AUCKLAND AIRPORT ALTERNATE USE REVIEW

Prepared For:

Board of Airline Representatives New Zealand (Inc.)

December 2011

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Project Name:	Auckland Airport Alternate Use Scenario Review
Client:	Board of Airline Representatives New Zealand (Inc.)
Date of This Version:	8 December 2011
Status of Report:	Final
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1 Introduction

1.1 Background

The Board of Airline Representatives New Zealand (Inc.) (BARNZ) is an incorporated society comprising 21 member airlines operating in New Zealand. BARNZ commissioned Market Economics (M.E) to review assessments that have been undertaken for Auckland International Airport (AIA) relating to the possible alternate uses of airport land in the event that AIA ceased operation. The alternate land uses have been used as a basis for valuing AIA land, pursuant to the Commerce Commission's direction that airport land should be valued by reference to its highest and best use if the airport were to close. This value is then used by AIA to, among other things, justify the landing fees it charges airlines using the airport.

The alternative land use scenarios have been defined in three documents which are the subject of this review:

- "Market Value Alternative Use Report, Urban Design Appraisal", Common Ground Urban Design, August 2011
- "Auckland Airport: MVAU Project, Additional Information", letter from Bruce Weir (of Common Ground) to Adrienne Darling, 19 October 2011
- "Valuation Report, Market Value Alternative Use Auckland International Airport, Mangere, Auckland", Colliers International, June 2011

Common Ground's MVAU Report provides an indication of the theoretical development potential of AIA in the event that it ceases operation as an airport. This report (with the subsequent letter of clarification) was then used by Colliers to inform its valuation of the AIA land under this MVAU scenario.

1.2 Objective

The objectives of this report are to:

- Provide an assessment of the current and future demand for potential alternative uses (including residential, retail, commercial and industrial uses) of AIA, which underpins the MVAU development and valuation scenarios.
- Assess the timing of this demand in the wider regional context.

2 Alternative Land Use Assessment

This section summarises the key findings of the Common Ground (CG) and Colliers reports.

2.1 Common Ground MVAU Report

The CG report assesses the background growth pressures and trends in Auckland, and uses these to establish the outlook for future land demand. Key observations about these pressures and trends include:

- Auckland will need 170,000 new houses in the next 15 years (p4), and indications are that higher density living will be "a significant part of the response" (p6).
- Expanding industrial land uses require large parcels of land most commonly found on the urban periphery, creating transport pressures and difficulty accessing labour (p4).
- SH20, the motorway link between Manukau and Onehunga across the Manukau Harbour, is being completed, commuter rail is being upgraded, and "it is logical that there will be an airport link some time in the future" (p5).
- There is a shift by office firms away from business parks back to the CBD, major urban centres and mixed use environments (p5).
- Low cost industrial activities are likely to leave Auckland over time, and there will be demand for higher quality commercial precincts close to urban population centres (p7).
- The Airport's waterfront location is of higher value to residential activities than commercial/industrial (p8).
- Plans to develop a CBD-type environment are a priority for the success of AIA land (p8).
- Residential development will require more intensive use of land, (smaller lot and block sizes), good walkability (p9), more amenity in public areas, and for these areas to make up a larger share of the total development (p18).
- The major advantages of the AIA land are location, including potential rapid transit connections, potential ferry connections (to Onehunga and Otahuhu and other places on the Manukau Harbour) and the large area of land that will allow masterplanning. The harbourside location offers the ability to create high amenity environments and open the Harbour to leisure boating (p11).
- The focal point of the development is based on a CBD around a railway node, harbour and marina, supported by road arterials routes and future rail provision (p13).

These observations underpin CG's assessment of the types of activities that might develop at AIA under an alternative use future. These outcomes are noted as being approximate, but conservative, and include that AIA land could be developed with:

- Over 500,000m^2 commercial GFA for mixed use development (including 259,000m^2 of extant space). This 'commercial' label is somewhat misleading, as the category in fact includes all non-residential space with the exception of open space (retail, offices, industrial, schools, retirement villages, hospitals)[1].
- Residential to accommodate 16,200 households (40,000 people), of which:
  - 3,071 households (19%) would be in detached dwellings
  - 3,933 households (24%) would be in 'urban house' dwellings
  - 4,381 households (27%) would be in semi-detached dwellings
  - 3,575 households (22%) would be in terraced dwellings
  - 1,300 households (8%) would be in apartments

These uses are derived from a 'bottom-up' approach, in which CG consider ten precincts with distinctive forms and different focuses (residential/commercial etc.) (Table 2.1).

