large land holdings, deferred for the more intensive uses to reflect the requirement for planning approval. A value at around **$200,000 per hectare** would therefore appear appropriate, but the precise extent of the land to which it should be applied is difficult to determine. We have reached this conclusion as land adjoining AIAL land is already used for intensive, non-contestable industrial/commercial activities. This is also the better land close to Manukau harbour that would also be favoured for intensive residential activities.

For the second runway land, being land held for future airfield activities, the value level would range between **$70,000 per hectare and $140,000 per hectare** as stated by the Commerce Commission based on the values put forward by AIAL and Air NZ. An opportunity cost value of **$140,000 per hectare** for this land would be sustainable, tempered by the need to address what proportion, if any, of this land might be zoned rural. If all the land could be argued as being potentially urban then the value of **$140,000 per hectare** would be sustainable for all of this land, based on the sales evidence submitted and adopting an orderly sell down.

In view of the scale of the landholding, the sales evidence advanced by the valuers and the adoption of an orderly sell down period approach, we consider an appropriate land value rate on a weighted average basis overall would emerge from a consideration of the above assessments.

The total range of values is likely to vary from a low of **$70,000 per hectare** up to **$200,000 per hectare**. We have been asked to provide our best estimate within this range. We suggest an overall probable rate of **$140,000 per hectare**, with an overall range from **$100,000 per hectare to $160,000 per hectare. W**e stress that the value range and our best estimate are sensitive to the mix adopted. The range has regard to the size of the land holding and necessity to sell the land in smaller parcels. The stated range excludes a value for the seabed considered to have a nil opportunity cost value.

In our opinion, the approach we have outlined would apply to operational airfield, Heritage/Rural, Wiroa Island and the second runway land but would exclude the titled seabed. We see no need under the opportunity cost approach to vary the rate per hectare for the Wiroa Island land, compared to that of the rural land given the likely strong demand for a "Rural retreat Island" as an alternative value.

Our results are summarised in the table below:

Operation	**Area (hectares)**	**Value per hectare**	**Value**
Operational Airfield	351.7205	$200,000	$ 70,344,100
Wiroa Island	40.3600	$ 70,000	$ 2,825,200
Eastern Approaches Land	170.8081	$ 70,000	$ 11,956,567
Seabed (Title)	140.0000	0	0
Second Runway Land	262.551	$140,000	$ 36,757,140
Total Area	**965.4396**		**$121,883,007**
Total Area exclusive of Title Seabed	**825.4396**		**$121,883,007**
Rate per hectare			**$147,658**

The assessment of value for the Auckland Airport land is sensitive to the allocation of land to each zoning sector, hence our suggested most probable overall rate of **$140,000 per hectare,** that would result in an indicative land value on this basis of **$115,500,000**, which assumes that not all of the second runway land would be rezoned urban.

Concluding Comments

7.0 Opinion

TelferYoung advise that there has been no attempt to value (in the sense of the valuation standards) the airport land at any one of Auckland, Wellington, or Christchurch. Our results in this report are based on our best estimates of value ranges, and values within those ranges.

Ranges of value stated on a per hectare basis are indicative to advise the Commerce Commission within the bounds of its instructions to TelferYoung.

SUPPLEMENTS

1. REGULATORY BACKGROUND

INTRODUCTION

1.1. The operation of civil aviation and airports in New Zealand is governed by a combination of international obligations and agreements, domestic legislation, and ancillary rules and regulations. This supplement outlines the international obligations, and then proceeds to discuss the domestic legislation and regulations, under the headings of economic regulation, safety and security regulation, and environmental regulation.

INTERNATIONAL OBLIGATIONS

1.2. The primary international regulatory means of controlling the aviation industry are the directives of the International Civil Aviation Organisation (ICAO), and the agreement and enforcement of bilateral Air Service Agreements. New Zealand is required to comply with the directives of ICAO, and is also party to a number of Air Service Agreements. Both of these means of regulation therefore have some degree of impact on the operation of civil aviation, and airports, in New Zealand.

International Civil Aviation Organisation

1.3. ICAO, an inter-government organisation, was established in 1947 following the introduction of the Convention on International Civil Aviation (the Chicago Convention)[448]. The Chicago Convention has been ratified by 185 countries, including New Zealand. The Convention requires New Zealand's international airports to adhere to certain establishment and operational standards and recommendations.

1.4. Although the Chicago Convention provides for ICAO to play a part in the economic regulation of international air transport, the organisation has traditionally not focused on that area, preferring instead to generally limit regulation to matters affecting aviation safety and security. ICAO's main priorities are to ensure safety and security in the operation of international civil air transport. ICAO policies along this line take three forms, binding obligations in the Chicago Convention, Statements to Contracting States, and advisory manuals.

1.5. Although the Convention does provide for arbitration as a means to settle disputes, ICAO does not possess any powers of enforcement, and generally attempts to achieve its aims through persuasion and agreement. The organisation is typically dependant on member states incorporating its policies and recommendations into domestic

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[448] The Chicago Convention is in four parts and has 96 Articles. Part 1 deals with air navigation, Part 2 establishes ICAO, Part 3 covers international air transport, and Part 4 details further administrative matters. The convention also has 18 Annexes, which contain more detailed recommendations and standards.

law.[449] ICAO conducts regular audits to ascertain a state's conformity with the standards and recommended practices.[450]

Convention Requirements, Standards and Recommended Practices

1.6. The Commission has examined the Convention and its articles. The specific articles and annexes to the Convention relevant to the operation of airports are:

- Article 10, which requires aircraft that land in the territory of a contracting state to land only at an airport designated by that State as for the purposes of customs and other examination. Similarly, on departure from that State's territory the aircraft must also depart from an appropriately designated airport.

- Article 15, which relates to airport charges, and requires that aircraft of other contracting countries engaged in international air services are not subjected to higher charges for the use of airports and navigational facilities than the aircraft of the designated national carriers of the home contracting country.

- Article 68, which provides that each contracting state may designate the airports and air routes that any international air service may use within its territory.

- Annex 14 (to Article 37), which details standards and recommended practices for the design and operation of aerodromes.

ICAO Statements

1.7. ICAO also issues what is known as Council Statements. Unlike the Convention's articles and annexes, the contracting states are not bound to adhere to the provisions and recommendations contained in Council Statements.

1.8. ICAO has issued a Council Statement (in the latest version it is referred to as a policy) that deals particularly with charges for Airports and Air Navigation Services.[451] The Statement details the principles and guidelines for determining airport and navigation charges, and includes comment on the cost basis for airport charges, charging systems and user consultation. As a general principle, the Statement suggests that it is desirable that the users of an airport ultimately bear their full and fair share of the cost of providing the airport.

1.9. The Statement also recommends:

- That airport charging systems be simple and suitable for general application.

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[449] Section 91C of the Civil Aviation Act 1990 states that the provisions of the Chicago Convention, as they relate to the rights and liabilities of carriers, carriers' servants and agents, passengers, consignors, consignees, and other persons, have the force of law in New Zealand.

[450] ICAO Strategic Action Plan, 12 June 2000.

[451] *ICAO's Policies on Charges for Airports and Air Navigation Services,* sixth edition, 2001, ICAO document 9082/6.

- That the airport charges be non-discriminatory.

- That airport landing charges be based on a weight formula, using the maximum permissible take-off weight of aircraft as indicated in airworthiness certificates.

1.10. In addition, the statement also suggests that consultation between airports and its users is desirable before decisions are made as to airport charges and planning, and that the purpose of such consultation is to ensure that airports give consideration to the views of users and the effect that the charges will have on users. The Statement also suggests that consultation implies discussion between users and airports in an effort to reach general agreement on any proposed charges. The Statement proposes that, failing such agreement, airport authorities would continue to be free to impose the charges concerned.

ICAO Advisory Manuals

1.11. ICAO also issues advisory manuals. These manuals have less standing than Council Statements. In 1991, ICAO issued an Airport Economics Manual[452] to provide practical guidance material for those responsible for airport management. The manual includes discussion on organisational structures, financial controls, determining the cost basis for charging purposes, and financing airport infrastructure. The Airports Council International[453] views this manual as providing advisory and technical material for use by States and airports attempting to develop or improve their financial and commercial systems, and improve their financial efficiency and self-sufficiency.[454]

Air Service Agreements

1.12. Article 1 of the Chicago Convention provides for complete and absolute sovereignty to each nation over the air space above its territory, and consequently, confirms the legal authority for states to grant and exchange ‘Aviation Rights of Passage’ (commonly known as freedoms[455]) to other states. Such rights are exchanged through inter-governmental bilateral agreements, known as Air Service Agreements (ASAs). ICAO acts in an administrative capacity in recording ASAs.

1.13. Under this bilateral agreement system, international air transport does not take place unless it is expressly permitted by an ASA. The bilateral system assumes that each country has its own ‘substantially owned and effectively controlled’ designated

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[452] *Airport Economics Manual,* ICAO, Document 9562.

[453] A non-profit organisation established in 1991. Its primary purpose is to foster cooperation among its member airports.

[454] Airports Council International. (Self-sufficiency in the sense that an airport is able to meet its operational costs without requiring central or local government financial support).

[455] There are eight distinct ‘freedoms’ that states can confer. These include the right to fly over, to, from, between, and beyond, another country’s territory.

national flag carrier.[456] Non-scheduled services (including charters) generally fall outside the bilateral system, although some ASAs contain provisions relating to them.

1.14. As a result of the bilateral agreement system, the international airline industry is relatively heavily regulated. New Zealand has concluded ASAs with 43 bilateral partners to date.[457] New Zealand also operates liberal market arrangements under the Single Aviation Market with Australia, which allows for unrestricted capacity on trans-Tasman routes and within each country

1.15. Many of the ASAs contain provisions that relate to user charges for airports. The New Zealand Government's approach is generally to omit or remove provisions dealing with such user charges, on the grounds that the government has no role in implementing or overseeing pricing regimes, and that entities that feel themselves disadvantaged by discriminatory pricing can seek redress through the Commerce Act 1986. However, despite adopting this stance, at the insistence of other countries many of New Zealand's ASAs do actually contain provisions dealing with user charges. These provisions typically state that such charges should be just, reasonable and non-discriminatory.

1.16. In negotiating ASAs, the New Zealand Government does not impose any restrictions as to which airports may be serviced. The New Zealand Government's approach is to leave the choice to the foreign airline's commercial assessment. ASAs thus generally do not impinge upon either Air New Zealand's or a foreign airline's ability to substitute between New Zealand airports. However, on occasions foreign governments do specify the New Zealand airport(s) able to be used.

DOMESTIC LEGISLATION AND REGULATION

1.17. There are a number of New Zealand Acts applicable to the operation of civil aviation, and in particular, airports, in New Zealand. They essentially deal with three distinct areas: economic issues, safety and security, and environmental issues.

Economic Regulation

1.18. Economic regulation is concerned primarily with the efficiency of civil aviation. Some form of airport economic regulation is common internationally. The regulatory development process is likely to be influenced by various interest groups, including the airports themselves, the airlines, and the local community, who often see an airport as a means of stimulating the local economy through an increased flow of visitors. The exact form of economic regulation may be influenced by the nature of the airport company's management structure, its objectives, its performance monitoring and its ownership.

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[456] In New Zealand and Australia this requirement is defined as being where foreign ownership is not more than 49%, a single foreign airline owns not more than 25%, and all foreign carriers own not more than 35%.

[457] Ministry of Transport, International Air Transport Information, http://www.govt.nz/archives/mitransport/iat/index.html 6 November 2000.

1.19. In addition to the regulatory tools discussed below, it is also recognised that the airport companies are commercially constrained to some extent by the existence of a limited degree of competition between airports for international carriers, and also further constrained by the existence of a small number of airline companies allegedly possessing some degree of countervailing power.

Airport Authorities Act 1966

1.20. In New Zealand there has been a long history of co-operation between central and local government in the provision of both regional and international airports. Traditionally the standard mechanism for carrying on this relationship had been a joint venture agreement. Such partnerships date back to the (now repealed) Local Authorities Empowering (Aviation Encouragement) Act 1929.

1.21. In terms of the practical operation of airports, the Crown had generally been concerned with the provision of safety facilities, such as air traffic control and rescue fire services, and the local authorities concerned with managing and operating the terminals and commercial activities. Revenues and costs had typically been shared equally between the joint venture partners.

1.22. The ownership mechanism and operation of airports was overhauled with the passing of the Airport Authorities Act 1966. This Act consolidated and amended the Local Authorities Empowering (Aviation Encouragement) Act 1929, and essentially allowed local authorities to operate as airport authorities, expressly empowering these airport authorities to establish, improve, maintain, operate, or manage airports. This was subject to the consent of, and in accordance with any conditions imposed by, the Crown.

1.23. While designed as a means of facilitating airport development, the airport authorities (central and local government partnerships) were not regarded as providing the best mechanism for commercial airport operation.[458] Pricing and costing procedures were fairly primitive: costs were not allocated in any detailed way; revenues were gained by a simple percentage charge on airline revenues and weight charges, which meant that commercial operators subsidised non-commercial, regardless of cost; and there was no special effort to measure returns obtained. Imbalances between revenues and development requirements were common, and local body decision-making procedures were cumbersome, and impaired by central government capital expenditure controls.[459]

Airport Authorities Amendment Act 1986

1.24. Government concern with airport inefficiency led to a decision in 1985 to corporatise the airports. In 1986 an amendment to the Airport Authorities Act 1966, under which a new section 3A was inserted into the principal Act, enabled airports to become limited liability companies under the Companies Act 1955. The incorporation process required obtaining a valuation for each airport, determining the respective

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[458] *Airports – A New Partnership*, Wellington: Office of Minister of Civil Aviation, 14 June 1985.

[459] Ministry of Transport, *Review of New Zealand Airport Regulation: Proposals for Consultation*, Wellington: MOT, 1995, page 3.

shareholdings of the Crown and local bodies (based generally on their respective contributions to the airport's development), and appointing a board of directors. It is noted that section 5(3) of the Airport Authorities Amendment Act 1986 required each airport company to operate as a commercial undertaking.

1.25. With regard to Auckland Airport, the Crown and the local bodies could not reach agreement in forming the new corporation, and special legislation, the Auckland Airport Act 1987, was passed to incorporate the new company as from 1 April 1988. Christchurch International Airport Limited was incorporated on 1 July 1988. No special legislation was necessary as the Crown and local bodies were able to agree upon a transfer price and incorporation. At Wellington, prolonged negotiations as to valuation took place. However, prior to agreement being reached, legislation was introduced along the lines used for Auckland International Airport Limited. The Wellington Airport Act 1990 led to Wellington International Airport being incorporated on 16 October 1990.

