Appendix G

Auckland International Airport:
2011 Valuation of Reclaimed Land & Seawalls, Runway, Taxiways & Aprons and Infrastructure Assets.

Final Valuation Report

Auckland Airport

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2011 Valuation of Reclaimed Land & Seawalls, Runway, Taxiways & Aprons and Infrastructure Assets.

Final Valuation Report

for Auckland International Airports Limited

Prepared By

John Vessey
Technical Principal: Asset Valuation

Opus International Consultants Limited
Wellington Office
Level 9, Majestic Centre
100 Willis Street, PO Box 12-003
Wellington, New Zealand

Telephone: +64 4 471 7000
Facsimile: +64 4 471 1397

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APPENDICES

EXECUTIVE SUMMARY

Opus International Consultants Limited (Opus) has undertaken a valuation of the specialised assets owned by Auckland International Airport Limited (AIAL). The valuation has been undertaken in accordance with AIAL's Asset Valuation Handbook 2011.

The valuation complies with the New Zealand Institute of Chartered Accountants (NZICA) Financial Reporting Standard NZ IAS 16 and the relevant Property Institute of New Zealand (PINZ) Valuation Standards.

The specialised assets covered by this report include:

1. Reclaimed land and seawalls
2. Runway, taxiways and aprons
3. Infrastructure assets

The valuation has been undertaken using an optimised depreciated replacement costs methodology. Valuation results include optimised replacement cost (ORC) and optimised depreciated replacement cost (ODRC). The valuations have an effective date of 30th June 2011 and have been prepared for financial reporting purposes.

The 2011 valuations are tabulated below, subdivided into the three subcategories identified above. Also tabulated are the March 2011 book values (BV) and the 2006 valuations for comparison.

***Table 1**: Reclaimed Land & Seawall Valuation ($)*

Summary Description	Optimised Replacement Cost	Optimised Depreciated Replacement Cost
2011 Value	$157,881,000	$153,803,000
Book Value (March 2011)		$134,474,000
Diff = 2011 Value – 2011 Book Value		$19,329,000
2006 Value	$149,945,000	$146,213,000
Difference = 2011 Value – 2006 Value	$7,936,000	$7,590,000

The replacement cost valuation of the reclaimed land and seawalls has been included in order to assess the fair value for these assets. The increase in the ORC valuation reflects rising construction costs. These values are included in the land valuation assessment prepared by Colliers.

***Table 2**: Runway, Taxiways & Aprons Valuation ($)*

Summary Description	Optimised Replacement Cost	Optimised Depreciated Replacement Cost
2011 Value	$484,059,000	$274,496,000
Book Value (March 2011)		$217,452,000
Diff = 2011 Value – 2011 Book Value		$57,044,000
2006 Value	$376,309,000	$228,734,000
Difference = 2011 Value – 2006 Value	$107,750,000	$45,762,000

The value of the runway, taxiways and apron assets has increased by $45M since the 2006 valuation. The main components of the change in the ODRC value are increases from CAPEX (approximately $27M) and a rise in construction prices (approximately $46M). An allowance for residual value in the subbase material underlying the concrete slabs has increased the value by approximately $20M. Depreciation of $48M has partially offset the overall increase.

***Table 3:** Infrastructure Valuation ($)*

Summary Description	Optimised Replacement Cost	Optimised Depreciated Replacement Cost
2011 Value	$453,680,000	$275,541,000
Book Value (March 2011)		$217,561,000
Diff = 2011 Value – 2011 Book Value		$57,980,000
2006 Value	$296,282,000	$195,358,000
Difference = 2011 Value – 2006 Value	$157,398,000	$80,183,000

The value of the infrastructure assets has increased significantly since the previous valuation in 2006; $157M increase in ORC and $80M in ODRC. The principle contributors to these increases are:

- Capital expenditure. ($80M)
- Rising construction costs. ($40M)
- Assets "found" since the previous valuation ($10M)
- These rises are partially offset by depreciation

1 Introduction

1.1 Scope

Opus International Consultants Limited (Opus) has been engaged by Auckland International Airport Limited (AIAL) to establish the fair value of its civil works assets. The assets valued are summarised in Table 4 below.

***Table 4**: Specialised Assets*

Asset Type	Asset Description
Reclaimed Land & Seawalls	All sea protection works and earthworks to create the western reclamation. The valuation also includes an allowance for the cost to re-grass the non-paved areas.
Runway, Taxiways and Aprons	Runway, taxiways and aprons including shoulders plus other paved hardstand areas.
Infrastructure - Roads	Includes the carriageway, kerbs & drainage associated with the road – both airside and landside.
Infrastructure - Footpaths	Segregated footpaths as well as footpaths attached to the carriageway are included.
Infrastructure - Structures	Bridges, gantries, fences, gates, walkway and free standing canopies, walls.
Infrastructure - Lighting	All lighting associated with the carriageways, footpaths, car parks as well as all airside lighting on runways/taxiways and aprons, plus aircraft guidance systems
Infrastructure - Signage	All signs both airside and landside including posts.
Infrastructure - Utility Services	Water, storm water, sewerage, electrical, gas, fibre optic systems
Infrastructure - Miscellaneous	Boat ramps, ducting

Except for the reclaimed areas, the cost of grass cover and landscaping have not been valued as they are assumed to be subsumed in the land valuation provided by Colliers.

1.2 Objective

The objective of this valuation is to assess the fair value of AIAL's specialised assets and has been prepared for financial reporting purposes.

The valuations have an effective date of 30th June 2011.

1.3 Valuation Outputs

This report describes the valuation methodology including a full explanation of the assumptions made and input parameters used in the valuation process. Key outputs from the valuation are:

- The type and quantity of assets included in the valuation.

- A summary of unit cost rates and service lives used in the asset valuation.
- The gross replacement cost and depreciated replacement cost, by asset type.
- An indication of the assessed accuracy of the valuation.
- A comparison with the previous valuation (2006).

The detailed asset listings provided to Auckland Airport match the summary values documented in the report and are complete. Care has been taken to ensure that each asset has been included only once.

1.4 Report Structure

This report has been structured to address the key valuation issues.

Section 2	defines the basis of the valuation.
Section 3	outlines the valuation process, including: • development of the valuation inventory • replacement cost assessment • consideration of optimisation • depreciation assessment
Section 4	describes the reclaimed land and seawall assets and provides the valuation details.
Section 5	describes the runway, taxiway and apron assets and provides the valuation details.
Section 6	describes the infrastructure assets and provides the valuation details.
Section 7	presents the valuation results and assessed accuracy.
Section 8	provides a comparison between the 2011 and 2006 valuations.

Valuation spreadsheets and supporting documentation are included as appendices.

2 Basis of Valuation

2.1 Methodologies

The valuation has been performed in accordance with the terms of reference and specific instructions contained in AIAL's Asset Valuation Handbook 2011. Specifically the valuation has been undertaken in accordance with Financial Reporting Standard NZ IAS 16 "Accounting for Property, Plant and Equipment" and PINZ Valuation Guidance Note 1 "Valuation for use in New Zealand Financial Statements".

AIAL's assets incorporate a combination of specialised and market assets and therefore different methodologies are required for individual asset classes.

AIAL's assets are grouped into 5 main classes:

- Land
- Runway, taxiways and aprons
- Infrastructure
- Buildings
- Plant, machinery and equipment

The infrastructure assets covered by this report include:

1. Reclaimed land and seawalls
2. Runway, taxiways and aprons
3. Infrastructure assets

These assets are categorised as specialised assets, and have been valued on an Optimised Depreciated Replacement Cost (ODRC) basis. Valuation results include optimised replacement cost (ORC) and optimised depreciated replacement cost (ODRC).

2.2 Business Units

The first level of asset grouping used for the asset valuation was in accordance with AIAL's business units. These are:

- Airfield
- Roadways

- Utility Services (water, stormwater including airfield drainage, sewerage, electricity, gas, ducts)
- International Terminal Building
- Domestic Terminal
- Other buildings

A full listing of business unit numbers is provided in Appendix A.

3 Valuation Methodology

3.1 Valuation Process

The specialised infrastructure assets have been valued on an ODRC basis. The process involves four main steps. These are:

1. Development of an asset inventory (description and quantity of assets).
2. Adjustment to reflect any relevant optimisation.
3. Estimation of the current replacement cost.
4. Depreciation to reflect remaining life expectancy.

3.2 Asset Inventory

3.2.1 General Format

The valuation schedules have been developed using a Microsoft EXCEL database, with separate spreadsheets for each asset group. The file includes a summary sheet as well as look up tables for multi-use asset data such as unit costs, asset lives, residual values etc. Spreadsheets contain three main sections:

1. Asset identification and description.
2. The valuation parameters.
3. Valuation outputs.

3.2.2 Asset Identification & Description

The column fields are:

Business Unit	- inventory number to identify geographical precinct.
Asset Class	- classification number to identify component level.
Component	- component/sub-component of the parent asset group.
Description	- asset description.

3.2.3 Valuation Parameters

The column fields are:

Material	- material composition of the asset e.g. concrete, asphalt.
Quantity	- measurement of asset e.g. length, thickness, diameter.
Units	- unit of measurement.
Date	-date that the current asset was constructed/supplied.

Age	- current age of the asset.
Condition	- asset condition (if known or observed).
TUL	- total useful life of asset.
RL	- remaining life.
RV	- residual value at the end of asset life.

3.2.4 Valuation Outputs

The column fields are:

ORC	- optimised replacement cost.
ODRC	- optimised depreciated replacement cost.

3.2.5 Data Sources

The data and information used for this valuation were collected from:

- Liaison and discussion with AIAL officers and their engineering consultants.
- Plans, drawings, reports, aerial photographs and other available technical documents.
- AIAL's Fixed Asset Register (FAR).
- AIAL's Geographic Information System (ERSI based GIS system)
- AIAL's Asset Information Management System (AIMS). (AIMS is AIAL's previous data system now replaced by ERSI)
- Field observations by the Opus team.
- AIAL's capital expenditure forecasts.

A new ESRI based GIS system was implemented at Auckland Airport in December 2010. This replaced the previous AIMS system. The GIS system records location of many assets along with details on asset type, age, size, etc.

CAPEX costs are allocated on a proportional basis to as-built objects for each job to produce a spreadsheet that is then uploaded into the JDEdwards software package (JDE). This spreadsheet contains all costing information associated with each asset as well as the attribute information uniquely identified within JDE.

The GIS describes the object and JDE holds all the costs associated with that object. The GIS ID number provides a unique identifier which is used to link both systems. Assets can be located, either directly using GIS tools or over the web via a browser interface. Relevant data about each asset can be displayed along with its location.

