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Landing Charges
Pricing Methodology

Hamilton International Airport

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1. INTRODUCTION AND BACKGROUND

1.1 Introduction

This Landing Charges Pricing Methodology paper has been prepared by Hamilton International Airport Limited ("HIA" or "the Company") and details the methodology use and landing charges proposed. This paper is the culmination of early pricing methodology papers and a rigorous consultation process undertaken with a number of airport aviation customers..

1.2 Background

HIA has had no increase in landing fees (including terminal charges) over the past thirteen years and currently has one of the lowest returns of any airport in New Zealand. The current rate of return is well below its Weighted Average Cost of Capital ("WACC").

This document describes HIA's proposed pricing methodology for the determination of landing fees. It has been prepared to outline and describe:

- The methodology that is the starting point from which the maximum allowable landing fee revenue can be calculated;
- The methodology HIA proposes to use to calculate individual landing fees in respect of specific types of aircraft. This will take into account whether or not the aircraft is carrying passengers; and
- The key components of revenue required to cover costs and provide an appropriate return on assets employed in line with industry standards for this type of business.

Like other airports, HIA operates with the following commercial imperatives:

- Ensure that there is adequate infrastructure in place to meet the expectations of the travelling public and other customers;
- Meet airlines' expectations of airport services and efficiencies in relation to their charges; and
- Achieve a fair and reasonable return on the assets employed by providing the shareholders with an appropriate return on their investment.

2. PRICING PRINCIPLES AND METHODOLOGY

2.1 Pricing Options

There are three key options used for pricing landing fees:

- Passenger Seating Capacity (Seats), which means that landing fees are determined on the basis of Seats provided;
- Passengers on board (PAX), which means that landing fees are determined on the basis of seats occupied; and
- Maximum Certified Take off Weight (MCTOW), which means that landing fees are based on an aircraft's maximum allowable take off weight.

The Seats option insulates the Airport from the risk of falling load factors. However, it also restricts the Airport's ability to share any upside in load factors. Airlines may delay introducing new services until demand is sufficiently high enough to achieve a breakeven load factor for the new service. This option also encourages increased seat capacity rather than increased frequency of flights. However, one of the main benefits of this pricing option is its comparative ease to administer.

The PAX option places risks and incentives with both HIA and the Airlines. HIA is incentivised to make the Airport and region an attractive destination for air travellers, thereby increasing passenger numbers and airport revenue. The airlines are still incentivised to increase passenger numbers. The drawback with the PAX option is that it is more difficult to administer and requires cooperation from the airlines in providing the necessary passenger information.

The MCTOW approach is essentially a user pays approach that recognises that heavier planes place a higher burden on the Airport's runways and pavement assets. The main disadvantage with this approach is that it creates incentives for airlines to adapt their schedules, replacing heavier aircraft with lighter aircraft, which may increase the risk that passenger demand is not fully satisfied.

Based on the above considerations HIA proposes a dual system where costs and revenues are split using MCTOW for aeronautical assets and Seats for terminal assets.

2.2 Structure – Multi Till Approach

HIA provides services to a range of different customers. Prices have been set to cover the costs of operating and renewing the assets.

The pricing structure proposed by HIA is based on multi till and 'user pays' philosophy. The initial step in establishing a pricing regime is to distinguish between the different services provided by the customer groups that use them. This allows customers to be charged for the assets and services they use and reduces the opportunity for cross-subsidization by non-users.

HIA has sought to propose a landing fee pricing structure that is simple, administratively efficient and sends the appropriate pricing signals to all end users, encouraging efficient use of the Airport.

HIA's charging elements is made up of four separate components:

- Aeronautical Charge
    - Runways, including Aeronautical Land
    - Taxiways
    - Aprons
    - Other airside assets (e.g., internal airport perimeter roading, fencing, security and water and wastewater systems).
- Terminal Charge
- Car Parking Charge
- Lessee or Commercial and Residential Property Charges

In terms of landing fees, HIA is concerned only with recovering an appropriate return on the value of HIA's Aeronautical and Airport assets. To ensure that airlines are charged appropriately for what they use, it is proposed that landing fees are made up of a terminal per seat charge and a weight related airside charge.

2.2.1 Aeronautical Charge

The aeronautical charge is for the use of the airside assets including the runways, taxiways and the apron that aircraft make use of. This charge also includes internal Airport perimeter roading, landscaping and mowing, fencing and security and water, storm water and wastewater systems.