1.26. As well as establishing the framework for incorporating airport companies, the Airport Authorities Amendment Act 1986 also provided for airport companies, after consultation with its airline customers, to set charges for the use of their services and facilities.[460] This statutory obligation to consult users about changes has been the basis of dispute between airports and its users. In the case of Wellington and Dunedin airports, this has led to court litigation.[461] Litigation was most recently initiated by Air New Zealand against AIAL in 2000 in regard to AIAL's consultation obligations, and announcement of an 8.5% price increase in landing charges effective from 1 September 2000, and further increases of 5% in each of the next two years. This litigation has since been settled out of court as part of an agreement reached between AIAL and Air NZ on charges through to 30 June 2007.

1.27. The Wellington airport litigation suggests that, if a party having the power to make a decision after consultation holds meetings with the parties it is required to consult, provides those parties with relevant information and with such further information as they request, enters the meetings with an open mind, takes due notice of what is said, and waits until they have had their say before making a decision, then the decision is properly described as having been made after consultation.[462]

Airport Authorities Amendment Act 1988

1.28. The initial constraint, that shareholders in an airport company were to be limited to the Crown, local authorities and the Airways Corporation, was removed by a further amendment to the Airport Authorities Act in 1988.

1.29. The Government subsequently announced in its 1988 Budget its intention to sell its shareholdings in the international airports, subject to the implementation of regulatory

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[460] Section 5(3) Airport Authorities Amendment Act 1986.

[461] *Wellington International Airport Ltd. v Air New Zealand* {1993} 1 NZLR, 671. *Dunedin Airport Ltd v The Mount Cook Group Ltd* (30/09/96) CP34/96.

[462] *Wellington International Airport Ltd. v Air New Zealand* {1993} 1 NZLR, 671, 672.

reforms necessary to establish the competitiveness of the market in which the businesses operated.

1.30. An officials committee was formed to report on the regulatory issues involved, and the committee appointed Travers Morgan Pty Limited (Travers Morgan) to report on competition and efficiency in the airport sector.[463] Two central concerns were expressed by officials:

- The possibility of monopoly pricing by the airports.

- The possible effects of an airline shareholder in an airport using its influence to disadvantage other airline competitors.

1.31. The Travers Morgan report's conclusions included that:

- There was little competition between airports.

- There were considerable forces acting against the exercise of monopoly power by the airports, with the most important of these forces being the countervailing power of the airlines as the main customers of the airports.[464]

- The threat of regulation acted as a constraint on the airports' exercise of market power.

- Section 36 of the Commerce Act should be sufficient to prevent most discriminatory activities by airports.

1.32. The Officials Committee favoured a continuation of the then existing form of regulation, which it considered was adequate to ensure that airports did not exploit their monopoly power, even if they were to be privatised. The Officials Committee commented that:[465]

> In the case of New Zealand's international airports, officials have argued that the countervailing power of the {airlines} and the provisions of the Commerce Act are a sufficient constraint on the airport companies to make heavy regulation unnecessary.

Airport Authorities Amendment Act 1997

1.33. In 1995 the Government undertook a review of the Airport Authorities Act 1966. The Government produced a consultative document at that time stating its view that "current legislation provides insufficient protection for airport users against potential

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[463] Travers Morgan, *Airports Regulatory Review*, Wellington: Ministry of Commerce/Transport, 1989.

[464] Available avenues included airline non-cooperation in such matters as early payment of charges or day-to-day operations in the airports, consultation (in term of the Airport Authorities Act 1966), threats of regulation or political action, and bilateral aviation agreements that airport charges be 'just and reasonable'.

[465] Report by the Chairman of the Officials Committee, *Regulatory Issues arising from the sale of the Crown's interests in New Zealand's three international airports,* 5 March 1990.

abuse by airports of their monopoly power".[466] The Government review was essentially guided by two principles, first, the promotion of efficient pricing, and second, the desire for optimal investment in airport facilities

1.34. The review concluded that, although there was the potential for airport companies to extract monopoly rents from airlines, no evidence of monopoly pricing was identified.

1.35. The review did, however, recommend amendments to the Airport Authorities Act, in the form of the Airport Authorities Amendment Act 1997. During the Third Reading of the Amendment Bill, the Hon. Maurice Williamson (on behalf of the Minister of Transport), stated:

> The objective of this Bill is to protect against a possibility of monopoly pricing by airport companies and to protect consumers' interests……
>
> Achieving that objective will ensure that airport companies provide their services efficiently and investment in new airport facilities reflects the growing demands for air travel and air freight.

1.36. The Amendment Bill essentially sought to strengthen the consultation requirements on specified (larger) airports companies—those with annual revenue exceeding $10 million, and hence AIAL, WIAL and CIAL—and make provision for the introduction of information disclosure regulations.

1.37. In particular, section 4 of the Airport Authorities Amendment Act 1997[467] required specified airports to consult with 'substantial customers'[468] over charges for identified airport activities (and also for direct charges payable by any passenger in respect of identified airport activities).

1.38. Further, the Airport Authorities Amendment Act 1997 also provided that specified airports must consult substantial customers on capital expenditure plans in relation to identified airport activities that are likely, within the following five years, to exceed 20% of the value of the company's identified assets.

1.39. The Act specifically provided that consultation must take place before airports fix or alter any charges for identified airport activities, and also, within five years after fixing or altering any charges for identified airport activities. The identified airport activities are defined in the Act as:

- *Airfield Activities* – the services and facilities provided to enable the take-off and landing of aircraft. This includes airfields, runways, taxiways and aprons; facilities of air traffic and apron control; airfield and associated lighting; the maintenance and repair of runways, etc.; and rescue, fire, safety and environmental hazard control.

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[466] Ministry of Transport, *Review of New Zealand Airport Regulation*, April 1995.

[467] Inserted section 4B into the principal Act.

[468] Substantial customers are defined as any person that contributes more than 5% of the airport's accounting period revenues in relation to identified airport activities.

- *Aircraft and Freight Activities* – the servicing and maintenance of aircraft, and the handling of freight. This includes hangars; aircraft refuelling facilities; flight catering; waste disposal; warehousing; and security, customs and quarantine services for freight.

- *Specified Passenger Terminal Activities* – the facilities and services provided for airline passengers while in the terminal. This includes seating areas, thoroughfares and air bridges; flight information and public address systems; facilities for the operation of customs, immigration, and quarantine checks and control; facilities for the collection of duty-free items; facilities for the operation of security and police services; and passenger check-in and baggage handling.

1.40. As discussed earlier, the exact nature and significance attached to consultation by the airlines and the airports has been a point of contention. The Ministry of Transport is currently reviewing how the consultation process has worked in practice. In light of the Commission's report and its own review, the MOT is to consider what, if any, changes might be made to the requirements to consult in the Airport Authorities Act.

Airport Authorities (Airport Companies Information Disclosure) Regulations 1999

1.41. Section 9A of the Airport Authorities Act[469] provides for the Governor General, by Order in Council, to introduce regulations requiring airport companies to disclose information in relation to their identified airport activities. The Airport Authorities (Airport Companies Information Disclosure) Regulations 1999 apply to financial statements prepared on or after 1 January 2000.

1.42. In summary, the Disclosure Regulations require the specified airport companies (and hence AIAL, WIAL and CIAL) to disclose the following information:

- Audited segmented financial statements for identified airport activities.

- Passenger charges and charges for identified airport activities, and the methodology used to determine the charges.

- The basis for allocating assets to identified airport activities.

- Details of asset revaluations.

- Operating costs of identified airport activities.

- Weighted average cost of capital (WACC) and the methodology and calculations used to determine WACC.

- Numbers of passenger and aircraft movements.

- Interruptions to services.

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[469] Introduced through section 6 of the Airport Authorities Amendment Act 1997.

- Number of people employed in identified airport activities.

1.43. The disclosure regulations do not require the use of any specific methodologies for the purposes of the disclosures or pricing, but simply require compliance with generally accepted accounting practice. Although it has not been exercised, there is provision for the Secretary for Transport to issue guidelines for the methodologies used to value assets, calculate WACC, and allocate revenues, costs, assets, and liabilities, to identified airport activities.

1.44. Two years worth of information disclosures have been released to date. The Ministry of Transport is currently assessing compliance with the disclosure regulations. In light of the Commission's report and its own work, the MOT is to consider what, if any, changes might be made to the requirements to consult in the disclosure regulations.

Self-Regulation

1.45. Shortly after incorporation, both AIAL and CIAL entered into a memorandum of understanding (MOU) with their respective airline users. These memorandi essentially provided a code of practice for consultation. Further, AIAL's agreement confirmed a profit ceiling of 10% after tax on shareholders' funds on the airfield and terminal cost centres, and 5% after tax on shareholders' funds on the rescue fire cost centre. CIAL's agreement confirmed a profit target of 10% after tax on shareholders' funds on the airfield and terminal cost centres.

1.46. Neither the airports or the airlines presently place any significance on these memorandi. In this regard, BARNZ has advised the Commission that it sees these memorandi as having no legal standing. Similarly, AIAL consider that the memorandum it entered into has been superseded by events such as the public offering, the imposition of statutory consultation, and the introduction of a disclosure regime.

1.47. In addition to the MOUs, some charges are set by commercial agreement. AIAL has a terminal services agreement with international airlines in respect of the use of common areas of its international terminal building. WIAL has a deed with its substantial customers, which sets airport charges.

The Commerce Act 1986

1.48. The purpose of the Commerce Act is to promote competition in markets for the long-term benefit of consumers within New Zealand. To meet this purpose the Act prohibits a number of restrictive trade practices, prohibits business acquisitions and mergers that lead to the creation or strengthening of a dominant market position, and provides for the imposition of control where goods or services are supplied (or acquired) in a market in which competition is limited, or is likely to be lessened, and it is necessary or desirable for the prices of those goods or services to be controlled, in the interests of users, or consumers, or, as the case may be, of suppliers.

1.49. Accordingly, the Airport companies, in conducting their business affairs, are required to consider and adhere to the trade and acquisition provisions contained in the

Commerce Act. Such considerations are particularly relevant, given the alleged market power possessed by airport companies. In addition, the threat of control under Part IV of the Commerce Act also exists to act as a constraint on how the airport companies conduct their business.

Safety and Security

Civil Aviation Act 1990

1.50. The primary legislation in New Zealand for dealing with civil aviation safety and security is the Civil Aviation Act 1990.[470] The purpose of the Civil Aviation Act 1990 is to promote aviation safety through establishing rules of operation and divisions of responsibility; and to ensure that New Zealand's obligations under international aviation agreements are implemented.

1.51. The Civil Aviation Authority (CAA), an independent Crown entity, was established by the Civil Aviation Amendment Act 1992. The main function of the CAA is to undertake activities that promote safety in civil aviation at a reasonable cost. It is headed by a five-member authority and reports directly to the Minister of Transport.

1.52. The CAA establishes and monitors compliance with safety and security standards, and issues certificates to those intending to engage in aviation-related activities. Aviation operators are required to achieve a set standard before they can be certified to operate. The CAA undertakes regular reviews of the civil aviation system to promote the improvement and development of safety and security.

1.53. The CAA also provides advice to the Minister of Transport; promotes safety and security in civil aviation through providing information, advice and education programmes; and acts on behalf of the Crown in respect of ICAO.

Civil Aviation Rules

1.54. The Minister of Transport, pursuant to section 28 of the Civil Aviation Act, has introduced Civil Aviation Rules (CARs), which set out the safety and security regulatory framework within which civil aviation in New Zealand is to operate.[471] The rules deal with areas including regulation of aircraft, personnel, airspace, and aerodromes. The Rules generally follow the standards and recommended practices established internationally by ICAO, subject to some limited modifications to meet local conditions.

1.55. Aviation security at airports is carried out by the Aviation Security Service, a commercially run business whose operation and management is the responsibility of the CAA Board. That service is monitored by the Aviation Security Regulatory Unit of the CAA.

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[470] This Act replaced the *Civil Aviation Act 1964*.

[471] The CAA has completed a five-year rewriting of all of the Civil Aviation Rules. The rewritten rules came into force on 1 April 1997. The rewritten rules replaced the former *Civil Aviation Regulations 1953*, which were revoked on 1 April 1997.

1.56. The main rules applicable to airports are provided in Parts 139 and 157 of the CARs. Part 139 sets out the Rules applying to the certification (i.e., entry standards), operation, security, and use of aerodromes. Part 157 relates to the construction, alteration, activation and deactivation of aerodromes and heliports.

1.57. Part 139 of the CARs states that an aerodrome serving any aircraft having a seating capacity of more than 30 passengers that is engaged in regular air transport operations must hold an aerodrome operating certificate. A certificate may be granted or renewed for up to five years. To gain a certificate, the aerodrome must:

- Satisfy certain design characteristics (e.g., length and width of runway, width of strip, spacing between runway and taxiway, visual aids, equipment and installations, etc.).
- Employ appropriate personnel.
- Establish a rescue and firefighting capability related to the largest plane type regularly using the airport.
- Establish safeguard measures to protect the public, including having an appropriate emergency plan.
- Have a wildlife hazard management programme where necessary.
- Establish internal quality assurance procedures to ensure compliance.
- Have an exposition (including manuals) setting out the operator's organisation chart and identifying senior people, together with the various plans, systems, procedures and programmes required by the certification and operating requirements of Part 139.

1.58. The operating requirements stated in Part 139 include:

- Employing an aerodrome maintenance programme to ensure that the aerodrome facilities do not impair the safety, security, regularity or efficiency of aircraft operations.
- Ensuring that the rescue and firefighting operational requirements are met.
- Providing an apron management service when warranted by the volume of traffic and operating conditions (only Auckland is currently required to do so, and it uses its own staff).
- Limiting access to the operational area to those ground vehicles necessary for aerodrome and aircraft operations, and providing adequate procedures for safe and orderly access, including ensuring that access by tenants and contractors complies with the aerodrome operator's rules for the operation of ground vehicles.

1.59. Aerodrome security requirements depend upon whether the aerodrome is security designated or not. Auckland, Wellington, and Christchurch airports (among others) are all security designated airports, and as such are required to prevent unauthorised access to the aerodrome security area by means of perimeter fences, gates and other barriers. The security area generally covers the airfield and areas in terminals on the airside of the gate access to aircraft. Such aerodromes must provide areas for the screening of international passengers and baggage prior to boarding; sterile areas where screened passengers are prevented from having access to unscreened people; and the separation of arriving and departing international passengers.

