

**Expert Report by John Vessey
on the Commerce Commission's
Preliminary Views on Historic
Cost and Replacement Cost**

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On behalf of Wellington International Airport Limited

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1 Introduction

1.1 My name is John Vessey. I am a Principal Consultant in the Wellington office of Opus International Consultants Limited (“Opus”). I specialise in asset management. Opus is a multidisciplinary engineering, architecture and planning consultancy firm. I have been employed by Opus for 32 years, and have been a principal at the firm for 10 years. I have a Bachelor of Civil Engineering degree from the University of Auckland and a Bachelor of Arts in Economics from Victoria University of Wellington. I am a Registered Engineer and a member of the Institute of Professional Engineers of New Zealand. I have been a member of the Institute for 26 years. I am also a member of the Association of Consulting Engineers New Zealand.

My work experience has been mainly project evaluation, cost benefit analysis and asset management in general. For the last 10 years I have specialised in the valuation of infrastructure assets. Specific experience includes:

- Development and implementation of standardised procedures for valuation of the State Highway network (\$13 billion) and project management of the annual revaluations carried out each year since 1991.
- Valuation of infrastructure assets (including roads, water supply, sewerage and stormwater systems) for more than twenty local authorities.
- Valuation of all civil works assets for Port Taranaki (Westgate), Ports of Auckland and for CentrePort (Wellington) and peer review for the wharf valuation for the Port of Tauranga.
- Valuation of civil works assets for Auckland, Wellington, Christchurch and Dunedin Airports.
- I have peer reviewed the civil works and buildings valuations (AUD\$2Billion) for Sydney Airport for the Australian Competition and Consumer Commission (ACCC) and I am currently undertaking the valuation of the civil works assets for Perth International Airport for the Westralia Airports Corporation.

1.2 Wellington International Airport Limited (WIAL) has asked me to offer my opinion on the Commerce Commission’s draft report on its price control study of airfield activities of Auckland, Wellington and Christchurch International Airports. In particular my comments focus on the areas of part 7 of that report that relate to civil works and depreciation. My views are detailed below.

Chapter 7 of the Commission’s report deals with the methods used by the airports for valuing assets employed in providing airport activities. The Commission’s preliminary view is that:

- Non-specialised assets (eg land, buildings, vehicles) should be valued at opportunity cost (based on comparable sales and market evidence).

- Specialised assets (eg runways, taxiways and aprons) should be valued at historic cost.
- Depreciable assets should be depreciated at a rate which reflects their remaining life.
- Assets not “used or useful” should be optimised out.
- Investment in new capacity should only be included when assets become “used and useful”.
- Other costs such as financial charges and holding costs (net of revenue) can be included up to a cap of opportunity cost.

I have considered the appropriateness of the Commission’s proposed application of these valuation principles in the context of pricing airport services. My views are as follows:

2 Valuation of Non Specialised Assets (eg Land)

2.1 Non-specialised assets by definition are those which are traded and whose value is fairly reflected by market prices. From an economic perspective, the Commission’s proposal to value non-specialised assets at their opportunity cost (ie highest alternative use value) is appropriate. The Commission’s inference that all land be defined as non-specialised and valued at opportunity cost, is not appropriate.

Fair value should always reflect the highest and best use. This is not always opportunity cost. In some circumstances, the existing use is the highest and best use and the value should reflect this. Where fair value cannot be reliably determine using market-based evidence, Valuation and Financial Reporting Standards guidance is that a cost based approach is appropriate.

Wellington airport’s land falls into this category. Existing use of the land as an airport has a higher value than for alternative use and it should be valued accordingly. The original land area was not large enough and unsuitable for intended use as an airport. The options were to develop at an alternative site or to create an additional land area at the existing site. Despite the created land at the existing site being significantly more costly (on a \$/ha basis) than alternative use values, the overall economics favoured development of the existing site. In other words, the existing site represents the optimised arrangement. Under this circumstance, the created land area must have a value at least equal to the cost to create it.

Thus to recognise fair value, the land asset must be considered as two separate components; the original land area is valued at opportunity cost (ie at market value rates) while the created land area is valued at creation cost (ie cut and fill earthworks, plus any civil works required for retaining or protecting the asset).

- 2.2** The question has been raised, ‘why then is the reclaimed area of Wellington CBD valued at opportunity cost (market value) rather than by the cost of the civil works of reclamation?’ This is because market value reflects existing use, which is highest and best use.

3 Valuation of Specialised Assets

- 3.1** Specialised assets by definition lack market evidence of their value and have to rely on a costing basis for this purpose. The Commerce Commission considers two approaches, historic cost and replacement cost.

There are two aspects to this issue:

- (i) historic cost (HC) vs inflated historic cost (IHC) and
- (ii) historic cost vs replacement cost (RC).