Different aircraft types have varying effects on the structure of the airside assets and heavier aircraft wear out the assets at a proportionally higher rate. It is therefore proposed to adopt Maximum Chartered Take-off Weight (MCTOW) as one composite charge to cover all aeronautical assets. These will be in bands depending on aircraft weight with heavier aircraft paying a proportionately higher amount. Such an approach is simple and easily calculated.

2.2.2 Terminal Charge

The existing $1.36 per seat terminal charge ("Terminal Seat Charge") is designed to generate revenue required to provide terminal assets to the standard that would reasonably be expected by today's travelling public. The Terminal Seat Charge is levied on a passenger seat basis (Seats) to airport users.

The Terminal Seat Charge is separate from terminal floor space lease charges and charges for check-in counters and electronic check-in kiosks. The Terminal Seat Charge is also separate from the Domestic Terminal Development Levy which HIA has decided to implement that covers the interest costs of the domestic component of the new terminal development. It is also separate from the current International Departure Levy (charged to passengers departing to international destinations and designed to cover the various costs associated with international flights). The terminal charge includes the costs for the baggage handling facilities of the baggage reclaim and make-up.

HIA proposes to continue to apply the Seats charging regime based on aircraft seating capacity.

2.1.3 Overnight Aircraft Parking Charges

HIA believes that overnight aircraft parking charges should only be applied if congestion exists. However, given HIA's limited apron space, the possibility of congestion of aircraft parking overnight on the apron may occur in the future and HIA wishes to retain the flexibility to charge for aircraft parking if the need arises. HIA is not seeking at this stage to charge airlines an overnight aircraft parking charge.

2.3 Revenue

The pricing methodology will provide sufficient revenue for HIA to meet the following requirements:

- Comply with statutory requirements on public safety and environmental protection;
- Operate the Airport in an effective and efficient manner when considering management, maintenance and general operating costs; and
- Provide a commercially appropriate return on funds employed.

HIA believes that the key issues are commercially appropriate returns, how assets are valued, what assets should be included in the investment base, and how capital and operating expenditure is allocated – plus a requirement for transparency on these issues. These matters are addressed below.

2.4 Efficiency

Pricing should be economically efficient in the investment signals it creates. This is achieved by matching the pricing structure to the cost structure as closely as possible. It also ensures that there is not an inappropriate level of asset for the capacity and facility being provided.

2.5 Fairness

Pricing must be fair in respect of the different aircraft types and the number of passengers using the airport. Specifically:

- Charges to various aircraft types and Seats should vary according to their relative use of different assets;
- If a specific aircraft requires a different service requirement, then this should be costed and charged to the appropriate aircraft type;
- Where new investment is required, those aircraft types who obtain the benefit should be required to contribute towards the costs. For example, the lengthening and strengthening of a runway to take larger aircraft to service more distant destinations; and
- Aircraft of a one-off or unique nature (e.g. non-scheduled flights) will incur greater charges given the higher level of overhead required to accommodate their needs.