3.2.6 Validation

Where appropriate and possible we have verified information and documentation provided by AIAL. Data validation based on sampling was carried out along with visual assessments to verify the completeness and accuracy of information. This involved scaling areas/dimensions off plans and drawings and field inspections to ensure that location, category and description were appropriately coded and that the listed quantities are realistic. Field measurements were made where practical. Checklists were developed to facilitate the task and to improve the likelihood that the majority of assets are captured in the valuation. Adequacy of the information was reviewed including consideration of level of certainty/reliability. Data gaps were identified and substitute inputs derived for use in the valuation where information was missing or uncertain.

3.2.7 Information Management

Information management was considered to be a crucial aspect of the valuation process. The source of information and management of data used in developing the valuation was thoroughly assessed to ensure the robustness of the valuation schedules. All sources of information have been identified, documented and reviewed to ensure that assets and components have been correctly accounted for and appropriately valued.

3.3 Replacement Costs

Replacement costs were calculated by applying unit cost rates to the identified quantity of assets, with allowance for other costs such as site establishment, professional fees and financial charges.

3.3.1 Unit Costs

The unit costs were derived using construction cost information from a variety of sources. These included:

- Recent local competitively tendered construction works.
- Published cost information.
- Cost rates derived from recent reconstruction of runway, taxiway and apron assets.
- Opus' database of costing information and experience of typical industry rates.
- Discussions with Rawlinson's quantity surveyors and cost estimators.

Assets lacking recent cost evidence have had to rely on price indexing to update historical cost information to current values.

3.3.2 Allowance for Other Costs

In addition to the construction cost, the gross replacement cost includes an allowance for other costs such as development fees and charges. These include:

a) Professional fees for planning, investigation, design and implementation.

b) AIAL costs for staff involved in asset development

c) Preliminary & General costs including site establishment/de-establishment, contractor set-up costs for plant and equipment, offices and sheds, fences, temporary services, insurance etc).

d) Additional airside costs from security requirements and work restrictions

e) Financial charges (costs of financing development costs through to the completion of construction).

The financial charge is limited to the debt servicing cost and has been calculated using the following assumptions:

- Interest rate for Debt is 7%
- Annual inflation rate of 2.2%
- D/[D + E] of 36.6%

The loading applied to the valuation to allow for these other costs has a material impact on the overall value. Each 1% change in this allowance results in a circa $10M change in the total replacement cost value of the reclaimed land & seawalls, runway, taxiways & aprons and infrastructure assets.

These allowances are expressed as a percentage (%) of the construction cost. The amount can vary depending on the scale of the project and the duration of construction. Details of the allowance assumed for each asset group are included in Appendix B.

Where renewal of assets involves a degree of demolition of the previous asset, the costs of that demolition /removal is capitalised into the cost of the replacement asset.

3.4 Optimisation

There are three accepted requirements for the optimisation of infrastructure assets.

(a) It must represent the lowest cost of replacing the economic benefits embodied in an existing asset.

(b) All vestiges of over-design, excess capacity (over and above that necessary for expected short term growth) and redundancy must be eliminated.

(c) Optimisation is limited to the extent that it can occur in the normal course of business and uses commercially available technology.

The latter criterion is often called brownfield optimisation which recognises the incremental nature of infrastructure growth. Excess capacity and over-design are eliminated but the historic layout of the assets is retained. This reflects the normal process going forward where elements of the asset may be resized or reconfigured when they are replaced, but essentially the existing layout is retained.

In addition to the above requirements, there are 2 additional concepts that are often associated with optimisation.

(i) The hypothetical new entrant test.

(ii) Prudence.

The first infers that an optimised asset must reflect what a hypothetical new entrant would construct if replicating the existing service (assuming the existing facility didn't already exist). The second point requires that the optimised arrangement should reflect the actions of a prudent asset owner.

Current value of an asset should reflect the price a prudent market operator would be prepared to pay to purchase the assets. The prudent investors would not pay for any inherent inefficiency and would accordingly base their price on an optimised arrangement which replicates equivalent service at least cost. The optimised value of the infrastructure assets is calculated based on the cost of their replacement by modern equivalent assets, adjusted to eliminate over-design, surplus capacity and redundancy or obsolescence, less any appropriate allowances for depreciation. In other words it measures the minimum cost of replacing the services embodied in the assets in the most efficient way given the particular service requirements, and the age and condition of the existing assets.

A key element of the process is in deciding an appropriate level of optimisation. Greenfield optimisation reflects the least cost to design and build an entirely new facility regardless of the historical constraints that may have applied. In practice, a green field replacement cannot occur in the normal course of business. Consequently optimisation of large-scale infrastructure, such as an airport, is generally considered in the context of incremental brownfield development, which assumes progressive development that matches the incremental growth that would occur in normal circumstances. Under-utilised assets are replaced by assets of lower capacity and redundant assets are removed, but the historical configuration of the assets is retained. This approach recognises that there is always some degree of sub-optimality and allowance for growth in future demand. It also reflects the historical development of the existing business, the time lag in asset planning and construction, the very long lives of these assets and the replacement of components in the normal course of business. As the facility expands and changes, a degree of sub-optimality at any point of time is inevitable and part of the cost of total output.

An incremental brownfield optimisation process has been assumed for this valuation. This optimisation process minimises the cost of replacing the services offered by AIAL, given the age and condition of the existing assets and recognising the incremental process (brownfield) associated with airport development. Costs have been assessed to reflect the replacement of current assets with modern equivalents, an optimised construction sequence and adjustment to allow for the difficulties associated with a "brownfield" environment. Where appropriate, adjustments have been made to eliminate surplus assets, obsolescence and over design.

The question of optimality of location or the impacts of site reconfiguration were considered to be outside the scope of this study, and have been assumed optimal for the purpose of this valuation.

3.5 Depreciation

3.5.1 Depreciation Profile

Depreciation is an accounting mechanism for the return of capital invested in depreciable assets. The depreciation profile is generally set to reflect the wearing out of the asset and match the pattern of benefits generated by its use. The key variables that determine the depreciation amount are the initial capital cost, the total useful life of the asset (TUL), its residual value at the end of that life (RV) and the number of years of remaining life expected for that asset (RL).

Straight-line depreciation is generally accepted as suitable for the valuation of civil works assets. The straight line profile reflects a uniform (constant) level of benefits from the assets as they wear out. In the absence of any definitive evidence that benefit growth is materially non-linear, a straight-line approach has been adopted for this valuation.

3.5.2 Asset Age

Where possible, information was obtained on the construction dates for the assets or asset components. Sources included AIAL's asset inventory, the capital expenditure programme and discussion with AIAL staff. Judgement was used during site inspections to reconcile the recorded age information with that apparent from observation.

3.5.3 Asset Life

The economic life of an asset is the period of time beyond which it is more economic to replace rather than to continue to repair or maintain. The economic life varies for each asset. These have been calculated in accordance with the NZIAMM guidelines and then further modified if local knowledge and experience suggests this is appropriate.

The process involves assigning a standard total useful life (TUL) to each asset (component, sub-component). An initial assessment of remaining life (RL) is then calculated as the difference between adjusted physical life and age of the asset (ie. RL = TUL – age). Adjustments were also made to asset remaining life to take into account any other overriding factors that are likely to influence a particular assets life expectancy. Examples could include known changes in technology or regulations that may prematurely make an asset obsolete. Other information sources such as the forward maintenance/replacement programme or the airport development strategy may indicate early replacement or retirement of individual assets. The expected total useful life (TUL) is then given by the sum of expected remaining life and asset age (TUL = RL + age).

Where the age of an asset approaches the total useful life for that asset, a default minimum remaining life is assigned to ensure a realistic TUL.

3.5.4 Residual Value

Where appropriate, assets are assigned residual values to reflect their reuse value at the end of their useful lives. Where an existing asset must be demolished and removed to enable the replacement asset to be constructed, its current book value is reduced to zero. (It is important that AIAL's accounting ledger is adjusted accordingly.) The cost of demolition and removal is regarded as part of the cost of replacement and included in the value of the replacement asset. For example say an existing fence with a current book value of $100 is demolished at a cost of $45 and replaced with a new fence for a cost of $500. The current book value of this asset is now $545 (i.e. $100 - $100 + $45 + $500).

3.5.5 Capital Works Vs Operating Expense

Consideration has also been given to whether asset replacements are funded as capital works or as an operating expense. Capital funded assets are subject to a depreciation charge while work funded from an operating budget is not. This distinction is important to avoid double counting.

3.6 Valuation Confidence Rating

Confidence ratings have been assigned to the source data with respect to quantities, unit cost rates, remaining lives and total life expectancies. These ratings were confirmed as part of the asset inspection process. The grading system used to rate confidence levels is summarised in the table below.

Table 5: *Confidence Rating System*

Grade	Label	Description	Accuracy
A	Accurate	Data based on reliable documents	± 10%
B	Minor inaccuracies	Data based on some supporting documentation	± 20%
C	Significant data estimated	Data based on local knowledge	± 30%
D	All data estimated	Data based on best guess of experienced person	± 40%

Accuracy levels have all been assessed on a consistent basis for all infrastructure assets. The approach taken is illustrated in the following table.

Table 6: *Application of Confidence Ratings*

Asset	Quantity	Unit Costs	Life/Rem Life	ODRC
XXXXXXX	A, B, C or D	A, B, C or D	A, B, C or D	A, B, C or D

Asset value (ODRC) is calculated by multiplying asset quantity by unit costs and proportioned by the ratio of remaining life/total useful life. The accuracy of the resulting asset value depends on the accuracy of each of the input variables. For example while the quantity and cost may be known accurately (A) the asset value accuracy (B) may be compromised by a lack of information about asset condition and asset age data (C).

3.7 Work In Progress (WIP)

The valuation is based on a download of AIAL's asset register at mid-May 2011. It is understood that AIAL will make separate provision for the period mid-May 2011 to 30th June 2011, including WIP at cost, net of any disposals.

3.8 Key Assumptions

This revaluation is subject to a number of assumptions. For the purpose of clarity these assumptions are detailed below:

- All assets included in this revaluation are based on asset details recorded in AIALs asset databases. Verification has been limited to visual inspection of a limited sample of preselected assets.

- Where there were gaps in the supplied data the following options were used to fill these gaps, in the order listed below:
  - Making use of all available relevant information within the supplied datasets and going through comments supplied in the datasets (where available)
  - Using the 2006 valuation information to fill in the gaps
  - Assuming nominal dimensions for missing data, especially in cases where book values indicated the existence of asset but due to missing quantity information the standard valuation formulae resulted in zero values. Therefore for some assets such as sewer pipes and ducting for communication networks nominal lengths of 50m and 10m were assumed respectively to enable allowing a nominal values for those assets.
  - Using book value information where most of the key information (including dimensions, quantities, year of construction) was missing. In such cases, we assumed ODRC as being the book value, and the assets were assumed to be halfway through their normal useful lives.
  - In general, where construction/installation dates were unavailable, depreciated values were based on by assuming that the asset is halfway through its useful life.