- 3.2** Firstly, the question of historic versus inflated dollars. In theory, whether HC or IHC is used is immaterial as the financial / economic impact should be neutral provided the appropriate interest rate is used. The present value of a stream of uninflated depreciation payment using a net interest rate is identical to the present value of inflated depreciation payments discounted at a nominal interest rate. There are some complications where the input components are subject to different rates of inflation (eg fuel costs may be inflating at a faster rate than other inputs).

Standard practice in New Zealand (and overseas) is for assets to be re-valued to current costs. Given that either method can be used, it would seem sensible to continue with the status quo ie current dollars (or inflated costs).

- 3.3** Regarding the question of HC versus RC, the Commission has provided an extensive tabulation of pros and cons for both methods, concluding that “ODRC does not have any clear advantages over HC” and proceeds to recommend that HC be used. Copies of the research material used in assessing the use of historic cost were made available by the Commission. It was of particular interest to find that in all the supplied material, there was for all intents and purposes, unanimous support for the use of a current cost approach and an equally unanimous rejection of the historic cost approach.

While HC may reflect value to the owner at the moment it is acquired, it will only exceptionally do so at any other point in its life. Also, it fails to meet any of the normally accepted criteria required for an accounting model.

It would appear that the Commissions main reason for choosing the HC approach is that the ODRC approach includes an element of pre financing which they consider to be inappropriate – “today’s acquirers of airfield activities should only bear today’s costs”.

In arriving at this conclusion, the Commission appears to have overlooked a very important consideration. For specialised assets that are expected to be sustained in the medium to long term, it is important from an economics perspective, that asset prices reflect the true impact of their use and consumption. In other words, for prices to be efficient, they cannot be based solely on sunk costs but must also take account of the impact current consumption will impose on future users. The concept is based on the theory of “depletion” economics. The price of a finite (non renewable) resource progressively increases towards the cost of alternative resources or substitute technologies, as it nears depletion. The same principle applies here. For current users to act efficiently, the consequences of their behaviour must be reflected in the price. If the cost of renewal and replacement required to sustain the ongoing use of the facility are materially different from current costs, then these must be taken into account in setting the efficient price for the use of those assets. In theory, the value of the asset should progressively change from its initial (historic cost) to its replacement cost over the life of the asset. Value is determined on the basis of remaining life until replacement and the pattern of use over its life.

Assuming constant use, the economically efficient cost (EEC) is given by:

$$EEC = IHC + (RC - IHC) \frac{\text{age}}{\text{life}}$$

For example, say the historic cost of a depreciable asset was \$20M (in inflated dollars) and its replacement with a modern equivalent asset is \$40M. The asset is 35 years old and expected to survive a further 15 years until replacement (ie 50 year life). The value appropriate for pricing purposes is given by:

$$20 + (40 - 20) \times 35/50 = 20 + 14 = \$34M.$$

Depreciated value is given by EEC x Remaining Life/Life = 34 x 15/50 = \$10.2M

(DHC = 20 x 15/50 = \$6M and DRC = 40 x 15/50 = \$12M)

These results are summarised below:

Method	Value	Depreciated Value
IHC	\$20M	\$6M
EEC	\$34M	\$10.2M
RC	\$40M	\$12M

Note: This simplistic approach is appropriate for accounting purposes ie matches the straight line depreciation approach. The economists version would be slightly modified to take account of the time value of money ie age/life would be replaced by $(1+i)^{-RL}$ where i is the discount rate and RL is the remaining life in years.

Under what circumstances would the replacement cost of an asset be materially different from its (inflated) historic cost?

- When the original asset is constructed in an open, unrestricted site (greenfields development) while its replacement will occur in a multiuse congested environment (brownfields development).
- When there is a difference in the scale of construction between the original creation and replacement.
- When there are significant changes in demand or technology over the life of the asset (optimisation consideration).

4 Depreciation

4.1 The principle that depreciable assets should be depreciated to reflect remaining life is by and large unanimously accepted and applied. However, the Commission's statement that the "ACCC's position is that assets that do not need to be replaced should have depreciation allowances reduced to zero" is incorrect. In the work I undertook for ACCC on the valuation of Sydney Airport infrastructure, ACCC accepted my recommendation for a minimum depreciation of 1% be made for non-deteriorating long life assets to reflect the risk of technological obsolescence in the long term. Hence they agreed to a 1% depreciation for the lower layers of pavement (sub-base) and foundation soil (sub-grade).

5 Optimisation

5.1 Optimisation seeks to minimise the overall costs of service provision. It must take account of full life cycle costs and their incidence between the various stakeholders. The process involves trade offs between upfront capital and ongoing operating and maintenance expenditure, ie current vs future costs. For example, increased upfront construction costs may be justifiably incurred to significantly lessen the difficulties and costs of future expansions. While these additional costs are not required for current use, they can be classified as 'useful' as they minimise (in net present cost terms), the overall costs.