Table 2.1: Common Ground Development Outcomes

Name	Area (ha)			Amount of Activity			
	Commercial	Resdiential	Total	Commercial Floorspace (GFA, m^2)	Resdiential Dwellings	Population	Population Density
Harbour Edge	3.7	180.8	184.5	25,831	3,616	9,041	20
Urban Village	1.5	71.8	73.3	10,262	1,796	4,490	25
Golf Village	4.2	24.0	28.2	29,631	360	900	15
Urban Centre	17.8	71.2	89.0	124,600	3,133	7,832	44
Marine Village	0.6	30.2	30.8	4,316	906	2,266	30
Waterfront Village	1.8	85.9	87.6	12,268	2,662	6,655	31
Puhinui Village	6.0	114.8	120.9	42,301	2,870	7,176	25
Wiroa Village	0.3	25.0	25.3	1,769	300	751	12
Eastern Gateway Village	0.9	29.3	30.2	6,342	439	1,099	15
Productive Village	0.4	17.6	18.0	2,520	176	441	10
Sub-total Precincts	37.1	650.7	687.8	259,841	16,260	40,650	
Other Areas in CBD Precinct	37.0	-	37.0	259,000	-	-	-
Open Space and Roading	-	-	152.7	-	-	-	-
Total AIA	74.1	650.7	724.8	518,841	16,260	40,650	

source: MVAU Report, p23

Common Ground have provided for commercial space in every precinct, but the largest amounts of commercial space are in:

[1] "Auckland Airport: MVAU Project, Additional Information" letter p1

- a CBD of around 384,000m^2 (124,600m^2 in the Urban Centre Precinct plus the extant 259,000m^2 elsewhere in the CBD precinct)
- the Puhinui Village precinct (42,301m^2)
- the Golf Village precinct (29,631m^2)
- the Harbour Bridge precinct (25,831m^2)

These four commercial centres each represent significant amounts of commercial space, and require substantial catchments to be sustainable. The other precincts have smaller amounts of commercial floorspace in neighbourhood or village centres and would play more of a local role. The overarching intent seems to be that the area will provide for a sub-regional centre (p11), which is consistent with the large total amount of commercial floorspace provided for in the MVAU report.

2.2 Colliers Valuation Report

Colliers have taken the indicative development layout provided in CG's MVAU report, and valued the development that would result. Colliers envisage a development timeframe of 17 years (Executive Summary), and assume that:

- "an equivalent airport would exist within the Auckland region in order to deliver the same relative contribution to Auckland's key growth drivers which underpin wider economic forecasts" (p2), and;
- The current zoning (which precludes comprehensive urban development) would be able to be changed by a plan change.

In the valuation report Colliers have considered the locational attributes of each precinct, such as contour, development density and proximity to the harbour, centres and reserves. Colliers also compared existing developments (Stonefields, Viaduct Harbour, Gulf Harbour, Botany and Hobsonville Point) to understand how development of AIA might proceed. They conclude that comprehensive residential development opportunities within Auckland are limited, and the success of other developments indicates that demand for AIA residential land would be high (p13). This is backed up by ARC growth projections which indicate the need for around 8,200 new dwellings per year in the region, within a range of 6,000 (low) to 10,750 (high). Residential property sales trends have also been used to assess likely future changes in demand and sales price.

Set against this context, Colliers have applied a discounted cashflow methodology to assess the present value of the AIA land under an assumed 17 year development and sell down period (an average of 941 household units per annum).

3 AIA MVAU Residential Capacity Review

This section reviews the residential capacity estimates (population and households) presented in Common Ground's report.

In general, the residential capacity presented by Common Ground seems reasonable, with a fairly comprehensive methodology and good use of contextual studies to apply plausible development intensities. Because the development would be on effectively greenfields land, the developers would have considerable scope to shape the development to maximise their commercial returns, a large part of which is providing a product for which there is demand.

Many Aucklanders are currently still coming to terms with the attractiveness of higher-density residential formats such as apartment living, and CG have recognised this by assuming that a minority, although still reasonably high share (30%) in the suburban Auckland context, of all dwellings would be higher density formats (terraced and apartment dwellings). The tissue studies and comparison to other large, new residential developments in Auckland (Kensington Park, Addison, Stonefields, Hobsonville Point) provides a fairly solid indication that both the mixture of dwelling types assumed, and the density (area per dwelling) are reasonable.

The overall residential density of 25 dwellings per hectare (16,260 households on 650.7 ha of residential land) is at the high end of rates observed in Auckland at present (outside the few high density residential nodes such as the CBD and New Lynn). However, this recognises current regional growth pressures and the need to make more efficient use of land, and represents a reasonable density for a new masterplanned residential development in urban Auckland.

Overall, we consider that the indicative dwelling yield (16,260 dwellings) and population (40,650) are reasonable given the attributes of the AIA land and the mix of dwelling types possible.

4 AIA MVAU Commercial Capacity Review

This section reviews the commercial capacity estimates presented in Common Ground's report.

4.1 Existing Activities

Although currently a node because of the Airport, without the Airport the area would not be as attractive to many of the activities that currently operate from the Airport environs (notably industry, freight forwarding, storage, warehousing, accommodation, car rental etc.), and much of this activity would be likely to vacate the area to move close to the new airport location. Without the Airport we expect that this area will function as any other predominantly residential area in Auckland, and be expected to play a similar role in terms of generating employment from its population, and retaining employment locally. This means that there would be much less demand for the large amount of space that already exists in the area at present (identified by CG as 259,000m^2 of commercial space) and the nature of the demand would change (from large warehouse-type buildings to more intensive uses such as office and retail spaces).