1.60. Non-security designated aerodromes must have a contingency plan to introduce passenger and baggage screening when so required by the CAA in response to a security threat.

1.61. The CAA Industry Rules Advisory Group is presently reviewing the rules relating to aerodrome certification, operation and use, runway end safety areas, and rescue fire services.

Environmental Regulation

1.62. The third area of regulation relevant to the operation of airports is environmental regulation. Of particular relevance to the establishment and operation of airports are rules relating to land use, noise levels and by-products. The primary tools for regulating these matters are the Resource Management Act 1991, the Civil Aviation Rules (made under the Civil Aviation Act), and the Biosecurity Act 1993.

The Resource Management Act 1991

1.63. The Resource Management Act 1991 essentially details the law relating to the use of land, air and water. Accordingly, the establishment, development and operation of airports are subject to obtaining the relevant resource consents under the Act.

1.64. In addition, the Resource Management Act 1991 requires territorial authorities to prepare, implement and administer district plans. The district plans must detail any matter relating to the use, development, or protection of any natural and physical resources for which the regional council has responsibility. Plans have a life of up to ten years before they are reviewed. Airports can be particularly affected through these plans in regard to proposed developments, and noise levels.

1.65. In 1992, the New Zealand Standards Association developed a standard (NZ 6805: 1992) for use by local bodies in regulating airport noise, which has become a key part of district plans for the control of aircraft noise. This standard involves the use of a noise boundary (or contour) line around an airport, and established a measure of sound level that cannot be exceeded at points beyond the noise boundary. The measure is a cumulative measure, averaged out over a three month period. The position of the air-noise boundary in relation to noise level from current use determines whether there is scope for noise levels to be increased.[472]

[472] For example, maybe an airport would be allowed to accommodate an additional number of relatively noisy aircraft, or perhaps a greater number of relatively quiet aircraft.

1.66. Both AIAL and CIAL hold substantial land banks around the airport property. These holdings are held in part to prevent building and land use developments that might in the future be regarded as incompatible with airport noise. WIAL is not in a position to do this, but it has made purchases of land and residential properties in noise (and air navigation) sensitive positions.

1.67. The approach to reducing airport noise pollution in New Zealand has essentially been based on the adoption of measures such as the imposition of night curfews, restrictions on residential developments around airports, phasing out of older, noisier aircraft, and requiring modifications to noisy jets (e.g., fitting hush kits). An alternative approach used at some overseas airports is to add a noise component to aircraft landing charges, using a polluter pays principle, with noisier aircraft being charged a premium. Clearly, such an approach could have ramifications for control under the Commerce Act if it were to be introduced in respect of landing charges.

Civil Aviation Rules

1.68. Part 93 of the Civil Aviation Rules deals with aerodrome noise abatement procedures. In regard to Auckland, Wellington and Christchurch International Airports, it specifies certain procedures that pilots-in-command must comply with when approaching and departing the airports. The Rules detail the relevant noise abatement areas, specify approach and departure paths, and establish minimum altitudes.

Biosecurity Act 1993

1.69. The Biosecurity Act 1993 came into force in October 1993, and governs the treatment and disposal of quarantine waste. The Act imposes strict requirements covering the carriage, storage and disposal of quarantine waste. In addition, the Director General of the Ministry of Agriculture and Forestry has drafted standards specifying the quarantine requirements that must be met by aircraft and vessels entering New Zealand.

CONCLUSION

1.70. As highlighted in the preceding discussion, there are a myriad of regulations that influence the operation of civil aviation, and in particular, airports, in New Zealand. These regulatory influences range from international conventions, bilateral agreements, domestic legislation, and Government regulations, and generally deal with either economic, safety and security, or environmental issues.

1.71. Given the context of this Inquiry it is perhaps helpful to summarise the economic regulatory framework employed to promote efficiency in the operation of New Zealand's airports:

- A recognition of the need for a level regulatory playing field.

- The opportunity for airline customers to engage in discussion with airports.

- The requirement on airport operators to consult airline customers when setting charges under section 4A of the Airport Authorities Act 1966.

- The Airport Authorities (Airport Companies Information Disclosure) Regulations 1999

- The restrictive trade practice provisions of the Commerce Act 1986.

- The threat of control under Part IV of the Commerce Act 1986.

2. AIRPORT REGULATION INTERNATIONALLY

INTRODUCTION

2.1. Internationally, airports tend to be subject to the same safety and security regulations as New Zealand airports. What varies markedly—and is of interest in this Inquiry—is the economic regulation that controls airport pricing. This supplement provides an overview of the economic regulation of selected airport internationally. It also outlines various issues with the different regimes and identifies lessons for New Zealand.

2.2. Traditionally, governments world-wide have owned and operated airports. This reflected the origins of airports as public sector utilities and their role as an essential part of a country's transport infrastructure. Today, governments are increasingly privatising airports. What is more, the development of new airports are typically being undertaken by private investors. Although many countries have changed, or are in the process of changing, the ownership structure of their airports, not all have changed the regulation governing those airports.

2.3. In Australia, privatised airports are subject to a price cap, while airports owned by the Federal Government are subject to prices surveillance. Some airports in the United Kingdom (UK), both publicly and privately owned, have been price controlled for more than ten years. Airports in the United States (US) to a large extent remain under public ownership and are not subject to any price caps, but have some constraints placed on them by the Federal Government. In Europe, charges at some airports are controlled, while others are uncontrolled. Other countries—for example, Canada and South Africa—have recently introduced, or are considering introducing, regulation of airport charges as airports are privatised.

2.4. Table 77 highlights the variation in the forms of economic regulation applying to airports internationally.

Table 77
Forms of Economic Regulation of Airports Internationally

Type of Regulation	Countries/ Airports
CPI-X Price Cap	United Kingdom (BAA London Airports and Manchester), Australia (privatised airports), South Africa, Vienna, Argentina, Mexico, Ireland, Belgium, Spain and Berlin.
Profit Control (Rate-of-return Regulation)	Athens and Sweden.
Prices Surveillance	Sydney.
Voluntary (Government Influenced) Price Cap	BAA Scottish Airports, Sweden and Copenhagen.
Charges Set by Regulator Decision	Athens, Frankfurt, Italy and Portugal.
Charges Approved by Regulator	Amsterdam and Paris.
Pricing Guidelines and Policies	United States and Canada.
Airport Decision	New Zealand

UNITED KINGDOM

Introduction

2.5. Regulation in the UK is aimed at promoting the efficient, economic and profitable operation of airports, while furthering the interests of airport users and encouraging new investment.[473] There are effectively three degrees of regulation:

- Airports with annual turnover in excess of £1 million per annum (termed qualifying airports) simply need permission to initially levy charges, but not to revise them.[474]

- A qualifying airport may have other discretionary conditions imposed on it where it is found to be unreasonably discriminating between users or unfairly exploiting its bargaining position.

- An airport may be designated and subject to more extensive regulation of airport charges, involving price caps and a requirement that the single till principle be used. The only designated airports at present are Heathrow, Gatwick, Stansted and Manchester.

Price Control Regime

2.6. Heathrow, Gatwick, Stansted and Manchester are subject to RPI-X price caps. The RPI-X regime is administered by the Economic Regulation Group of the Civil Aviation Authority (UK CAA) in conjunction with the Competition Commission (formerly the MMC and referred to as the MMC).

2.7. Under the Airports Act 1986 (the UK Airports Act), the UK CAA is required to modify the conditions on charges at the end of each five-year period, but before doing so it has to refer the matter to the Competition Commission. The MMC conducts an inquiry and reports to the UK CAA, providing recommendations relating to airport charges and to public interest findings. Where the MMC finds that an airport has been acting against the public interest, the UK CAA has to impose conditions to address that finding and remedy the adverse effects identified. Following receipt of the MMC's report, the UK CAA holds its own inquiry before making its final decision.[475] The airports do not have any rights of appeal (only judicial review).

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[473] Per the CAA's duties specified under legislation (UK Airports Act).

[474] Permission is given by the UK CAA and can only be refused if an airport fails to provide the CAA with the information it needs. Permissions remain in force unless they are revoked. As at 1 March 2000, 47 airports held a permission to levy airport charges.

[475] The role of the MMC in airport regulation has been under review for some time as it is inconsistent with practices for other regulated entities—where the MMC acts as the appeal body for the regulator's decisions. The work that the UK CAA and the MMC to some extent duplicate each other (and may make the regulation more costly). The MMC also has less detailed industry knowledge as it only gets involved every five years, while the UK CAA is the day-to-day regulator. However, the MCC continues to be involved and the latest five-yearly review is to be referred to the MMC in 2002.

2.8. Under the UK Airports Act, the UK CAA is required to perform its regulatory functions in a manner that it considers is best calculated:

- To further promote the reasonable interests of airport users.
- To promote the efficient, economic and profitable operation of the regulated airports.
- To encourage investment in new facilities at airports in time to satisfy anticipated demands of users.
- To impose the minimum restrictions that are consistent with its functions.
- To take account of the UK's international obligations.

2.9. The British Airports Authority (BAA Plc) was completely privatised and partly price controlled in July 1987. Although BAA owns several airports, only Heathrow, Gatwick and Stansted (its London airport companies) were designated to be price controlled.[476] In addition, Manchester Airport Plc (Manchester) was price controlled in 1988. Manchester is the biggest airport after BAA's London airports. Manchester is still publicly-owned and is the only public sector body in the UK subject to price regulation. The reviews by, and reports of, the UK CAA and MMC to date in respect of these airports are summarised in Table 78:

Table 78
Reviews of Price Controls Applying to UK Airports

	MMC	**UK CAA**
Manchester Airport Plc	'MMC1' Dec 1997 recommended X for Q1 (1/4/88 to 31/3/93)	Decision in 1998 set X for Q1
	'MMC3' July 1992 reviewed Q1 and recommended X for Q2 (1/4/93 to 31/3/98)	Decision 'CAP 609' set X for Q2
	'MMC5' August 1997 reviewed Q2 and recommended X for Q3 (1/4/98 to 31/3/03)	Decision 'CAP 679' Nov 1997 set X for Q3

	MMC	**UK CAA**
BAA Plc London Airport Companies	X for Q1 (1/4/87 to 31/3/92) set by UK Government	
	'MMC2' July 1991 reviewed Q1 and recommended X for Q2 (1/4/92 to 31/3/97)	Decision 'CAP599' Nov 1991 set X for Q2
	'MMC4' June 1996 reviewed Q2 and recommended X for Q3 (1/4/97 to 31/3/02)	Decision 'CAP664' Oct 1996 set X for Q3

Manchester Airport Plc

2.10. Manchester Airport is currently in its third quinquennium (Q3) of price control, which covers the period 1 April 1998 to 31 March 2003. The last review of Manchester was conducted in 1997; reviewing the second quinquennium (Q2) and setting X for the third. The UK CAA decided to limit the increase in revenue yield per passenger from

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[476] BAA's three Scottish airports—Glasgow, Edinburgh and Aberdeen—are informally capped. Under threat of designation, the UK Government has persuaded BAA to introduce a voluntary cap of RPI-3.

airport charges by RPI-5 for each year of the five-year period (for Q3 the control had been RPI-3), and imposed conditions in relation to the MMC's public interest findings that Manchester had not been providing adequate information on the costs and revenues associated with the supply of utilities, and that its consultation procedures were inadequate. The UK CAA's decision largely followed the recommendations of the MMC, except that the MMC recommended RPI-6.6 for year one.

BAA Plc London Airport Companies

2.11. BAA is currently in its third quinquennium (Q3) of price control, which covers the period 1 April 1997 to 31 March 2002 (although this has since been extended a further year). The last review of BAA was conducted in 1996; reviewing the second quinquennium (Q2) and setting X for the third. In the previous quinquennium (Q2), from 1 April 1992 to 31 March 1997, the price cap imposed by the UK CAA had limited the increase in revenue yield per passenger from airport charges at Heathrow and Gatwick individually, and at those two airports and Stansted taken together, to RPI-8 for the first two years, RPI-4 for the third year and RPI-1 for the last two years. The MMC noted that the charging formulae had reduced airport charges in Q2 by 20%, operating profit had been reasonably close to forecast, planned investment had been undertaken, and the quality of service had apparently not deteriorated.

2.12. In its proposals put out for consultation, the UK CAA followed the MMC's recommendations of RPI-3 for Q3, with an indicative formula of RPI+2 for Q4. However, it also put forward alternatives that generally involved much bigger negative Xs in Q3, and much bigger positive Xs in Q4, but were designed to give a rate of return of 7.5% (within the appropriate range from real, pre-tax rate, of 6.4 to 8.3%) over the ten-year period (although not in each quinquennium). The positive Xs for Q4 reflect the projected opening of Heathrow's Terminal 5 in 2003/04 (the second year of Q4). A basic issue was to encourage the necessary investment to meet demand without overcharging, and with a smoothing of charges to prevent undesirable swings.

General Issues

2.13. There are a number of general issues and problems arising from the way in which airports are price capped in the UK, which can be summarised in the following points:

- *Investment* – There is a potential inconsistency between the five-yearly review periods and the much longer payback periods required for many airport investments. Airports might not undertake investments necessary to expand capacity if they could not be assured of getting the required returns over successive review periods. In attempting to deal with this, the UK CAA holds annual 'mini reviews' to assess progress of investments and seeks to reduce regulatory risk by following a steady and consistent process.

- *Airport Congestion* – The RPI-X price cap potentially conflicts with the pricing needed to control congestion problems at the south-eastern airports. RPI-X drives down costs, and therefore prices, which may contribute (and certainly will not alleviate) congestion.

- *Single Till Approach* – The use of the single till approach has been questioned because of the potential for inefficient cross-subsidisation of airport activities.

- *Forecasting* – In forecasting airport costs and revenues, the regulated airports have an asymmetrical information advantage over the regulator that can potentially be exploited.

- *Meeting expectations* – There is a problem of maintaining ongoing price reductions to meet airline expectations raised by the previous trend towards lower prices, especially in the context of rising investment costs because of congestion in the south-east.

- *Nature of Controlled Price* – The 'prices' set under the UK airport price caps are the yields per passenger. They are based on the combined charges for aircraft landing (actually levied for takeoffs), passenger facilities and aircraft parking. A problem of making accurate forecasts (for costs, revenues, traffic volumes etc) over a five-year period has emerged as a major issue in five-year reviews.

