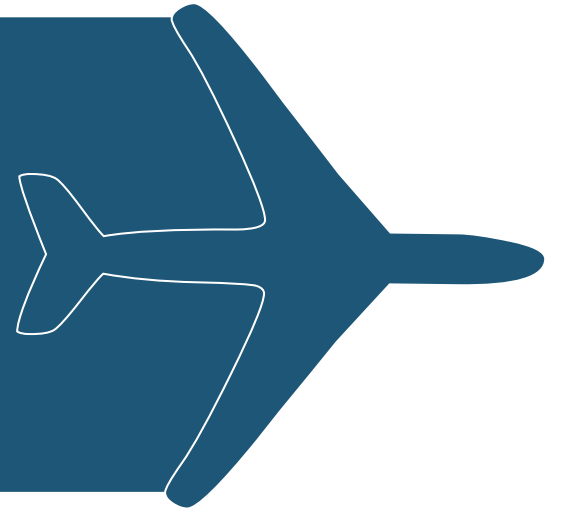


Hawke's Bay Airport Limited Master Plan 2013



HAWKE'S BAY AIRPORT LIMITED

Volume 1 – Master Plan



December 2012

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1 Executive summary

1.1 Executive summary

The Master Plan – Volume 1 should be read in conjunction with The Appendices – Volume 2.

The purpose of the Master Plan is to inform the Hawke's Bay Airport Limited (HBAL) Board, its Shareholders, stakeholders and other interested parties and provide a planning tool against which HBAL's performance can be measured.

It is intended to be a living document, reviewed annually and/or as circumstances dictate and to provide flexibility to enable HBAL to respond appropriately and in a timely fashion to demand.

To that end, it reflects the 'building blocks' approach clearly stated in HBAL's Statement of Intent that empowers HBAL to respond to the changing needs of Airport users and the commercial environment.

The focus is on staged development of the Airport to cater for increased passenger numbers, the introduction of scheduled jet domestic services and working towards a trans-Tasman link. Also being considered is the capability of deriving revenue from the non-aeronautical side of the business.

1.2 Development and planning tasks

The main development and planning tasks identified in the Master Plan are:

- Staged development of the terminal building to accommodate growth in scheduled movements and improve non-aeronautical terminal revenue opportunities
- Napier City Council (NCC) District Plan change to introduce new noise contours and to broaden the scope of commercial activities in the Business Park
- Hastings District Council (HDC) Plan change to introduce flight path protection controls
- Commercial development to improve business performance and provide appropriate facilities for air side and non-air side users
- Reassessment of car rental facilities, car and coach parking areas
- Runway, taxiway and apron resurfacing
- Runway, taxiway and apron strengthening for scheduled jet services
- Apron extension to accommodate scheduled jet services

1.3 Issues

Issues arising out of the Master Plan exercise are:

- Compliance with Local Authority District Plans and possible Plan changes to implement new noise contours and broaden the scope of commercial activities associated with the development of the Business Park
- Cost/funding of the Business Park development, especially development contributions for off-site local upgrades to water and wastewater services and onsite power reticulation
- Cost/funding of the Airport access improvements onto the State Highway from increased passenger growth and Business Park traffic
- Relocation of the Aero Club and existing general aviation hangars to the southern end of the Business Park
- Shareholder and stakeholder understanding of the requirement of continued capital expenditure over the planning period of the Master Plan

1.4 Major capital works items

The following have been identified as major capital works subject to demand and the development of a business case:

<i>Item</i>	<i>Indicative cost</i>	<i>Indicative timing</i>
<i>New power supply to Business Park</i>	\$2.7m	2013
<i>Stage 1 Business Park development</i>	\$1.5m	2013
<i>Runway resurfacing</i>	\$4.0m	2013
<i>Extend car parking areas</i>	\$1.1m	2014 – 2016
<i>Terminal redevelopment</i>	\$4.5m	2016 – 2018
<i>Further Business Park stages</i>	\$6.5m	2016 – 2022
<i>Apron extension/pushback stands</i>	\$1.2m	2018 – 2022
<i>International development</i>	\$3.8m	2018 - 2022
<i>Runway extension to 1,940 metres</i>	\$2.9m	2018 – 2022
<i>Starter extensions</i>	\$1.5m	2018 – 2022
<i>Code C taxiway</i>	\$3.3m	2022
<i>Northwest precinct development</i>	[TBA]	[TBA] ¹

¹ Will be driven by demand and outcome of NCC Plan Change.

2 Introduction

2.1 Purpose of the Master Plan

The purpose of this Master Plan is to:

- Inform the Board, stakeholders and interested parties
- Develop HBAL's vision for the Airport from both airside and non-airside or commercial activities
- Summarise the current status and facilities of the Airport
- Reflect the 'building blocks' approach and be responsive to development based on business demand
- Provide a planning framework for future development of the Airport consistent with HBAL's vision and strategic plan

The Master Plan is a fluid document pending consultation with stakeholders and on-going consideration by the Airport Board.

2.2 Planning period to be covered

The Master Plan covers the period from 2013 to 2030.

2.3 Planning review intervals

Once finalised it is envisaged the plan will be reviewed annually as part of the Board's strategic planning cycle. A more in-depth review will be done every five years.

2.4 Consultation requirements

HBAL is under the ownership of:

- New Zealand Government 50%
- Napier City Council 26%
- Hastings District Council 24%

Other interested parties include:

- Present users (Air New Zealand, Air Napier, Sunair Aviation, Air Chathams, Skyline Aviation, Farmers Air, Aerospread, Shoreline Helicopters, private aircraft owners)
- Potential users (other airline carriers)
- Air traffic control (ATC) – Airways Corporation of New Zealand
- Rescue Fire Services (RFS) – Task Protection Ltd
- Civil Aviation Authority (CAA)
- Ministry of Primary Industries
- Airport concession operators (rental car companies, café operator)
- Fuel suppliers
- Mana Ahuriri
- Landcorp – lessor of land to the Airport and neighbour, Department of Conservation (DoC) – neighbour, Hughes family – neighbour
- New Zealand Transport Association (NZTA)
- Hawke's Bay Regional Council (HBRC)
- Hawke's Bay Tourism Limited
- Business Hawke's Bay Limited
- Port of Napier
- Hawke's Bay and East Coast Aero Club Incorporated and Air Hawke's Bay Limited (as operators of Bridge Pa Aerodrome)

It is envisaged some of these parties will be consulted on the Master Plan prior to its wider release and their feedback incorporated where considered appropriate by the Airport Board.

3 Regulatory status

3.1 Civil Aviation Authority certification

The Airport operates under a CAA Part 139 Aerodrome Operator Approval. This approval allows operation of Code C aircraft on a scheduled or charter basis day or night under instrument flight rules (IFR) or visual flight rules (VFR) conditions².

The Airport currently meets aviation security (AvSec) domestic requirements for operation of aircraft up to 90 passenger seats. This will need to be addressed for any operation of aircraft over this seating capacity, irrespective of whether the operations are ad-hoc or regular. International services will require an additional layer of passenger security for stowed and carry-on baggage.

The Airport currently has no exemptions from CAA Rule compliance.

3.2 Territorial and Regional Authorities – Planning provisions and consents

Hawke's Bay Airport is a Requiring Authority³ under the Resource Management Act.

The Airport is provided for in the NCC District Plan (Operative 2007) through an Airport Zone, refer to Appendix D, Volume 2. Additional sites that were identified at this time for inclusion within the Airport have been zoned Future Airport Zone, which provides that once the sites are to be used for airport purposes, they will revert to the applicable issues, objectives, policies and rules of the Airport Zone.

Further details of the planning provisions as they relate to activities on the Airport site and existing resource consents granted are provided in section 9 of this Master Plan.

Obstacle limitation (flight path protection) surfaces for a designed 1,940m long main runway and the 1,199m cross runway (as described in section 6.2.3) are protected in the NCC District plan. A Notice of Requirement has also been lodged with HDC to provide obstacle limitation surfaces (OLS) for these runways within the HDC territorial boundary, consistent with CAA requirements.

An airport noise boundary is also included in the NCC District Plan as described in section 9.4.

² Most air transport operations are conducted under IFR and general aviation operations mostly under VFR.

³ A Requiring Authority has the ability to seek designations. Activities covered by a designation will be protected from competing land use activities undertaken by third parties.

4 HBAL's vision for the Airport

4.1 Strategic plan vision

HBAL will be an efficient and effective operator, earning an appropriate commercial return on its assets and paying dividends to its shareholders. HBAL will position the Airport to respond to long term aviation growth, own and operate a substantial profitable property portfolio and provide a smart and welcoming gateway to the region.

4.2 Aviation

4.2.1 General

The aviation focus of the Airport will continue to be on domestic scheduled passenger services, however, non-scheduled operations such as air ambulance and charter operations will also be fostered and provided for consistent with the requirements of scheduled service operations.

The Airport will continue to develop its aviation facilities in response to demand. In particular development plans for the terminal, apron, car parking, retail and concession activities will be prepared in anticipation of growth in scheduled passenger numbers and aircraft movements, broadly in line with past trends and known airline plans.

With the recently completed extension of the main runway 16-34 to 1,750m, the opportunity exists for jet operations using Code C aircraft such as the Airbus A320 and Boeing 737⁴ but will require the development of aviation security facilities at the Airport. International (trans-Tasman) services, whether ad-hoc or scheduled, require enhanced security and also border agency and Police services.