4.2 Auckland Employment Spatial Hierarchy

In this section we have used the Market Economics' "Auckland Centres Model (2010)" (ACM) to provide some indication as to the role played by different types of centres and business areas within the regional economy, and the size of catchment that each type serves. Knowing the likely size of the AIA MVAU development then allows some inference as to the type of centres that the MVAU population would sustain.

The ACM describes the location of all Auckland Region employment, within a spatial framework that was developed in conjunction with the Auckland Regional Council for its business land planning (Table 4.1 and Table 4.2). It is a comprehensive framework made up of:

- 231 **retail and commercial centres**. These are categorised to a number of types to show the hierarchy and role of each type. The types include:
    - the **regional centre** (Auckland CBD, and its fringe area of Ponsonby, Parnell etc.) is the centre of the region's retail and office-based employment, and is the largest centre in employment and floorspace terms. This area is referred to in the Draft Auckland Plan as the "City Centre".
    - 10 **subregional centres** (such as Albany, Newmarket, Henderson, New Lynn, Manukau etc.). These centres are the next (behind the

CBD) largest retail/commercial centres, housing large quantities of retail and office space, and on average have nearly 7,000 workers (Modified Employment Count or MECs[2]) serving 50,000 households. Most of the subregional centres are referred to in the Draft Auckland Plan as the "Metropolitan Centres".

- 13 **large suburban centres** (such as Orewa, Birkenhead, Glenfield, Onehunga, Royal Oak, and Howick) are smaller centres with a more suburban focus, serving catchments that tend to be further from main arterial links than larger centres. On average they have around 1,700 MECs and serve 39,000 households. Large Suburban and Suburban Centres are referred to in the Draft Auckland Plan as "Town Centres".
- 33 **suburban centres** (such as Devonport, Te Atatu, Ellerslie, Greenlane, Panmure, Papatoetoe). These tend to be about half the size of large suburban centres, with around 800 MECs, serving catchments of around 15,000 households.
- 50 **local centres** (e.g. Titirangi, Mission Bay, St Heliers) serving catchments of around 10,000 households.
- 10 **destination and arterial centres** (e.g. Wairau Park, Lincoln Rd, Constellation Drive, Barry's Point Rd) which provide a specialised range of retail, usually types that are purchased infrequently (homewares, furniture etc.) and which customers are prepared to travel some distance to access.
- 113 other centres, including **rural centres** (like Coatesville, Clevedon Oneroa and Kingseat) which average around 850 MECs, and the small **minor centres**, which average less than 100 MECs.

- 136 **business areas**. These are dominated by industrial and distribution activities (Carbine Road, Onehunga, Southdown, East Tamaki, Penrose) business and office parks (Eden Terrace, Ellerslie, Khyber Pass) and special activity areas (e.g. the airport, seaport, marinas and naval base). These areas together employ 245,000 people, 35% of all regional employment, and tend to be close to major arterial links (roads, rail, air and sea transport).
- 20 **special area**s (primarily education, health and sports organisations) employing 58,000 workers.

[2] MECs include all employees and self-employed working proprietors.

- A residual '**Other areas**' group, which captures people working from home and stand-alone businesses outside the main hierarchy of employment areas.

Table 4.1: Auckland Employment Spatial Hierarchy (2010)

Area Type	Centre Type	Auckland Region MECs			Share of Employment			No. of Centres
		Retail and Services	Non-Retail and Services	Total	Retail and Services	Non-Retail and Services	Total	
Centres	Auckland CBD	11,963	72,786	84,749	9%	13%	12%	1
Centres	CBD Fringe	4,926	15,791	20,718	4%	3%	3%	1
Centres	Sub-Regional	24,400	43,659	68,059	19%	8%	10%	10
Centres	Large Suburban	11,221	11,392	22,612	9%	2%	3%	13
Centres	Suburban	12,568	13,946	26,514	10%	2%	4%	33
Centres	Local	6,807	10,790	17,596	5%	2%	3%	50
Centres	Destination and Arterial	3,947	7,284	11,231	3%	1%	2%	10
Centres	Minor	2,926	6,572	9,499	2%	1%	1%	97
Centres	Rural	4,379	9,240	13,619	3%	2%	2%	16
Centres	Sub-total	83,137	191,460	274,597	66%	33%	39%	231
Business Areas		24,385	221,447	245,832	19%	39%	35%	136
Special Areas		1,706	56,126	57,832	1%	10%	8%	20
Other Areas		16,974	102,930	119,905	13%	18%	17%	n/a
Total Auckland Region		126,203	571,963	698,166	100%	100%	100%	387

source: Statistics NZ Business Frame 2010, M.E Auckland Centres Model

Table 4.2: Auckland Centres Employment Hierarchy (2010)