- Unit costs have been derived from a number of sources including construction costs from recent capital works at the airport and locally (Auckland), from Opus' cost library, published information (e.g. Rawlinsons Handbook) and from indexed historic cost information.

- Add-on allowances for professional fees, AIAL costs, finance charges and extra costs of working airside are based on actual costs for major capital works at Auckland Airport and other NZ airports.

- Asset lives are based on industry averages for each asset group, adjusted where appropriate to match local conditions. The remaining lives for the previous valuation were adjusted by factors to reflect age, condition and performance of assets. Considering the condition and performance factors were largely unavailable, and there is a shift away from applying the age factor formulae, we have not applied these correction factors to the 2011 analysis. Instead we have calculated remaining life by subtracting the asset age from the expected useful life of the asset. Where age exceeds the expected useful life, a nominal minimum remaining life varying from 2 to 10 years (approximately 10% of Total Useful Life) has been assigned to the asset.

- The valuation assumes that there is unabated ongoing demand for airport services. Assets that physically deteriorate and are expected to eventually need replacement are depreciated on a straight line basis. Assets that do not deteriorate physically are assumed to remain undepreciated. No allowance is made for economic obsolescence of these assets.

- The valuation of earth works for pavement foundations have been minimised to account for the reduced quantities and economies of construction when built in conjunction with the reclamation of the runway land. If land is to be valued on an alternative basis (eg existing flat land site) then additional pavement foundation costs will need to be included in the civil works valuation.

Specific Assumptions

- The quantity of data supplied for SIGNS was only about 10% of the quantity used for the 2006 valuation. Therefore, we used the 2006 data for this valuation by applying the 2011 cost rates and overhead cost factors.

- Pavement thicknesses were based on either comments in the database (where available) or by using the 2006 data for pavements. Where none of the two sources of information were available, we assumed default thickness of pavement

4 Reclaimed Land & Seawalls

4.1 Valuation of Reclaimed Land

The fair value of the reclaimed land at Auckland Airport can justifiably be determined by the replacement cost of the civil works carried out to create that land. The circumstance that justifies this approach is that market evidence of land values relates to uses that are suboptimal relative to the airport use this land was created for.

NZ IAS 16 provides clear support for the use of this approach for the exact same circumstances that are present at Auckland Airport. "An airport company acquires a section of seabed, fills it in and builds a seawall in order to produce flat land for airport use. The reclaimed land is in the precise location where the airport company requires the land. Market evidence may exist for other land of the same size and in the same general vicinity as the reclaimed land, but that other land is not suitable for airport use. Thus the market evidence on the fair value of that other land is not relevant to the reclaimed land, and the best indicator of the fair value of the reclaimed land is the replacement cost of that land."

The key condition for this to be applicable is "that the other land is not suitable for the use intended by the entity". In other words, the created land must represent the optimal location and size for the intended airport use. This is indeed the case for Auckland Airport. The original siting study undertaken for the airport, investigated a myriad of size, location and orientation options and identified the current site as the best option. Reclamation was shown to be necessary to attain the necessary clearances and conditions that would permit the 24 hour per day operation of the airport. The details of that assessment are presented in the Leigh Fisher Associates Report (1959).

Accordingly, land areas at Auckland Airport that were constructed by a process of reclamation, have been valued in terms of their replacement cost.

4.2 Seawalls

4.2.1 General Description

The seawall assets are subdivided into 6 separate segments to reflect their different locations and construction history. The current seawalls were designed with a metre thick layer of rock facing (rock of 600mm diameter) and another metre of good quality underlying granular material. The rock facing slopes at 1 Vertical to 2 Horizontal (1V:2H) for the upper portion of the wall. Additional thickness of rock is provided below the Mean High Water level reducing the slope to 1V:3H for that portion of the wall.

4.2.2 Optimisation

For the modern equivalent asset a reduced thickness of underlayer has been assumed with a geotextile filter cloth to prevent the loss of fine material has been added. Also the increased thickening at the base has been omitted but allowances made for an appropriately sized foundation pad. Allowance has also been made for 10% loss of material during construction. The overall impact of optimisation is a moderate reduction in material quantities.

The height of the wall has been estimated from plan information (showing seabed and tidal levels) and anecdotal evidence. The replacement cost assumes a variable height from 4m up to 7m with a weighted average of around 5.5m.

4.2.3 Allowance for Other Costs

Allowances have been made for other costs such as professional fees for investigation, design and construction supervision (16%), preliminary and general costs (10%), AIAL costs (2%) and financial costs (6%). The latter is based on an assumed construction programme that has the seawall construction occurring approximately 4 years ahead of the airport becoming operational. (The original runway reclamation took 5 years to complete.) The total on-cost allowance for the seawalls is 38%. The basis for the % allowances is detailed in appendix B.

4.2.4 Depreciation

Depreciation has been limited to the rock facing component. It has been assumed that this would have a life of 120 years, reaching a steady state after 60 years with maintenance renewal offsetting deterioration from that point. No depreciation has been made for the remaining components which are assumed to be non-deteriorating.

4.3 Reclaimed Land

4.3.1 General Description

A total area of reclaimed land of 133.59 hectares (ha) has been included in the valuation.

4.3.2 Optimisation

The original reclamation was constructed with full depth better quality fill being placed and compacted under the length and breadth of the runway and taxiway. From an optimisation perspective it is important that the value of this work is not double counted. A check was carried out to confirm that pavement thicknesses accorded with the foundation strength provided by this fill. Also, in assessing quantity of fill material, account has been taken of the reduced depth under the paved areas.

4.3.3 Quantities and Unit Costs

The fill for the reclamation has been priced assuming it is locally sourced from a combination of surplus material cut to waste during the construction of the airport formation platform and pumped material from the adjacent estuary. To minimise subsequent settlement problems, the airfield reclamation is assumed to be constructed in stages to enable preloading to be carried out. An allowance of 10% has been assumed for the excavation and disposal of underlying material of poor quality. Seabed depths have been estimated and allowed for in calculating the volume of fill.

Allowances have been made for the better quality material placed beneath the runway and taxiway during its original construction and for the re-grassing of the non-paved areas.

4.3.4 Allowance for Other Costs

A construction programme of 3 years has been assumed to provide sufficient time for preloading of the foundations. Financial costs of 4% have been included along with allowances for professional fees and preliminary & general costs. The total on-cost allowance for reclamation is 35%. The basis for the % allowances is detailed in appendix B.

4.3.5 Depreciation

It is assumed that the demand for the current use of the land (airport runway) is perpetual. As the reclaimed land does not deteriorate, zero depreciation has been assumed accordingly.

5 Runway, Taxiways and Aprons (RTA)

5.1 General Description

5.1.1 Runway

Auckland Airport currently has 1 designated runway; (05R/23L). The runway is 3635m long and 45 m wide of concrete slab construction. This runway is near new with the original 350mm slabs having being progressively replaced by 500mm slabs over the last decade. The runway has runway extension safety areas (RESA) at each end. There are over 21,500 concrete slabs in the RTA pavement area, of which approximately 4,400 are in the main runway, covering an area in excess of 15 hectares.

15m width of asphaltic concrete (AC) shoulders flank the runway. These have been widened by an additional 7.5m either side to accommodate the extra wing span of the new Airbus 380 aircraft.

5.1.2 Taxiways

There are 2 designated taxiways, with the main taxiway also doubling as a runway when needed (such as during rehabilitation of the main runway). The primary taxiway comprises over 2,500 concrete slabs and covers an area in excess of 9 hectares. Taxiway "bravo' is the second taxiway and covers a total area of 6 hectares comprised of just under 1,800 slabs.

5.1.3 Stubways

There are a total of 32 stubways connecting the aforementioned runways and taxiways. These stubways are comprised of approximately 5,500 concrete slabs.

5.1.4 Aprons

There are two designated aprons of varied composition, size, age and surface material, covering an area in excess of 25 hectares. The aprons accommodate 18 airbridges (12 International and 6 Domestic) and remote stands for 28 aircraft.

The 12 international airbridges consist of single airbridges at gates 1–10 and twin airbridges at gates 15 and 16 in the new pier extension for wide-body aircraft and capable of handling A380 aircraft with simultaneous double-deck boarding.

Gates 4A, 4B, 4C, 4D and 5A are bus transportation gates.

At the domestic terminal, Jetstar domestic services operate from gates 20 and 21 (airbridge) and Air New Zealand mainline services operate from gates 29-33 (airbridges). The regional propeller aircraft operate at the eastern end. These gates are linked by covered walkways to the terminal, and passengers access the aircraft by walking across the apron.

5.1.5 Engine Runs

Engine runs where aircraft engines are tested by running them on the ground are located at the western end of the standby runway.

5.2 Pavement Assets

Pavement assets have been separated into three components for valuation purposes: subgrade formation, basecourse and surface layer. The subgrade formation is the engineered platform upon which the pavement is constructed. It includes allowance for:

- Clearing the site
- Profiling (cut and fill earthworks)
- Removal and replacement of unsuitable material
- Proof rolling and compaction of the subgrade materials
- Flank regrading and grassing

It has been assumed that the subgrade formation would be constructed during the cut and fill operation that accompanied the reclamation work. Consequently the cost of this formation is largely included in the reclamation cost. A nominal allowance has been included for final preparation of the subgrade surface prior to pavement construction.

The basecourse layer is composed of compacted rock aggregates that protect the underlying soil foundations from deformation and generally provides the load bearing capacity. For thicker pavements economies can be achieved by placing lower quality aggregate (sub-base) beneath the higher quality crushed rock aggregates. The unit cost rates have been derived on this basis.

The surface layer serves to spread the vertical loads, resist lateral loads, provide weatherproof protection to the underlying pavement layers and generally keep the surface free of loose debris. There are two basic types of pavement surface used at Auckland International Airport. These are:

- concrete
- asphaltic concrete

Concrete is the predominant pavement surface. It is the most economic material for airport pavement given the 24hour operation of the airfield and the low foundation strength of the underlying mudflats upon which a large portion of the airfield was constructed. Concrete is used in the apron areas where there is likelihood of fuel spillage from parked aircraft (aviation fuel tends to soften and damage bitumen based materials).

5.3 Optimisation

Optimisation considerations for pavement assets include:

(i) the quantity of asset (ie area of pavement)

(ii) The design of the pavement (thickness of pavement)

(iii) Type of material (i.e. asphalt or concrete)

No adjustments are considered necessary to pavement area (ie length x width). Similarly the current design thicknesses are appropriate for the level of demand loading. Concrete pavement has a long life (> 40years) and must therefore be designed to cope with expected load increases over that period. This would imply that the new runway slabs must have excess capacity with respect to current demand in order to cope with inevitable increases in demand over the life of the slabs. This is not the case. The new 500mm thick slabs are already at full design capacity for some aircraft. Hence no adjustment of pavement thickness is considered necessary.