- *Regulatory Costs* – The five-yearly review process takes a year and is costly. The regulated airports have to pay the expenses of the UK CAA and the MMC. Designated airports pay the CAA 0.9 pence per arriving passenger, and other airports—with more than 0.5 million passengers per annum—pay 0.20 pence per arriving passenger. In addition, the airports meet the costs of any investigations by the MMC. Designated airports bear costs of up to 2% of their annual turnover and other airports up to 1%.

Quinquennial Review

2.14. The UK CAA is currently in the process of its reviews of the current quinquenniums for both Manchester and BAA. In February 2002, the UK CAA made its recommendations to the Competition Commission. Following receipt of the Competition Commission's report back and consideration of its recommendations, the UK CAA expects to make decisions on new price caps by November 2002.

2.15. Unlike past reviews, the UK CAA is this time also undertaking a fundamental review of its approach towards the regulation of designated airports, and has signalled that the approach for the future may well differ both from that taken so far and from that adopted in other regulated industries. Some of the main areas to be addressed include price caps, the setting of charges and the concepts of single versus dual tills. In addition, the review is looking at the possibility of introducing competition within airports.[477]

2.16. The UK CAA's key recommendations to the Competition Commission in respect of Manchester and BAA involve the following:[478]

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[477] UK Civil Aviation Authority, *The CAA Approach to Economic Regulation and Work Programme for the Airport Reviews*, Position Paper October 2000.

[478] UK Civil Aviation Authority, *Manchester Airport's Price Cap 2003-208 CAA Recommendations to the Competition Commission*, February 2002; *Heathrow, Gatwick and Stansted Airports' Price Caps 2003-2008 CAA Recommendations to the Competition Commission*, February 2002.

- Revising the cost base for charge setting, focusing on the costs of monopoly services, removing commercial costs and revenue (i.e., moving away from the single till approach used to date).

- No automatic cost pass-throughs.

- Greater information disclosure to inform consultations with airlines.

- Retention of revenue-yield-based price caps.

AUSTRALIA

Introduction

Australian airports have been under a mix of public and private ownership. From 1988 to 1996 the Federal Airports Corporation (FAC) owned and operated most of the major airports in Australia. During 1997 and 1998, the Australian Federal Government abolished the FAC and privatised (by way of 99-year leases) all but five of the FAC airports. The remaining airports—the four Sydney basin airports and Essendon (Melbourne)—were transferred to the Sydney Airports Corporation Limited (SACL), and remained (until recently) under Federal Government ownership. On 25 June 2002, the Federal Government announced the sale of SACL to Southern Cross Airports Corporation (a consortium of Macquarie Bank Ltd, German airport operator HOCHTIEF AirPort GmbH and the Commonwealth Bank of Australia) for $5.5 billion.

2.17. The major (and former FAC) airports are currently subject to extensive economic regulation administered by the Australian Competition and Consumer Commission (ACCC). The regulatory framework is similar to that for privatised airports in the UK, except for the access arrangements and the fact that the price cap does not apply to the entire airport.

Australian Regime

2.18. The key objectives of Australia's regulatory regime are to promote the efficient and economic development and operation of airports, as well as the interests of airport users and the general community.[479] The regime comprises measures under federal law—the Airports Act 1996 (the Australian Airports Act), the Prices Surveillance Act 1983 (the Prices Surveillance Act) and the Trade Practices Act 1974 (the Trade Practices Act)—being the following:

- Price control, monitoring or surveillance.

- Access arrangements covering facilities that cannot be economically duplicated.

- Information disclosure.

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[479] Department of Transport and Regional Development, *Pricing Policy Paper*, November 1996.

- Quality of service monitoring.

Price Control

2.19. From 1991 until 1997/98, aeronautical services[480] provided by the FAC in Australia—not provided under a lease, licence, or other contractual arrangement—were subject to prices surveillance pursuant to the Prices Surveillance Act.

2.20. As part of the privatisation process, the Federal Government put in place more detailed prices oversight arrangements, declaring price controls for certain airports pursuant to the Prices Surveillance Act. Currently, eleven core regulated airports[481] are subject to a CPI-X price capping regime in respect of aeronautical services. In addition, some aeronautical-related services not subject to a price cap, but where operators could exert significant market power, are subject to formal monitoring of costs and prices, the intention being that any price increases should not be excessive.

2.21. Due to the SACL remaining government owned, it has been subject to a similar package of economic regulation, but not to price capping. Aeronautical services at Sydney's Kingsford Smith Airport are declared for price surveillance, with its price notifications being assessed by the ACCC taking account of the criteria in section 17 of the Prices Surveillance Act.[482] The ACCC recently considered an aeronautical pricing proposal from SACL.[483]

2.22. There is scope for airport operators to obtain approval from the ACCC for relaxation of the cap to generate funds for *new and necessary* investment in aeronautical infrastructure. In the last two years, the ACCC has considered investment applications from most of the airports. In considering these applications, the ACCC has applied the following criteria:[484]

- The operator's plans for new investment or service innovation and the associated costs.

- The relationship between proposed increases in aeronautical charges and the costs (including the level of rate of return) of new investment or service.

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[480] In the simplest terms, aeronautical services are those facilities and services relating to the movement of passengers and freight by aircraft. The exact services included and excluded are specified by the Treasurer in the relevant declarations under the Prices Surveillance Act. Specifically excluded are aircraft refuelling and maintenance, freight buildings, check-in counters, and car parking.

[481] Namely the Phase I privatised airports (Melbourne, Brisbane and Perth), for which leases were granted in July 1997, and the Phase II privatised airports (Adelaide, Alice Springs, Canberra, Coolangatta, Darwin, Hobart, Launceston and Townsville), for which leases were granted in May 1998.

[482] Section 17 focuses on the need to maintain investment and employment; the need to discourage a person from taking advantage of market power in setting prices; and the need to discourage cost increases arising from increases in wages and changes in terms and conditions of employment.

[483] See Australian Competition and Consumer Commission, *SACL Aeronautical Pricing Proposal*, Final Decision, May 2001.

[484] The criteria are specified by the Treasurer in Direction 13.

- Support from airport users.
- Contribution of the investment or service to productivity improvements at the airport.
- Overall efficiency of the airport's operation.
- The particular demand management characteristics of individual airports.
- Airport performance against quality or service measures, and vis-à-vis other Australian and comparable international airports.
- The extent to which the proposed investment will facilitate the operations of new entrants.

Access Arrangements

2.23. An access regime aims to guarantee access to airport facilities by new airlines through:

- Providing the opportunity for airport operators to give an access undertaking to the ACCC for approval, that sets out the terms on which they will provide access to prospective users. The ACCC can accept undertakings where they comply with criteria given in section 44ZZA of the Trade Practices Act.
- Providing for airport services to be declared[485] under Part IIIA of the Trade Practices Act by either of two means:
- The ACCC automatically declaring airport services (through section 192 of the Australian Airports Act), where it has previously accepted an access undertaking.[486]
- An access seeker applying to the National Competition Council for a recommendation that the relevant Minister declares the airport services.

2.24. The Australian Airports Act does not list the services subject to declaration, but section 192(5) sets out the two declaration criteria for airport services. These are:

- Is the service necessary for the purposes of operating/maintaining civil aviation services at the airport? Relates to the essential nature of the service.
- Is the facility significant and uneconomic to duplicate? Relates to the concept of natural monopoly.

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[485] Declaration gives current and prospective airport users the right to negotiate access with the airport operator, and if unsuccessful, to have the ACCC arbitrate the access dispute.

[486] ACCC (1998), *Economic Regulation of Airports – An Overview*, page 12.

2.25. It has been left to the ACCC to decide what is an airport service. In a draft paper dated October 1998, the ACCC concluded that the following services were likely to fall within section 192(5) of the Australian Airports Act:

- Airside facilities such as runways and aprons.
- International passenger processing areas.
- Land for providing refuelling services.
- Land for providing ground service and freight handling equipment storage facilities.
- Land for providing light or emergency maintenance facilities.
- Landside vehicle facilities.

2.26. In addition, three other services that satisfied the first criterion, but not necessarily the second, were distinguished as requiring treatment on a case-by-case basis, namely, domestic passenger processing areas, refuelling facilities, and ground service and freight handling equipment storage facilities.

2.27. The ACCC has to date received access undertakings from two airports—Melbourne and Perth—both of which it has declined to accept. The only determination to date under section 192 of the Airports Act involved Delta Car Rentals at Melbourne Airport, which concerned vehicle access to the landside of the airport and the charges for access. In that case, the road was declared as a service. The ACCC is currently considering a request for determination from Virgin Blue in respect of the common user domestic terminal at Melbourne Airport.

Information Disclosure

2.28. Part 7 of the Australian Airports Act requires airport-owning companies to provide to the ACCC separate, audited accounts covering only the airport, divided between aeronautical and non-aeronautical parts of the business. Cost allocation methodologies must be provided where both services use common assets. The specifics of the information disclosure regime has been prescribed by the ACCC, which publishes the information annually. Transparency is aimed at facilitating performance monitoring, compliance with regulations and leases, and pricing oversight.

Service Quality

2.29. Under Part 8 of the Australian Airports Act, the ACCC collects and evaluates information on quality of service at the major leased airports against certain objective and subjective performance indicators. This quality monitoring programme is seen as complementary to price regulation. The focus is on monitoring trends in service quality over time for each airport, rather than on inter-airport comparisons, and the results are returned to the airports for their comments.[487]

General Issues

2.30. There are a number of general issues and problems arising from the way in which airports are price capped in Australia. These are summarised briefly as follows:

- The price caps were based initially on the network prices[488] set by the FAC, rather than on the more appropriate airport-specific pricing.

- Being a weighted average, the formula allows individual real prices to fall by less than the cap, providing that others fall by more. Each price is itself an average through the year, and the weights are provided by each item's revenue share in the previous period. This latter feature allows the airport operators to set compliant prices, but it poses the problem of how to incorporate new charges for which the previous period revenue share is zero.

- It has not been completely clear as to what activities are in, and outside, the cap. Landside roads have recently been brought within the cap by the ACCC because they are considered to be essential to gain access to the terminal.

- Price capping only some activities has resulted in prices being introduced and/or increased on other uncapped activities. Not long after the CPI-X regime was introduced, both Brisbane and Perth Airports introduced fuel throughput levies (charges on easements and tank farms). The ACCC looked into the new charges and concluded that fuel levies should be in the cap.

- In considering investment proposals, issues have arisen in terms of whether the proposed investment is 'new' and 'necessary', whether the total costs are reasonable, and in determining the cost of capital.

- With the cap not applying to the entire airport, issues such as cost allocation have been important.

Review of Regime

2.31. The CPI-X regime has only been in place since 1997. The current regime was put in place for the first five years of the airport leases and will discontinue in late 2002, unless the Federal Government decides that it should continue.

2.32. The Productivity Commission in January 2002 completed a review of the regime and reported to the Federal Government as to whether there is a continuing need for prices regulation of airports, and the appropriate form of any prices regulation. In its report (released 13 May 2002), the Productivity Commission recommended that the price-caps be removed and a new industry-specific monitoring regime be introduced for

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[487] It is noted that phase II airports are subject to less comprehensive quality monitoring.

[488] Geographically averaged prices within defined 'networks' of the FAC's airports.

major airports only (Sydney, Melbourne, Brisbane, Perth, Adelaide, Canberra and Darwin) for a probationary period.[489] This would involve:

- Price monitoring for five years.
- Information disclosure.
- Encouragement of commercial agreements between airports and users.
- Guidelines for consultation/negotiation.
- Access provisions similar to that in Part IIIA of the Trade Practices Act.
- Provision for a further review of the need for regulation in another five years.

2.33. The Federal Government accepted the Productivity Commission's recommendations.

UNITED STATES

2.34. The Federal and State Governments in the US continue to own all major airports, with private involvement being limited to the management and operation of airports under contract. Regulation exists both at the national level and at the airport level. Economic regulation and policy is developed by the Federal Aviation Administration (FAA), an operating administration of the US Department of Transportation. The FAA's main role is in policy making, although, it can strongly influence airport operational activities.[490] The local airport authorities are de facto operators and regulators of airports.

2.35. The focus and scope of economic regulation in the US is limited to the setting of pricing principles for the levying of airport charges—there is no formal price control. Airport charges are negotiated directly between airports and airlines through airport-use agreements, and the FAA typically only gets involved in respect of disputes resolution as arbitrator, at which time it has the power to set aside prices that it considers excessive. The exception is in respect of passenger facility charges that require approval from the FAA. Aside from this, charges and pricing structures are established by airport owners subject to constraints imposed by law. The main price-based regulation is that landing fees must not discriminate against foreign-based or small airlines.

2.36. Federal law (the Airport and Airway Improvement Act 1982) requires that:

- Aeronautical charges be reasonable.[491] The Federal Government's current policy in respect of airport rates and charges is intended to reflect real-world practices

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[489] Productivity Commission, *Price Regulation of Airport Services: Inquiry Report*, 23 January 2002.

[490] However, the FAA's policy has required airports to produce financial statements and has created a monitoring and compliance role for itself in respect of use of federal funds.

[491] Aeronautical charges include, for example, landing charges, terminal arrival area fees, apron and tie down charges, fuel flowage fees, utility charges, and cargo and hangar rentals. Excluded are parking, rental cars, in-flight catering, office rentals, and concessions (non-aeronautical activities).

and experiences. Airports must have reasonable rates and charges for their users. The policy is intended to encourage airport operators and airport users to negotiate rates that prevent either gouging or disruptions in service, and are tailored to the circumstances at the individual airport.

- All airport revenues be used for capital or operating costs. The airports are required to reinvest all revenues raised within the airport itself in order to become self-sustaining (rather than reliant on federal funds). In connection with this requirement, the Federal Authorisation Act 1994 requires that the FAA publish policies and procedures regarding the use of airport revenue.

- Airports be as self-sustaining as possible. A condition of receiving grants is that an airport's fee and rental structure facilitate this. This obligation generally requires that airports charge fair market value for the use of airport facilities, except for the airfield (see below).

2.37. The FAA's current policy requires that airfields be valued on the basis of, and charges for them be based on, historic costs—on the basis that the airports legally have no opportunity to use airfield land for anything other than an airport, so that it would be unreasonable for them to recover compensation through landing fees for a lost opportunity that did not lawfully exist. US airports are not allowed to revalue their airfield assets in the absence of modifications or improvements to those assets. The result is that the FAA's rules limit the return on investment that is able to be earned from airfield assets by only allowing the airports to recover costs incurred.