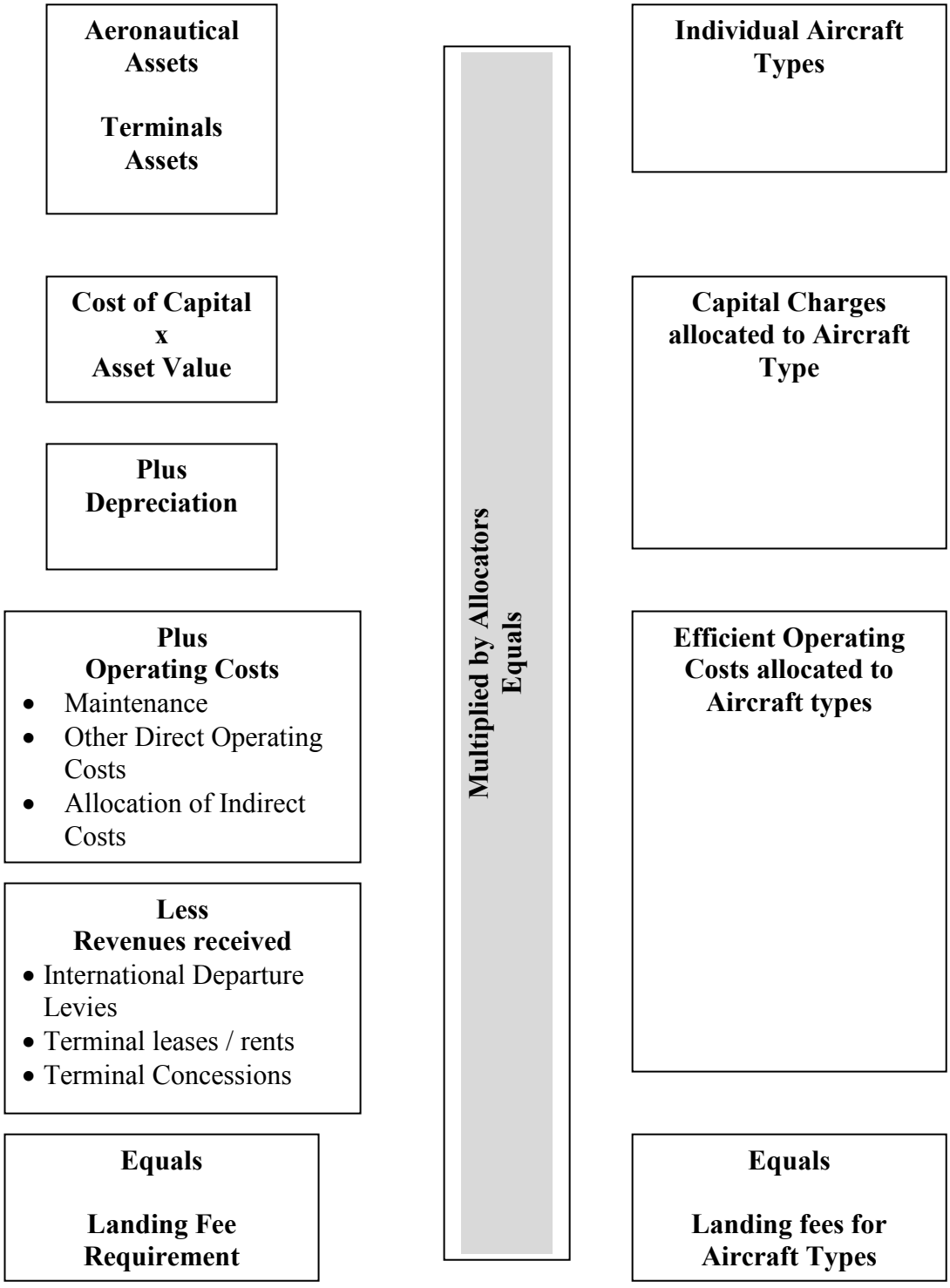
2.6 Simplicity

Pricing and tariff structure should be kept as simple and administratively efficient as possible. It should also be easy for users of the Airport to understand and should not send unusual or perverse pricing signals to end users.

3. CALCULATION OF LANDING FEES

3.1 Introduction

An activity based costing approach to pricing has been used to calculate required revenues for landing fees. This approach has been used by other airports in New Zealand and is generally accepted as the best approach for determining a fair and appropriate pricing for landing fees. The approach is illustrated in the following diagram:



3.2 Valuation Methodology

3.2.1 Land

The land utilised for HIA's aeronautical purposes was independently valued by Quotable Valuation on 30 June 2005. In determining a value of this land, Quotable Valuation adopted the Market Value Alternative Use ("MVAU") method. In respect of the Airport the MVAU is the underlying rural land value although, in time, the alternative use may be as industrial / commercial property. In calculating the MVAU, Quotable Valuation assessed the market value of the rural land which excluded any costs associated with obtaining consent to operate and develop the land as an Airport.

The 2005 valuation has been adopted in the audited accounts of Waikato Regional Airport Limited. HIA is required under the Local Authorities Act to make periodic revaluations of its assets.

3.2.2 Specialised Assets

The specialised assets utilised for aeronautical purposes were independently valued by SKM on 30 June 2005. In determining a value of these assets, SKM adopted the Optimised Depreciated Replacement Cost ("ODRC") valuation method. This approach takes into account the cost of replacing the Airport's specialised assets with an optimised arrangement that eliminates any excess capacity or over design with that necessary to cater for current use. It seeks to assess improvement values that reflect the true added value and remaining useful life of the assets used by the Airport operations. To that extent, it takes into account the cost of creating the assets, the degree that it is optimised and its remaining useful life expectancy.