Whilst scheduled jet domestic and international services are not envisaged within the immediate future, the Master Plan is to provide for their introduction consistent with demand.

Night freighter operations are also considered a possibility and are to be provided for in both facilities and Airport noise planning.

4 Code C refers to the size of the aircraft and includes aircraft with wingspan up to 36m, which includes the A320 and B737 and their variants. Code A and B aircraft are smaller. Codes D, E and F are wide body jet aircraft.

HBAL's objective in relation to general aviation⁵ (GA) is to provide for growth of operations in a controlled manner to ensure scheduled services are not compromised and to allow for the development of the Business Park.

Operations including large scale helicopter flight training, gliding, parachuting, ballooning and model aircraft operation will be limited as they are seen as potentially jeopardising the safe and efficient operation of scheduled services.

4.2.2 Facilities for different aircraft categories

The Master Plan assumes the design aircraft category is Code 4C jet, as typified by the A320 and B737-800W in use in New Zealand (NZ) currently.⁶ Of these, the A320 is the most predominant in NZ with both Jetstar and Air New Zealand (Air NZ) having sizeable fleets. The 737-800W is operated by both Qantas and Pacific Blue but not in great numbers trans-Tasman and not at all domestically.⁷

Of the A320 and 737-800W, the latter is slightly more demanding in runway length requirement, operating weights, runway loading and overall dimensions. It also has a slightly greater seating capacity of 180 compared to 168 (Air NZ) to 177 (Jetstar) on the A320.

Design of facilities for the 737-800W also covers smaller jets such as the Embraer 190/195 series operated by Virgin Australia.

Operation of Codes D to F⁸ aircraft will require, among other things:

- Lengthening of the runway beyond the site limit of 1,940m plus starter extensions⁹
- Adding 7.5m shoulders along the length of the runway
- Providing a full length parallel taxiway
- Installation of a precision approach instrument landing system

5 General aviation is one of the two categories of civil aviation. It can be both private and commercial and refers to all flights other than military and scheduled airline passenger or cargo flights.

6 The 'W' in 737-800W refers to aircraft equipped with winglets.

7 Air New Zealand now has a code share arrangement with Pacific Blue, which in turn is being rebranded as Virgin Australia.

8 Code D includes the 757 and 767, both of which are now largely obsolete. Code E aircraft includes the A330-200, which is in widespread use within the Qantas Group, the 777-200/300 and the new 787-8 to be operated by Jetstar from 2013. The 787-9, also Code E, is due to commence service with Air NZ by 2014. Code F includes the Airbus A380 in service with Qantas.

9 This may not be necessary for the 777-200 or A330-200 depending on range requirement.

- A large upgrade to Rescue Fire capability
- A massive investment in terminal facilities and apron expansion
- Provision of substantial ground support equipment and associated storage facilities

Clearly this level of expansion is not justified by market projections or the size of the local economy and is beyond the current funding capacity of HBAL. In addition Code C jets have become the aircraft of choice by the airlines for regional and domestic NZ use.

For these reasons the Master Plan does not include any consideration of development beyond Code C jet aircraft operation.

4.2.3 Aircraft route development

Domestically, services will predominantly be to the three major centres, Auckland, Wellington and Christchurch. Jet services may start between Hawke's Bay and Auckland or Christchurch, as previously occurred with the Air NZ 737-200 in the 1980's and 1990's, but this will be dependent on demand and will certainly affect frequency.

Domestic turboprop operations may develop between Hawke's Bay and other regional centres, especially those hard to reach by road such as New Plymouth, with the potential for direct flights to Nelson and Queenstown in support of tourism growth.

The current 1,750m runway is of sufficient length for domestic Code C jet aircraft services and, with some aircraft loading restrictions, will be suitable to enable operations to the Australian east coast cities of Sydney and Brisbane.

Beyond this there is a considerable jump in range to get to Indonesia, Tahiti and Hawaii, with a further jump to Singapore, Hong Kong, Japan and the United States mainland. All these destinations are beyond the non-stop flight range of Code C jet aircraft.

4.3 Commercial / retail

With the recent extension of the runway and infrastructure costs associated with the Airport, the potential to derive income from non-aeronautical, commercial development is seen as an important part of the overall economic prosperity of the business.

The Business Park is being developed to attract a variety of clients ranging from research and development, high tech industrial, distribution, tourism and related services to airside businesses such as flight training, aircraft maintenance, freight facilities and potential airline carriers.

Initially approximately 20 hectares to the south and east of the terminal and main car park have been allocated to the Business Park and this will be developed in a staged approach to ensure that growth is aligned with demand.

MWH NZ Ltd has been engaged to develop an overall concept plan for the Business Park and the design of stage 1 of the access road.

Stage 1 infrastructure commenced in July 2012 with international anchor tenant, ABB Ltd., starting construction of their electronic assembly centre the same month. Depending on the growth of the Business Park, the existing access into the Airport will require modifications to separate Business Park and Airport traffic, with future stages possibly incorporating a new access from State Highway 2.

NCC have assessed that the Business Park will impact on the existing off-site water supply and waste water infrastructure and HBAL will be required to contribute to the upgrades of both these services. The development proposed by the anchor tenant will not warrant the upgrades but trigger points will need to be established moving forward.

Future demand could see another area within the Airport confines being assigned to business use. This is to the northwest of the Airport and will release another 40 hectares for development.

5 Existing activity

Currently the Airport receives approximately 40 scheduled movements¹⁰ per day mostly by Air NZ's subsidiary carrier, Air Nelson, using their 50 seat Q300 aircraft to and from Auckland, Wellington and Christchurch. Air NZ's subsidiary carrier, Mount Cook airlines, also uses 68 seat ATR72 aircraft for some scheduled services to Auckland. The Q300 and ATR72 are Code C aircraft by virtue of their wing span.

Sunair, a Tauranga based airline, also operates a limited scheduled service to destinations including Gisborne, Hamilton, Paraparumu, Rotorua and Tauranga using small twin engined aircraft.

Air Napier, based at the Airport, operates charter services using small twin engined aircraft and also offers flight training and other fixed base operations.

Skyline Aviation operates fixed wing and helicopter aero medical (air ambulance), charter fixed wing and helicopter services and fixed base operations from a large modern facility at the Airport.

Both Air Napier and Skyline Aviation provide ground handling and passenger facilities for arriving and departing international aircraft carrying up to fourteen people including crew.

There are two agricultural fixed wing aircraft operations based at the Airport, Farmers Air and Aero Spread. Flight Care provides maintenance facilities for these and other agricultural operators as well as for Skyline Aviation.

Shoreline Helicopters operate a helicopter training school at the Airport. A number of flying schools, Air Hawke's Bay, CTC, Massey University, Flight Training Manawatu, Helipro and the Royal New Zealand Air Force (RNZAF) use the Airport for instrument flight rule training.

Several private hangars are located at the Airport, however, most recreational aviation in the Hawke's Bay area is based at Bridge Pa aerodrome in Hastings.

¹⁰ A movement is a take-off or landing

6 Facility assessment

6.1 Land holdings

Figure 1 in Appendix F, Volume 2, shows the Airport's owned and leased land holdings. Table 1 below gives further details.

HBAL owns two small areas of land of approximately 21 hectares. The main area of land occupied by the Airport is leased from NCC and HDC and totals 183 hectares.

Table 1: Land ownership

Appellation	Title	Area (ha)	Owner	Site Location (in relation to main Airport site)
Pt Lot 1 DP 11043	CT HB2/812	181.6718	Napier City Council Hastings District Council Hawke's Bay Airport Ltd as lessee	Main Site
Lot 3 DP 11043	CT HB2/812	1.7262	Napier City Council Hastings District Council Hawke's Bay Airport Ltd as lessee	North of main entrance (NE of main Airport site)
Sec 35 BLK IV Puketapu SD	CT HBC4/204	9.2647	Hawke's Bay Airport Ltd	West of main site
Section 37 BLK IV Heretaunga SD	CT HBC4/204	12.3176	Hawke's Bay Airport Ltd	South of main site
DP 431425 Areas 1 & 2		23.849	Landcorp Holdings Ltd	North and south of existing main runway 16-34

The leased areas from Landcorp Holdings Ltd are identified on Section 1 Survey Office Plan 10213, which is a site totalling 1270.9 hectares contained within Certificate of Title CT HBP 2/646. Refer to the areas bounded by white dashed lines on Figure 1 in Appendix F, Volume 2.

The area immediately to the south of Section 37 Block IV Heretaunga SD has been leased to provide for a future southern extension of the Airport's main runway.

6.2 Airfield operational requirements

6.2.1 Runways and strips

Figure 2 in Appendix F, Volume 2, shows the layout and dimensions of the runways as contained in the New Zealand aeronautical information publication (AIP).

(a) Main runway

The main runway 16-34 runs north-south and is 1,750m long by 45m wide. It is contained in a graded strip 1,870m long by 150m wide.

The main runway has a 240m runway end safety area (RESA) at each end making it fully compliant with CAA RESA requirements.

The runway strength is PCN68¹¹ F/D/X/T which is adequate for A320 and 737-800 operations at maximum operating weight. The runway category is Code 3C instrument non-precision.