2.38. In recent years, the federal government has examined issues in relation to the sale or lease of its commercial airports. While several factors are motivating greater interest in privatisation, the Federal Government considers that legal and economic constraints currently impede any privatisation. The key impediment seems to be the FAA's policy in respect of airport revenues.

- In receiving federal grants, the current airport owners have given legal undertakings to not use airport revenues outside of the airport. The FAA considers that airport revenue includes any sale or lease proceeds that local and state governments may obtain from privatising their airports, and, therefore, that those governments are only entitled to recover their reimbursed capital and operating costs from such proceeds—the rest have to be invested in the airport. This removes any financial benefits associated with the sale or lease of an airport (any proceeds from sale would have to be invested in the airport).

- In addition, the FAA's current rules limiting the return on investment that is able to be earned from airfield assets would substantially limit the returns that any private-sector airport could earn. And as a privately-owned airport would not be eligible for a federal grant, there would seem to be little incentive for private-sector investors to want to purchase US airports—without a change in the FAA's stance.

2.39. FAA approval is required before a commercial airport can be sold or leased in the US. While the current stance of the FAA appears to be discouraging privatisation, the FAA has indicated that it may be more open and flexible on the conditions for the use of airport revenue if it determined that privatisation would not harm the public interest or undermine aviation policy. When, and if, privatisation occurs, it is likely that the Federal Government would regulate the landing fees charged by privatised airports because of concerns that monopoly pricing might occur.[492] There has been no indication as to what approach to regulation might be taken.

EUROPE

2.40. European airports are subject to regulation at three broad levels: regional (the European Union), national and local. While the European Commission (EC) has an increasing involvement in the aviation sector, no one body currently governs tariffs at Europe's airports. Economic regulation of Europe's airports is still dealt with by the individual countries with no consensus as to the type and form of regulation. As a result, the degree of regulation—and the tariffs governing airport charges—vary considerably across Europe.

2.41. The introduction of more uniform regulation of Europe's airports is thought to be some time off.[493] However, the EC has commenced a process of trying to establish a common legal framework for airport charges. The EC has introduced legislation to mitigate the market power of airports. Member states are required (by January 2002) to ensure non-discrimination, cost-relatedness, and transparency in setting airport fees.[494]

2.42. Only a small number of Europe's airports have been privatised. Vienna and Copenhagen were both privatised in the early to mid-1990s and floated on stock exchanges. Rome was similarly privatised and floated around 1998. Airports in Russia and Germany have also undergone some privatisation. Despite the lack of privatisation, the bulk of Europe's airports—while under public-ownership—are run as commercial undertakings, with the management and operation of airports often contracted out to the private sector.

2.43. The degree of regulatory intervention in the context of airport charges varies considerably. Some airports are free to propose their own charges subject to regulatory approval. Tariffs at other airports are subject to formulae linked to rates of inflation, anticipated traffic levels, and an appropriate return on capital employed. Table 79 summarises the price regulation that applies at selected European airports, along with their ownership:

Table 79
Economic Regulation of Selected European Airports

Airport(s)	Regulator	Mechanism	Ownership
Amsterdam	National government	Charges are approved by the national government, after considering airport recommendations.	Publicly owned and operated, but run as a commercial undertaking.

[492] US General Accounting Office, *Airport Privatisation: Issues Related to the Sale or Lease of US Commercial Airports*, Report November 1996.

[493] ABN-AMRO European Airports Review, Spring 1998.

[494] Drabbe H, *EC Competition Policy in Relation to Airports*, April 1999.

Airport(s)	Regulator	Mechanism	Ownership
Athens	Greek Ministry of Transport	Filed by regulator. Rate of return regulated at 15%—profit control.	Publicly owned and operated.
Berlin	German Government	Temporary CPI-X for five years.	Publicly owned.
Copenhagen	Danish Ministry of Transport	Tariff increases are allowed in line with costs with continuous streamlining measures.[495]	Privately owned and operated.
Frankfurt	Air Transport Authorities	Take off and landing fees are regulated.	Publicly owned.
Milan	Italian Ministry of Transport	Regulator decision.	Publicly owned, but operation is contracted out to private sector.
Paris	French Government	Consultative committee which includes airlines.	Owned and operated by local government.
Portugal Airports	Government	Aeronautical charges set by Government,	Publicly owned by ANA.
Rome	Italian Ministry of Transport	Regulator decision.	Privately owned and operated.
Spanish Airports	Spanish Government	Charges are not allowed to rise faster than inflation and must be competitive.	Publicly owned and operated, but run as a commercial undertaking.
Swedish Airports	Sweden Civil Aviation Authority	Seek a long-term post-tax rate of return of 8% for entire airport.	Owned and operated by the state.
Vienna	Austrian Civil Aviation Authority	Charges are capped using CPI-X, considering traffic change according to a '7-11' formula.[496] Mandated single till.	Privately owned and operated.

CANADA

2.44. Until recently, all major Canadian airports were owned by the Federal Government through Transport Canada. Although the setting of fees and charges was accomplished through federal regulation, there was no framework that clearly defined a role for the Federal Government in the operation of airports in Canada.

2.45. Canada's largest airport (and one of the thirty busiest in the world), Toronto, was privatised in late 1996, and since 1998, other local airports have also been privatised. However, the Government has retained ownership of the 26 major airports that make up the National Airports System, which have been transferred from Transport Canada to new not-for-profit local airport authorities under long-term lease. The Federal Government has changed from being an airport owner and operator to that of merely owner. The new Canadian airport authorities exist for the general benefit of the public and the region in which they operate and are not-for-profit organisations. Their

[495] The Danish government has announced an experimental lifting of the price cap for two years. Instead of a CPI-2, Copenhagen airport has accepted a voluntary restraint.

[496] Where traffic growth is negative or constant, charges are increased by the change in CPI—CPI-0. With growth of 0-7%, charges are increased by the change in CPI, but adjusted according to traffic growth. Charges are not adjusted where growth is 7-11%. Above 11%, charges are reduced. Reviewed every three years.

purpose is to manage, operate and develop airports in a safe, secure, efficient, cost effective, and financially viable manner with reasonable airport user charges and equitable access to all airlines.[497]

2.46. Coupled with the changes, Canada has developed a National Airports Policy that, for the first time, provides it with a comprehensive framework that clearly defines the Federal Government's role regarding airports. Legislation sets out the principles by which the airports can develop charges, but there is no prescribed formula. The main requirement is that charges be competitive and non-discriminatory. The airports have discretion to introduce charges within these constraints. There is no direct regulation of the prices charged by Canadian airports and no intention to introduce any.

SOUTH AFRICA

2.47. Airports in South Africa have, in recent years, been privatised. The Airports Company South Africa (ACSA) now owns and operates the former state airports, and is considered to be in a monopolistic and market dominant position. As a result, the South African Government has put in place a new sector-specific economic regime.

2.48. The South African Department of Transport's aim is to have airports that are safe, secure, effective and efficient; that meet the needs of civil aviation and of users at costs-related charges; and that are economically sustainable. Its policy specifically provides for the following in respect of charges (among other things):

- Fees based on the actual cost of service, as far as practicable.

- Fair and reasonable, and non-discriminatory, charges.

2.49. Initially, the South African system was modelled on the UK approach to airport price control—CPI-X price cap and a mandated single till. South Africa has since switched to a dual-till approach.

2.50. Currently, the ACSA is subject to a CPI-X price cap for airport charges on a rolling-five-year basis. The current permission to levy charges[498] stipulates the cap for each of the next five years (1 April 2001 to 31 March 2006) and is set so as to enable ACSA to achieve a 16% rate of return in 2005/2006. The 'X' for the each if the next five years are –7%, -6%, -6%, -0.7%, and 1.4%. The cap will be corrected annually for the previous year's performance (relative to the cap) and further adjusted if the CPI is significantly different from expectations. The ACSA is also subject to minimum service standards.

ARGENTINA

2.51. Formerly operated by the air force, Argentina's major airports are now privately run. A sector-specific regulator has been established. Charges are subject to a CPI-X price

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[497] Website of Lester B. Pearson Airport, Toronto: http://www.lbpia.toronto.on.ca/gtaa_splash.htm.

[498] Notice 155 of 2001, *The 2001/02-2005/06 Airports Company of South Africa Regulating Committee Permission to Levy Airport Charges*, South African Government Gazette, Vol. 427, No. 21980, 19 January 2001.

cap that applies to all airport business (mandated single till). The cap is intended to be reviewed every three to five years. Service quality standards also exist.

MEXICO

2.52. The Mexican Government is leasing many of Mexico's airports to private sector firms. An independent regulator is to administer CPI-X price caps on aeronautical charges and set service quality standards. There is also a requirement that the airports consult with users. The aims of the economic regulation include preventing monopoly abuse and the promotion of efficiency. Reviews of the price caps are scheduled to occur five yearly where actual projections for traffic and capital investment materially deviate from forecasts.

IRELAND

2.53. The Irish Government's policy with respect to airports involves ensuring that Irish airports provide the necessary infrastructure and services at the lowest possible cost, consistent with safety requirements, while providing returns to airport shareholders.

2.54. Aer Rianta owns and operates the Dublin, Shannon and Cork Airports. At present, prices for aeronautical services are based on a single-till approach and are approved by the Minister of Public Enterprises. However, a new regulatory framework is being proposed as Aer Rianta is to be privatised. An independent regulator (Commission for Aviation Regulation) is being established to regulate airport charges. Current recommendations are that a single-till RPI-X price cap will in the future only apply to Dublin. Shannon and Cork airports are considered to be subject to market forces and will set prices in response to demand and supply.

LESSONS FOR NEW ZEALAND

2.55. Two trends are seen internationally: a move by governments to relinquish ownership of airports (privatisation) and signs of a move by those regions with traditionally extensive regulation (for example, the UK) to question, and look to reduce, the extent of regulatory intervention. However, those countries that are privatising their airports are tending to put in place CPI-X price caps or other forms of industry-specific regulation (at least for an initial period).

2.56. The lessons that can be learned from airport regulation internationally fall into three groups:

- The rationale for regulating airports.
- The form of control.
- The effects of regulating airports.

2.57. However, given the differing circumstances that New Zealand finds itself in, the lessons on the form and effect of control are more relevant to this Inquiry than any lessons on the reasons for airports being controlled in the first place.

The Rationale for Regulating Airports

2.58. Airport ownership influences the extent to which an airport is regulated.

- Privatised (privately-owned) airports are generally more regulated than publicly-owned airports—New Zealand is an exception to this rule.

- Airports that are publicly-owned tend to be run as commercial undertakings and are required to be as self-sustaining as possible (not require funds from government). Many are also expected to provide a return to their government shareholders. This is the current situation with CIAL.

- Charges at US airports are based on direct negotiations between airports and airlines, subject to statutory requirements and rulings of the FAA. This is not too dissimilar to the current situation here, although there are more guidelines and constraints on pricing in the US. As with New Zealand, the US has experienced litigation as a result of disputes between airports and airlines over charges.

2.59. Price caps have initially been put in place in recognition that, left to themselves, markets can fail to provide an appropriate level of airport services and may result in excessive prices for airport services. For this reason, governments have wanted to ensure that consumer interests are adequately protected.

2.60. Decisions to regulate airports internationally tend to be made (and regulations put in place) when an airport is privatised and without experience of how the airport would behave as an unregulated privatised airport. Reviews that consider whether to continue to regulate a privatised airport (such as the review recently completed in Australia and that ongoing in the UK) are made on the same basis. In order to determine whether or not regulation is needed, the regulators or governments involved arguably have to predict how the privatised airport would behave without regulation—whether or not it would be likely to abuse its market power and monopoly price. The alternative is to decide to regulate simply on the basis that in the absence of regulation it might.

2.61. The situation is different in New Zealand. Control is being considered after ten years of experience of the operation of privatised airports, and of regulation in the form of consultation between airports and airlines—experience of an unregulated privatised airport. Rather than having to try to predict whether an airport might use its market power, the Commission is able to examine the current and historical behaviour of airports.

The Form of Control

2.62. Where airport charges are controlled, the form of control tends to be CPI-X type price caps.

2.63. Where CPI-X type price caps are used, the magnitude of X varies considerably between airports (both positive and negative) and across time for a single airport. Detailed analysis is undertaken to determine the appropriate X for an airport in any given year.

2.64. The length of time airports are subject to regulation also varies. Regular reviews (three to five years) are conducted to reset price caps, but sometimes also to review whether the regulation continues to be necessary. In some countries (such as Australia), the regulation has only been put in place for a defined period (five years) post-privatisation, after which it may cease if it is not needed. The Commission considers that regular reviews of the rationale for regulation (and the form of regulation) are important.

2.65. The activities of an airport that fall within the scope of regulation differ between countries. Some airports are regulated on the basis of a single till (for example, airports in the UK, Sweden, Austria, Ireland and Argentina) where the airports' entire activities are covered by the price cap. In contrast, only the aeronautical activities of airports in Australia, Mexico and South Africa are included in the price caps the apply to the regulated airports in those countries (a dual till approach is adopted). A problem with the latter approach is that it may not necessarily be clear as to which activities are inside and outside the cap. Another problem with only regulating part of an airport's activities is that the cap could be circumvented by the introduction or increase of charges outside the cap. An example of this can be seen in Australia where new charges for fuel throughput and taxis have been imposed by some airports.

2.66. There is the possibility that any airport activities not currently price-capped may become price-capped. Australia has prices surveillance in respect of aeronautical-related activities and an access regime that provides for declaration of services. Equally, there is the possibility that activities may be removed from price caps—for example, South Africa removed a number of services from ACSA's price cap when it moved away from a single till. The scope of this Inquiry restricts any recommendations of control (at this time) to airfield activities.

2.67. An issue that always arises in regulating airports—and other industries—is how to overcome problems of asymmetric and limited information. Attempts by regulators to determine economically efficient prices may be undermined by the absence of sufficient information. A possible solution is benchmarking, but this has its own problems. The regulatory regime needs to recognise the asymmetric information problem and account for it. One means of doing this is through information disclosure requirements.

2.68. Indeed, where an airport's prices are regulated, there is often also an information disclosure regime. This suggests that the current Airport Authorities (Airport Companies Information Disclosure) Regulations 1999 (in its current form or a modified form) should continue if New Zealand airports are controlled. The difference between the regimes that exist in Australia (for example) and New Zealand is that in Australia the ACCC administers and publishes the information as part of annual regulatory reports, while New Zealand airports produce their own.