Consideration has also been given to optimisation of pavement type (ie asphalt vs concrete). Despite having a higher capital cost than an asphalt alternative, concrete slabs are the optimal surface type for the airport's RTAs when full life cycle considerations are taken into account. Auckland Airport is a 24 hour per day operation, and runway closure would result in significant financial impact. The concrete alternative significantly reduces the risk of closure and results in lower life cycle costs for maintenance and from operational disruption.

The decision to reconstruct the main runway with concrete slabs was supported by in depth analysis of options which showed that concrete was the optimal alternative. This decision making process included consultation with the airlines as different alternatives not only impacted on pricing but had different impacts in terms of aircraft operation both during the replacement and with future maintenance and renewal.

Consideration was also given to optimisation of the main taxiway. The taxiway underwent significant upgrade so it could be used as a temporary runway while the main runway is being reconstructed. The question that arises is – should this enhancement be included in the taxiway value? From a hypothetical new entrant test and from a used and useful perspective, it might be argued that once the reconstruction of the runway is complete, the enhancement is no longer necessary, at least for the medium term and hence should be optimised out. However, AIAL has advised that the enhancement remains an integral part of their operating regime and as such should not be optimised out. Equally from a prudence perspective, the enhancement was a necessary adjunct to the runway replacement. Consequently it would be inappropriate to penalise AIAL for acting in a prudent way. Accordingly we have included the taxiway enhancement in the optimised replacement cost value.

5.4 Quantities

5.4.1 Areas

RTA pavement area information comes from the AIMS system (non-concrete slabs) and an independent database (supplied by AIAL) for the concrete slabs.

5.4.2 Thickness

To support international class aircraft such as the Boeing 747 "Jumbo" jet or the new Airbus 380s, a pavement thickness of more than one metre is required for the typical foundations present at Auckland Airport. Thickness of the concrete slabs or asphalt surface layer must take into account the forecast wheel loading demand over its expected life. For heavy-duty AC pavements a structural thickness of 150mm is generally required to meet these minimum requirements (50mm is often used for lightly trafficked areas like shoulders).

Pavement thicknesses have been advised by AIAL, and indicate that:

- For flexible pavements, the thickness adopted for the optimised valuation of the flexible pavements is either 1000mm of granular material with a 150mm asphalt wearing course or actual pavement thickness, whichever is the lesser.
- For rigid concrete slabs, which are much thicker than the more flexible asphaltic concrete surface layers, a much lesser thickness of basecourse material (generally 500-700mm for recent rehabilitation works) is utilised.
- Concrete slabs were originally 350mm thick. For the past 10 years all replacement slabs are 500mm.

5.5 Cost Rates for Pavements

The unit costs used for valuing the pavement assets are based on costs from current construction contracts including the runway reconstruction at the airport and from other major projects in the Auckland Region (general road costs). In addition to the standard allowances for professional fees and finance charges an increase of 15% has been applied to airside construction to account for the extra costs associated with the increased security and work constraints. The total on-cost allowance for airside pavements is 48%. The basis for the % allowances is detailed in appendix B.

There are a number of haul roads constructed for the runway reconstruction. The cost of these roads has been included in the replacement cost of the runway.

5.6 Pavement Life

Pavement deterioration occurs from a combination of loading and environmental effects. Loading is the predominant determinant of total life for concrete pavements. Based on pavement design and expected loadings, a life of 40 to 50 years has been assumed. (Many of the original 350mm slabs (1964) that are lightly loaded are still in operation today.) Life expectancy for AC pavements has been set at 15 years.

While the AIAL pavement database provides a condition rating for the concrete slabs, it has been observed that there is only limited correlation between this rating and the need to perform repairs or undertake slab replacement. Slabs are assigned fixed lives and remaining lives are calculated by subtracting asset age from these fixed lives. A default minimum life is assigned to recognise residual life of slabs that have reached or exceeded this average life.

The asset inspection identified that the taxiway leading to the Air NZ hangar is very tired due to heavy demand on its use. The middle slabs have been assigned a 1-2 year remaining life accordingly. The inspection also identified an area of poor condition of old slab pavement where the A380 turns. This has been taken into account in the remaining life assessment for these slabs. An area of slabs in the main runway constructed on the 1985 reclamation has a history of slab failures. This has been taken into account in assigning slab lives in this location.

5.7 Residual Value

Little re-use or salvage value is expected to be made of the airfield pavement assets. There is however a cost associated with demolition and removal. This is more significant for the concrete pavements. These costs have been included in the replacement cost of the new asset. Also taken into account is the reuse of the old concrete slabs which are crushed and reused as road pavement aggregate, thereby reducing the overall demolition and disposal cost.

5.8 Valuation Parameters

The values assumed for each pavement component are summarised in the following table:

***Table 7**: Pavement Parameter Assumptions for Runway, Taxiways and Aprons*

Component	Thickness (mm)	Unit Cost	Base Life (yr)	Residual Value (%RC)
Concrete slabs	As advised by AIAL	$725/m³	40yrs	0%
Asphalt Surfacing	As advised by AIAL	$600/m³	20yrs	0%
Basecourse – AP40	As advised by AIAL	$130/m³	40	0%
Subbase – GAP65 (AC Surface)	As advised by AIAL	$105/m³	100	0%
Subbase – GAP65 (Concrete)	As advised by AIAL	$105/m³	40	80%
Subgrade	N/A	$4.20/m²	Indefinite	100

Unit costs exclude the on-cost allowance

6 Infrastructure Assets

6.1 Roads

6.1.1 Description

The main road network is situated within the airports Domestic and the International environs, although the airfield perimeter road does have a significant length to it. In general the roads are constructed of crushed rock basecourse with an AC surface. The two main access roads from the connecting state highway system are George Bolt Memorial Drive (the northern access) and Puhinui Rd (the eastern access). Much of the landside road network is relatively new, constructed in recent times as the airport has developed.

6.1.2 Optimisation

All main access roads are two lane dual carriageways, and are considered optimal for the current traffic demand.

The remaining roads are service roads of suitable capacity to service the present needs of the airlines, the airport management and tenants.

6.1.3 Quantities

Areas and Thickness

Pavement area information comes from AIAL's AIMS system. For each unique AIMS number, both the classification of the area and the type and thickness of materials are provided.

Where layer thicknesses were not available (a small number of line items), then values based on similar assets elsewhere in AIAL's portfolio were adopted.

6.1.4 Cost Rates for Pavements

The unit costs used for valuing the pavement assets are based on construction costs from recent construction work. Allowances have been made for other costs such as professional fees for investigation, design and construction supervision (12%), preliminary and general costs (10%), AIAL costs (2%), financial costs (0.4%) and for airside infrastructure an additional 15%. The total on-cost allowance for infrastructure assets is 26% for landside assets and 47% for airside infrastructure. The basis for the % allowances is detailed in appendix B.

6.1.5 Pavement Life

Pavement deterioration occurs from a combination of loading and environmental effects. Loading is the predominant determinant of total life for concrete pavements. Based on pavement design, expected loadings and site reconfiguration, a life of 40 years has been assumed. Life expectancy for AC pavements has been set at 15 years for roads.

6.1.6 Residual Value

No salvage value or reuse is expected from these pavement assets.

6.1.7 Valuation Parameters

The values assumed for each pavement component are summarised in the following table:

Table 8: *Road Pavement Parameters*

Component	Thickness (mm)	Unit Cost	Base Life (yr)	Residual Value (%RC)
Asphalt Surface	25-250	$60/m^2$ for 100mm depth	15	0
Basecourse – AP40	100-180	$130/m^3$	40	0
Basecourse – GAP65	100-500	$105/m^3$	100	0
Subgrade – roads	-	$15/m^2$	-	100
Subgrade - other	-	$4.20/m^2$	-	100

Unit costs exclude financial cost factor

Condition

Assessment of road condition was limited to what could be observed from a drive-over inspection. Most roads appeared to be in good condition. The specific exceptions to the good condition noted were:

- Tom Pearce Drive and Ray Emery Drive, from Western extreme to the roundabout is in bad shape and is not expected to last much longer.
- Ogilvie Crescent has a lot of surface cracking
- Geoffrey Roberts Rd has some surface cracking

6.2 Main Services

6.2.1 Water Supply System

General Description

The water reticulation system has been divided into three broad categories - mains, supply and irrigation pipes. Water is distributed via water mains to various supply and irrigation pipes throughout the airport site. AIAL database records include pipe diameters, lengths, material types and year of construction. Drawings show the extent of the water reticulation network.

Water is stored in two reinforced concrete tank reservoirs (2265 & 950m^3). Four water bores also provide a non-potable water supply for emergency or maintenance purposes. Other water related infrastructure includes valves, hydrants and water meters.

Optimisation

The valuation is based on UPVC or HDPE replacement pipes for diameters less than 225mm and ductile iron (DI) or concrete lined mild steel (CLMS) pipes for larger diameters. Given the current usage and projected growth of the airport site, it is unlikely that any major water reticulation components are over capacity.

Condition

The water reticulation system is in the main buried and was not inspected during the site visit. Consequently the condition of this asset is unknown.

6.2.2 Sewerage System

General Description

The airport sewerage system comprises gravity and rising mains linked together by pumping stations and manholes. Wastewater is delivered to the main pumping station connecting into the SW interceptor pipe owned by Watercare.

Optimisation

The valuation is based on UPVC or HDPE replacement pipes for diameters less than 225mm and Reinforced Concrete Rubber Ring Jointed (RCRRJ) pipes for larger diameters. Given the current usage and projected growth of the airport site, it is unlikely that any major wastewater components are currently over designed. Any component that was classified as redundant was not excluded from the valuation.

Condition

No components of the sewer system were inspected during recent site visits.

6.2.3 Drainage/Stormwater System

General Description

The drainage system has been constructed between 1965 and the present day. AIAL's database records include pipe diameters, lengths, material types and year of construction. Drawings show the extent of the stormwater network and details of the main stormwater components. The drainage system consists of slot drains, sumps (cesspits), stormwater pipes, manholes, outlet structures, oil interceptors, ponds and spillways.

The water generated from the airside and roadside areas of the airports are distributed to six stormwater ponds located at eastern and western ends of the airport and various outlet structures along the southern boundary of the runway. Oil interceptors separate oil from the water at the pond inlets while the ponds themselves minimise sediment discharge to Manukau Harbour and Pukaki Creek.

Optimisation

The stormwater system has been valued based on the existing layout. The valuation is based on UPVC or HDPE replacement pipes for diameters less than 225mm and RCRRJ pipes for larger diameters. Given the projected growth of the airport site, paved surface areas will increase significantly in the future. Therefore it is unlikely that any major stormwater components are over designed.

Condition

The only components of the stormwater network system that were inspected during a recent site visit were the ponds and outfall structures. The observed assets were in good condition.