Centre Type	Share of Centres Employment			MECs per Centre			HH served per centre
	Retail and Services	Non-Retail and Services	Total	Retail and Services	Non-Retail and Services	Total	
Auckland CBD	14%	40%	31%	11,963	72,786	84,749	510,800
CBD Fringe	6%	9%	8%	4,926	15,791	20,718	510,800
Sub-Regional	29%	24%	25%	2,440	4,366	6,806	51,100
Large Suburban	13%	6%	8%	863	876	1,739	39,300
Suburban	15%	8%	10%	381	423	803	15,500
Local	8%	6%	6%	136	216	352	10,200
Destination and Arterial	5%	4%	4%	395	728	1,123	51,100
Minor	4%	4%	3%	30	68	98	5,300
Rural	5%	5%	5%	274	577	851	31,900
Total Centres	100%	105%	100%				

source: Statistics NZ Business Frame 2010, M.E Auckland Centres Model

The number of households served per centre (Table 4.2) is the total number of regional households divided by the number of centres, which reflects the fact that each household is served by a centre at each level of the hierarchy[3].

[3] In practice households do not visit only a single centre of each type, but alternate between different centers visited from home, from work or while travelling. For simplicity this presentation assumes exclusivity so that each household is served by the CBD, one sub-regional centre, one large suburban centre and so on.

Centres-based employment accounts for 275,000 MECs, or 39% of regional employment, while employment in business areas (mainly industrial activities) is 246,000 MECs (35% of regional employment). Of centres-based employment, 31% is in the Auckland CBD, 8% in the CBD Fringe and 25% in sub-regional centres, a total of 63% in these large centres (Table 4.1). This shows the important role these large centres have within the regional economy, and demonstrates the broad catchments they serve. These larger centres are all located near major arterial links (road and rail) to provide good accessibility for employees and customers. It is more difficult for centres further away from these transport links to grow into large regional or sub regional centres.

A similar observation can be applied to Auckland's business areas, in that the largest areas have specific locational attributes that have underpinned their growth, including proximity to major transport links or infrastructure assets (ports, airport, rail, motorways etc.), and access to substantial population catchments.

4.3 Airport MVAU Employment Yield

In 2010, there were 510,800 households and 698,000 persons employed (MECs) in the Auckland Region (1.37 MECs per household). Of these persons employed, 126,200 were engaged in retail and household services activities (0.25 MECs per household), and 572,000 were in non-retail/services employment (Table 4.3).

Table 4.3: AIA MVAU Population Employment Yield

	Auckland Region	AIA MVAU
Employment (MECs)		
Retail/Services	126,203	4,017
Non-Retail	571,963	18,206
Total	698,166	22,223
Households	510,820	16,260
Employment per Household (MECs)		
Retail/Services	0.25	0.25
Non-Retail	1.12	1.12
Total	1.37	1.37

Assuming that the 16,260 households that might develop under the AIA MVAU scenario have similar characteristics to the regional average we would expect around 22,200 MECs would live on AIA land, of which 4,000 would be employed in retail and household services businesses, and 18,200 in non-retail employment.

4.4 AIA MVAU Employment Destinations

The 22,200 workers who would be expected to live on AIA land under the MVAU future presented by CG will not all work locally, and assuming AIA residents will have similar employment characteristics to the general Auckland population we can assess where they are likely to work.

4.4.1 Airport Location

Under the MVAU future, the AIA land does not have any particular locational advantages that would stimulate the development or maintenance of a large business area there, or that would make a very large AIA town centre sustainable. Although the State Highway feeder routes (20A and 20B) provide access to the airport, the South-Western Motorway is 4km to the north and 6km east of AIA, which is a reasonably significant distance compared to other main employment areas in Auckland. There is currently no rail link to AIA, and we consider that it would be unlikely that a link would be a priority in regional transport planning if the Airport was not the link's destination. Further, the AIA land is surrounded to the west and south by harbour, limiting the size of its natural catchment, the directions from which it can be accessed, and placing it away from major thoroughfares.

Much of the large amount of low intensity business activity (such as warehousing, storage and freight forwarding) that currently exists near the Airport is unlikely to be sustainable in the absence of the Airport, as those businesses have developed in that location specifically because the Airport is close by. If the Airport were to move, we would anticipate initially large numbers of vacancies of large floorplate buildings, which would create significant spare capacity for business activity on AIA land. We do not believe that it is appropriate to assume that the amount of economic activity in the areas around the Airport would remain in the Airport's absence, and consider that much of this activity should be removed from the 'baseline' of economic activity that will be present in the area in the future.

Although assessing the effects on businesses outside the MVAU assessment area is outside the scope of this assessment, the departure of the Airport would also result in the departure of many businesses outside the MVAU area, especially the 443ha to the north of the MVAU assessment area that is still on Airport land. If businesses in that area were to leave to follow the airport to its new location, this would provide even more vacant space which would be available to be used for business activity before new commercial space was required.