2.69. Many of the airports subject to price caps are also subject to quality of service monitoring. While necessary to ensure that airports do not sustain profits by reducing quality, such monitoring is difficult and time-consuming. One option is to attempt to have the airports formulate service level agreements directly with their customers. The level of service quality provided by New Zealand airports is dependent on the level of investment in facilities, so any monitoring could be coupled with consideration of the timing and size new investments.

2.70. The more complicated price caps that adjust annually based on actual inflation (relative to forecast) such as that applying to Vienna, may reduce regulatory risk and uncertainty between five-yearly reviews of price caps. However, efficiency incentives are greatly reduced.

The Effects of Regulating Airports

2.71. Despite the fact that the CPI-X price caps were intended to involve more hands-off regulation, with regulated entities provided with appropriate incentives, evidence suggests that it has tended towards cost-plus regulation. CPI-X regulation of airports has tended to be expensive and cumbersome (as evidenced by the UK and Australia). To some extent this is due to the difficulties that regulators have faced in finding appropriate benchmarks.

2.72. In considering applications from airports to increase charges, regulators have in some instances ended up making investment decisions on behalf of airport investors. While the appropriateness of new investments needs to be considered by the regulator, there needs to be sufficient certainty of approach so as to not discourage efficient necessary new investment. The criteria for new investment need to be clearly defined.

2.73. The intention has generally been that, over time (if not in the first instance), airport operators and their customers would negotiate directly and resolve prices, but in practice this has not occurred. The existence of a regulatory backstop has to some extent in Australia provided disincentives for airlines to negotiate directly with airports. The UK CAA—as part of its current review—has signalled a preference for more commercial negotiation.

2.74. In some jurisdictions, only selected airports have been price-capped. This has sent a signal to the other airports in those countries and, in some instances, resulted in voluntary price caps. One example is in the UK, where BAA has introduced a voluntary price cap for its Scottish airports. This has proved reasonably effective, provided that there is a real threat that an unregulated airport would be regulated if it abused its market power.

2.75. Despite the issues with price caps, they have achieved reductions in airport charges. For example, in its last review of BAA, the MMC noted that the charging formulae had reduced airport charges over the previous five years by 20%, operating profit had been reasonably close to forecast, planned investment had been undertaken, and quality of service had apparently not deteriorated.

2.76. However, price caps can be problematic for congested airports (such as Heathrow) if they drive down prices to the extent that it further compounds congestion problems.

2.77. It is very hard to know what the impacts (positive and negative) are of any regulation. There is no real benchmark against which to measure the effects.

CONCLUSION

2.78. Different jurisdictions use different approaches to regulate airport charges depending on where they start from (for example, how airports are owned, what regulations already exist). There is no one approach—all involve trade-offs. The right approach depends on the specific problem(s) in the jurisdiction that is looking to be regulated.

2.79. Overseas regulation of airports does not provide a blueprint for regulation of New Zealand airports. New Zealand is considering control having had ten years of experience of the operation of privatised airports, and of regulation in the form of consultation between airports and airlines—experience of an unregulated privatised airport. Having said this, the regulation of airports internationally does provide some lessons (as identified above) in respect of the form and costs of control.

3. FORM OF CONTROL

INTRODUCTION

3.1. There are a variety of price control methods that could be used to correct the inefficiencies of monopolies. This supplement discusses the different approaches to price control and the merits of each. The Commission considers that the criteria against which the different approaches to price control should be evaluated are allocative efficiency; productive efficiency; dynamic efficiency; and regulatory burden and uncertainty.

3.2. Chapter 4 discussed what was meant by allocative, dynamic and productive efficiency. Using price control as a means to deal with any inefficiencies requires that the regulatory costs and uncertainties of each approach be considered. A brief overview of what is meant by the regulatory costs and uncertainties of price control is provided below, before the various approaches to price control are evaluated. While the Commission does not recommend a form of control at this time, the information contained in this supplement should usefully inform the Minister of the advantages and disadvantages of the various potential forms of control.

Regulatory Burden and Uncertainty

3.3. In introducing regulation, consideration must be given to the costs of the regulatory regime. The size of theses costs differs according to the price control approach used. They include:

- Compliance costs on the regulated firms, including those costs associated with interpreting the regulation (e.g., dispute resolution costs) and those costs associated with applying the regulation (e.g., the information supply costs imposed on the regulated firm). There is also the opportunity cost of management time diverted from seeking new business opportunities to involvement in the regulatory process.

- Costs of the regulatory body. To economise on regulatory costs, the process of regulation may be simplified (e.g., infrequent reviews, simpler price structures, a smaller range of services), but this in itself may create inefficiencies in the firm by inhibiting its ability to respond to changing market conditions.

- Costs associated with the possible corruption of the system through regulatory capture or regulatory instability. Uncertainty over the behaviour of the regulator can be damaging to incentives. For example, a problem of any investment decision in a regulated environment relates to regulatory opportunism, where regulators reverse previous policy commitments once regulated firms are committed to irreversible investments or other decisions. As a result, future investment will be discouraged. Regulators can reduce noise by explaining their intentions clearly, by reducing arbitrariness in decision making, and retaining discretion only where it can improve outcomes. For example, discretion could prevent regulatory opportunism by regulated firms who take advantage of the system in unintended ways.

APPROACHES TO CONTROL UNDER PART V OF THE COMMERCE ACT

3.4. Under the Commerce Act, the Commission is confined to authorising "all or any component of the prices, revenues or quality standards that apply in respect of the supply of controlled goods or services". Section 70 of the Commerce Act, however, appears to grant the Commission a very broad discretion to use whatever approach it considers appropriate in making such authorisations, and accordingly, control. Although, the Commission must have regard to the considerations prescribed in section 70A of the Commerce Act, namely, the extent to which competition is limited, the necessity or desirability of safeguarding the interests of acquirers or suppliers, and the promotion of efficiency in the production and supply of controlled goods or services. As part of an authorisation, the Commission could potentially establish pricing guidelines.

3.5. The Commission note that section 72 provides that supplier may voluntarily submit an undertaking to the Commission for approval as an alternative to the Commission making an authorisation under section 70.

3.6. There are four broad approaches to price control that the Commission could use in terms of granting authorisations. Each is described and evaluated in turn:

- A *cost-of-service* (or rate-of-return) approach in which price increases are not allowed unless they can be justified by cost increases that have depressed the enterprise's rate of return.

- A *price-cap* (or index-based) approach under which price is restrained by comparison with competitive prices elsewhere, or through a price-capping scheme.

- A *sliding-scale* approach. A combination of the above approaches, with any excess profits being shared in a predetermined fashion.

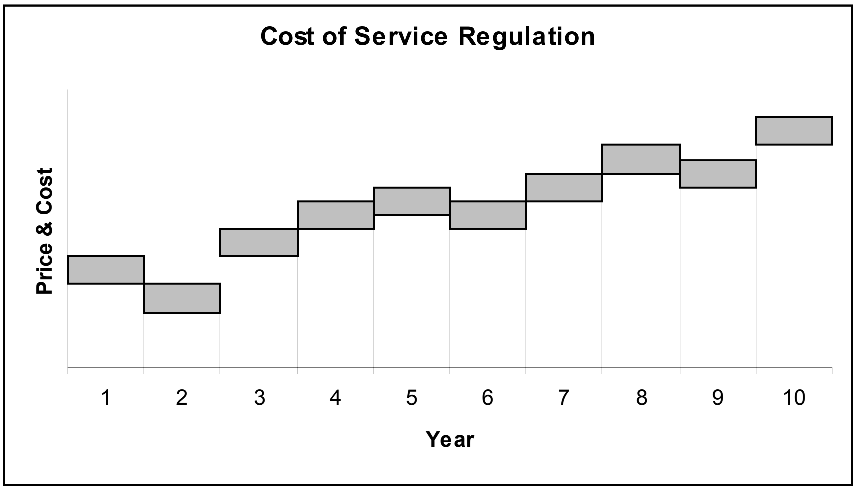
Cost-of-service Regulation

3.7. Cost-of-service regulation is the approach traditionally used in the US for utilities. A regulator will set prices so as to enable the regulated firm to earn sufficient revenue to recover reasonable costs in providing the service, including depreciation and an allowed return on capital. The allowed return is a reasonable target rate of return multiplied by the relevant asset base.

3.8. The structure of prices is determined within the total revenue requirement. It seeks to avoid unreasonable discrimination by regulating individual prices. Prices change at regular, or special, regulatory reviews.

3.9. Figure 4 below shows how the cost-of-service regulation would work over a 10-year period. The clear boxes represent the operating costs of the company and the shaded boxes its profits. Price is reviewed once a year by the regulator. Figure 4 shows that when the company introduced costs savings measures, or its costs rose, price adjusted accordingly. The profits of the company remain roughly the same in each period.[499]

Figure 4



3.10. The distributional consequences of this approach are; If costs rise (fall), consumers will bear (benefit from) this change through higher (lower) prices, while the returns to the producer are unchanged (in both cases). The risk of cost rises (falls) has, therefore, been shifted from the producers to consumers. Any reduction in costs will benefit consumers, although producers have little incentives to reduce costs in the first instance.

3.11. Revaluation gains (losses) for assets will under this form of price control raise (lower) the profits to the company and the price charged in each period.

3.12. In practice the cost savings or rises described above will be subject to regulatory lag. The cost changes will affect the company's profits and the regulator will then, by setting adjusted prices, confiscate excess profits or compensate for lower profits.

Allocative Efficiency

3.13. This approach encourages allocative efficiency of output prices because prices track costs.

3.14. However, price setting requires detailed consideration of the appropriateness of those costs and their allocations between different activities. As is discussed below, this approach may encourage inappropriate investment or productive inefficiency, thus raising costs above the efficient level. The allocation of costs may also be able to be manipulated by managers. These issues may curtail some of the potential allocative efficiency benefits of this approach, if they can not be corrected.

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[499] The areas may be slightly different in size if the return the airport can earn is set as a percentage of the cost base, because, as the base changes in size, so too do the profits. The Commission has assumed that the cost base has not changed so much as to make the areas not 'roughly the same'.

Productive Efficiency

3.15. Cost-of-service regulation arguably provides inferior incentives for firms to contain costs. This is partly because the normal justification for a price adjustment is that costs have increased, so that firms come to expect that any cost increases can be passed on through higher prices (cost-plus inefficiency); and partly because cost reductions tend to be reflected in lower prices, so firms have less incentive to engineer productivity improvements when they keep none of the benefit.

3.16. Inefficient cross-subsidisation can arise under this approach. Where the enterprise contains a mix of regulated and unregulated activities, it may have an incentive to include more of the costs in the regulated activity, where they can be covered by higher prices, leaving the unregulated activity with a lower cost base.

Dynamic Efficiency

3.17. It has been suggested that the cost-of-service approach could cause regulated firms to under-, or over-, invest. If the allowed rates of return are above the cost of capital, this could encourage firms to over-invest in order to increase the asset base, and hence profits. On the other hand, an overly tight allowed rate of return could have the opposite effect.

3.18. Moral hazards will be introduced if the firms perceive that the risk of poor investment decisions has been reduced and that they can simply seek a higher price at the next review to compensate for poor decisions.

Regulatory Burden and Uncertainty

3.19. Under this approach regulators need detailed information about the firm's operations to regulate effectively, but this information can be expensive (if not impossible) to acquire. Price setting requires extensive exchange and analysis of information.

3.20. Uncertainty emerges in this approach as a result of the amount of information analysed and how it may be interpreted. The allocation of common costs can also be arbitrary.[500]

3.21. The cost-based approach, because it tends to benefit flexibility of regulation at the expense of certainty of regulation, might be favoured for an industry characterised by rapid but irregular change.

Price-cap Regulation

3.22. A price cap sets a ceiling above which the regulated firm may not raise prices, although it retains flexibility in price setting up to that point. A price cap takes one of two forms:

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[500] Baumol, Koehn, and Willig (1987), *How Arbitrary is 'Arbitrary'?—or , Toward the Deserved Demise of Full Cost Allocation*, Public Utilities Fortnightly, Vol. 120, September 3rd, pages 16-18.

- Revenue ceiling, where the firm has flexibility in setting prices providing the revenue ceiling is not exceeded. For example, in the UK, where regulated utilities provide multiple services, an aggregate cap is normally applied.

- Weighted average of specified prices (tariff basket), where price setting is flexible subject to the weighted average price not exceeding the cap.[501] The weights are provided by revenue shares from each service. This approach somewhat reduces the firm's discretion, compared to the revenue ceiling approach. It does, however, provide greater incentive to encourage demand than a revenue ceiling, where there is an incentive to moderate demand growth once the ceiling is set.

3.23. The price caps often include mechanisms for the adjustment of price (P) over time. The cap may take the following form (based on US practice):[502]

$$\Delta P = \Delta CPI - X \pm \Delta Z$$

where the allowed change in the firm's composite price (ΔP) is related to:

- Changes in the Consumer Price Index (ΔCPI, or to some other suitable index of regulated firm's costs such as the Producer Price Index).

- The firm's cost reduction relative to the economy-wide average, i.e., a relative productivity target (X).[503] The value of X would normally be set for a period of years ahead (e.g., generally three to five years in the UK) to give the firm and its customers relative certainty.

- Changes in the operating environment brought about by changes in government policy (e.g., changes in accounting rules, or in community service obligations) and other exogenous factors (e.g., prices for imported inputs, such as oil) that impact on costs. The permitted cost pass-through (Z) will be negotiated by the regulated firm with the regulator at the time of the particular event.[504]

3.24. Figure 5 below shows how price-cap regulation would work over a 10-year period for a regulated firm providing a single service. The price cap is assumed to be reviewed

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[501] Clearly if there is only one price in the basket, then this method by default, the price cap becomes that single specified price.

[502] Kaufmann and Lowry, *Updating Price Controls for Victoria's Power Distributors: Analysis and Options*, Madison, Wisconsin: Laurits R, Christensen Associates pages 16-19, 1997.