3.2.3 ODRC versus Historical Costs

WRAL used ODRC for establishing the value of capital investments for the following reasons:

1 Airport companies on both sides of the Tasman adopt an ODRC basis of valuation with optimisation reflecting those assets which are used and useful. ODRC is also commonly used by regulators in the valuation of utility assets which of course is the reason the Commerce Commission's split decision is not accepted;
2 ODRC provides a better proxy for market value than is ODRC is a better estimate of market values than historic costs. As a consequence, HIA believes that the depreciation on ODRC more fairly represents the asset replacement costs that the airport will face at the end of the assets life;
3 ODRC can have the effect, whereby historical investments have been optimised out and the investor is unable to make a return on the original investment. This has been clearly evident in electricity reticulation companies, where investments such as sunk costs in dual lines have been halved in valued where the ODRC has identified only one line being required.; and
4 HIA believes that users meet the true costs of replacing assets and that this revenue needs to be set aside so that the airport has the cash to replace the assets. If historical costs were used then the revenue set aside would be insufficient to meet the replacement costs.

3.2.3 Buildings

All buildings have been valued on either a fair market or depreciated replacement cost basis. Where the fair value of a building can be determined by reference to the price in an active market, for the same asset or similar asset, the fair value is determined using this information.

3.2.4 Land Improvements

Site and other improvements relating to various land assets have been assessed on a fair market value basis where relevant. Items in this group include fencing, landscaping, paving, internal Airport perimeter roading and water reservoirs**.**

3.3 Operating Costs

HIA has an operating philosophy of continual improvement and regularly reviews its operations and costs. It will be reviewing a zero based budgeting approach for 2007/8 and will strive to achieve further operating efficiencies wherever possible.

3.3.1 Maintenance Costs

The maintenance component of operating costs is based on the 2006/7 budgets and forecasts. HIA has attempted to smooth the 'lumpy' nature of its maintenance costs by establishing a deferred maintenance provision.

3.3.2 Depreciation

Depreciation is based on current asset valuations and expected future lives and takes into account planned capital expenditure replacement over the forecast period.

3.3.3 Other Direct Operating Costs

Other direct operating costs are based on the 2006/7 budgets and forecasts.

3.3.4 Indirect Cost Allocations

HIA runs a comprehensive cost centre accounting system. Indirect cost centres include corporate services, finance and administration, business development, operations, vehicles and underground services.

Indirect costs have been allocated to airfield services, the terminal, car parking and property, based on either management's best assessment of usage or a direct cost percentage basis.

3.3.5 Other Revenues

Various other revenues will be deducted from the total costs of providing aeronautical and terminal services. These include:

- International departure levy ($25 per passenger).
- Lease and rentals from terminal areas.

- Concessions from terminal (Duty Free).
- Terminal development levy

Car parking and rental from commercial and industrial property owned by HIA is not taken into account as these revenues are applied to separate profit centres and related asset base.

3.4 Allocators

3.4.1 Methodology

HIA will apply a "user-pays" methodology to landing fees. This will result in a final charge per landing per aircraft type based on the following two components:

	Landing Fee Component	
Allocator	**Aeronautical**	**Terminal**
MCTOW	Yes	
Seats (passenger seat capacity)		Yes
Return on assets - Land	Allocated geographically	
Return on assets – Other Assets	Allocated based on asset type	
Depreciation	Allocated based on asset type	
Maintenance Costs	Allocated directly to assets maintained	
Other Direct Operating Costs	Allocated based on assets associated with activity	
Indirect Costs	Allocation based on either a direct cost % basis or on management's best estimate of usage (see appendix I)	
Other revenues	Allocated against the assets associated with generating the revenue	

Identified Allocators

- MCTOW - weight of the aircraft determines the concrete depth and length of runway
- Seats (passenger Seating capacity) – passenger numbers determine the capacity of the terminal.

3.4.2 Aircraft Volumes

Aircraft volumes are based on current and expected future scheduled flights over the forecast period. Total MCTOW and Seat numbers are used as the denominator to divide into total costs and required return on assets.

HIA notes that the aircraft movements recorded by Airways are significantly higher than the billable landings. This is due to the fact that there can be numerous touch-and-goes with a training flight but only one billable movement occurs. It should also be noted that touch-and-goes are not charged landings in any airport in New Zealand that we are aware of.