The runway is capable of extension to 1,940m within a 2,060m long strip plus 240m RESA at each end. The extension of 190m from the current length would be built at the south end and would require the south threshold to be moved. In addition to the 190m extension, starter extensions could be provided at each end giving an effective 2,180m for take-off.¹²

This length will enable the operation of A320 and 737-800 aircraft with minimal loading restrictions but is not adequate for operation of wide body jet aircraft with the possible exception of the Boeing 787-8.¹³

Extension of the runway beyond 1,940m (except as starter extension) within the existing airport boundaries will compromise the 240m RESA (refer section 6.2.4) requiring CAA approval of a lesser RESA. CAA is very unlikely to approve a lesser RESA for jet operations.

Further extension to the north will require acquisition of wetland areas from DoC and the realignment of Turfrey Road.

¹¹ After the runway resurfacing in early 2013, it is anticipated that the runway strength will increase to over 70PCN

¹² This assumes a 60m buffer between the end of the seal and the end of the RESA for jet blast dissipation will be provided at each runway end.

¹³ Boeing has not publicly released performance data for the 787-8 however early indications are that it can operate from runways of approximately 2,000m long, but not to the extent of its full range capability.

(b) Main runway strip width

A strip width of 300m is being protected for future precision approach operations although currently the strip width declared for CAA certification purposes is only 150m.

The strip width does not have to be graded and free from ditches, drains etc. over its full width. It is sufficient under CAA design standards and International civil aviation organisation (ICAO) Annex 14 Standards and Recommended Practises, for the central 150m to be graded and the remaining 75m each side outside this to be “flyover” i.e. free from upstanding obstacles.

The 300m wide strip is protected against development and the building line restriction described in section 6.2.2 is designed to achieve this.

(c) Subsidiary runways

The Airport also has a partly sealed cross runway 07-25 which is 1,199m long by 30m wide and is contained in a 90m wide strip. 600m of this runway is sealed. This runway category is Code 2C non-instrument.

Grass runway 16-34 is parallel to and has an approximate 116m centreline to centreline separation from the main runway. Its strip is 766m long by 90m wide. It is possible this runway may eventually be sealed for all weather operation, however, it is also possible it may be closed if a parallel taxiway is constructed for the main runway. If this happens grass runway 16-34 may be relocated to the west of the main runway and to the south of 07-25 and its circuit direction reversed. This runway is Code 1B day VFR.

Grass runway 10-28 has now been closed due to the development of the Business Park.

6.2.2 Building line restrictions

Building line restrictions are in place to protect the runway transitional OLS and sight lines from the air traffic control (ATC) tower.

For the main runway, the building line restriction is 220m from the runway centreline and parallel to it on each side, protecting a 300m wide strip for a 10m high building, the height limit specified in the Airport Zone of the NCC District Plan. The 220m limit allows for an increase of 7.0m for each 1.0m of building height above 10m.

A sight line has been established from the ATC tower to the southern end of fully extended runway 16-34 strip and this is more restrictive than the general building line. Accordingly, no building can be constructed to the west of the tower sight line to ensure

aircraft at the south end of the strip (allowing for a future parallel taxiway) can be seen from the tower.

For runway 07-25 the general building line restriction is 90m from the runway centreline and parallel to it on each side. This protects an 80m wide strip for a 10m high building. The 90m limit is extended by 5.0m for each 1.0m of building height above 10m.

Building lines have not been established for the west side of the main runway or west end of 07-25 as this area is proposed to be reserved for a future northwest aeronautical/commercial precinct. This is discussed in section 8.6.

Figure 3 in Appendix F, Volume 2, shows the building line restrictions together with the ATC tower sight line.

6.2.3 Flight path protection

Flight paths are protected by the inclusion of OLS by Designation in the NCC District Plan. A notice of requirement (NOR) has recently been lodged with HDC for similar provisions in the HDC District Plan.

The Designation and NOR protect flight paths by prohibiting any object including any building, structure, mast, pole or tree from penetrating an OLS except with the prior approval of HBAL.¹⁴

For a detailed description of these surfaces refer to the applicable District Plan.

Regular surveys are required to ensure nothing penetrates these surfaces. HBAL will be vigilant for any proposed development or change of land use that could affect the OLS.

6.2.4 Runway end safety area

RESA 240m long by 150m wide are provided at each end of runway 16-34 in full compliance with CAA Rule 139.51(b) and Appendix A.1 requirements. The subsidiary runways are not required to have RESA as they do not have regular air transport operations of aircraft with 30 or more passenger seats.

The 240m RESA can be maintained with the runway extension to 1,940m. The construction of starter extensions will be into the 240m RESA area which is permissible under CAA Aerodrome Design Standards.

¹⁴ There are exceptions for areas specified in the District Plan as being "surface penetration areas".

6.2.5 Taxiways

The main runway is served by a stub taxiway entering approximately a quarter way down the runway from the north end. Figure 4 in Appendix F, Volume 2, shows the planned route of a future parallel taxiway. This route is protected although it is not envisaged a parallel taxiway will be needed within the planning period.

A sealed taxiway also connects the north apron to the east end of runway 07-25.

Various grass taxiways are also provided.

6.2.6 Aprons and hard stands

The apron has stands 1A and 1-5 marked.

Stand 1A is intended for itinerant aircraft such as business jets and overflow parking. It can accommodate Q300, ATR42, CV580 and smaller business jets. Larger business jets such as the Bombardier Global Express and Gulfstream V are too long for this stand.

Stand 1 can accommodate Code C aircraft with a wing span of up to 35m including A320/737-800 power-in/power out.

Stands 2 to 5 can accommodate 27.4m span aircraft and are suitable for ATR72 and Q300.

All stands are power-in/power-out. Consideration needs to be given to the effects of jet blast from A320/737 power-in/power-out operations.

Power-in with push-back can increase apron stands utilisation but may require additional apron area. Figure 5 in Appendix F, Volume 2, gives an indicative apron extension plan and stand layout. This provides hardstand space and GA parking as well as two 737-800/A320 push-back stands. Essential apron expansion to accommodate push-back stands is shown on the plan in orange shading and optional extension for GA parking is shown in dark green shading.

6.2.7 Helicopter areas

Currently there are no designated helicopter take-off and landing area (TOLA), final approach and take-off area (FATO) or hover practice areas.

Helicopters operate to and from the hardstand areas outside Skyline Aviation. Arrival and departure tracks are as cleared by ATC or, if ATC is not present, in accordance with fixed wing aircraft circuit patterns.

For regular helicopter operations, dedicated helicopter TOLA could be established dependant on demand to ensure orderly integration of fixed wing and helicopter flight paths and to minimise noise disturbance.

6.2.8 Navigation systems

The main runway, apron and main taxiway are equipped with night lighting.

The Airport has very high frequency omnidirectional range distance measuring equipment (VOR-DME) sited on runway centreline approximately 900m north of the 16 threshold. Low intensity approach lighting is also provided.

Provision and maintenance of all navigation aids and visual markings is contracted to Airways Corporation. With the advent of modern global positioning system (GPS) based navigation systems on current scheduled jet aircraft, there is little need for installation of better ground based navigational aids at the Airport.

It is more likely Airways Corporation will design performance based navigation (PBN) approach and departure procedures for A320/737 operations. PBN procedures are based on GPS navigation and can include turns to avoid noise sensitive areas or terrain. Liaison with Airways will be necessary to ensure any PBN procedure design takes account of aircraft noise planning and management requirements.

6.2.9 Rescue fire

CAA requirement is for Category 4. Our current rescue fire provider offers services to Category 5 and is capable of providing manning to Category 7, which is adequate for regular operations of aircraft up to and including A320 and 737-800 aircraft.

The rescue fire facility is located at the south end of the terminal building. It is in reasonable condition with room for two fire trucks, however, if larger appliances are required the roof will need to be lifted and the building extended forward.

6.2.10 Aviation fuel supply

Jet A1 fuel, previously piped from the fuel farm to the apron, has been replaced with a small tanker supplied from the fuel farm. The fuel farm is replenished from Wellington by road tanker as there is no Jet A1 fuel stored in Hawke's Bay other than at the Airport.

The supplier (BP) has been given notice that its current fuel depot lease will not be renewed at its termination date of December 2015. An alternative site will be identified but BP has indicated it will take the opportunity to decrease the size of its operation, assuming there is no change in fuel demand.

Plans have to be provided to ensure a fuel supplier maintains a presence at the Airport.

6.2.11 On-going regulatory compliance

The Airport maintains compliance with CAA rules and aerodrome design standards as required for operation of Code C aircraft

The applicable aerodrome design standards are contained in CAA Advisory Circular AC139-6.

Aerodrome visual navigation aids (approach, runway and taxiway lighting, windsocks and runway paint markings) are provided by Airways under contract to HBAL. Radio navigation aids, VOR and the ATC facility and equipment are also provided and maintained by Airways.

6.3 Terminals and buildings

The terminal building has been developed in stages over many decades and parts of the terminal date back to the 1970's or even earlier. The most recent major redevelopment was completed in 2003.

The terminal building accommodates airline check-in, baggage handling and office facilities, a small Koru club, rental car customer counters and offices, Airport offices and meeting rooms, the public concourse, café and toilets and gates to airside. Air NZ is currently the major airline operating from the Airport and there is limited provision available for one or more other passenger airlines to offer services as others have done in the past.

6.4 General aviation facilities

Currently commercial development outside of the terminal is limited to GA use with the majority of the tenants leasing areas from HBAL and owning the buildings or hangars constructed on the land. These areas have historically been allowed to develop on an ad-hoc basis and are either clustered near the terminal or dotted around the Airport grounds.