6.2.4 Power Distribution System

General description

AIAL's power distribution system takes its supply from the local supply authority at 33kV at the intake power centre. The voltage is stepped down to 11kV and distributed to approximately 30 power centres throughout the airport in underground ducts. Low voltage supply is derived from 11kV/400V transformers at the power centres. The low voltage distribution network is linked together by underground ducts and Montrose boxes.

Optimisation

The electrical distribution system is of a conventional design for a urban/industrial area. No sections appear to be under utilised or over-sized. Consequently the existing system has been accepted as optimal.

Condition

The electrical systems are in good condition as they are mainly located underground or housed within power centres. The Montrose boxes observed on site were in good condition. The AIAL electrical database contains condition ratings for the majority of the electrical ducts. The rating is classified as "good" for 90% of the ducts.

6.2.5 Fuel and Gas Distribution Network

General description

The AIAL fuel distribution network includes underground pipes, hydrants, valves, underground tanks and fuel high/low points. The underground fuel network distributes jet fuel from the Joint User Hydrant Installation (JUHI) to the airside.

The gas network includes pipes and valves on the eastern side of the airport. The majority of the gas network on the airport site is owned by the gas utility company and has not been included in the valuation.

Optimisation

The underground fuel network has been valued based on the existing layout. Given the projected growth in plane number, it is unlikely the fuel network is over designed. Consequently the existing network has been accepted as optimal.

Condition

The fuel systems are maintained to a high standard given the hazardous nature of the material. The AIAL fuel database contains a condition assessment rating of "good" for all assets.

6.3 Miscellaneous Assets

6.3.1 Services Ducts

The service ducts included in the valuation are primarily used to convey electrical services and communications across the airport site. Manholes and chambers act as node points linking the ducts together. The ducts are generally 110mm in diameter and constructed of plastic (or concrete under heavy traffic areas). AIAL supplied databases with information on size, length, material type and year of installation.

6.3.2 Fibre Optics

Information on fibre optic cables was taken from a communications spreadsheet supplied by AIAL. The fibre was classified as interior or exterior and included information on length, installation date, number of cores and SM/MM classification.

The spreadsheet did not contain information that could be linked to business units. Therefore the fibre optic cables have been classified under 6500 – Info Tech Systems.

Communication hubs were not included in the valuation.

6.3.3 Fences and Gates

AIAL supplied a database with detailed gate and fencing information including lengths, installation year and fence type. Fence types include security, area fences, farm fences, retaining walls and miscellaneous. The fences around the runway were observed to be generally rusty during a recent site visit, but the level of corrosion was considered normal given the age and proximity to a coastal area.

6.3.4 Signs

Quantities of airside and landside signs were identified from spreadsheets and photographic records supplied by AIAL. Individual cost rates were used for each type taking into account purchase and installation.

6.3.5 Footpath and Pay Machine Canopies

Information on footpath canopies, pay-machine shelters and taxi/coach shelters were taken from car park drawings supplied by AIAL. Information included plan areas and construction dates. The canopies were classified as basic, medium or major ranging from basic roof structures on posts to major canopies constructed with structural steel sections and glass panels. Appropriate unit rates were applied to the plan areas.

6.3.6 Airside Lighting

Lighting masts and runway lighting Navigational aids on the existing Southern runway include runway lights, precision approach path indicators and an instrument landing system.

Details of RTA lights and guidance systems were obtained from a databases provided by AIAL.

6.3.7 Landside Lights

Valuations have been included for car park, yard and street lighting. Databases and photographic information were supplied by AIAL.

6.3.8 Pukaki Road Bridge

The Pukaki road bridge has been valued using as-built drawings supplied by AIAL. The 280m long two lane bridge was constructed in 1995. The bridge also provides support to the Watercare sewer interceptor across Pukaki Creek. Bridge construction rates from recent State Highway valuation were applied to the area of the bridge deck.

6.3.9 Landscaping

No separate allowance has been made for landscaping as its value is assumed already included in the value of the land.

6.3.10 Kerb & Channel

The length of kerb and channel was based on the road lengths they occupied or in the case of car parks it was allocated on an area basis. It is assumed that these assets are on average midway through their lives.

7 Results

7.1 Reclaimed Land & Seawalls

The 2011 valuations of the reclaimed land and seawalls are tabulated below.

***Table 10**: Valuation of Reclaimed Land & Seawalls*

BU No.	BU Description	Component	ORC	ODRC
2000	Airfield	Land	$127,857,000	$127,857,000
2000	Airfield	Seawalls	$30,024,000	$25,946,000
		Total	**$157,881,000**	**$153,803,000**

The confidence ratings are tabulated below for the seawalls and reclamation.

***Table 11**: Confidence Rating for Reclaimed Land & Seawalls*

Business Unit	Quantity	Unit Cost	Life/Rem Life	ODRC
Reclaimed land & seawalls	A-B	B-C	na	B-C

The accuracy rating for the reclaimed land & seawalls is B-C ie around ± 25%.

7.2 Runway, Taxiways & Aprons

The 2011 valuations of the runway, taxiway and apron assets are tabulated below.

***Table 12**: Valuation of Runway, Taxiways & Aprons*

BU No.	BU Description	Component	ORC	ODRC
2000	Airfield	Concrete slabs	$425,590,000	$234,774,000
2000	Airfield	Other pavement	$58,469,000	$39,722,000
		Total	**$484,059,000**	**$274,496,000**

The confidence ratings are tabulated below for the runway, taxiways & aprons.

***Table 13**: Confidence Rating for Runway, Taxiways & Aprons*

Business Unit	Quantity	Unit Cost	Life/Rem Life	ODRC
R'way, T'ways & Aprons	A	B	A-B	A-B

The accuracy rating for the runway, taxiways and aprons is A-B i.e. around ± 15%.

7.3 Infrastructure Assets

The 2011 valuations of infrastructure assets are tabulated below.

***Table 14**: Valuation of Infrastructure Assets*

BU No.	Business Unit Description	ORC	ODRC
2000	AIRFIELD INFRASTRUCTURE	$30,458,000	$12,984,000
2120	LIVESTOCK HANDLING	$247,000	$127,000
2150	RESCUE FIRE ADMIN	$1,095,000	$468,000
2200	RFS TRAINING OUTSIDERS	$409,000	$349,000
2600	CARPARK-ITB PUBLIC CARPARK	$16,089,000	$9,415,000
2610	PARK AND RIDE	$9,580,000	$6,517,000
2810	TSC DEFINED AREA SERVICES	$163,000	$67,000
2930	PSVL (TRANSPORT LICENCE)	$5,188,000	$3,348,000
2960	ITB GENERAL	$966,000	$650,000
3050	CARPARK-STAFF	$7,216,000	$4,557,000
3290	CARPARK-DTB	$2,568,000	$1,060,000
3590	DTB GENERAL	$1,304,000	$651,000
4001	AIR FREIGHT NEW ZEALAND HANGAR	$58,000	$29,000
4002	HANGAR # 6 HART	$109,000	$77,000
4003	AIR NATIONAL HANGAR 5	$54,000	$44,000
4035	ANZ AMENTIES BUILDING	$237,000	$169,000
4080	BULK FUEL (JUHI & WOSL)	$470,000	$161,000
4081	JUHI	$19,723,000	$12,478,000
4095	AIR CARGO 1	$399,000	$59,000
4105	AIR CARGO 4	$824,000	$247,000
4125	NZ POST ILC	$217,000	$206,000
4180	NZ POST HANGAR	$52,000	$37,000
4195	PRI FLIGHT CATERING	$24,000	$16,000
4220	SKYCARE	$8,000	$4,000
4225	AIR FREIGHT NZ CARGO	$72,000	$9,000
4235	AIR NATIONAL HANGAR 2	$145,000	$97,000
4265	MENZIES CARGO(#5) BLDG&LAND	$227,000	$42,000
4275	OTHER LAND USE	$167,000	$26,000
4285	DHL - OFFICE & WAREHOUSE	$459,000	$199,000

BU No.	Business Unit Description	ORC	ODRC
5520	ROADWAYS	$59,053,000	$40,456,000
5580	ELECTRICITY (INCL RETICULATION	$85,215,000	$46,927,000
5600	WATER (INCL RETICULATION,RESE	$26,903,000	$19,062,000
5620	GAS (INCL RETICULATION)	$1,360,000	$771,000
5640	DRAINAGE&STORMWATER	$143,024,000	$101,583,000
6320	MAINTENANCE SERVICES	$404,000	$108,000
6500	IT SYSTEMS	$39,153,000	$12,523,000
6710	CUSTOMER SERVICES	$39,000	$20,000
	TOTAL	**$453,679,000**	**$275,543,000**

The confidence ratings are tabulated below for the infrastructure business units.

***Table 15**: Confidence Ratings for Infrastructure Assets*

Business Unit	Quantity	Unit Cost	Life/Rem Life	ODRC
Roadways	A-B	B	B	B
Utilities	**B**	A-B	B-C	B-C

The weighted average accuracy rating for the infrastructure valuation is B ie ± 20%.

8 Change in Valuation

8.1 Reclaimed Land & Seawalls

The 2006 & 2011 valuations for the reclaimed land & seawalls are tabulated below.

***Table 16:** 2006-2011 Valuation Comparison for Reclamation & Seawalls ($)*

Asset	Replacement Cost	Depreciated Replacement Cost		
		2011	2006	% Increase
Reclaimed land	$127,857,000	$127,857,000	$123,220,000	4%
Seawalls	$30,024,000	$25,946,000	$22,993,000	13%
TOTAL	**$157,881,000**	**$153,803,000**	**$146,213,000**	**5%**

The $8M increase is the net result of the following changes. There has been $35M increase in construction costs between 2006 and 2011 plus a further $6M for the inclusion of fill below the rock protection works. No allowance was made for fill in the 2006 valuation. These increases have been partially offset by $25M reduction in the "on-cost" allowance for seawalls and the reclaimed land. The on-cost in 2006 was 77% and 53% respectively. These have been reduced to 38% and 35% respectively. There has also been a reduction in the assumed area of reclamation .In 2006 the area of reclamation included in the valuation was 141.5ha. This has been reduced to 133.59ha for the 2011 valuation resulting in a further decrease in value of $9M.

8.2 Runway, Taxiways & Aprons (2000)

The change in the value between 2006 and 2011 is tabulated below.

***Table 17**: Change in Valuation of Runway, Taxiways and Aprons*

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
Concrete Slabs	$234,774,000	$202,299,000	$32,475,000	16%
Other Pavement	$39,722,000	$26,435,000	$13,287,000	50%
TOTAL	**$274,496,000**	**$228,734,000**	**$45,762,000**	**20%**

The 2011 ODRC valuation of the airside pavement assets has increased by $45.7M (i.e. 20%). The components of movement are increases of $46M from price movements, $27M of CAPEX and $20M as a result of revising the residual value assumption for subbase. These increases have been partially offset by $48M of depreciation.