A small proportion of the existing activity would be likely to remain, and would form part of the total space able to be sustained locally by the MVAU population and worker base. Businesses such as supermarkets, cafes and restaurants and clothing stores that exist in the

area now will continue to be viable if surrounding land uses change from Airport to residential, and would change their target customer base from tourists and employees of the industrial land (freight forwarding businesses etc.) to MVAU residents. However, many of the businesses currently on the Airport would not fall into this category, and if remaining *in situ* would face significant costs by virtue of their distance from the new airport location, without any corresponding benefit (i.e. an adjacent residential population does not directly support a freight forwarding business).

4.4.2 Employment of MVAU Residents

Assuming that under the MVAU future AIA residents were employed in the same types of locations as the average Aucklander, and that the AIA land did not retain its role as a major employment node within Auckland, we have assessed the likely workplace of AIA residents. In this context of the 22,200 workers who would live on AIA land:

- 3,400 would work in the Auckland CBD and CBD fringe
- 2,200 would work in sub-regional centres (probably mostly in Manukau, Newmarket and Botany, given their proximity to AIA)
- 2,500 would work in smaller (large suburban, suburban, local and minor) centres
- 400 would work in destinational and arterial shopping areas
- 1,900 would work in special areas (such as hospitals, schools etc.) both on and off the AIA land
- 8,000 would work in business areas
- 3,900 would work outside the main employment areas (including those self-employed working from home and those working in small stand-alone businesses) (Table 4.4).

Table 4.4: Auckland Employment Structure Applied to MVAU AIA Population

Area Type	Centre Type	AIA MVAU Employment		
		Retail and Services	Non-Retail and Services	Total
Centres	Auckland CBD	393	2,352	2,745
Centres	CBD Fringe	162	509	671
Centres	Sub-Regional	801	1,403	2,204
Centres	Large Suburban	369	364	732
Centres	Suburban	413	446	859
Centres	Local	224	346	570
Centres	Destination and Arterial	130	234	364
Centres	Minor	112	246	358
Centres	Rural	-	-	-
Centres	Sub-total	2,603	5,901	8,504
Business Areas		801	7,162	7,963
Special Areas		56	1,817	1,873
Other Areas		558	3,326	3,884
Total Auckland Region		4,017	18,206	22,223

4.4.3 Employment on MVAU Land

The 518,841m^2 of commercial space from CG's MVAU assessment would support a workforce of 17,300 to 25,900 MECs (at average densities of 20-30m^2/MEC). If the workforce resident on AIA land is 22,200 MECs, this equates to the AIA land being between 78% and 118% self-sufficient. Such a high level of self-sufficiency (in net terms, whether it is in fact local residents that work in local businesses or not) would be unusual for an area which lacks distinct locational advantages to encourage the creation of a large employment area, or sub-regional centre. This indicates that either CG expects that a large employment node might develop on AIA land, or CG's commercial land estimate is too high.

For the reasons given in section 4.4.1 we believe that under the MVAU scenario a large business node on AIA land is unlikely and employment on AIA land would be significantly less than is implied from the floorspace yield presented by CG.

4.5 AIA MVAU Indicative Centre Count

Another way of interpreting the amount of retail and commercial activity that might be sustainable under a MVAU scenario is to analyse how the projected size of the residential component of the AIA MVAU compares with the average number of households currently (2010) served by each centre type in Auckland (from Table 4.2).

Based on regional average centre sizes, the AIA MVAU's 16,260 households would support:

- About 3% of the employment in the Auckland CBD and fringe;

- 32% of a sub-regional centre, and;
- 41% of a large suburban centre, and;
- One suburban centre, and;
- One or two local centres, and;
- Three or four minor centres, and;
- Around one-third of a destination/arterial centre (Table 4.5)

Table 4.5: AIA MVAU Sustainable Centre Floorspace

Centre Type	No. of Centres in Auckland	HH served per centre	Indicated for AIA MVAU	AIA Centres Indicated	MECs (at regional average rates)	GFA Indicated	
						Low ($20m^2$/MEC)	High ($30m^2$/MEC)
Auckland CBD	1	510,800	0.03	-	-	-	-
CBD Fringe	1	510,800	0.03	-	-	-	-
Sub-Regional	10	51,100	0.32	-	-	-	-
Large Suburban	13	39,300	0.41	-	-	-	-
Suburban	33	15,500	1.05	1	803	15,600	22,100
Local	50	10,200	1.59	2	704	11,200	15,800
Destination and Arterial	10	51,100	0.32	-	-	-	-
Minor	97	5,300	3.07	3	294	3,700	5,300
Rural	16	31,900	0.51	-	-	-	-
Total All Centres	215			6	1,801	30,500	43,200

In practical terms this means that the MVAU population would support one suburban, two local and four minor centres, or around 31,000 to 43,000m^2 of centres-based floorspace. This is 32%-46% of the population's total floorspace demand, which implies a very high level of self-sufficiency. Typically smaller Auckland centres (large suburban, suburban, local or minor centres) attract 25-30% of household spending, with 70-75% directed to sub-regional centres and the CBD. This means that 31,000-43,000m^2 is conservatively high in the regional context for the population that CG expect. On this basis, the AIA MVAU population would be insufficient to support a large suburban or sub-regional centre. By way of context, the net leasable area of Westfield Albany is 45,600m^2 [4], so 31,000 to 43,000m^2 spread over several centres is a significant quantum of floorspace.