With the development of the Business Park to provide structured growth, some of the existing GA tenants will have to be relocated to an area to the southern end of the Business Park. This area will become the main part of the Airport for GA use and have airside access to the main runway and the parallel grass runway.

7 Demand

7.1 Napier / Hawke's Bay economic data

Economic data has been drawn from publicly available information and in particular economic development monitoring undertaken by NCC. Details of the most recent available information is contained in Appendix E of Volume 2.

This is a snapshot and has been used for drafting the Master Plan and is presented in times of a global recession.

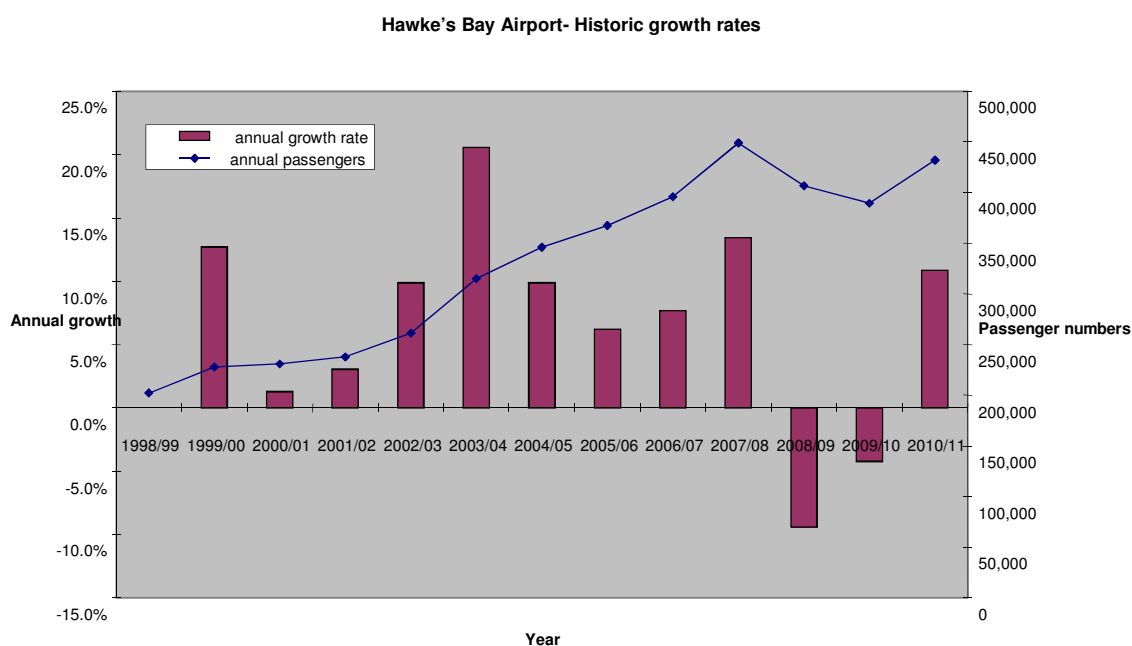
To promote aviation growth in the region, HBAL and Bridge Pa aerodrome in Hastings are working together with Business Hawke's Bay, Hawke's Bay Tourism, HDC and NCC to build an aviation cluster under the banner of the Hawke's Bay Aviation Partnership.

The two airports, under the guidance of a Memorandum of Understanding, are pursuing the common goal of establishing Hawke's Bay as a Centre of Excellence for Aviation.

7.2 Aviation demand

Scheduled airline passenger numbers have grown at an average of 6.5% compounding over the last 12 years, as illustrated in Chart 1.

Chart 1: Historic growth rates



Passenger demand is very heavily driven by pricing and airline capacity. Lack of competition tends to keep seat prices relatively high, especially between Hawke's Bay and other domestic points which require transit through Auckland, Wellington or Christchurch, such as to and from Queenstown.

Three growth scenarios have been developed from the current year to 2029/30:

Low growth – 1.5% compounding growth in passenger number, no major changes in fleet composition, one major scheduled carrier.

Medium growth – 3% compounding growth in passenger number, no major changes in fleet composition, one major scheduled carrier.

High – 3% compounding growth in passenger number, with spurts of 12% in 2013/14 with introduction of a second major carrier using 72 seat turbo-props, 8% in 2019/20 when A320 jet domestic introduced and 10% + 6% in 2024/25 and 2025/26 when international A320 jets assumed to be introduced. This provides an average compound growth of 4.5% and just over double the passenger volume of today.

The growth scenarios are illustrated in Charts 2 to 4.

Chart 2: Passenger growth scenarios

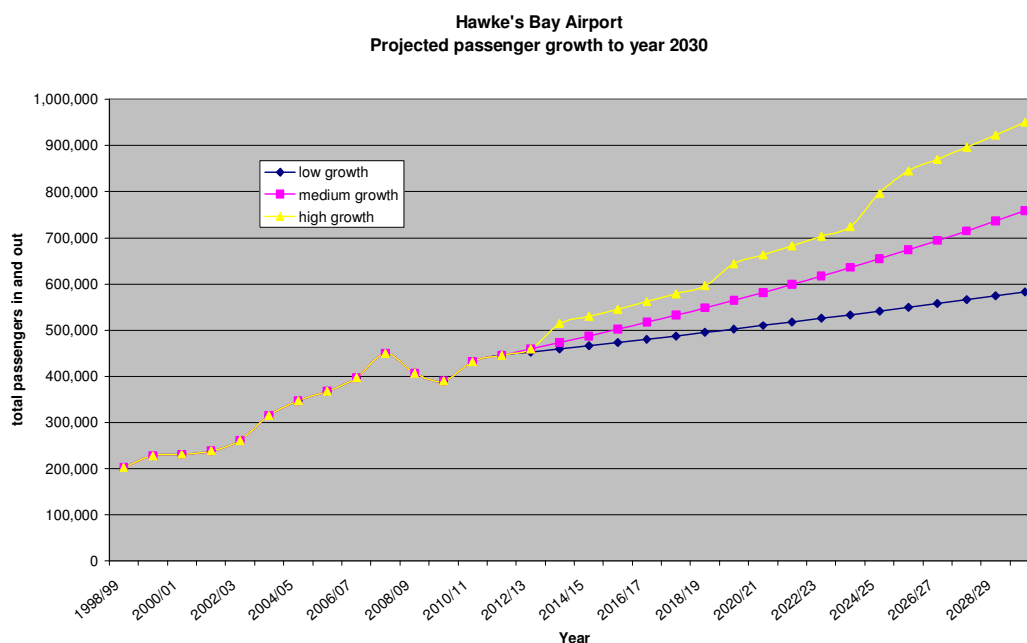


Chart 3: Year on year percentage growth

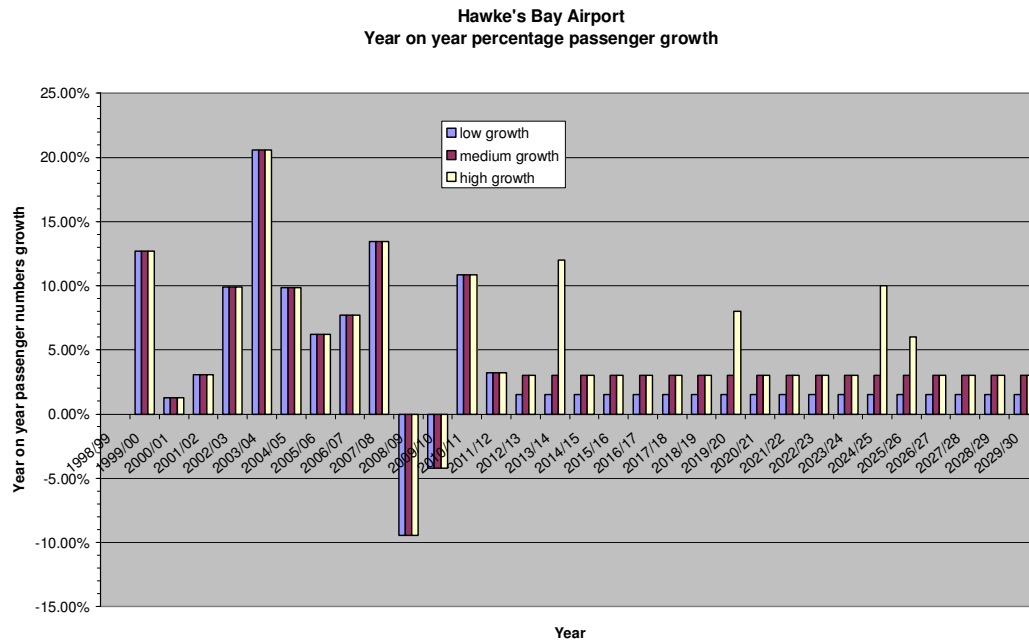
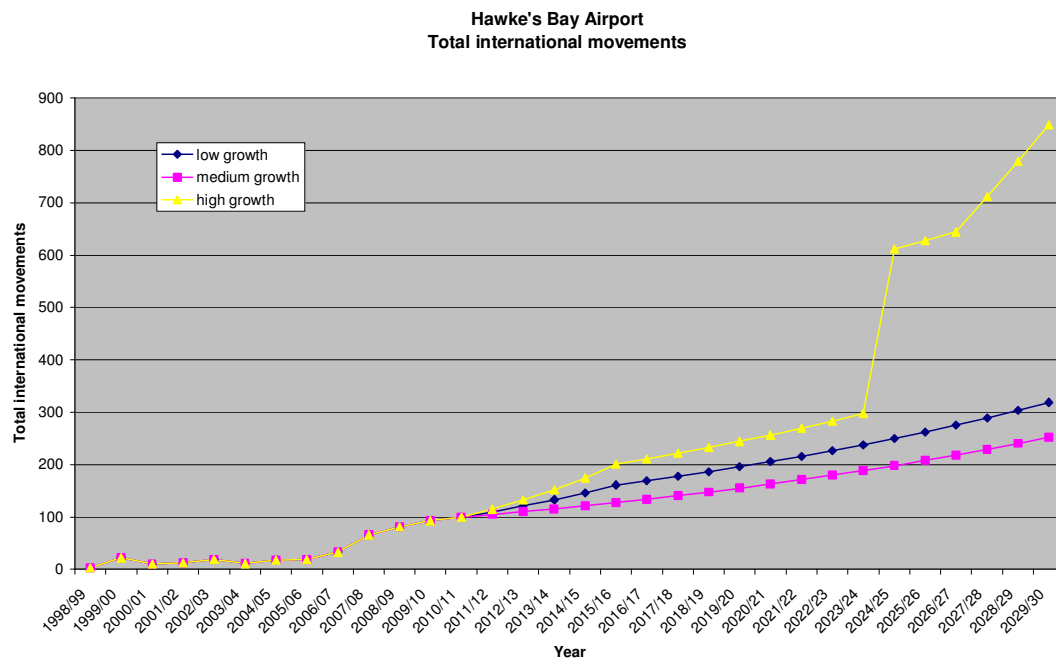