8.3 Infrastructure Assets

8.3.1 Change in Valuation Summary

The change in the values of infrastructure assets between 2006 and 2011 for each Business Unit are tabulated below. Note: Some business units assigned infrastructure values for the 2006 valuation have since merged into different business units and hence have been assigned a nil value for 2011.

***Table 18**: Change in Valuation of Infrastructure Assets*

BU No.	Business Unit Description	ORC		ODRC	
		2011	2006	2011	2006
2000	AIRFIELD INFRASTRUCTURE	$30,458,000	$18,648,000	$12,984,000	$9,475,000
2120	LIVESTOCK HANDLING	$247,000	$217,000	$127,000	$125,000
2150	RESCUE FIRE ADMIN	$1,095,000	$1,036,000	$468,000	$488,000

BU No.	Business Unit Description	ORC		ODRC	
		2011	2006	2011	2006
2200	RFS TRAINING OUTSIDERS	$409,000	$0	$349,000	$0
2600	CARPARK-ITB PUBLIC CARPARK	$16,089,000	$4,797,000	$9,415,000	$2,084,000
2610	PARK AND RIDE	$9,580,000	$0	$6,517,000	$0
2810	TSC DEFINED AREA SERVICES	$163,000	$126,000	$67,000	$64,000
2930	PSVL (TRANSPORT LICENCE)	$5,188,000	$1,424,000	$3,348,000	$929,000
2960	ITB GENERAL	$966,000	$3,747,000	$650,000	$2,837,000
3050	CARPARK-STAFF	$7,216,000	$4,481,000	$4,557,000	$3,364,000
3290	CARPARK-DTB	$2,568,000	$3,802,000	$1,060,000	$1,180,000
3590	DTB GENERAL	$1,304,000	$21,000	$651,000	$15,000
4000	AIRPORT FREIGHT CENTRE (AFC)		$1,443,000		$348,000
4001	AIR FREIGHT NZ HANGAR	$58,000	$136,000	$29,000	$107,000
4002	HANGAR # 6 HART	$109,000	$185,000	$77,000	$180,000
4003	AIR NATIONAL HANGAR 5	$54,000	$0	$44,000	$0
4005	INTERNATIONAL JET BASE	$0	$730,000	$0	$666,000
4010	MEDICAL CENTRE#		$30,000		$16,000
4025	AIRWORK HANGAR	$0	$59,000	$0	$33,000
4030	NZ POST DISTRN TOM PEARCE DR		$467,000		$300,000
4035	ANZ AMENTIES BUILDING	$237,000	$0	$169,000	$0
4045	AVIALL BLDG		$8,000		$5,000
4050	AVIATION COUNTRY CLUB		$338,000		$207,000
4055	AVIS SERVICE FACILITY		$450,000		$251,000
4065	BNZ SERVICE BLDG		$556,000		$381,000
4070	BRIDGESTONE/FIRESTONE		$28,000		$23,000
4075	BUDGET RENT-A-CAR FACILITY		$377,000		$118,000
4080	BULK FUEL (JUHI & WOSL)	$470,000	$16,405,000	$161,000	$11,190,000
4081	JUHI	$19,723,000	$0	$12,478,000	$0
4085	BUTTERFLY CREEK		$43,000		$34,000
4090	CALTEX TRUCK STOP LAND		$149,000		$103,000
4095	AIR CARGO 1	$399,000	$539,000	$59,000	$243,000
4100	AIR CARGO BDG 2- DEVON BUILDING		$272,000		$33,000
4105	AIR CARGO 4	$824,000	$655,000	$247,000	$274,000
4110	CHILD CARE CENTRE (ex LHOP)		$10,000		$6,000

BU No.	Business Unit Description	ORC		ODRC	
		2011	2006	2011	2006
4115	NZ COURIERS BLDG (WAS TSB)		$96,000		$49,000
4125	NZ POST ILC	$217,000	$382,000	$206,000	$243,000
4135	GOLF DRIVING RANGE	$0	$110,000	$0	$94,000
4140	CHAIR HOLDINGS LTD	$0	$162,000	$0	$101,000
4145	HERTZ SERVICE FACILITY	$0	$345,000	$0	$191,000
4150	KORU CLUB SERVICE FACILITY	$0	$626,000	$0	$432,000
4155	LE KAR VALET#2	$0	$17,000	$0	$16,000
4165	MANUKAU TOYOTA	$0	$372,000	$0	$277,000
4170	MCDONALDS DRIVE THROUGH	$0	$186,000	$0	$161,000
4175	NZ POST MAIL CENTRE	$0	$722,000	$0	$498,000
4180	NZ POST HANGAR	$52,000	$108,000	$37,000	$72,000
4185	MENZIES AVIATION BUILDING	$0	$118,000	$0	$65,000
4190	PANELBEATER	$0	$73,000	$0	$38,000
4195	PRI FLIGHT CATERING	$24,000	$19,000	$16,000	$15,000
4205	REGENCY WAREHOUSE	$0	$310,000	$0	$189,000
4215	SERVICE STATIONS (2X)	$0	$400,000	$0	$250,000
4220	SKYCARE	$8,000	$7,000	$4,000	$5,000
4225	AIR FREIGHT NZ CARGO	$72,000	$97,000	$9,000	$39,000
4230	SKYWAY PARKING	$0	$169,000	$0	$121,000
4235	AIR NATIONAL HANGAR 2	$145,000	$120,000	$97,000	$88,000
4245	VEHICLE TESTING STATION	$0	$76,000	$0	$61,000
4250	TNT WAREHOUSE	$0	$208,000	$0	$165,000
4255	EXEL NZ DISTRIBUTION CENTRE # 1	$0	$498,000	$0	$402,000
4260	TWIN BUILDING	$0	$30,000	$0	$23,000
4265	MENZIES CARGO(#5) BLDG&LAND	$227,000	$457,000	$42,000	$253,000
4275	OTHER LAND USE	$167,000	$135,000	$26,000	$36,000
4285	DHL - OFFICE & WAREHOUSE	$459,000	$742,000	$199,000	$583,000
4290	ROCKGAS LAND	$0	$26,000	$0	$13,000
4295	FONTERRA OFFICE BUILDING	$0	$121,000	$0	$98,000
4300	AIRPORT SHOPPING CENTRE	$0	$1,207,000	$0	$638,000
4310	FEDEX	$0	$270,000	$0	$224,000
4320	INCINERATOR/DANGEROUS GOODS	$0	$280,000	$0	$121,000

BU No.	Business Unit Description	ORC		ODRC	
		2011	2006	2011	2006
4325	PRIORITY FRESH BLDG	$0	$299,000	$0	$255,000
4330	ACE TOURIST RENTAL FACILITY	$0	$160,000	$0	$133,000
4340	ARF RENTAL CAR FACILITY	$0	$289,000	$0	$246,000
4345	#1 LEONARD ISITT	$0	$182,000	$0	$161,000
4350	KIWIBOND	$0	$559,000	$0	$517,000
4355	UTI BUILDING	$0	$642,000	$0	$578,000
4360	DFS BUILDING	$0	$304,000	$0	$272,000
4365	EXEL NZ DISTRIBUTION CENTRE # 2	$0	$725,000	$0	$671,000
4370	NATIONAL CAR RENTALS	$0	$249,000	$0	$221,000
4375	SUPPLY CHAIN SOLUTIONS	$0	$238,000	$0	$218,000
4380	SUBWAY	$0	$62,000	$0	$50,000
4385	WILSON LOGISTICS	$0	$229,000	$0	$218,000
4390	APEX CAR RENTALS	$0	$293,000	$0	$270,000
4395	BARBER LOGISTICS	$0	$395,000	$0	$362,000
4400	SMALL BLDG/GROUND LEASES	$0	$4,000	$0	$3,000
4405	FLIWAY (MANU TAPU Dr)	$0	$316,000	$0	$231,000
4410	PITSTOP	$0	$35,000	$0	$33,000
4415	J A RUSSELL	$0	$34,000	$0	$33,000
5520	ROADWAYS	$59,053,000	$42,422,000	$40,456,000	$26,532,000
5580	ELECTRICITY (INCL RETICULATION	$85,215,000	$52,528,000	$46,927,000	$31,092,000
5600	WATER (INCL RETICULATION,RESE	$26,903,000	$16,830,000	$19,062,000	$12,297,000
5620	GAS (INCL RETICULATION)	$1,360,000	$858,000	$771,000	$546,000
5640	DRAINAGE&STORMWATER	$143,024,000	$96,936,000	$101,583,000	$72,470,000
6300	ENVIRONMENT MANAGEMENT	$0	$9,000	$0	$7,000
6320	MAINTENANCE SERVICES	$404,000	$474,000	$108,000	$74,000
6330	ENGINEERING INFO CENTRE (EIC)	$0	$5,000	$0	$5,000
6500	IT SYSTEMS	$39,153,000	$11,537,000	$12,523,000	$7,223,000
6710	CUSTOMER SERVICES	$39,000	$0	$20,000	$0
	TOTAL	**$453,679,000**	**$296,282,000**	**$275,543,000**	**$195,358,000**

#1 - Now at Airport Shopping Centre. #2 - Now in Domestic car park building BU

Details of the major changes in value summarised in the table above are presented in the following tables.

8.3.2 Miscellaneous Airfield Infrastructure Assets (2000)

The value of the miscellaneous airfield assets has increased by $1.7M since 2006. The components of this increase are tabulated below.

Table 19: *Increase in ODRC Value of Miscellaneous Airfield Assets (2000)*

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
Navigation Aids & Lights	$8,839,000	$6,626,000	$2,213,000	33%
Gates & Fences	$1,025,000	$1,116,000	-$91,000	-8%
Signs	$1,170,000	$1,733,000	-$562,000	-32%
Pavement Markings	$1,885,000	$1,729,000	$156,000	9%
"Found" Assets	$65,000	$0	$65,000	0%
TOTAL	**$12,984,000**	**$11,204,000**	**$1,781,000**	**16%**

The increase in the value of these assets is in line with the increase in prices over this period. The quantity of gates and fences is approximately 20-30% lower than that used for the 2006 valuation.

8.3.3 Bulk Fuel System (4080)

The valuation of the bulk fuel system has increased by $1.9M, 17% higher than the 2006 value. The components of this increase are tabulated below.

Table 20: *Increase in Value of Bulk Fuel System Assets (4080)*

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
Fuel Pipes	$10,376,000	$9,175,000	$1,201,000	13%
Fuel Hydrants	$417,000	$401,000	$15,000	4%
Fuel High Points	$314,000	$302,000	$11,000	4%
Fuel Low Points	$317,000	$305,000	$12,000	4%
Fuel Valves	$1,008,000	$772,000	$236,000	31%
Fuel Miscellaneous	$547,000	$234,000	$313,000	134%
"Found" Assets	$93,000	$0	$93,000	na
TOTAL	**$13,071,000**	**$11,190,000**	**$1,881,000**	**17%**

The increase in the value of these assets is in line with the increase in prices over this period.