4.6 Business Activity

In addition to this centres-based floorspace, the AIA population would support a workforce of around 7,800 MECs on Auckland business land[5], which equates to 235,000-313,000m^2 (at 30-40m^2 per MEC) of floorspace (Table 4.6). Not all of this will be on AIA land, especially

[4] Property Council NZ Shopping Centre Database 2010

[5] This category includes manufacturing, storage and industrial activities, as well as non-centre office space, some large format retail space and other activities that are currently located on Business-zoned land within Auckland.

given the absence of the airport (which has been responsible for attracting a very large proportion of the industrial activity that is currently in the area). We would anticipate that no more than 30% of this business land-based employment would be employed on AIA land (equivalent to 70,000 to 94,000m^2 of space), with most residents in this type of job travelling to other business areas.

Table 4.6: AIA MVAU Sustainable Business Area Floorspace

	GFA Indicated	
	Low (30m^2/MEC)	High (40m^2/MEC)
In any Auckland Bus. Area	234,800	313,000
Supported locally		
20%	46,960	62,600
30%	70,440	93,900

4.7 Other Activities

Common Ground's definition of 'commercial' activity encompasses a large range of other activities including schools, tertiary institutes, hospitals and retirement homes, in addition to centres-based space and business land/industrial space. These 'other' activities are the third component that we have analysed to assess the total 518,000m^2 of commercial space that CG have provided for in the development plan.

4.7.1 Education

We have assessed an indicative floorspace required to accommodate the school children that would be likely to live in the MVAU development. Based on a population of 40,650 people, and assuming an age profile the same as the current (2006 Census) regional age profile, we would expect the MVAU population to yield around 7,850 school pupils. Based on the average school roll[6], and indicative space requirements shown in Table 4.7, we expect that these pupils would need around 63,000 to 86,000m^2 of school floorspace (this includes all space: administration, gymnasium, classroom, hall, workshops etc.).

[6] Data based on a sample set of Auckland schools (primary, intermediate and secondary), with roll data sourced from the Ministry of Education's tki.org.nz website, and spatial measurements made using the Auckland Council GIS website http://maps.aucklandcouncil.govt.nz/aucklandcouncilviewer/

Table 4.7: AIA MVAU Education Space

	Primary	Intermediate	Secondary	Total Population
Auckland Region Population	115,000	40,000	100,000	1,321,000
Share	9%	3%	8%	100%
AIA MVAU Popn.	3,539	1,231	3,077	40,650
Average Roll	400	600	1,500	
Expected Schools	9	2	2	
GFA (@8sqm/pupil)	28,400	9,700	24,600	62,700
GFA (@11sqm/pupil)	39,000	13,400	33,800	86,200

4.7.2 Other

In addition to the education space, the CG 'commercial' category also includes space for healthcare, retirement villages, and paid accommodation (among other uses[7]). These land uses are likely to be market-led, and it is difficult to assess how much space might be required for them, especially given that the open-ended definition of this category. By way of indication, a 6ha retirement home complex at 30% coverage gives 18,000m^2 of floorspace (say 180 units at 100m^2 each).

Some of the activities that might be included in this category are implicitly included in our business activity category (section 4.6 above). We would not anticipate a large amount of additional space to be required by activities in this miscellaneous category over and above the education uses we outline above, and the allowance we make within our general business activity category. In total then perhaps up to 40,000m^2 of GFA may be occupied by land uses in this non-education part of the "Other Activities" category.

4.7.3 Total Other Activities

Assuming 63,000 to 86,000m^2 of floorspace for schools, and up to 40,000m^2 for other activities, we would expect 103,000 to 126,000m^2 of floorspace in this "Other Activities" category. In our opinion this space should be summarised separately in the CG report, and a different valuation should be applied to it given that land in this category is mostly non-commercial and will not provide similar returns to office-based on industrial activities.

4.8 Development Plan Summary

In total then we would expect AIA MVAU to support commercial land of:

- 31,000 to 43,000m^2 of centres-based commercial GFA
- 70,000 to 94,000m^2 of non-centres-based commercial GFA

[7] CG's letter of clarification, October 19 2011

- 103,000 to 126,000m^2 of non-commercial GFA for other activities (which is called commercial by CG).
- 204,000 to 263,000m^2 of GFA in total.

This is significantly less than both the 518,841m^2 CG have presented in their MVAU assessment, and the 259,000m^2 that already exists in the area at present. This indicates that CG have overstated how much commercial land will be likely to locate on AIA land under a MVAU scenario by around 2 to 2.5 times. Further, a significant proportion of the 204,000 to 263,000m^2 we expect is not true commercial, as around one third is for education and there is further allowance for retirement villages (which are essentially a residential activity). Excluding these activities that are not truly commercial in nature means that the commercial space that is required is between 111,000 and 147,000m^2, and the actual commercial land requirements are overstated by 3.5 to 4.7 times.