3.4.3 MCTOW Bands

HIA proposes that the following MCTOW bands be used for setting aircraft landing fees.

Aircraft Weight Kgs	Aircraft type
Flat Charge up to 1 tonne	GA
1 - 3 tonnes	GA
>3 tonnes & <30 tonnes	Small Commercial and Domestic Turboprop
>30 tonnes & <70 tonnes	Large Domestic and Small International (B737-300)
> 70 tonnes	Medium and Large International

The relative weightings take into account the additional wear that heavier aircraft have on the runway and the additional land allocated to the GA grass runways.

3.5 Demand and Growth Assumptions

3.5.1 Demand

The main types of services and aviation currently operating at HIA are:

- Domestic scheduled passenger services;
- Short range international passenger services (Australia – east coast and Pacific;
- General aviation (GA) including flying training; and
- Special charters.

Air New Zealand's subsidiaries, Air Nelson, Eagle Air and Mt Cook Airlines, comprise the majority of domestic scheduled passenger services.

HIA has experienced high growth in domestic passenger services over the past eight years averaging 5.4% per annum. However, it has slowed in the last year to 2.3% in 2006.

Air New Zealand (prior to 30 March 2008 they flew under the Freedom brand name) is currently the only regular international passenger service, with flights to Australia and Fiji. Demand has been variable and this year has seen reductions in scheduled flights to these destinations. Current load factors show that current scheduled flights are profitable, with airline returns increasing (as outlined in Air New Zealand's latest results).

3.5.2 Growth and Revenue Assumptions

Aircraft Growth Assumptions

Flight numbers have been derived from information provided to HIA by Air New Zealand.

Passenger Growth Assumptions

Departures	2005/6 Actual	2006/7 % Growth	2007/8 % Growth	2008/9 % Growth	2009/10 % Growth
Domestic	155,722	3.0	9.3	3.5	4.0
International	60,951	-16.1	-6.5	1.5	1.5

Passenger growth numbers drive revenue items including the International Departure Fee and Domestic Terminal Development Levy, implemented since January 2007.

The domestic volume projection of 3% for 2006/7 is slightly above the 2006/07 YTD growth rate.

3.5.3 Calculation of Proposed Increase in Landing and Terminal Charges

The above volume assumptions applied to current landing and terminal charges enable HIA to assess the forecast shortfall on the appropriate returns on aeronautical and terminal assets. This then forms the basis for setting revised landing fees.

3.5.4 Grass Runway and GA Assumptions

HIA has experienced a significant increase in the number of landings and movements on its three grass runways. This has increased the maintenance costs on these runways and their associated taxiways and the amount of Company resources required to keep these areas operational (e.g. repair work, moving cones, etc). The modelling assumes the continued use of the three grass runways, with the grass runways not being sealed.

GA aircraft using the grass runways benefit from being based at a significant regional airport, such as having access to the availability of fire rescue services. All of these support costs associated with the GA using the grass runways have been taken into consideration in determining GA landing charges.

3.6 Revised Landing Fees

3.6.1 Proposed Fee Structure

Aircraft Weight Kg	Current Fees				Proposed Fees		
	Fixed $	MCTOW Tonne $	Terminal Seats $		Fixed $	MCTOW Tonne $	Terminal Seats $
< 1,000	5.00				11.00		
1,000 -		5.20	1.36		3.00	7.54	1.36

3,000							
3,000 - 30,000		5.20	1.36			7.54	1.36
30,000 - 70,000		5.20	1.36			9.29	1.36
> 70,000		7.50	1.36			12.70	1.36

Notes to charges

- **MCTOW Fee**
  The above proposed MCTOW fee still results in a negative return on aeronautical assets, and is significantly below HIA's target WACC of 9.5%.

- **Terminal Charges**
  There is no proposed increase in the $1.36 per Seat terminal charge.

3.6.2 Proposed Monthly Account Fee

The Waikato Aero Club has proposed a monthly account fee of $20.00 per account for those aircraft operators who do not pay the landing charge fee before departure. The Waikato Aero Club notes that this is common practice and would cover invoicing costs.

HIA agrees with this proposal from the Waikato Aero Club, as currently, many aircraft operators land only once a month and are invoiced for a landing charge as low as $6.00 + GST. The cost to HIA of processing the account, sending out an invoice, chasing up later payments, and the cost of bad debt is often greater than the invoiced amounts.