8.3.4 Roadways (5520)

The value of the roadway assets has increased by $13.9M, 52% higher than the 2006 value. The components of this increase are tabulated below.

Table 21: *Increase in Value of Roadway Assets (5520)*

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
Landside Lights	$1,995,000	$2,098,000	-$103,000	-5%
Gates & Fences	$152,000	$77,000	$75,000	97%
Signs	$693,000	$1,471,000	-$778,000	-53%
Roads, footpaths, K & C	$28,974,000	$15,758,000	$13,217,000	84%
Pukaki Road Bridge	$7,615,000	$6,526,000	$1,089,000	17%
Boat Ramps	$631,000	$602,000	$28,000	5%
Canopies	$123,000	$0	$123,000	na
"Found" Assets	$273,000	$0	$273,000	na
TOTAL	**$40,456,000**	**$26,532,000**	**$13,925,000**	**52%**

Landside Pavement Assets (Roads, footpaths and K & C)

The 2011 valuation of the landside pavement assets has increased by $13M (76%). The components of movement are increases of $3M increase from price movements and $10M from capital upgrades and renewals including the north airport development and $4M for K&C (not included in this BU for the 2006 valuation). These have been partially offset by $4M in depreciation.

Other Roadway Assets

Information from the new asset register at AIAL contains less data from the previous database used for the 2006 valuation. This has led to a decrease in the quantity of signs and landside lighting for the 2011 valuation.

8.3.5 Water Reticulation (5600)

The value of the water reticulation assets has increased by $6.7M, 55% higher than the 2006 value. The components of this increase are tabulated below.

Table 22: *Increase in Value of Water Reticulation Assets (5600)*

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
Water Pipes	$11,982,000	$8,936,000	$3,046,000	34%
Water Valve	$1,084,000	$766,000	$318,000	41%
Water Meters	$403,000	$200,000	$203,000	101%
Water Hydrants	$806,000	$660,000	$145,000	22%
Water Bores	$424,000	$400,000	$24,000	6%
Water Miscellaneous	$269,000	$195,000	$74,000	38%
Water Reservoirs/tanks	$1,252,000	$1,137,000	$115,000	10%
Fences & Gates	$0	$1,000	$0	-23%
Pavements	$0	$2,000	-$2,000	-100%
"Found" Assets	$2,842,000	$0	$2,842,000	na
TOTAL	**$19,062,000**	**$12,297,000**	**$6,765,000**	**55%**

There is a $5M increase from price movements, $2.8M from "found" assets and $0.6M from capital works. These have been partially offset by $1.3M in depreciation.

8.3.6 Storm Water Drainage (5640)

The value of the storm water drainage assets has increased by $25.1M, 41% higher than the 2006 value. The components of this increase are tabulated below.

Table 23: *Increase in Value of Storm Water Drainage Assets (5640)*

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
Stormwater Pipes	$69,570,000	$51,720,000	$17,851,000	35%
Stormwater Slot Drains	$2,617,000	$2,341,000	$276,000	12%
Stormwater Manholes	$4,495,000	$3,391,000	$1,104,000	33%
Stormwater Cesspits	$1,555,000	$1,142,000	$412,000	36%
Stormwater Ponds	$4,134,000	$2,072,000	$2,062,000	100%
Stormwater Miscellaneous	$2,119,000	$966,000	$1,154,000	119%
Pavements	$23,000	$0	$23,000	na
"Found" Assets	$2,298,000	$0	$2,298,000	na
TOTAL	**$86,811,000**	**$61,631,000**	**$25,180,000**	**41%**

The components of movement are increases of $13M from price movements, $2.3M from "found" assets and $16M from a 20% increase in the quantity of assets compared to the 2006 schedule. These are partially offset by $6M in depreciation.

8.3.7 Wastewater System (5640)

The value of the wastewater system assets has increased by $3.9M, 36% higher than the 2006 value. The components of this increase are tabulated below.

Table 24: *Increase in Value of Wastewater Assets (5640)*

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
Sewer Pipes	$8,921,000	$7,023,000	$1,897,000	27%
Sewer Manholes	$1,520,000	$1,403,000	$118,000	8%
Pumping Stations	$2,593,000	$2,352,000	$241,000	10%
Sewer Miscellaneous	$226,000	$24,000	$202,000	830%
Sewer Valves	$2,000	$1,000	$1,000	94%
Fences & Gates	$41,000	$23,000	$18,000	77%
Pavements	$0	$14,000	-$14,000	na
"Found" Assets	$1,470,000	$0	$1,470,000	na
TOTAL	**$14,772,000**	**$10,840,000**	**$3,932,000**	**36%**

The components of movement are increases of $2.5M increase from price movements $1.4M from "found" assets and $1M for increase in the quantity of pipes. These have been partially offset by $1M in depreciation.

8.3.8 Electrical Services (5580)

The value of the electrical services assets have increased by $16.4M, 53% higher than the 2006 value. The components of this increase are tabulated below.

Table 25: *Increase in Value of Electrical Services Assets (5580)*

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
11 KV cabling	$7,032,000	$4,225,000	$2,807,000	66%
HV transformers	$3,160,000	$2,493,000	$667,000	27%
Switch gear	$10,790,000	$6,966,000	$3,824,000	55%
Generators	$1,896,000	$506,000	$1,389,000	274%

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
Montrose boxes	$752,000	$548,000	$204,000	37%
400 V cabling > 100amps	$8,187,000	$217,000	$7,970,000	3671%
Electrical Miscellaneous	$55,000	$10,000	$46,000	471%
Chambers/manholes	$2,344,000	$1,247,000	$1,097,000	88%
Other cabling (non 420/425)	$676,000	$9,587,000	-$8,911,000	-93%
Network outside buildings	$2,858,000	$0	$2,858,000	na
Ducting (was 370)	$8,933,000	$5,217,000	$3,716,000	71%
Fences & Gates	$51,000	$15,000	$36,000	251%
Pavement	$142,000	$61,000	$81,000	133%
"Found" Assets	$658,000	$0	$658,000	0%
TOTAL	**$47,534,000**	**$31,092,000**	**$16,442,000**	**53%**

The components of movement are increases of $8M increase from price movements and $13M for new assets. These have been partially offset by $6M in depreciation.

8.3.9 Info Tech Systems (6500)

The value of the communication network assets has increased by $4.3M, 59% higher than the 2006 value. The components of this increase are tabulated below.

Table 26: *Increase in Value of Info Tech System Assets (6500)*

Component	Optimised Depreciated Replacement Cost			
	2011	2006	Difference ($)	Difference (%)
Hubs/switches	$649,000	$0	$649,000	0%
Non-fibre Cable	$313,000	$179,000	$134,000	75%
Fibre Cable	$2,881,000	$2,026,000	$855,000	42%
Comms Miscellaneous	$4,000	$1,005,000	-$1,001,000	-100%
Chambers/Manholes	$2,171,000	$1,005,000	$1,166,000	116%
Camera Poles	$219,000	$85,000	$134,000	159%
Ducting (was 372)	$3,969,000	$3,928,000	$41,000	1%
"Found" Assets	$2,317,000	$0	$2,317,000	na
TOTAL	**$12,523,000**	**$7,223,000**	**$4,295,000**	**59%**

The main components of movement price rises, $2.3M of "found" assets and a 40% increase in the number of manholes in the 2011 register compared to 2006.

8.4 Reasons for Shift in Value

There has been a $98M increase in the value of AIAL' RTA and Infrastructure assets since the previous valuation undertaken in 2006. The components of this variation include:

- Capital expenditure (CAPEX)
- Increasing construction costs
- Depreciation
- Additions, Disposals, Demolition and Adjustments
- Found Assets
- Changes to
    - Allowances for other costs
    - Asset lives
    - Quantity of assets

Each of these is discussed in detail below.

8.4.1 CAPEX

There has been $55M of capital expenditure on RTAs and infrastructure since the previous valuation. The business units benefiting from this expenditure were:

- Airfield $25M
- Roads $20M
- Utilities $10M

8.4.2 Rising Prices.

Rising construction costs have contributor an $85M increase in the 2011 valuation.

Cost Drivers

Growth cycles in economic activity in the construction sector combined with a wide range of local and international factors has resulted in a significant increase in construction costs over the last five years. The major factors contributing to these cost escalations include:

- Legislative changes which increase compliance costs (eg Health & Safety, greenhouse emissions, environmental protection/standards, labour laws etc.)

- Price of oil
- NZ exchange rate
- Increasing commodity prices fuelled by international demand (China)
- Skill shortages
- National and International disasters (earthquakes and floods)
- Financial Crisis

A measure of costs increases over the 5 year period since the previous valuation can be gauged from published cost indices. The increases in a number of relevant cost indices are tabulated below.

Table 26: *Cost Indices*

Time period	Index	% Increase
July 2006 to May 20111	Bitumen Price Index	50%
March 2006 to March 2011	NZTA Bridge Construction Index	22%
March 2006 to March 2011	NZTA Road Construction Index	21%
March 2006 to March 2011	NZTA Reseal Index	32%
March 2006 to March 2011	NZTA Maintenance Index	20%
March 2006 to March 2011	NZTA Professional Services Index	15%
June 2006 to March 2011	Stats NZ CGPI Construction	20%
June 2006 to March 2011	Stats NZ CGPI Transport	19%
June 2006 to March 2011	Stats NZ CGPI Pipelines	24%
June 2006 to March 2011	Stats NZ PPI Construction	23%
June 2006 to March 2011	Stats NZ PPI Labour	13%

Taking into account the increases in the costs indices above, it can be reasonably assumed (conservatively) that there has been a 20% increase in construction costs since the previous valuation in 2006.

8.4.3 Allowance for Other Costs

Allowances made for other costs such as fees & finance charges have changed from those used for the previous valuation. Details of the change are tabulated below.

Table 27: *Change in On-Cost Allowance*

Component	On Cost Allowance 2006	On Cost Allowance 2011	Comment
Prelim & General	7%-8%	10%	
Professional Fees	12%-14%	12%-16%	2011 includes additional for other professional
AIAL Mgmt costs		2%	No allowance was made for this in 2006
Airside Allowance	15%	15%	
Finance	3% - 54%	1% - 6%	2006 = full op cost. 2011 = debt servicing
Total - Seawalls	77%	38%	
Total - Reclaimed Land	53%	35%	
Total – Airside Infra.	49%	47%	
Total – Landside Infra	22%	26%	

These changes to the on-cost allowance have resulted in an overall reduction of $17M (-2.5%) in valuation between 2006 and 2011. The impact on the value of individual asset groups is as follows:

- Seawalls reduce by $6M (22%)
- Reclaimed land reduces $16M (12%)
- RTAs reduce $3M (1%), and
- Infrastructure increases $9M (3%)

8.4.4 Found Assets

In the process of transferring asset information to the new ESRI based GIS system implemented at Auckland Airport in December 2010 a number of assets have been found that were not recorded in the previous AIMS database. The value of these found assets is tabulated below.