In summary, the CG development plan provides many times more space than we have assessed is sustainable based on the size of the population expected under the MVAU scenario, and the role we expect that the redeveloped AIA land would play within the Auckland economy.

The balance of the 518,841m^2 commercial floorspace (which would be 381,800m^2) that CG have indicated would need to be occupied by businesses that are attracted into the area for other reasons, such as locational advantages, rather than being supported by local demand. This large amount of space would support a workforce of 6,000-10,000 MECs, which represents a very significant inflow of employment into an area which, as discussed above, would have limited locational advantages to cause such an attraction.

This indicates that the balance between commercial and residential land provided in CG's MVAU assessment is not right, and that there should be more residential, and less commercial space.

5 Valuation Review

Our assessment in this section is limited to the timing underlying the valuation. The element of timing is important, because the take-up rate for sections plays a significant role in the present value of the land.

5.1 Market Share

Colliers have assumed a 17 year take-up period for the AIA land, having taken into account the market share that this represents in each year, given expected growth in dwelling numbers within Auckland South, within Manukau and within the wider Auckland Region[8]. The highest market shares from this assessment would occur in 2023 and 2024 when the development timeline applied would have 1,200 dwellings being released to the market. This number of dwellings represents 56% of all new dwellings created in Auckland South, 23% of Manukau, and 14% of all regional growth.

To understand if these market shares and the 17 year take-up are reasonable, it will help to consider a current comparable development. Stonefields is a good comparable example, being located on a large greenfields site (the former Mt Wellington Quarry) within urban Auckland. The main body of the Stonefields development was available for building around 2008, and development is expected to "continue through to at least 2015"[9]. Assuming that the developer is selling dwellings there as quickly as possible (which seems reasonable given the high carrying costs for land of this type), this can serve as some guide as to how quickly large developments such as this in Auckland may sell. This (at least) eight year timeframe equates to just over 300 dwellings per year, on average, over the whole time (Table 5.1).

Table 5.1: AIA MVAU Take-Up Compared to Stonefields

	Stonefields	AIA MVAU
Start Year	2008	2012
Finish Year	2015	2028
Elapsed Years	8	17
Dwellings	2,500	16,260
Dwellings/year	313	956
Auckland Region Households		
Start Year	475,000	514,100
Finish Year	555,100	691,400
Growth	80,100	177,300
Market Share	3.1%	9.2%

[8] This market share assessment is provided in Appendix 2 of Colliers' report
[9] stonefields.co.nz/faqs.aspx

In 2007 there were about 475,000 households in the Auckland Region, and this is projected to grow to around 555,000 by 2015, an increase of 80,100 households[10]. Stonefields' share of this total regional household growth[11] over the course of its development is therefore expected to average about 3.1%, although will be lower if the sell-down period lasts longer than 8 years. By comparison the 17 year AIA sell-down period is twice as long as the Stonefields' expected sell-down period, although will create 6.5 times as many dwellings. This translates into a much higher market share (averaged over the whole sell-down period) for AIA MVAU land compared to Stonefields, so that whereas Stonefields' share of all regional dwellings will be 3.1%, the AIA MVAU would average 9.2% over its 17 year development lifetime[12].

In this context the uptake of AIA MVAU dwellings applied by Colliers, and the implicit market shares are quite high, especially given they must be sustained for twice as long as Stonefields is expected to take to sell-down and the market shares will peak at over 11% for years at a time. However, there are several factors that may act to increase the attractiveness of AIA MVAU residential land:

- Take-up will not be as adversely affected by the Global Financial Crisis as what Stonefields may have been, notwithstanding the possibility of another recession.
- Residential land shortages in Auckland will become more pronounced over time, decreasing the options for purchasers to buy new houses in Auckland and increasing the probability that if they want to buy a new house that it will be at AIA.

Nevertheless, overall the 9% average regional market share that a 17 year sell-down period represents equates to a very significant proportion of all new regional households being attracted to AIA MVAU land out to 2028. Longer sell-down periods would have lower market shares, as the introduction of AIA residential land to the market would be diluted, and while this may be more feasible, given the uniqueness of AIA land it is hard to evaluate how likely Colliers' assumed market share is. By way of indication, a regional market share of 5% would result in AIA residential land being completely sold by 2041, 6% represents take-up by 2037, 7% by 2033, and 8% by 2030.

[10] This uses 2007 as the starting point to give growth over eight years to 2015

[11] Total regional growth rather than sub-regional (i.e. Auckland South) growth is a more appropriate base against which to establish market share given the regional significance of both Stonefields and AIA, with both being very large developments.