However, offsetting this requirement is the low level of additional revenue earned and the impact on small GA users. Consequently, WRAL will not implement an account fee at this stage.

3.6.3 Examples of how this applies to certain aircraft types

Aircraft Type	Weight Kg's	SEATS	Landing Charge $	Terminal Charge $	Total Charge $
R200	780	N/A	11.00	0	11.00
C172	1,157	N/A	11.72	0	11.72
ATR 72	22,000	68	165.88	92.48	258.36

In regard to how the charges were calculated, these were as follows:

- R200 Landing charge = 780kg less than 1 tonne flat landing fee of $11.00
- C172 Landing charge = 1,157 * 7.54/1000 + 3.00
- ATR72 Landing charge = 22,000 * 7.54/1000 + Terminal Charge = 68 * 1.36

4. Proposed Kiosk and Counter Charges

4.1 Capital Costs

4.1.1 Check-in Counter Capital Charge

The counter capital charge has been set to recover $401K of capital over 15 years with a required IRR of 9.5%, with recovery over the existing 12 counters.

4.1.2 Electronic Kiosks

There are no capital charges for the electronic kiosk.

4.2 Operating Costs

4.2.1 Check-in Counter Operating Charge

The check-in counter operating cost is calculated on a per counter basis with the costs including electricity, maintenance and the leased floor area.

4.2.2 Electronic Kiosks Operating Charge

The electronic kiosk operating cost is calculated on a per kiosk basis with the costs including electricity, maintenance and the leased floor area.

4.3 Proposed Specific Terminal Charges

The table below shows the proposed specific terminal charges.

	Total Charge
Check-in counter Per counter per annum	$12,050
Electronic kiosks Per kiosk per annum	$5,000

Note: all charges exclude GST.

5. The Cost of Capital

The formula used to establish the cost of capital is well established as being the nominal weighted average of the cost of debt and equity (WACC). The five elements, to which the Brennan Lally version of the WACC is sensitive, are:

- The risk free rate
- The Debt Premium
- The Market Risk Premium
- Leverage
- The Asset Beta

The following will address the findings and comments of Lally (2001) for each of these variables and add commentary from Lally (2005) and Lally (2004) where relevant.

5.1 The Risk Free Rate

Lally (2001) concludes that the appropriate proxy for the risk free rate is the yield on government bonds with a maturity corresponding to the landing charge review period. Lally also suggests that the rate adopted should reflect the average rate over the consultation period, rather than be a point estimate.

In the case of WRAL this suggests the appropriate proxy for the risk free rate is the five year government bond rate. The final number adopted will need to be established once consultation has concluded, but at this point WRAL has adopted 5.97% based on the average rate for June 2006.

It should be noted that;

- The risk free rate of interest is almost universally measured as the rate of return on government bonds;
- The maturity of the risk free rate should be determined by the average life of the assets used in the business; and
- The rate that is needed is the rate at the beginning of business at the start of the new pricing period.

5.2 The Debt Premium

The debt premium is the amount added to the risk free rate to establish the cost of debt and must be set in conjunction with the leverage ratio for the airport. Lally (2004) suggests that an 'optimal' leverage ratio should be used. However, he concedes that this cannot be directly determined and suggests it can be inferred by examining the average level amongst relevant firms. In this vein, Lally (2001) adopts a leverage ratio of 25% (the market leverage ratio of AIAL in 2001, the only listed airport). In conjunction he adopts a 1% debt premium, on the basis of margins for similarly low default businesses, such as Transpower (0.9%) and Housing New Zealand (1%).

Lally (2004) makes two points relevant for our purposes:

- He considers the debt premiums for the airfields and electricity lines businesses as "being at the low end of the range for this parameter, in recognition of levels of operating risk that almost precluded bankruptcy."
- This variable is not particularly important, as the sensitivity of the tax-adjusted version of the CAPM (as used here) to the debt premium, is modest.

Based on the current share price and most recent interim report (December 2005), AIAL's current market leverage remains in the vicinity of 25%. With this in mind, along with the comments of Lally (2001), WRAL has adopted a leverage ratio for WRAL of 25%. It is noted that the impact on WACC of adopting a leverage ratio that is 5% higher or lower is less than 0.05%. It should also be noted that the market leverage of AIAL reflects the significant intangible assets they hold with respect to 'non-aeronautical' activities. Hence it could be argued that the leverage for the aeronautical activities of WRAL alone may warrant a higher leverage ratio.