Chart 4: Total international movements



HBAL is working with the major parties, especially Air NZ, on plans to increase passenger numbers by 100,000 (approximately 20-25% of current levels) over the next three years.

This is well in excess of the high growth scenario above, however, it should be regarded as a short term boost rather than a long term achievable growth rate.

Air NZ's view is that the bulk of the increase in demand for air travel through the Airport will come from the leisure market but the target of 100,000 is well within reach. This could involve larger aircraft, increased frequency or looking at other destinations other than the three main centres.

7.3 Retail demand (in-terminal)

In-terminal retail will service individual passengers, meeters, greeters and farewellers and the working community inside the terminal confines. Initially, the retail mix will include specialty retail, food / beverage, newspapers / books but as passenger growth and introduction of jet domestic and international services occur, terminal upgrades will create the opportunity for a significant retail growth and revenue boost, especially from duty free purchases and other retail outlets.

7.4 Retail demand (non-terminal)

As the Business Park develops there will be a need to service the number of employees working at the Park with retail support. This will be provided as demand dictates and the Airport will look towards a potential 'one-stop' Business Park with a central support services area.

7.5 Commercial (non-retail) demand

Located adjacent to State Highway 2 and within easy reach of Napier & Hastings cities, coupled with greenfield build opportunities, airside access and minutes from the Port of Napier, the Airport is regarded as being a prime area for business relocation. Stage 1 of the Business Park is underway and further development will be aligned with demand.

8 Development of facilities

8.1 General

In this section guidelines are provided for the development of facilities in a structured manner that optimise the long term potential and asset value.

8.2 Terminal building

8.2.1 Location and capacity

The existing terminal building, expanded and updated in 2002/03, will continue to function as the base for scheduled aircraft operations for the foreseeable future. While the terminal will require further expansion and adaptation, especially for jet aircraft operations, there is no fundamental issue with its location, design or construction.

8.2.2 In-terminal retail development

Retail and terminal planning have to be considered in tandem for either to be effective. The Master Plan provides steps to achieve incremental terminal retail capacity as passenger traffic grows.

Airports are increasingly gaining revenue from non-aeronautical activities, including in-terminal retail. Currently the only retail outlet in the terminal is the cafe run by Spotless Services.

As the terminal expands to cater for increased passenger numbers as a result of another major carrier, more frequent domestic services and for international flights, additional retail facilities such as a second café, newspaper and book shops, luggage and clothes shops, travel agency, duty free goods will be required

Competition will be stimulated by not having exclusive arrangements and, as demand grows, competition will be fostered.

HBAL currently has 432,000 passenger movements per annum and can possibly sustain in the future between 430m² and 650m² of retail space (including duty free) providing the passenger profile was a similar fit.¹⁵

HBAL is considering a proposal to relocate the car rental companies from inside the terminal to open up more terminal space and allow new retail outlets to occupy the areas

¹⁵ Based on a similar south island airport of 500,000 passenger movements, retail floor space is 800m² or 1.6m² per thousand passengers. The benchmark range is between 1.0m² per thousand passengers and 1.5m² per thousand passengers.

vacated. As expansion occurs, retail will be provided within the expanded areas i.e. first floor cafe and duty free (if international departures on first floor).

Hawke's Bay is an end destination port with limited on-travel. This creates different retail dynamics as arriving passengers tend to move quickly through and away from the Airport. The retail emphasis HBAL will employ is around departing travellers and 'meeters and greeters' with top up revenue from terminal and surrounding business staff.

8.2.3 Meeting facilities and airline lounges

HBAL currently has two meeting rooms, the conference room catering for up to 20 people and the Beacons room catering for up to six. These are not considered to be adequate due to limited facilities, available space for expansion on the first floor of the terminal and costs associated with an extensive upgrade. An alternative proposal will be to construct a business hub outside the terminal in conjunction with the Business Park development. This will offer modern surroundings, accessibility (wheel chair access), a centralised reception area, casual meeting areas, better presentation capabilities, free ultra-fast broadband, wireless internet, beverage making facilities and, as well as short term hire of meeting rooms, will also house long-term tenants who only require a small office space.

Air NZ operates its Koru lounge facility, however, this is small and will need expansion as passenger numbers grow. This is provided for in the terminal expansion options discussed in the following sections.

Provision has been made for a second airline club lounge in the terminal upgrades, see Figure 13 in Appendix G, Volume 2.

8.2.4 Terminal expansion scenarios

In 2009 the Airport commissioned a study to investigate how the terminal could be developed to cater for larger passenger numbers, additional carriers and/or upgraded security requirements. This study provided design options for a number of growth scenarios, with the terminal envisaged as expanding to the north and upwards into an enlarged first floor.

The terminal could also be expanded to the south to provide enhanced public facilities, incorporation of the car rental outlets, additional leased space for commercial retail or café operators and an upgraded baggage reclaim.

The 2009 study has been updated in the course of preparation of the Master Plan and incremental terminal expansion options have been developed covering:

- **Scenario 1** (Figure 12 in Appendix G, Volume 2): Near term security upgrade to facilitate domestic ad-hoc jet services¹⁶.

This provides a secure area between gates 1 and 3 seating 80-100 people.

- **Scenario 2** (Figure 13 in Appendix G, Volume 2): Increased passenger numbers over next 1-3 years

This shifts the secure area to the north side of gate 1, adds toilets in the secure area and increases the seating capacity to around 112. Accommodates a second airline with check-in next to Air NZ, self-check-in and a second club lounge upstairs. Requires terminal extension north and south and on first floor.

- **Scenario 3** (Figure 14 in Appendix G, Volume 2): Two secure boarding lounges – possibly within 3-5 years

Adds a second secure lounge at gate 2 and a baggage claim belt system. Small extension of ground floor south.

- **Scenario 4** (Figure 15 in Appendix G, Volume 2): Scheduled international flights no airbridge

Provides a secure baggage claim area, separate international arrivals hall, immigration and customs space and duty free retail. Requires further extension north.

- **Scenario 5** (Figure 16 in Appendix G, Volume 2): Scheduled international flights with airbridge.

Adds an airbridge to the international arrivals/departures at north end of terminal. Departure screening and secure gate lounge for international moved to first floor. Gate 2 on ground floor reverts to non-screened.

More space is available on first floor under scenarios 2-5 if required for airline offices or meeting rooms.

Table 2 below gives the indicative floor areas required.

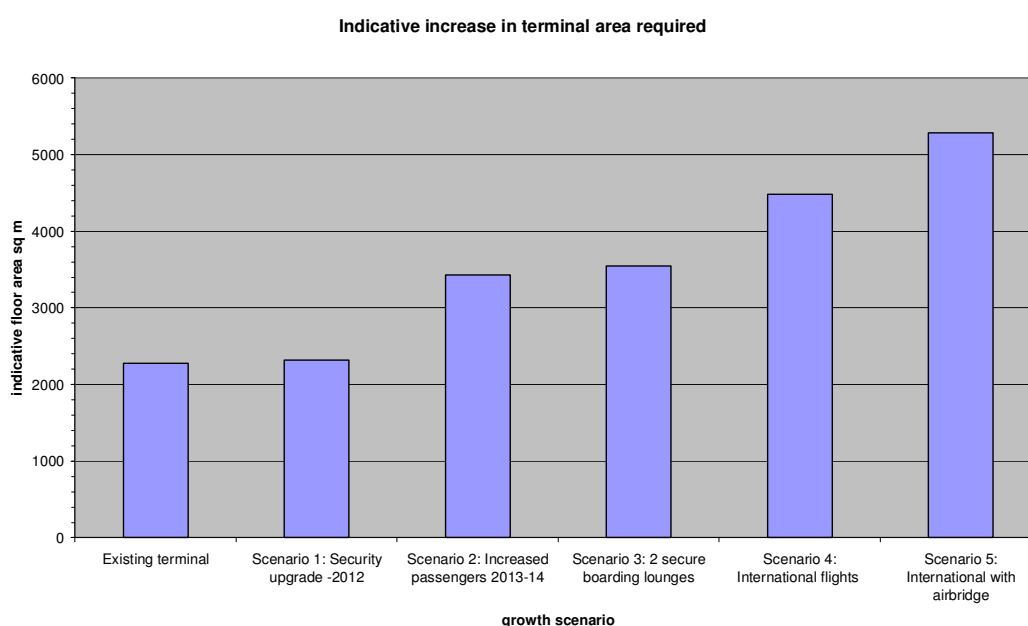
¹⁶ In this context "ad-hoc" means occasional charters below the level of "regular operations" as defined in CAA Rule Part 1, being 4 or more operations in any 28 day period.