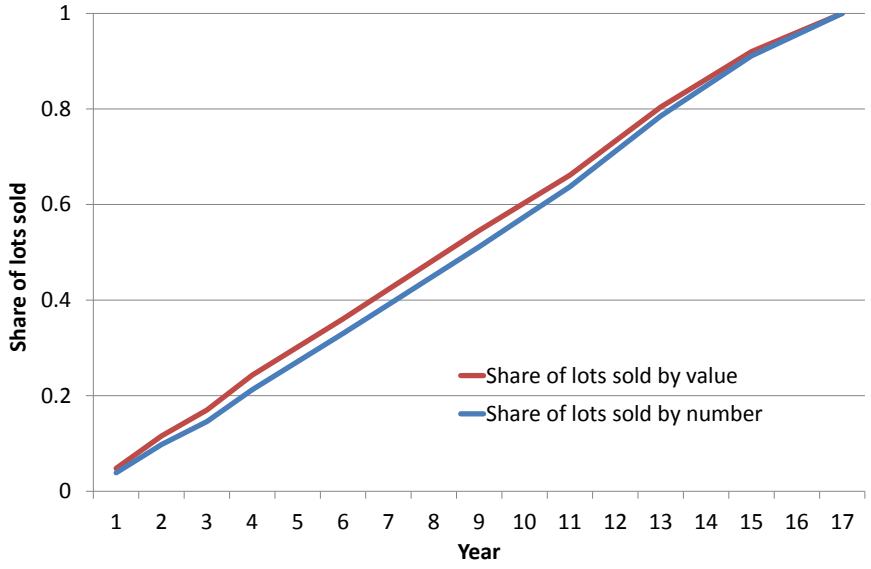
[12] This uses slightly different projections of household numbers to the Colliers report, and lower market share estimates, as we do not have access to the regional dwelling projections that Colliers have used.

Further, if it is accepted that the balance of residential compared to commercial land as provided in the MVAU plan is not right, and that there should be more of the former and corresponding less of the latter, this further increases the market share that the AIA MVAU development would need to capture, or increases the duration of the sell-down period, given it is the residential land that will drive the length of this period.

5.2 Growth Within Sell-Down Period

Notwithstanding reservations about the high implied market shares a 17 year sell-down period represents, the take-up of land within the assumed 17 year period is reasonable, being distributed relatively evenly across the period (Figure 5.1:).

Figure 5.1: Valuation Report Assumed Land Take-up (Residential and Commercial)



The timing of take-up of land in the main centres (on the Urban and Golf Villages and Urban Centre) has been assumed to occur after 2021, giving ten years for a population base to become established before the main commercial developments that will serve this population occur. This staging within the overall AIA MVAU development is reasonable.

5.3 Implications

The 17 year sell-down timeframe drives Colliers' NPV assessment of the land value. A longer sell-down period would decrease the land's NPV, although the sensitivity of the valuation to any increase in sell-down duration would need to be tested in an NPV framework, which is outside the scope of this assessment.

6 Conclusions

Overall, we consider that the indicative dwelling (16,260 dwellings) and population (40,650) yield of AIA under a MVAU scenario are reasonable given the attributes of the AIA land and the mix of dwelling types presented by Common Ground.

The one concern we have with the residential component of the land is that releasing 16,260 dwellings to the market over the course of 17 years represents an average market share of all new residential housing of nearly 10%, which is a very high proportion of growth for AIA to capture. In our opinion 17 years would be a minimum timeframe that should be adopted as the sell-down period, and in reality it may be 20-25 years before 16,260 new dwellings would be sold on AIA land. This is especially so if the amount of residential land were to be greater than the 650 ha assessed by CG, which could be the case if the commercial space CG have indicated is too great.

Common Ground's development plan provides for 518,841m^2 of commercial floorspace, including 259,000m^2 that already exists in the area at present. Based on how Auckland's centres serve their catchment populations, we anticipate that:

- the total retail and services floorspace that would be supported under the MVAU scenario would be 31,000-43,000m^2
- 70,000-94,000m^2 of other commercial land (offices etc.) would be supported by the local population (in net terms, and accounting for the fact that there will be both an inflow and an outflow of workers)
- An additional 103,000 to 126,000m^2 of non-commercial GFA (which is called commercial by CG) would develop for education and other activities. In our opinion this space should be summarised separately in the CG report, and a different valuation should be applied to it given that land in this category is mostly non-commercial and will not provide similar returns to office-based on industrial activities.
- In total then, this amounts to 204,000 to 263,000m^2 of floorspace for commercial (retail, services and offices), and non-commercial (education and other) activities. Excluding non-commercial activities (such as education), this equates to 111,000 to 147,000m^2.

Given that CG has estimated total sustainable commercial land at 518,841m^2, this indicates that CG has overstated the sustainable commercial land by a significant amount, which we believe to be around 372,000 to 408,000m^2 (i.e. the difference between CG's number and our estimated range of 111,000 to 147,000m^2). This is due in part to the wide range of

activities that CG have called 'commercial' but also because the CG development plan provides many times more space than we have assessed is sustainable based on the size of the population expected under the MVAU scenario, and the role we expect that the redeveloped AIA land would play within the Auckland economy.

To support the large amount of commercial space that CG have proposed, there would need to be a very large net inflow of employment into AIA, an outcome which is in our opinion unlikely given the limited locational advantages that AIA land would offer businesses in the absence of the Airport. Our assessment has not tested the implications of altering the mix of land (the commercial vs. residential balance).