In respect of the debt premium, it would seem reasonable in light of the first bullet point above and the relative size and exposure to GNP shocks (as discussed below in section 2.4.7) of the two airports, that a higher debt risk premium should apply to WRAL relative to AIAL (which has a debt premium of 1%).

Lally (2005) adopted a debt risk premium of 1.2% for electricity lines businesses and Lally (2004) also adopted 1.2% for gas pipelines. On balance, it would seem reasonable that the WRAL debt risk premium should be higher than these two estimates also. In light of the fact that this parameter has a limited impact on the WACC derived, WRAL believes a conservative increase to 1.25% is warranted.

5.3 The Market Risk Premium

Significant complications exist with establishing the appropriate market risk premium, as described in detail in Lally (2001). For our purposes the following is relevant:

- The most widely used approach is to observe historic returns and average the market risk premium over a large number of years.
- After considering all of the limitations of the evidence, Lally (2001) preferred an estimate of 8% (within a range of 7%-9%).

However, in the 2004 and 2005 papers, Lally adopts a rate of 7% (within a band of 6% to 8%).

The latest PricewaterhouseCoopers Cost of Capital Report, puts the New Zealand market risk premium at 7.5% and this is also the number adopted by Ernst & Young in its valuations. Given this WRAL has decided to use 7.5% in light of the fact it is supported by the most recent New Zealand evidence. It also falls mid-way between the rate originally adopted for airports and the rate more recently adopted for other monopoly businesses (in the form of electricity lines companies and gas pipeline businesses).

It should be noted that the latest Pricewaterhouse Coopers Cost of Capital report puts the New Zealand market risk premium at 7.5% and this is also the number adopted by Ernst & Young in its valuations. Therefore, HIA should use 7.5%.

5.4 The Asset Beta

The asset beta is the most significant component of the WACC formula, both because it has the largest impact on WACC and because there is a lack of quality market evidence available.

Lally (2001) identifies the key driver of an entities asset beta as its sensitivity to real GNP (Gross National Product) shocks. He then lists nine factors that govern the sensitivity of equity returns to GNP shocks, of which six appear most relevant to airfields. I will discuss these in turn below:

5.4.1 Industry

Firms producing necessities should have lower sensitivity to real GNP shocks (and hence a lower beta) than firms producing luxuries.

5.4.2 Duration of contract prices with suppliers and customers

Lally (2001) suggests that the presence of long term price agreements with customers can serve to increase or decrease beta depending on the direction of any GNP shock. For example, if the price of an output (landing charges) is fixed for a period and demand rises, the firm is prevented from raising its price (and participating in upside), so its beta is reduced. However, if a cost shock occurs and the output price is fixed a firm is also prevented from raising its price and this increases risk, so the firm beta should be higher.

5.4.3 Presence of a Price or Rate of Return Regulation

Firms with regulated rates of return should have lower sensitivity (and so lower beta) to real GNP shocks because the regulatory process is geared towards earning a fair rate of return.

5.4.4 Operating Leverage

With respect to airports, Lally suggests that their high operating leverage (high fixed cost ratio) should magnify their betas.

5.4.5 Capital Structure

Lally (2001) states that firm leverage matters only in relation to market leverage. Thus, ceteris paribus, firms in different markets that have different leverages will have different betas.

5.4.6 Lally's Conclusions

Lally provides a great deal of commentary on the merits and weaknesses of the evidence provided by the various parties representing airfields and airlines. Some of the comparables suggested were:

- AIAL
- Foreign Airports

- Ports
- A combination of US electric utilities and airlines
- Electricity and gas companies

Lally considers two benchmarks worth noting:

- US and UK firms engaged in electricity generation and/or distribution which are subject to rate of return regulation designed to almost guarantee their rate of return. After correcting for leverage Lally suggests these companies have a beta of 0.36. Lally suggests this should represent the lower bound.
- The asset beta of an average New Zealand firm of 0.81. Lally suggests this should be the upper bound.

Lally then considers the relative differences between airports and the US and UK electricity firms with respect to sensitivity to GNP shocks and settles on a beta of 0.5 (with bounds of 0.40 to 0.60) for AIAL, CIAL and WIAL.