The Commission contends that these costs should be optimised out. For example land held for future development of Auckland Airport's second runway has been removed from the valuation. Yet by pre-purchasing that land, the investors seek to minimise the lifecycle costs of service provision. The Commission contends that it is not fair to charge current users for costs incurred for the provision of future services. However, there has to be some incentive for investors to incur these costs if they achieve overall reductions in net present cost terms.

Current users may well be reaping the benefits (cost savings) resulting from early investment paid for by past users. Perhaps it is fair that they share in the

pre-financing for future use incurred in the quest for optimisation. In other words, it is fair that the price they pay for current use contains an element of costs incurred ahead of time to minimise the overall cost of ongoing operation (particularly as many of the current users are also likely to be future users).

6 New Investment and Financing

6.1 The preceding comments relate to the element of pre-financing that is incurred in minimising overall costs. There is also an element of pre-financing incurred because of the lumpiness associated with infrastructure development ie capacity issues. There is always some degree of surplus capacity to allow for growth in future demand. Capacity also reflects the historical development of the existing business, the time lag in asset planning and construction, the very long lives of infrastructure assets and the replacement of components in the normal course of business. As a facility expands and changes, some degree of sub-optimality, at any point of time, is inevitable and should be considered as part of the cost of total output.

There is an industry acceptance of the inevitability and commercial wisdom of providing a capacity margin for growth. There is however variance of opinion between airlines and airport companies as to the appropriate size of development increments. Because the development increments for most infrastructure assets are generally sizeable investments, the timing and size of investment should seek to minimise overall costs. The onus must be with the airport companies to demonstrate this and to seek agreement with the airlines, rather than for the Commission to set arbitrary restrictions on the window for pre-financing this investment.

7. Implication for Wellington Airport

7.1 The cost of creating the land platform for Wellington airport's runway, is considerably higher than the opportunity cost of that land. The current valuation is based on market value for the land with the costly sea protection works subsumed in this value. The current method therefore fails to recognise that the created land has an existing use value that is higher than that reflected in the market value for alternative use. If the current site is accepted as optimal then the value of the created land is more appropriately reflected by the civil works costs associated with its construction. Also, there would be no cap on the financial charges and holding costs for the specialised component of the land cost. The proposed cap is likely to reduce the current valuation.

7.2 Historic Cost vs Replacement Cost

There is unlikely to be significant variances between IHC and RC valuation for Wellington Airport. Because of the age of Wellington Airport infrastructure, many of its original component assets have already been replaced. Hence the historic costs for some assets already reflect brownfields costs. Also, decreasing costs arising from technological improvements and increasing productivity, tend to counter the higher

replacement costs for any of the latent / remaining Greenfield components of airport infrastructure.

Consequently, the currently assessed replacement cost valuation is unlikely to be materially different from the inflated historic cost. It should also be remembered, that reliable and accurate historic cost information for long life infrastructure is not readily available which will lead to more reliance on replacement cost information.

7.3 Depreciation

The current valuation allows for depreciation of the sub-base material. The Commission's proposal would reduce this to zero. I feel there is a case for depreciating non-deteriorating long life assets to account for technological obsolescence.

7.4 Work in Progress (WIP)

If WIP is linked to achievement of an optimised asset, then the WIP should be included for pricing purposes. Including these would increase the value of the Airport asset base.

8 Questions

Commerce Commission has posed a series of questions at the end of Chapter 7 of their draft report. My brief responses to these questions are:

- 8.1** The costs associated with converting the base land into an airport should be included as improvements rather than subsumed with the land value.
- 8.2** Airfield land originally purchased as land (ie the original land form), should be valued at opportunity cost. However, where size and use requirements dictate the creation of land, the higher existing use value of that land needs to be recognised by inclusion of the creation cost (ie created land should be treated as a specialised asset).
- 8.3** The opportunity value of land is the market value of that land assuming the current use is not there. It is appropriate that the value is capped at this price (ie it is inclusive of financial charges and holding costs). The value for the created land should reflect the full creation costs (ie construction costs plus all other direct costs such as professional fees and financial charges).
- 8.4** It is not efficient to value specialised airfield assets at depreciated historic cost. Prices should be set at levels which provide appropriate signals to users, of the economic and financial impact of their use of those assets and provides incentive for them to act efficiently. Prices should be based on the economically efficient value of the assets (ie between depreciated historic cost and depreciated replacement cost). Where historic costs cannot be readily or reliably assessed, then depreciated replacement cost should be used.

- 8.5** The Commission's proposal for optimisation overlooks the important trade off between current and future costs in minimising overall costs.
- 8.6** The Commission's views on when new investment should be recognised in the asset base removes the incentive to minimise overall costs.
- 8.7** Based on the preceding advice and discussion I consider that the Commissions calculated asset values for the airfield activities of AIAL, WIAL and CIAL are therefore not appropriate.