Table 28: *Valuation of Found Assets*

BU No.	BU Description	ORC	ODRC
2000	AIRFIELD	$91,356	$65,321
2150	RESCUE FIRE ADMIN	$22,165	$2,477
2600	CARPARK-ITB PUBLIC CARPARK	$10,787	$3,874
2610	PARK AND RIDE	$39,292	$31,433
3050	CARPARK-STAFF	$8,296	$5,422
3290	CARPARK-DTB	$129,820	$33,708
4081	JUHI	$108,187	$92,795
4175	NZ POST MAIL CENTRE	$6,561	$3,937
4255	EXEL NZ DISTRIBUTION CENTRE # 1	$27,105	$18,432
4285	DHL - OFFICE & WAREHOUSE	$19,646	$9,168
4355	UTI BUILDING	$105,770	$88,531
4392	APEX VERISSIMO DRIVE	$1,175	$940
4405	FLIWAY (MANU TAPU Dr)	$13,813	$7,367
5520	ROADWAYS	$352,891	$153,768
5580	ELECTRICITY (INCL RETICULATION	$2,137,214	$658,073
5600	WATER (INCL RETICULATION,RESE	$3,277,453	$2,842,252
5620	GAS (INCL RETICULATION)	$66,571	$58,249
5640	DRAINAGE&STORMWATER	$4,914,337	$3,767,299
6500	IT SYSTEMS	$19,455,195	$2,316,934
	Total	**$30,787,633**	**$10,159,979**

8.4.5 Depreciation

Increased values of RTAs and infrastructure assets have been partially offset by depreciation estimated to be around $70M for the period 2006 to 2011.

8.4.6 Asset Lives

The 2006 valuation set base lives for each asset and then adjusted these for age of the asset. The 2011 valuation uses fixed life expectancies for each asset type. A comparison between the lives assumed for the 2006 valuation and the 2011 valuation has been carried out.

8.4.7 Quantities

The asset data used for the 2011 valuation has been downloaded from AIAL's new ERSI (GIS based) system. The overall comparison of quantities between 2006 and 2011 shows there has been a reasonable transfer of asset data from the previous to the new database. There are a few discrepancies but these have been traced to a rationalisation and redistribution of assets between some business units and cases where 2006 business units have since merged into new business units.

APPENDIX A

AIAL Business Units

BU	Description	BU	Description
2000	AIRFIELD	4220	SKYCARE
2030	NORTHERN RUNWAY	4225	AIR FREIGHT NZ CARGO (HANGAR 4)
2120	LIVESTOCK HANDLING AREA	4230	SKYWAY PARKING
2150	RESCUE FIRE	4235	AIR NATIONAL (HANGAR 2)
2200	RFS TRAINING OUTSIDERS	4245	VEHICLE TESTING STATION
2600	CARPARK-ITB PUBLIC CARPARK	4250	TNT WAREHOUSE
2610	PARK AND RIDE	4255	SPAZIO CASA
2810	TSC DEFINED AREA SERVICES	4260	TWIN BUILDING
2930	PSVL (TRANSPORT LICENCE)	4265	MENZIES CARGO 5
2960	ITB GENERAL	4275	VACANT PPE LAND
3050	CARPARK-STAFF	4277	UNDEVELOPED COMMERCIAL LAND (IP)
3080	CARPARK-LEASED	4285	DHL - WAREHOUSE
3290	CARPARK-DTB	4285	DHL - OFFICE
3590	DTB GENERAL	4290	ROCKGAS
4000	CARGO CENTRAL	4295	FONTERRA OFFICE BUILDING
4001	AIR FREIGHT NZ HANGAR 3	4300	AIRPORT SHOPPING CENTRE
4002	HANGAR # 6 HART	4310	FEDEX
4003	AIR NATIONAL HANGAR 5	4315	ADVENTURE GOLF
4005	AIR NZ INTERNATIONAL JET BASE	4320	WASTE RESOURCES BUILDING
4006	AIR NZ DOMESTIC JET BASE	4325	PRIORITY FRESH
4007	AIR NZ JET BASE EXTENSION	4330	ACE TOURIST RENTAL FACILITY
4015	AIRWAYS CORP EQUIPMENT LAND LE	4340	ARF RENTAL CAR FACILITY
4020	AIRWAYS CORP OPS & TOWER	4345	#1 LEONARD ISITT
4025	AIRWORK HANGAR	4350	4 PERCIVAL GULL PLACE
4030	MENZIES IMPORT CARGO	4355	UTI BUILDING
4035	ANZ AMENTIES BUILDING	4360	DFS BUILDING
4040	AIR NZ CONTAINER PARK	4365	DHL – EXEL #2
4045	~~SAFEWORX~~ AVIALL BLDG	4370	NATIONAL CAR RENTALS
4050	AVIATION COUNTRY CLUB	4375	SUPPLY CHAIN SOLUTIONS
4055	AVIS	4380	SUBWAY
4060	AVSEC HQ (OLD)	4385	WILSON LOGISTICS
4062	AVSEC HQ (NEW)	4390	7 PERCIVAL GULL

BU	Description	BU	Description
4065	BNZ	4392	APEX VERISSIMO DR
4070	BRIDGESTONE/FIRESTONE	4395	BARBER LOGISTICS
4075	~~THRIFTY~~ BUDGET RENT-A-CAR FAC	4400	SMALL BLDG/GROUND LEASES
4080	BULK FUEL (JUHI & WOSL)	4405	FLIWAY
4081	JUHI AVIATION FUEL NETWORK	4410	PITSTOP
4085	BUTTERFLY CREEK	4415	J A RUSSELL
4090	CALTEX TRUCK STOP LAND	4420	NZ VAN LINES
4095	AIR CARGO 1	4425	EXPEDITORS
4100	CARGO 2 (DEVON)	4430	MENZIES GROUND HANDLING LICENC
4105	AIR CARGO 4	4435	AIR CENTRE ONE - FBO
4110	LOLLIPOPS CHILDCARE	4445	AIR NZ PILOTS CAR PARK
4115	EX NZ COURIERS BUILDING	4450	NOVOTEL AUCKLAND AIRPORT
4125	MENZIES LOGISTICS (EX NZ POST)	4455	MERCEDES-BENZ
4130	FLYING FIT HEALTH CLUB	4460	DSV AIR AND SEA
4135	GOLF DRIVING RANGE	4465	TRAVEL CAREERS & TRAINING
4140	CHAIR HOLDINGS LTD (HANGAR 1)	4470	FORMULE 1 HOTEL
4145	HERTZ	4475	NZ FOOD INNOVATION
4150	KORU CLUB	5520	ROADWAYS
4160	MAF AKL BIOSECURITY CENTRE	5580	ELECTRICITY NETWORK
4165	MANUKAU TOYOTA	5600	WATER NETWORK
4170	MCDONALDS DRIVE THROUGH	5620	GAS NETWORK
4175	NZ POST IMSC	5640	DRAINAGE&STORMWATER NETWORK
4180	NZ POST HANGAR	6110	MARAE
4190	PANELBEATER	6300	ENVIRONMENT MANAGEMENT
4195	PRI FLIGHT CATERING	6320	MAINTENANCE SERVICES
4200	QUALITY CABS BUILDING	6330	ENGINEERING INFO CENTRE (EIC)
4205	NZ CUSTOMS (EX REGENCY)	6500	COMMUNICATIONS NETWORK
4210	RESIDENTIAL DWELLINGS	6710	CUSTOMER SERVICES
4215	SERVICE STATIONS (2X)		

APPENDIX B

Allowance for Other Costs

ASSET		Total Cost Undisc	Years Until Asset Becomes Operational						Interest	Total Cost
			5	4	3	2	1	0.5 0		
			-4.5	-3.5	-2.5	-1.5	-0.75	-0.25		
Sea Protection	Professional fees	16%	6%	6%	3%	1%				
	AIAL Management	2%	1.0%	0.5%	0.5%					
	Airside Allowance	0%								
	Curfew	0%								
	Prelim & Gen	10%	4%	3%	2%	1%				
	Construction	100%	15%	55%	20%	10%				
	Total	**130%**	26.4%	65.4%	25.9%	12.2%	0.0%	0.0%	**6.1%**	**137.7%**
Earthworks	Professional fees	16%		5%	7%	4%				
(including	AIAL Management	2%		1%	0.5%	0.5%				
reclamation)	Airside Allowance	0%								
	Curfew	0%								
	Prelim & Gen	10%		5%	3%	2%				
	Construction	100%		15%	45%	40%				
	Total	**130%**	0.0%	26.4%	56.3%	47.2%	0.0%	0.0%	**4.2%**	**135.3%**
Airside Pavements	Professional fees	16%					9%	7%		
(Concrete Slabs)	AIAL Management	2%					1%	1%		
(Basecoure/subbase)	Airside Allowance	15%					7.5%	7.5%		
(Normal work hours)	Curfew	0%								
	Prelim & Gen	10%					8%	2%		
	Construction	100%					50%	50%		
	Total	**146%**	0.0%	0.0%	0.0%	0.0%	77.2%	69.1%	**0.9%**	**147.6%**
AC Surface Layer	Professional fees	16%						16%		
& Utility Services	AIAL Management	2%						2%		
	Airside Allowance	15%						15%		
(Normal work hours)	Curfew	0%								
	Prelim & Gen	10%						10%		
	Construction	100%						100%		
	Total	**146%**	0.0%	0.0%	0.0%	0.0%	0.0%	146.3%	**0.4%**	**146.9%**
AC Surface Layer	Professional fees	16%						16%		
for Curfew Hours	AIAL Management	2%						2%		
(used for runway	Airside Allowance	15%						15%		
& taxiway pavements)	Curfew	7%						7%		
& Utilities adjacent	Prelim & Gen	10%						10%		
to RTAs.	Construction	100%						100%		
	Total	**154%**	0.0%	0.0%	0.0%	0.0%	0.0%	154.0%	**0.4%**	**154.7%**
Landside Pavements	Professional fees	16%						16%		
Utility Services	AIAL Management	2%						2%		
Sundry Items	Airside Allowance	0%								
(Normal work hours)	Curfew	0%								
	Prelim & Gen	10%						10%		
	Construction	100%						100%		
	Total	**130%**	0.0%	0.0%	0.0%	0.0%	0.0%	129.8%	**0.4%**	**130.4%**