Table 2: Indicative terminal floor area requirements – year 2029/30 high growth scenario

Facility	Indicative floor area (m2)	Comments
Check in including ticketing	250	
Landside concourse	500	
Toilets	100	
Security departing	75	
Customs departing	120	
Departure Lounge secure	250	Depends on 1 or 2 aircraft simultaneously
Departure non secure waiting	200	
Gates to pass through	50	Can be split in 2
Concessions cafe/retail/rental/bar etc.	650	
HBAL offices	100	
Airline offices and staff facilities	300	
Baggage makeup	350	
Baggage reclaim	500	
International arrivals	200 primary 450 secondary	
Free circulation space	200	
Utility room/s	50	
TOTAL	4145	

The existing terminal floor area is approximately 2300m2. Indicative growth in terminal floor area for various growth scenarios is shown in Chart 5 below:

Chart 5: Indicative terminal floor area growth required



The terminal redevelopment is assumed to be required when a second airline commences operations, passenger screening is required or the annual passenger numbers exceed 500,000. It is expected that any redevelopment will provide for the future requirements of the Master Plan, provision of \$4.5m has been made in the capital expenditure projections.

8.3 Apron and aircraft stands

The apron currently has three code C turbo-prop (stands 2-4) one code B (stand 5), one jet power in/power out (stand 1) and one for restricted, occasional use (stand 1A) that can accommodate Q300/ATR or smaller business jet aircraft.

Stand 1 is capable of taking A320 and 737-800 type aircraft.

Provision of another power in/power out jet stand in the vicinity of turboprop stands 4 and 5 may be required in the short term. In the longer term it may, depending on terminal layout for security screening, be necessary to provide push-back jet stands located further south than the existing stands 4 and 5, requiring an apron expansion southwest.

Concrete "T" shaped foundations will be required at the jet stand aircraft wheel positions for regular operations.

The jet stand development could be delayed until scheduled jet operations are confirmed, although provision of at least another power-in/out jet stand as described above will provide additional flexibility for handling peak operations during special events.

Even though airbridges are favoured by passengers, they are not sought by airlines at regional airports due to the high capital outlay and on-going maintenance costs. They are not considered to be a future requirement for the Airport but terminal expansion scenario 5, Figure 16 in Appendix G, Volume 2, does provide for an airbridge as an option for airlines to consider.

8.4 Business Park

A 20 hectare site is being developed to the south and east of the main car park and terminal as a Business Park which will be the primary location for new activities, both aeronautical and non-aeronautical. Figure 7 in Appendix F, Volume 2, indicates the Business Park concept Master Plan.

Grass runway 10-28 has been closed to provide for this development.

Future commercial development within the Airport Business Park will be on a structured basis consisting of three predominant areas – airside, commercial and campus. It is envisaged that the split between the three areas will be:

- 40% airside - aircraft maintenance / flight training / airline carrier / air freight / general aviation
- 35% commercial - clean industrial / distribution / high tech industrial / research & development
- 25% campus - offices / tourism / hotel / restaurant / conference facilities

There are potential limitations on the land which is subject to a perpetual lease constraint. However, HBAL will consider all options for development including design and build, capitalised lease and joint ventures.

In all cases, Business Park design guidelines will determine building standards and approval by HBAL will be required before construction.

8.5 Northwest precinct

There is sufficient land on the northwest side of the main and cross runways to develop aviation and commercial activities serviced by a northern perimeter road.

Figure 8 in Appendix F, Volume 2, shows an indicative layout of the precinct.

This site has potential for aeronautical use to service a replacement grass runway 16-34 as described in section 8.7.2, together with further commercial possibilities.

The corner of the site is currently located in the Airport Zone, therefore, for other than non-aeronautical use, development for other business uses will require resource consent for a Discretionary Activity (multiple resource consents may be required, depending on the number of activities and specific characteristics of any future development proposal). An alternative approach will be to seek the re-zoning of the north western corner of the site for business purposes via a private Plan Change process. Key matters for consideration are likely to be:

- Ensuring that the business use does not impede the safe operation and future development of the Airport
- Reducing the potential for impact from sensitive land uses on the operation of the Airport (reverse sensitivity effects)
- Management of actual and potential effects of land use activities

Once a decision is reached about whether to proceed with developing business activities in this location, discussions will be initiated with NCC about information requirements to support a private Plan Change application.

8.6 Road access –SH 2

Road access to the Airport and terminal buildings is currently provided directly off State Highway 2 which is managed by NZTA. The early development of the Business Park required a traffic impact assessment of the existing access which has been carried out by MWH NZ Ltd and resulted in advice that capacity and safety are well within acceptable standards, despite the access being perceived as dangerous.

Consequently, current planning is focussed on retaining the existing access layout with a possible separation of traffic flow to and from the Business Park once inside the Airport. Figure 6 in Appendix F, Volume 2, shows the proposed road layout for the Business Park.

As part of the long-term plans, it will be necessary to upgrade the existing access off the State Highway to cater for not only increased passenger numbers but also for the development of the Business Park. A more extensive traffic impact assessment will be undertaken based on projected growth which will determine a trigger point at which the access will need to be upgraded.

HBAL will work closely with NZTA to design a practical solution for the access with the potential of joint funding being put in place for the improvements.

Temporary traffic management was installed around the entrance to the Airport for the Rugby World Cup 2011 and this has now become permanent with a temporary speed reduction on the state highway to 80km an hour.

8.7 General aviation, flight training, maintenance and freight operations

8.7.1 Expansion of existing operations

Existing GA fixed wing and helicopter operations (charter, flight training and aero medical) and aircraft maintenance services will continue to be based to the north (Skyline Aviation) and south (Air Napier, Flight Care) of the existing terminal building. Skyline Aviation has the ability to expand one bay east, further expansion in that direction being constrained by the need for provision of a future internal perimeter road.

The Aero Club, adjacent hangars and other GA hangars, currently situated in various parts of the Business Park area, will be relocated to the dedicated GA area at the southern end of the Business Park.

8.7.2 New facilities

(a) Fixed wing fixed base operations

Fixed based operator (FBO) companies (such as Skyline Aviation and Air Napier) provide general aircraft charter, servicing and small scale flight training locally and support for itinerant aircraft operators.

(b) Helicopter operations

As it is desirable to locate helicopter operations well away from fixed wing operations, future expansion of helicopter operations (with the exception of helicopter flight training) will be located in the GA area of the Business Park. Figure 9 in Appendix F, Volume 2, shows the dedicated GA area in the Business Park.

Large scale helicopter training operations will be limited due to conflict with scheduled services¹⁷.

(c) Flight training school

The establishment of a flight training school (fixed wing) of up to 120 students is considered quite realistic given the favourable weather and relatively uncrowded skies in the area.

Access to grass runway 16-34 will be favourable as this will avoid delays taxiing to/from the main runway and the need to wait for other aircraft using it to clear.¹⁸ However, the future of grass 16-34 depends on whether a Code C parallel taxiway is to be established as this will require the closure of the grass runway.

For this reason consideration should be given to aviation development on the northwest side of the main runway with access from an internal perimeter road running around the end of the north runway and utilising a new grass runway 16-34, established to the west of the main runway, see Figure 8 in Appendix F, Volume 2.

¹⁷ Refer to Section 6.2.7

¹⁸ Note however that simultaneous operations on sealed and grass 16-34 are only permitted by aircraft of 2300kg or less in VFR conditions when ATC is on duty.

Although it is not envisaged a Code C parallel taxiway will be required within the planning period, the long-term option of aviation development on the northwest side including a parallel grass runway will be retained.

(d) Maintenance services

Currently Air New Zealand maintenance services are based at Auckland, Hamilton, Nelson and Christchurch airports. However, HBAL is currently pursuing opportunities for the Air NZ group or other parties to establish facilities at the Airport.

Provision will be required for engine testing site/s. Previously engine testing has been done at the west end of runway 07-25 and this is envisaged to continue, possibly with the construction of an acoustic test pen off the end of that runway.

Smaller maintenance facilities catering for light aircraft, helicopters and specialised components, will be located in the Business Park.

Further detail on the planning provisions in relation to the establishment of a major aircraft maintenance facility and, particularly in relation to aircraft noise, are addressed in section 10.5 of the Master Plan.

(e) Recreational aviation

Provision for recreational aviation will be made and be located in a dedicated area at the southern end of the Business Park for private hangars and GA operations.

(f) Private business jet operations

Private jet aircraft are currently handled by Air Napier and Skyline Aviation and are parked opposite the control tower/Air Napier and Gate 1A.

Should private jet operations increase substantially more parking will be required. This can be on a "move around" basis where the FBO servicing the aircraft move them so that the next departing aircraft is not blocked in by others departing later.

This reduces the parking area required substantially.