Lally also notes that these conclusions assume airports are in a de facto price cap situation i.e. that prices do not adjust within the cycle and are adjusted at the end of the cycle to fully reflect forecast costs and volumes. In the past WRAL has not reviewed its landing charges with any regularity, in so far as this continues WRAL bears greater risk and therefore a higher asset beta would be warranted.

5.4.7 Hamilton Airport Considerations

To date there has been no formal research on the appropriate WACC (or asset betas) for provincial airports and how these may differ from those of international hub airports. However, there would appear to be some critical differences that one might expect to lead to a higher asset beta:

- WRAL has relatively more domestic demand and so is more exposed to real GNP shocks.
- WRAL is likely to have relatively more leisure demand and so may be more exposed to GNP shocks.
- Hamilton Airport (as a largely provincial airport) has higher operating leverage and as a result will be more exposed to real GNP shocks.
- AIAL and CIAL operate on a three year review cycle, we have assumed a five year review cycle for WRAL (required to estimate the risk free rate). A longer price setting cycle exposes WRAL more to GNP shocks.
- Lally (2001) suggests that to the extent airports do not seek to adjust prices at the end of the cycle then they should have higher asset betas. History indicates WRAL do not review landing charges frequently, hence a higher asset beta may be warranted.

These issues would appear significant and all suggest that the asset beta of WRAL could in fact be appreciably higher than that of the international hub airports. However, the quantum of this difference is difficult to determine.

As a starting point WRAL believes that 0.6 (the upper bound for international hub airports) be adopted as the lower bound because it is clearly more exposed to GNP shocks, for the reasons discussed above.

Like Lally (2001), WRAL believes that the average New Zealand Asset Beta of 0.81 be used to represent the upper bound when considering an appropriate WACC because a 'regulated' provincial airport still represents a below average risk proposition. Lally (2001) then goes on to use UK and US electricity firm evidence to provide a more accurate estimate for the international airport hubs of 0.4-0.6. The band width of 0.2 is in recognition of the uncertainty that exists with such estimates. Using a lower bound of 0.6 for WRAL (based on the differences between a provincial and international airport) and an upper bound of 0.8 (based on the 'average' New Zealand firm) results in a band of 0.2. It would then seem to suggest greater accuracy than is the case, if we were to shrink this band. Hence, WRAL believes a range of 0.6-0.8 for the asset beta is appropriate.

5.5 Conclusion on WACC

To summarise the following variables in arriving at an after tax WACC of between 8.7% and 10.2% for Hamilton Airport (with a point estimate of 9.5%):

Risk Free Rate (subject to change)	5.97%
The Debt Premium	1.25%
Leverage Ratio	25%
The Market Risk Premium	7.5%
Asset Beta	0.6-0.8

Indirect Cost Allocations

Step 1 **Allocation of Support to Support**	**Corp Services** **$**	**Finance Admin** **$**	**Bus Develop** **$**	**Ops** **$**	**Vehicles** **$**	**Under Ground** **$**
Corporate Support		27.5%	17.5%			
Finance Admin						
Business Development						
Operations					7.5%	
Vehicles						
Underground						
Total	0.0%	27.5%	17.5%	0.0%	7.5%	0.0%
Method	Spec	Spec	Spec	Spec	Spec	Spec
Step 2 - Allocation to Service Areas	**Corp Services** **$**	**Finance Admin** **$**	**Bus Develop** **$**	**Ops** **$**	**Vehicles** **$**	**Under Ground** **$**
Car park	Direct Cost	Direct Cost	Direct Cost	10.0%	10.0%	Direct Cost
Specified Term Activities - International	Direct Cost	Direct Cost	Direct Cost	3.5%		Direct Cost
Airfield One	Direct Cost	Direct Cost	Direct Cost	70.0%	57.5%	Direct Cost
Airfield Two	Direct Cost	Direct Cost	Direct Cost	7.5%	25.0%	Direct Cost
Aircraft Storage	Direct Cost	Direct Cost	Direct Cost	1.5%		Direct Cost
Property management - Terminal	Direct Cost	Direct Cost	Direct Cost	7.5%	7.5%	Direct Cost
Property management - Other	Direct Cost	Direct Cost	Direct Cost			Direct Cost
Total				**100.0%**	**100.0%**	
Method	Dir	Dir	Dir	Spec	Spec	Dir