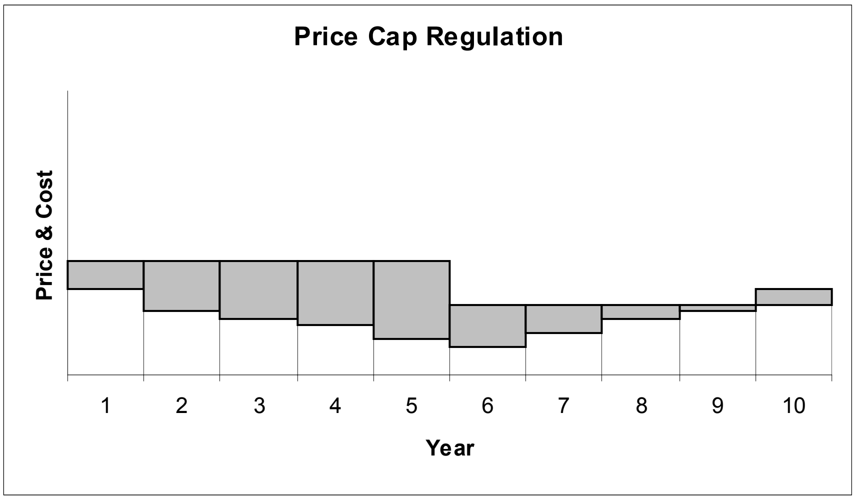
[503] It is important to recognise that, where the 'X' is used only as a productive incentive (i.e., the X is not used to reduce monopoly profits or other inefficiencies), the X does not measure the firm's expected efficiency gains, but only the differential between that gain and the gain for the economy as a whole. The latter will be captured in the CPI, which reflects both input price changes and efficiency improvements. Thus, X will be a positive number where the rate of productivity improvement in the regulated firm is expected to exceed the economy-wide average, and a negative number in the reverse case.

[504] The potential for exogenous shocks will determine how frequently an adjustment to price may be necessary. If exogenous shocks are relatively frequent then the inclusion of an adjustment factor in the pricing formula will mean the price-cap approach moves towards a cost-of-service approach. To prevent the two approaches becoming less distinguishable, it is likely that a limitation on those factors that may be considered exogenous will be required.

every five years. For simplicity CPI and X are assumed to be the same and Z to be zero. This means price does not change over each of the five-year periods. Again the clear boxes represent the operating costs of the company and the shaded boxes its profits. Assume normal profits are earned in year 1.

3.25. Figure 5 shows that in the first five years, contrary to expectations, cost savings are made and the profits of the firm rise. In response to the rising profits it is assumed the regulator lowers the price cap at the five -year review. If costs now begin to rise, profits fall. Profits are below their normal level in years eight and nine, while in year 10 there is actually a loss.

Figure 5



3.26. The distributional consequences of this approach are as follows: If the price cap is set so that normal profits are expected to be earned, this may necessitate a price cap being set at a level lower than the current market price. This would result in an initial redistribution of wealth from producers to consumers (although this could be seen as only reversing a redistribution of wealth that had previously occurred as a result of monopoly power).

3.27. The setting of the price cap may aim for normal profits to be earned over time. In this way the price cap may be set at the current level with the intention that the X factor would reduce profits if cost savings could not be made by producers. In such circumstances, monopoly rents may continue to be earned for some time, but there would be a gradual redistribution of returns from producers to consumers. Regardless of whether producers made cost savings, consumers do receive a wealth gain reflected in the X factor and any initial reduction in price.

3.28. Revaluation gains (losses) for assets under this form of price control will not affect the profits to the company or the price charged during the period the cap is in force. Rather, revaluation gains (losses) will lower (raise) the return on assets expressed as a percentage.

3.29. In practice, this approach may require some adjustments by the regulator for, say, inaccurate forecasts of price inflation or other significant market changes. If a Z factor is included then this has to be negotiated with the regulator. To stop price-cap regulation becoming effectively cost-of-service regulation the parameters of the Z factors should be made clear prior to the introduction of the price cap.

Allocative Efficiency

3.30. Setting the initial price will be important for allocative efficiency under price-cap regulation. If the current price is used it may allow the company to continue to earn monopoly rents for some time into the future. It may be that a less than allocative efficient price is tolerable at the start, if the method adopted allows for adjustment to an allocative efficient price over time. An X in excess of any productivity gains possible would encourage a movement towards an allocative efficient price where excessive profits are earned. Kaufmann and Lowry argue a gradual adjustment mimics how, in a competitive market, excess profits are gradually eroded towards the long-run level by new entry and the capacity expansions of existing firms.[505]

3.31. A 'pure' form of price cap would set the initial price with regard to an efficient and comparable benchmark. It may be quite difficult in practice to find an efficient and comparable benchmark. Accordingly, in practice, internal cost factors have generally been used.

3.32. Under this approach the regulated firms are free to adjust individual prices within the price cap, allowing some price flexibility, which could improve allocative efficiency. This was considered important in the UK where substantial re-balancing of charges was anticipated when utilities were privatised. It was thought that firms may gravitate to Ramsey prices over time. In addition, the firms are not constrained in lowering price well below the cap if it would reward them to do so.

3.33. As price changes are set in relation to external factors, rather than the firm's own costs, there is potential for windfall gains or losses from unanticipated cost reductions or rises. The risk of losses may be mitigated by the presence of a Z factor.

3.34. If the CPI does not accurately reflect the inflationary pressures faced by the particular firm, and consistently either over-, or under-, estimates the inflationary pressure, then allocative efficiency will not be promoted. A separate inflationary index may have to be determined in such circumstances.[506]

3.35. Compared to the cost-of-service approach, price adjustments rely on external data, which is less sensitive to manipulation by the firm's managers, and potentially removes controversies over cost allocations.

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[505] Kaufmann and Lowry (1997), op. cit. pages 16-19.

[506] In the US, use of the CPI in the price cap is common for telecommunications utilities, but two alternative measures of inflation of industry costs are also used. Firstly, an index may be specially constructed to measure inflation in the inputs used by a particular utility, as applies in the railroad industry. This is likely to be a better measure of input cost changes than the CPI, especially in the short-run. It could also reduce the number of exogenous factors that may require an adjustment of price. Secondly, an index of the prices charged by competing service providers may be used (sometimes called a 'peer price' index), although it appears not to have been much used. In the United Kingdom (UK), the use of the retail price index (RPI) is standard.

3.36. If a revenue ceiling approach is used for price capping, subject to the supplier being able to set prices so as to collect this level of revenue, it may create an incentive to minimise output. In contrast, price capping using a tariff basket will, within the range of output where the price cap is above marginal costs, create an incentive to maximise output.

Productive Efficiency

3.37. The benefits to productive efficiency of price-cap regulation include:

- Firms have an incentive to reduce costs by introducing productive improvements greater than that implied by the X target, since it retains 100% of any additional profits. At the same time, a failure to achieve improvements as great as X will lead to its profits being reduced.

- The added certainty stemming from less frequent interventions and rule changes improves performance incentives. Firms are assured of retaining any cost savings greater than implied by X at least until the next review.

3.38. The disadvantages to productive efficiency for price capping include:

- In some industries, it is claimed that the underlying rate of productivity improvement is low (e.g., tobacco), or that a high proportion of costs are fixed capital costs, which are difficult to reduce. These circumstances lower the potential productivity benefits to be gained from price-cap regulation.

- Theoretically, incentives only fully apply where a price cap is maintained for an indefinite period.[507] But over a period of years, the under- or over-performance of a regulated firm in terms of efficiency, together with possible changes in a range of other factors that affect the firm's performance, mean that the price cap periodically has to be reset. This resetting can cause incentive problems because it typically involves passing on to customers a proportion of any unanticipated cost savings (i.e., over-and-above those anticipated through the value of X in the cap) realised. To the extent that such sharing is expected, the prior incentive to reduce costs below the originally anticipated level will be impaired because the firm gets to keep only a proportion of the savings.[508] This would still be an improvement over cost-of-service regulation.

- If the price cap is not firm-specific, it could possibly advantage firms that have yet to introduce cost saving measures relative to those who have already done so. It

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[507] B Willamson, *Incentives and Commitment in RPI-X Regulation*, Topics No. 20, London: NERA, 1997.

[508] The trade-off facing regulators is not clear-cut: If too much of the saving is passed on to customers, they benefit initially, but lose out longer term through higher prices because of the discouragement to cost saving by the firm in the future. If too little is passed on, customers pay higher prices in the shorter term but gain the benefit of investment and cost saving by the firm in the future. The more frequent the review period and if cost savings passed on to consumers, the more closely the price capping approaches cost-of-service price regulation.

would also have an uneven impact generally across widely differing firms.[509] For example, a price cap set to encourage cost-minimising behaviour by the least efficient firms might provide little incentive for the most efficient. Finally, an efficient firm may find it difficult to meet a high X requirement, but an inefficient firm could meet it relatively easily.[510]

- The financial viability of the enterprise may be effected by exogenous shocks, when adjustments through Z are not made. A right of appeal before the next review is due may mitigate this risk. Alternatively, if firms find it relatively easy to get Z adjustments they will have less incentive to constrain costs. They may also expend significant resources trying to influence the regulator.

Dynamic Efficiency

3.39. It has been suggested that under-investment may occur with price caps. This possibility arises because the period between price reviews is often much shorter than the life of, and the payback period for, long-lived investments. Hence the regulated firm runs the regulatory risk that having committed itself to a major investment, the regulator may act opportunistically by cutting prices to allow consumers to usurp the sunk costs. There is a danger that in future reviews, prices may not be maintained at the level necessary to fund the interest and amortisation on the investment. The firm may then be discouraged from undertaking new investment in the future.[511]

3.40. The price cap may require a prescription of minimum standards for service quality. There will be an incentive for regulated firms to make cost savings through cuts in service quality. This may be done to increase (or prevent a fall in) profits, or it may be done to meet a large X factor requirement. If X is set relatively high it may over time cause prices to fall below long run marginal costs. In such circumstances, new investment will be discouraged and service quality may be compromised.

Regulatory Burden and Uncertainty

3.41. The operation of a price cap regime is seen as being relatively less burdensome than cost-of-service regulation. The frequency and scope of regulatory intervention is much reduced by the automatic adjustment mechanism built into the price cap, and the concept of the price cap is relatively simple. Hence, the costs of intervention and of compliance are likely to be less. Management effectiveness is also likely to improve as attention moves from the regulatory process to performing in the market.

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[509] In Australia, discussions on extending price surveillance to price capping in oligopolistically-structured industries has raised this issue. Prices Surveillance Authority, *Discussion Paper on Price Capping: Design and Implementation Issues*, Discussion Paper No. 5, 1994, pages 11-13.

[510] Two broad approaches could be used for determining X, namely, a Total Factor Productivity (TFP) approach based on historical data, or a benchmarking approach, which compares the current relative performances and prospects of different firms.

[511] In the UK, it is said that regulators look beyond the price review period in setting the value of X to take into account foreseeable investment needs. For example, in the case of water, X was given a negative value so as to allow for increasing real prices to provide funds for environmental improvements.

3.42. The credibility of the regulation depends upon the regulator choosing an appropriate value of X, and not being persuaded to change it in response to public or political pressure should profits turn out to be larger than expected. To do so would be to undermine the incentive property of the regime.[512] Similarly, if the price cap leads to the firm incurring losses, the government may be expected to step in if the financial viability of the firm becomes precarious.

3.43. The use of the CPI to account for inflationary changes may be a relatively simple figure to use in evaluating how the price cap adjusts overtime. However, the CPI may not always reflect the inflationary pressures faced by the particular firm. If a separate inflationary index needs to be prepared this is likely to increase regulatory burden and uncertainty.

3.44. The price cap can be detailed in its application. In the UK, a price cap review generally incorporates an examination of the cash flow requirements of the enterprise, including capital expenditure, for a substantial period ahead, possibly greater than the review interval, depending upon the firm's expenditure patterns and planning horizons, and on the durability of its capital. The regulator undertakes a critical review of proposed expenditure and revenue projections, including allowances for a reasonable rate of return, the dividend to be paid to shareholders, the impact of taxation, and the debt/equity structure.

3.45. Price-cap approach tends to favour certainty of regulation at the expense of flexibility (at least for the periods between price reviews), and hence might be favoured for industries with lumpy investments and long investment payback periods.

Sliding-scale Regulation

3.46. Internationally, sliding-scale regulation has been used in the past to control the prices charged by utilities. Under this form of regulation a table or a formula was used to link the price charged by a regulated company to the proportion of their net profit that it is allowed to retain. A company was free to charge whatever price it wanted. However, the lower the price it charged, the larger the proportion of its net profits it was allowed to retain.

3.47. Sliding-scale regulation can be focused on various factors critical to the determination of whether excessive profits are earned and the price level. Dividend yield have been used overseas in the past as the target of sliding-scale regulation. However, "to apply the strict sliding scale on dividend yields to present day utility regulation there would have to be specific accounting rules on retained profits and on the issue of bonus shares."[513] A dividend focus may also make pre-financing impossible, which may not be desirable.[514] A net profit approach is likely to suffer from a cost of capital distortion. As the value of the capital base changes, a net profit approach does not

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[512] B Williamson, *Topics 20: Incentives and Commitment in RPI-X Regulation*, National Economic Research Associates, UK, 1997.

[513] Burns, Turvey, & Weyman-Jones, *General Properties of Sliding-scale Regulation*, Centre for the Study of Regulated Industries, Technical Paper 3, May 1995, page 8.

[514] Ivan Viehoff, *Topics 17:Evaluating RPI-X*, National Economic Research Associates, UK, 1995.

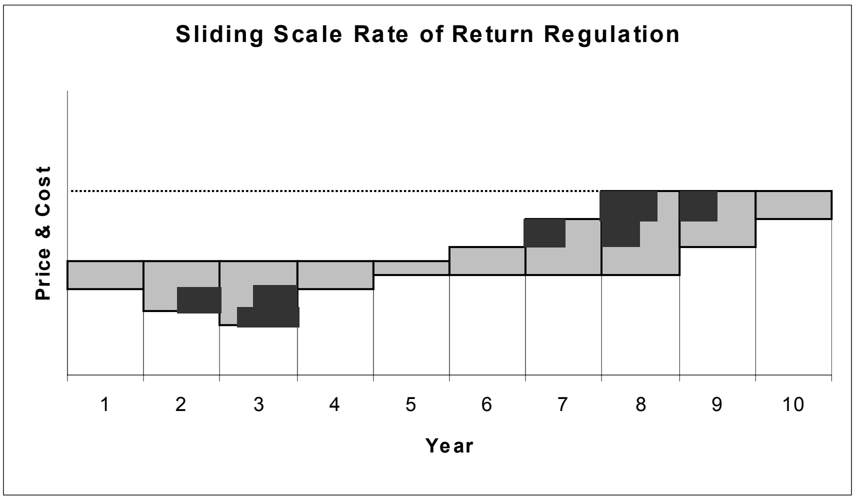
account for such changes. Mayer and Vickers also believe that serious measurement problems emerge in using net profits as a basis for price regulation.[515]

3.48. The Commission considers that sliding-scale regulation based on rate of return is likely to be the most workable version of sliding-scale regulation. Sliding-scale rate-of-return regulation is, therefore, the focus for evaluating the approach here.