If there was a significant increase in demand, the apron will have to be expanded to accommodate private jet aircraft as indicated by the dark green shaded areas in Figure 5 of Appendix F, Volume 2.

8.8 Air traffic control

ATC services are provided by Airways from a recently built tower located adjacent to the terminal. No change is envisaged to this and it is essential the sight lines from the tower will be preserved.

8.9 Fire services

RFS are required for scheduled operations by aircraft with 30 or more passenger seats and for this reason must be provided in a location that provides scope for expansion to meet the greater capacity requirements for future jet operations and meets the regulatory response time requirements.

RFS equipment currently available at the Airport meets ICAO Category 7 which is adequate for the 737-800 and A320-200 on international operations. No major change is envisaged to RFS facilities within the planning period.

8.10 Rental car facilities

Relocation of the existing car rental companies is being considered to create more space within the terminal and allow for increased Airport car parking facilities.

Options will be explored to house new counter and office facilities together with the provision of wash/dry operations, fuelling and parking. The existing car wash/dry and fuelling facilities situated on the grassed area to the south of the long-stay car park and current rental car parking will be re-sited.

8.11 Car and coach parking

HBAL currently provides 540 public car parking spaces in three separate car parks, Visitor for up to 2 hours (100), all day (290) and secured (150). In addition there are 28 spaces provided for staff. It is envisaged that as passenger numbers grow car parking space will need to be expanded.

It is the intention to construct additional parking areas to the south of the long stay car park to provide an increased number of spaces for both the main and long stay car parks. Resurfacing of all the parking areas to provide a smooth running surface for wheelchairs, push chairs and baggage trolleys will be form part of the project.

If further development of car parking is required, constraints in expansion at ground level will require construction of a car park above the existing main car park with a first floor footbridge connection over the Airport perimeter road to the terminal.

9 Planning consents

9.1 Consents currently held

Hawke's Bay Airport is a Requiring Authority under the Resource Management Act 1991 and the Airport activities are specifically provided for through the NCC District Plan and the HBRC Resource Management Plan.

A full list of the resource consents granted can be found in Appendix A of Volume 2.

There are no consents or rules relating to the Airport in the adjoining HDC District Plan, although this is being currently discussed in relation to OLS protection for the extended runway.

9.2 Aviation facility protection

Hawke's Bay Airport is provided for in the NCC District Plan through a specific Airport Zone. Chapter 51 of the Plan gives details for the Airport Zone and specifically provides for:

- The safe operation and provision for future development of Hawke's Bay Airport
- The management of any adverse effects on the environment generated by land uses within the Hawke's Bay Airport area
- The impacts of sensitive land uses within or adjacent to Hawke's Bay Airport

Objectives, policies, rules and methods are then outlined which are anticipated to provide for the safe operation and provision for future development, an acceptable level of amenity in surrounding areas and an environment surrounding the Airport where the risk to the safety of the public is minimised.

With regard to aviation facilities, the District Plan provides for the following as Permitted Activities (no resource consent is required):

- Land uses necessary for air traffic safety purposes
- Land uses ancillary to and related to the primary function of Hawke's Bay Airport¹⁹.

The District Plan further specifies conditions that must be complied with in relation to specific matters including yards, building height and noise.

¹⁹ The primary function of the Airport is defined in the District Plan, refer to Appendix D of this Master Plan.

9.3 Commercial development

The NCC District Plan provides for the following activities as Discretionary Activities (resource consent is required and may or may not be granted, subject to conditions):

- Industrial activities not related to the primary function of Hawke's Bay Airport
- Commercial activities not related to the primary function of Hawke's Bay Airport.

In addition, the activity must comply with conditions stated in the plan in relation to specific matters including yards, building height and noise.

When considering an application for resource consent for an industrial or commercial activity the Council have specified assessment criteria that it will consider, dealing with:

- Scale and intensity of the activity
- Site layout
- Vehicle parking and access
- Noise mitigation measures
- Infrastructure
- Air traffic safety
- Cumulative effects on the surrounding area
- Reserve sensitivities (whether the activity or proposal will place a constraint on the Airport in carrying out its operations)

Any application for resource consent for an industrial or commercial activity will be required to specifically address these matters.

9.4 Noise

The District Plan at Chapter 51, 51.18, specifies noise limits for various types of activity at the Airport.

In relation to aircraft noise the 51.18(2) requires the Airport to be operated such that the noise produced by aircraft operations does not exceed 55 decibel A-weighting (dBA) day-night average sound level (Ldn) at any point on the airport noise boundary (ANB) as shown on the planning maps.

Section 51.18(3) specifies acoustic treatment (insulation) requirements for habitable spaces within the ANB and, in the case of new subdivisions, requires registration of a

consent notice on the title of individual lots to ensure acoustic treatment standards are met.

Section 51.18(3) is deficient when compared to New Zealand Standard (NZS)5805:1992 *Airport Noise Management and Land Use Planning* because:

- It only relates to habitable spaces, not the more broad definition of noise sensitive uses contained in NZS6805.
- It does not prohibit new noise sensitive uses in areas exposed to 65 dBA Ldn or higher noise levels.
- It does not address night sleep disturbance due to single event noise.

The ANB location is reasonably generous in that it provides considerable buffer for expansion of aircraft operations, however, it provides little protection from encroachment of residential areas which ultimately will constrain the Airport.

Engine testing is an activity which can lead to disturbance if not controlled and there is currently no dedicated test site or facility at the Airport. Previously testing has been done at the western end of runway 07-25.

An analysis of projected noise contours for year 2030 compared to the Section 5.18 noise controls is given in section 10.5.

9.5 Wetlands protection

HBAL have previously undertaken an assessment of stormwater management and currently comply with HBRC conditions. Future requirements for stormwater management associated with the development of the Business Park and further expansion of airside services, will be addressed when required.

Details of current consents can be found in Appendix B of Volume 2.

10 Constraints

10.1 Earthquake risk²⁰

Studies of moderate to large earthquakes and seismic activity in Hawke's Bay indicate that the region is one of the most earthquake prone areas of New Zealand. Hawke's Bay Airport is located on estuarine and lagoon deposits of sand, silt and minor gravels from the pre-1931 Ahuriri Lagoon.

The Airport site may be at risk from the effects of subduction zone earthquakes. A major regional subduction zone earthquake centred off the Hawke's Bay coast may have the potential to cause the former Ahuriri Lagoon area to subduct (drop) and also generate a tsunami that could inundate the Airport site.

While the 1931 Hawke's Bay Earthquake (a reverse thrust earthquake) caused the lagoon area to rise about one and a half metres, studies by GNS indicate that subduction zone earthquakes have an average recurrence interval of approximately 400 years and that one such event may likely cause the former lagoon area to settle by approximately 0.6 – 1 metre.

An extensive geotechnical investigation was carried out in 2012 by Tonkin and Taylor²¹ for the development of the Business Park. The results show that the upper silty to sandy gravels soils are likely to provide a competent bearing stratum for support of single to three storey structures on shallow foundations.

The alluvial material is typically loose to very dense and Tonkin and Taylor have recommended that this not expected to be liquefiable below 2.1m. Tonkin and Taylor have further suggested that surface settlement of up to 90mm may be expected as a result of liquefaction of the soils occurring beneath the site in a ultimate limit state earthquake. Therefore, it is recommended that a raft foundation system should be used across the site with the design and construction of new facilities built in accordance with current applicable New Zealand standards.

10.2 Funding

Bank loan funding has been arranged to enable the existing runway to be resurfaced and for stage 1 of the Business Park to be commenced. Additional funding will be required to

²⁰ Reference: 'Facing the risks' (2001) Report of the Hawke's Bay Engineering Lifelines Project HBRC Plan No. 3065.

²¹ Reference: Tonkin and Taylor Ltd Geotechnical Investigation Report March 2012

cater for domestic and international jet services and further stages of the Business Park, whether internal or external.

10.3 Civil Aviation Authority requirements

CAA is currently reviewing Rule Part 139 - *Aerodrome certification* and it is expected much of the advisory and standards material currently in advisory circular (AC)139-6 – *Aerodrome Design Standards* will be transferred to the rule. CAA is also likely to move to almost total compliance with ICAO Annex 14 Aerodrome Design Standards and Recommended Practices (SARPS).

It is likely to be several years before these changes are implemented and little detail is available at this stage. However, it is not anticipated the changes will significantly affect HBAL as it is already in compliance with major aspects of the Annex 14 SARPS for Code C instrument non-precision operations including 300m strip width, 240m RESA and 45m runway width.

10.4 Runway length

Table 2 below indicates the characteristics²² of current aircraft as flown by New Zealand and Australian airlines.

Table 3: Aircraft characteristics

	Boeing 737-300	Boeing 737-800	Airbus A320	Boeing 737-700	Airbus A319	Bombardier Q400	Embraer E190	Notes
Maximum take-off weight (kg)	63267	79016	77000	70100	75500	29257	51800	
Maximum landing weight (kg)	52889	66360	64500	58600	62500	28009	44000	
Maximum zero fuel weight (kg)	49714	62372	61000	55200	58500	25855	40900	
Operating empty weight (kg)	34200	43000	43200	40000	41500	17100	29500	Typical, varies with aircraft criteria
Seats fitted (number)	136	180	178	136	134	74	98	
Maximum payload (kg)	15514	19372	17800	15200	17000	8755	11400	Based on structural limits
100% passenger payload (kg)	13600	18000	17800	13600	13400	7400	9800	
Domestic indicative take-off runway length (m)	1650	1800	1550	1500	1500	1450	1600	
Domestic indicative landing runway length (m)	1650	1900	1700	1650	1600	1480	1550	

²² Reference: Astral Ltd Development of Runway 16/34 for Jet Operations Report dated 21 May 2009.

The design aircraft, Code C 737-800, requires approximately 2,280m take-off runway length at its maximum operating weight of 79,016kg. However, operations to the main east Coast Australian cities do not require a take-off weight this high, typically 77,000kg being adequate for a full load. At this weight the aircraft requires approximately 2,100m take-off runway length.

It should be noted this is substantially more than most regional airports which typically have 1,900m long runways. From this it is concluded that 1,940m runway length will be adequate for 737-800 trans-Tasman operations but 2,100m could be provided by the addition of starter extensions if required.

Accordingly runway length is not seen as a constraint to development of the Airport for the design aircraft and route network.

10.5 Aircraft and engine testing noise

The District Plan requirements in relation to noise are specified in Part 51.18 of the Operative District Plan. These provisions are summarised in Appendix C of Volume 2.

10.5.1 Aircraft Noise

Aircraft noise has been modelled by Marshall Day Acoustics Ltd to ascertain the future aircraft noise areas associated with projected growth of aircraft movements over the next 30 years at the Airport. Figure 10 in Appendix F, Volume 2, shows the draft projected 2030 noise contours for the aircraft fleet mix described in section 7.2. The existing ANB is also shown on the figure.

The District Plan at 5.18(2) requires the Airport to be operated such that a 55 dBA Ldn is not exceeded at the ANB. It can be seen that this will be a constraint for the level of operations projected in 2028/2029, based on current day individual aircraft noise levels.

The existing District Plan provisions do not afford a level of protection that accord with NZS6805:1992 with regard to noise attenuation within the Airport noise boundary.

Ideally no noise sensitive uses (as defined in NZS6805:1992) should be permitted inside the ANB. This would provide a level of protection better than at most NZ airports and should also protect against night noise disturbance.²³

²³ The maximum noise level (single event) for avoidance of sleep disturbance is not specified in NZS6805:1992. However, Marshall Day recommends a maximum level of 95 dBA single event noise level (SEL). At this level a small proportion of people will still be disturbed.

Public consultation has been undertaken and discussions are currently being held with NCC to address this situation.

10.5.2 Engine Testing

The establishment of a major aircraft maintenance facility at the Airport is likely to be considered as an Aircraft Related and Ancillary Land Use, which is a Permitted Activity as provided for by Rule 51.6 of the Operative District Plan. However, the noise associated with engine testing will be a key consideration and it will be required to comply with the noise limits as outlined in Table 3 below, measured from any point within any residentially zoned land.

Table 4: Noise limitations

Day / Time	Standard
Mon – Sat inclusive 0700-2200 hours	L ₁₀ 55dBA
Sunday and all other times	L ₁₀ 45dBA
Mon – Sun inclusive 2200-0700 hours the following day	L _{max} 75dBA

Rule 51.18 of the Operative NCC District Plan specifically includes engine testing within the list of activities that are required to comply with this standard. As this is unlikely to be achieved, a resource consent will be required for a Restricted Discretionary Activity as provided for Rule 51.10 of the Plan. When considering an application, Council will evaluate the effects of the noise, particularly off-site and during the evening, and will require associated mitigation measures to reduce noise generation. Noise attenuation through a purpose-built testing area will, therefore, be a key facility requirement.

10.6 Existing incompatible land uses

Incompatible land uses primarily relate to noise sensitive land uses both on and surrounding the Airport site. There is some residential development located within the existing Airport noise boundary (Watchman Road houses) and the Marshall Day Acoustics noise model predicts that the 55Ldn noise boundary extends southward and covers parts of the Parkland Estate subdivision. Discussions have been initiated with NCC to consider how the potential for reverse sensitivity effects can be addressed, particularly with regard to future development in close proximity to the Airport.

Future development of the Business Park increases risk associated with the introduction of noise sensitive land uses and noise sensitive activities (i.e. apartment accommodation with private hangars) will need to be controlled.

Requests for accommodation in non-airside areas will be considered on a case-by-case basis but there will be a total prohibition of accommodation in any airside situation.

10.7 Local and Regional authority requirements

A summary of the current rules as they apply to the Airport site is provided in Appendix D of Volume 2. Any future Airport development will need to take place in accordance with the provisions of this section or obtain resource consents to facilitate development. The rules in relation to the Airport Zone are relatively permissive in relation to aviation based activities, although care will need to be exercised around the performance standards that manage matters such as height limits, noise and height in relation to boundary and yard setbacks.

HBRC additionally regulates discharges which is of particular relevance to stormwater management on the Airport site. The Airport was granted a resource consent with a recent variation for stormwater discharge, although additional consents are likely to be required for stormwater loads associated with future developments on the site and in particular the Business Park development.

Consent requirements will need to be confirmed as plans proceed with the agreement of HBRC.

11 Schedule of development tasks and capital works

11.1 Development and planning tasks

The main development and planning tasks identified in the draft Master Plan are:

- Staged development of the terminal building to accommodate growth in scheduled movements and improve non-aeronautical terminal revenue opportunities
- NCC District Plan change to introduce new noise contours and to broaden the scope of commercial activities in the Business Park
- HDC Plan change to introduce flight path protection controls
- Commercial development to improve business performance and provide appropriate facilities for air side and non-air side users
- Reassessment of car rental facilities, car and coach parking areas
- Runway, taxiway and apron resurfacing
- Runway, taxiway and apron strengthening for scheduled jet services
- Apron extension to accommodate scheduled jet services

11.2 Major capital works items

<i>Item</i>	<i>Indicative cost</i>	<i>Indicative timing</i>
<i>New power supply to Business Park</i>	\$2.7m	2013
<i>Stage 1 Business Park development</i>	\$1.5m	2013
<i>Runway resurfacing</i>	\$4.0m	2013
<i>Extend car parking areas</i>	\$1.1m	2014 – 2016
<i>Terminal redevelopment</i>	\$4.5m	2016 – 2018
<i>Further Business Park stages</i>	\$6.5m	2016 – 2022
<i>Apron extension/pushback</i>	\$1.2m	2018 – 2022
<i>Stands</i>		
<i>International development</i>	\$3.8m	2018 - 2022
<i>Runway extension to 1,940 metres</i>	\$2.9m	2018 - 2022
<i>Code C taxiway</i>	\$3.3m	2022
<i>Northwest precinct development</i>	[TBA]	[TBA]

11.3 Issues to address

Issues arising out of the Master Plan exercise are:

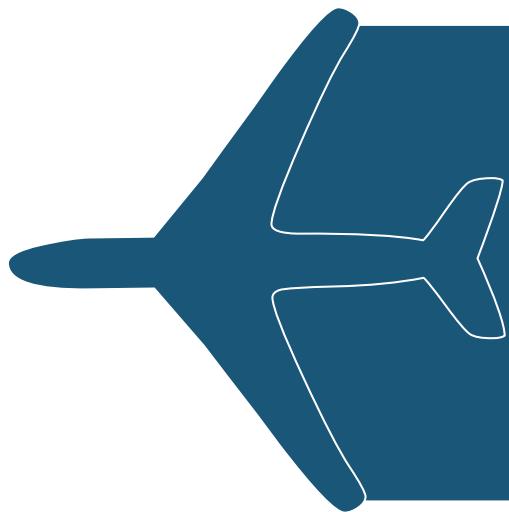
- Compliance with Local Authority District Plans and possible Plan changes to implement new noise contours and broaden the scope of commercial activities associated with the development of the Business Park
- Cost/funding of the Business Park development, especially development contributions for off-site local upgrades to water and wastewater services and onsite power reticulation
- Cost/funding of the Airport access improvements onto the State Highway from increased passenger growth and Business Park traffic
- Relocation of the Aero Club and existing general aviation hangars to the southern end of the Business Park
- Shareholder and stakeholder understanding of the requirement of continued capital expenditure over the planning period of the Master Plan

12 Submissions received on draft Master Plan

[To be added post-consultation]

13 Glossary

ANB	Airport noise boundary
AC	Advisory circular
AIP	Aeronautical information publication
Air NZ	Air New Zealand
ATC	Air traffic control
AvSec	Aviation security
BLK	Block
CAA	Civil aviation authority of New Zealand
CAPEX	Capital expenditure
CT	Certificate of title
dBA	Decibel A-weighting
DME	Distance measuring equipment
DoC	Department of conservation
FATO	Final approach and take-off area
FBO	Fixed base operator
GA	General aviation
GPS	Global positioning system
HBAL	Hawke's Bay Airport Limited
HBRC	Hawke's Bay Regional Council
HDC	Hastings District Council
ICAO	International civil aviation organisation
IFR	Instrument flight rules
Ldn	Day-night averaged sound level
NCC	Napier City Council
NOR	Notice of requirement
NZ	New Zealand
NZS	New Zealand standard
NZTA	New Zealand transport agency
OLS	Obstacle limitation surfaces
PAX	Passengers
PBN	Performance based navigation
RESA	Runway end safety area
RFS	Rescue fire services
RMA	Resource management act
RNZAF	Royal New Zealand air force
SARPS	Standards and Recommended Practices
SD	Sub division
SEL	Single event noise level
TBA	To be advised
TOLA	Take-off and landing area
VFR	Visual flight rules
VOR	VHF omnidirectional range



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