3.49. In theory, sliding-scale rate-of-return regulation has adapted the sliding-scale approach and combined a price cap with an allowed (or target) rate of return that a company can earn.[516] Generally, all profits can be retained when the rate of return is below the allowed level, but above that level profits have to be shared with consumers either by a direct rebate in the year in question or by future price reductions.

3.50. Figure 6 below shows how sliding-scale rate-of-return regulation would work over a 10-year period. It is assumed that the price cap component is reviewed every five years, the allowed rate of return does not change (the asset base also does not change) and that there are two scales that may be invoked to calculate the amount of rebate that should be given to customers (50% of excess profits are shared with customers once the first scale is reached, 75% of additional excess profits are shared with customers once the second scale is reached). The blacked out boxes represent these rebates. Again the clear boxes represent the operating costs of the company and the shaded boxes its profits.

Figure 6



3.51. In year one the firm is earning its allowed return and is coincidentally charging up to the price cap. As cost savings are made the profits retained by the company rise but in a scaled fashion (i.e., years two and three).[517] As costs rise again in years four and five profits are reduced by the constraint of the price cap.

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[515] Mayer, C., and Vickers, J., *Profit-Sharing Regulation: An Economic Appraisal*, Fiscal Studies, 1996, Vol. 17, no. 1, pages 1-18.

[516] J., Acton & I., Vogelsang, *Symposium on Price-Cap Regulation: Introduction*, RAND Journal of Economics, 1989, Vol.20, No. 3, page 371.

[517] Please note that each column refers to the final outcome for the entire year. For example, the black box in year 2 of the chart should not be interpreted as forming half way through year 2. It is the total outcome for the year.

3.52. Assume now the price cap is raised at the five-year review, say because of an expected increase in costs (which only slowly eventuates). In year six the company may raise price to earn its allowed return. If in years seven and eight its costs don't rise, but it continues to raise price up to the cap, it can earn extra profits, but again in a scaled fashion. If in years nine and 10 costs rise again, as in years four and five, its profits fall once again. In this illustration price has changed four times over a 10-year period and there are five years in which rebates are paid to customers.

3.53. The distributional consequences of this approach are as follows: Whether consumers receive an immediate wealth transfer will depend on the level at which the allowed rate of return is set, the scales introduced and the ultimate cap on price. If the ultimate cap on price is set lower than the current price, there will be some transfer of wealth from producers to consumers. Over time sliding-scale regulation allows consumers to share in any excess returns and cost savings a monopoly may be able to generate. The allowed rate of return in sliding-scale regulation can be though of as representing a minimum normal return. Any returns in excess of this minimum (whether through cost savings or raising price up to the cap) are then shared with consumers, producers retain part of the excess profits.

3.54. Revaluation gains (losses) on assets, under this price control approach, could have various effects. It will depend in the first instance on whether the allowed rate of return is fixed with regard to the initial value of the assets, or whether the allowed rate of return can vary, based on a fixed percentage of current asset values. In the second instance, the effects of revaluations will depend on whether the company is charging up to or within its cap. Without running through the possible scenarios, revaluation gains (losses) will have either no affect on profits or prices, or raise or lower profits and prices in a scaled fashion.

Allocative Efficiency

3.55. Under sliding-scale rate-of-return regulation, the allowed rate of return is linked to the costs of the company, thus, encouraging allocative efficiency. Any movement away from the allocative efficiency price occurs at a scaled rate. As each new scale is reached the regulated company has less incentive to set (or leave) price well above that which would be sufficient to cover costs and generate its allowed return. In other words, the rebates generated allow customers to share in any ability the company has to extract monopoly profits

3.56. The processing of rebates will raise the transparency of the potential for monopoly profits. This could improve the allocative efficiency of pricing over time as users and suppliers factor in their expected rebates into their decision making and discuss more openly the appropriate level of prices.

Productive Efficiency

3.57. Under sliding-scale rate-of-return regulation the incentive for companies to make cost savings remains, although this incentive reduces the scales and when they kick in.

Dynamic Efficiency

3.58. Sliding-scale rate-of-return regulation is linked to the capital base of the regulated firm, and, thus, encourages an optimal level of investment for the allowed rate of return. If the opportunity cost of capital exceeds the allowed rate of return, then assets will shift to other activities. If, on the other hand, the opportunity cost of capital is lower, this would encourage greater investment. This process would continue until the opportunity cost of capital rises to that of the allowed rate of return, subject to the firm still operating within the scales set by regulation.[518] This analysis is subject to the regulator choosing an appropriate rate of return. If it does not, this approach may introduce some of the dynamic inefficiencies of cost-of-service regulation, although there is more give in the levels of investment chosen, as there is more give in the returns that could be earned.

3.59. The incentive to reduce costs by lowering service quality remains, but this incentive reduces in a scaled fashion, until there is no benefit in the firm doing so. Similarly, the incentive to increase service quality remains subject to consumer demand, but the incentive reduces in a scaled fashion, until there is no benefit in the firm raising service quality further.

3.60. Sliding-scale rate-of-return regulation lies somewhere between the other two approaches in terms of its likely affect on investment and service quality.

Regulatory Burden and Uncertainty

3.61. The automatic profit sharing rule under this approach means the regulator is less likely to take a backward looking approach to final outcomes and, therefore, less likely to claw back any excessive profits. What would be excessive has been predetermined.

3.62. It may be thought that sliding-scale regulation would sit somewhere between the other two approaches in terms of regulatory burden. How much of a burden it is will depend on how it is applied. Burns et al note that even CPI – X regulation carries a significant burden and believe that "the relative burden of sliding scale compared to RPI-X may have been overstated."[519]

ALTERNATIVE APPROACH TO CONTROL – PRICES MONITORING

3.63. There are other potential forms of price control that lie between the current 'light-handed' approach, which is based on information disclosure by airports and the requirement for them to consult with major users, and the more 'heavy-handed' approaches, which involve the Commission setting prices, allowable rates of return or

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[518] In contrast, if a sliding-scale approach were applied to net profit, for example, because it is not linked to the asset base, this introduces an incentive to minimise the asset base to generate the allowed net profits. Service quality is also likely to deteriorate as a result.

[519] Burns et al advocate sliding scale being applied to net profits so as to remove the need for the regulator to make an estimate of the capital base. However, as noted above, if the scale is not linked to the capital base then dynamic inefficiencies may emerge. Burns, Turvey, & Weyman-Jones, (May 1995), op. cit., page 3.

revenue caps under the Commerce Act. The aim of such approaches would be to preserve as far as possible the lightness of the current approach, but seek to enhance what countervailing power the airlines may have by requiring the airports to provide additional information, and to negotiate with them over price within pre-determined bounds or principles set by a regulator. The approach may be similar to that recommended by the Productivity Commission in its draft report on the regulation of Australian airports, or to that now in place in other industries in New Zealand.

3.64. This suggested approach might include the following elements:

- The regulator could require the airports to negotiate on price and service, rather than merely to consult.

- The regulator could specify a timeframe within which the negotiations should be completed and prices would be frozen until agreement is reached or the timeframe ends.

- To assist negotiations, the regulator could set bounds within which price negotiations should take place (issue guidelines on pricing principles). The regulator could require further information disclosure by airports for use in price negotiations.

- Prices emerging from agreements reached during commercial negotiations could be required to be accepted by the regulator.

- In the event that parties could not agree within the timeframe, the regulator would determine prices.

- The regulator might monitor the airports' prices, negotiations and performance.

3.65. The bounds or guidelines for price negotiations would be set with the intention of allowing the airports a competitive or normal return on their assets. Given the uncertainty over the values of the various components used in the course of calculating that return—for example, the size of the asset base, the airport's operating costs, and the several elements that make up the weighted average cost of capital—the upper and lower bounds might be set using the likely ranges within which those values would fall. It may be envisaged that the resulting bounds would prevent an airport from earning an excessive rate of return. Prices would have to be non-discriminatory.

3.66. The price bounds might be set in the context of the maintenance of an agreed level of service. Provision would need to be made to accommodate necessary new investments undertaken by the airports, perhaps as under the present consultation regime.

3.67. What follows is an assessment of the possible costs and benefits of the pricing negotiation approach to price control. However, if agreement could not be reached through negotiation then the regulator would chose an alternative approach to price control at the end of the negotiation period. This alternative approach would have its own costs and benefits. For example, if agreement could not be reached, the regulator might chose the price-cap regulation approach at the end of the negotiation phase.

Allocative Efficiency

3.68. The suggested approach could lead to an improvement in allocative efficiency, where airports currently are earning, or in the future could earn, excessive returns. The upper bound of the price range would prevent excessive returns being earned, and the enhanced negotiating ability of the airlines might further assist.

3.69. While allocative efficiency in aggregate could be improved, it is possible that those smaller airlines that lack bargaining power relative to the large airlines could be disadvantaged, for example, by having to pay excessively high landing charges. They may be forced to seek the intervention of the regulator in order to have their interests recognised. If the regulator becomes involved in a piecemeal fashion, this could have adverse implications for the overall allocative efficiency of pricing, and would increase regulatory costs.

3.70. Spill-over effects to related markets would not be considered in pricing negotiations. This is a feature of the present approach, and although it could reduce allocative efficiency, it may not do so relative to the present position, except insofar as the bargaining power of the large airlines relative to the small is increased.

Productive Efficiency

3.71. The maintenance or improvement of airport productive efficiency will depend upon the ability of the negotiating airlines to assess the appropriateness of the airport's costs. The airlines have the greatest incentive to monitor each airport's performance, and experience its performance on a day-to-day basis. This would be enhanced by a reduction in the information asymmetry between the parties, as could result from increased information disclosure. Even if agreement can be reached, it is still uncertain as to what extent productive efficiency would be promoted relative to the present situation.

Dynamic Efficiency

3.72. Airlines are well placed to know their likely future purchases of services, subject to inevitable uncertainties attaching to forecasting. Airports also have an incentive to seek such information for investment planning purposes. Price negotiation may therefore promote dynamic efficiency.

3.73. It may be difficult in price negotiations for some operators (particularly new entrants) to have their needs recognised. For example, future investment decisions may come to reflect the desires of the more powerful airlines, who may be in competition with other smaller airlines. Large airlines may wish to restrict landing slots as a means of reducing competition. Dynamic efficiency in the airport (and competition in downstream airline markets) would not then be promoted. However, this also appears to be a feature of the present approach.

Regulatory Burden and Uncertainty

3.74. The costs of the negotiated price approach would fall largely on the parties involved in the negotiations, as it does now. During the negotiation phase there may be significant uncertainty as to where each party stands in the negotiation and what the regulator's approach may be if agreement cannot be reached.

3.75. There is a risk that, even if agreements are reached, that the regulator may still decline to accept the agreed price as an undertaking. This might occur if the regulator believes that some of the costs and benefits to the public (i.e., the interests of the travelling public or smaller airlines) have been ignored in the negotiations between airports and its substantial customers. The regulator might feel uncomfortable accepting deals that differ in the relative outcomes between the parties, e.g., if airports could agree a relatively better deal with Air NZ than the deal they agreed with Qantas. The regulator might be concerned that competitive neutrality in downstream markets might be affected.

3.76. The administration costs of the regulator are likely to be significant, as much of the work of determining an alternative method of price control would have to be done, given the risk that an agreement may not be reached between all parties. In addition, there are the costs of monitoring.

CONCLUSION

3.77. Table 80 below provides a summary of the likely merits of the different approaches to control under the Commerce Act. The first three efficiency criteria are evaluated against the outcomes for a hypothetical (non-perfect-price-discriminating) monopolist, while regulatory burden and uncertainty are evaluated against the a no-price control environment. It is assumed that as close to an ideal form of each price control approach can be achieved in practice. An evaluation of the price negotiation approach is not presented in the table as it requires a comparison against the status quo.

Table 80
Merits of Different Approaches to Price Control

	Allocative Efficiency	**Productive Efficiency**	**Dynamic Efficiency**	**Regulatory Burden & Uncertainty**
Cost-of-service	Encourages	No incentives created	Possible over-investment	High
Price Cap	Uncertain	Encourages	Possible congestion	Medium
Sliding-scale ROR	Encourages	Encourages	Neutral	Medium – High

3.78. It seems likely that sliding-scale rate-of-return regulation and cost-of-service regulation, subject to the regulator being able to determine the appropriate costs for the service provided, are likely to encourage allocative efficiency. For price-cap regulation the affect on allocative efficiency is uncertain. If the price cap is set at the monopoly price then this will harm allocative efficiency, although the cap may be set lower or the approach may encourage a more allocatively efficient outcome over time.

3.79. Kaufmann and Lowry show that the cost-of-service and price-cap regulation can be at the extreme ends of a range of price control approaches from a productive efficiency perspective.[520] Intermediate regulatory types, such as sliding-scale rate-of-return regulation, are determined by the relative weights accorded to internal and external cost benchmarks. Accordingly, the Commission expects price-cap regulation and sliding-scale rate of return are most likely to encourage productive efficiency. Under cost-of-service regulation no incentives are created to encourage productive efficiency.

3.80. With regard to dynamic efficiency it seems likely that cost-of-service regulation has the potential to cause over-investment, while price caps may have an opposite effect and may lead to congestion. Sliding scale is likely to encourage outcomes somewhere between the other two approaches.

3.81. Price-cap regulation is likely to give rise to the least regulatory burden and uncertainty (in terms of price). However, compared to the unregulated market situation, this burden will not be insignificant. Cost-of-service regulation is likely to place the greatest demands on regulated firms in terms of their time spent dealing with price control issues. Sliding-scale rate-of-return regulation would be less burdensome and would introduce certainty between reviews in terms of the maximum price the company could set and how any excess profits are shared.

3.82. The redistribution effects of the various forms of price control will be sensitive to the initial values of the factors used to control price, set by the regulator. Any redistribution, however, should be seen as a consequence of aiming for an efficient outcome (not as a motivating factor in itself).

3.83. There is no consensus internationally on which approach to price control is the most appropriate. The relative importance of each of the above criteria will depend on the circumstances into which the approach may be introduced, i.e., a comparison with the status quo is necessary.

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[520] Kaufmann and Lowry, *Updating Price Controls for Victoria's Power Distributors: Analysis and Options*, Madison, Wisconsin: Laurits R, Christensen Associates, 1997, pages 25-26.