Town of Port Hedland

Attachment 1 to Item 11.5.5

Port Hedland INTERNATIONAL AIRPORT

Creating a modern gateway to Australia's North West

Port Hedland International Airport redevelopment strategy

May 2014

FOREWORD

The Port Hedland International Airport will soon transform into a modern and well-serviced welcoming gateway to Australia's North West. Its redevelopment will include terminal renovations, new freight and logistics zone, revised ground transport arrangements, improved airside operations and new commercial opportunities.

We are committed to being a vibrant meeting place that welcomes travellers to the friendly Port Hedland community and treasures of the Pilbara, coupled with our core business of providing efficient passenger and freight services to the North West.

This document provides an overview of:

- strategic review outcomes of the Port Hedland International Airport master plan, aeronautical compliance, passenger terminal, freight and logistics zone and ground transport
- place guidelines developed to identify what makes Port Hedland special and how this could be reflected in the airport redevelopment
- interim works program to ease congestion within the terminal, improve the amenity of the precinct and start to position the airport as a welcoming gateway to the North West that reflects Port Hedland's unique sense of place
- design concepts for terminal redevelopment, ground transport arrangements, freight and logistics zone and airside operations
- governance review to create more efficient and economically viable operating model
- program sequencing and budget estimates for key infrastructure projects.

The redevelopment strategy will require an investment of more than $100 million over the next five years. Funding sources include airport capital reserve, revenue from Kingsford Smith Business Park, new revenue sources and loan funds. Key capital projects have been sequenced to ensure delivery meets demand and commercial outcomes.

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1.0 EXECUTIVE SUMMARY

The Port Hedland International Airport will soon transform to a modern and well-serviced airport that provides a welcoming gateway to Australia's North West. The $100 million redevelopment program will include refurbishments, infrastructure upgrades, new subdivisions and new business opportunities.

The airport has experienced rapid growth with passenger numbers multiplying from 110,000 in 2005 to more than 515,000 in 2013. With this unprecedented growth, the airport needs to expand. There is now a significant opportunity to leverage existing work and deliver a modern and well-serviced airport for Port Hedland.

The Port Hedland International Airport master plan was finalised in March 2012. Given the dynamics of the mining industry and the rapid growth experienced across the town, the plan was reviewed in late 2013. Capital works programing and associated documentation was also reviewed to ensure it is current and relevant to Port Hedland and its current environment.

The Town of Port Hedland engaged consultancies to conduct a series of reviews – including the master plan (land use planning and aeronautical compliance), future growth planning for the terminal design, car parking/ground transport, place making and governance structure.

The key outcomes of the reviews were:

- **airside planning** outcomes offered logical, rational and sensible solutions which were appropriate to meet expected future aeronautical requirements – key programs include apron expansion, moving general aviation operations to a separate apron, new taxiway and changing to power-in/power-out aircraft operations
- nominated **land uses** were considered to be generally sound with strong stakeholder support to develop an international freight hub
- existing **passenger terminal** is undersized and operationally inefficient in peak periods – which provides an opportunity to significantly expand the terminal in its current location, including doubling footprint, creating mezzanine level and building extensive plaza and covered walkways
- reconfiguration of the **ground transport** and car parks is recommended – including creating shared zones, a separate bus parking area, expanding the short-term car park expansion, extending existing service roads and creating new two-way access to freight and logistics zone
- development of a new **freight and logistics zone** with direct airside access lots is recommended to leverage freight opportunities and relocate hire car operations
- incorporate a strong **sense of place** and reflect Port Hedland's unique identity and experience
- explore an alternative **governance structure** that is more efficient and economically viable

2.0 BACKGROUND AND CONTEXT

Port Hedland has been an important transport hub for more than 100 years. It is a dynamic town in Western Australia's Pilbara region set along a rugged and picturesque coastline and home to more than 20,000 people. The town's region is the economic might of the Australian economy on the back of an internationally significant resource industry. It is already the world's largest bulk tonnage export port. Current residential growth is at 5.5 percent which is nearly double the state's average and more than three times higher than the national average. The median personal income is also more than double the state's average.

Even bigger things are ahead – by 2035 Port Hedland will be a nationally significant friendly city where people want to live and are proud to call home. It will be home to 50,000 people and boast attractive and vibrant CBD areas with public open spaces, cafes, boutiques, restaurants, offices and residential areas.

The Port Hedland International Airport is central to this vision. Surrounded by vast landscapes and being some 1800 kilometers from Perth, the airport is the key route of transportation and symbolic gateway into the town as the first and last place people encounter. The airport services a booming fly-in/fly-out workforce of more than 3000 people.

As the world's largest bulk tonnage export port, Port Hedland is an industry driven town. The airport provides key access for not only the town's workforce and residential population, but also essential services such as freight and Royal Flying Doctors Service, on which the community rely.

We recognise the regional economic and social importance of the airport as a gateway to our region, thriving community and significant industry.

2.1 Port Hedland International Airport's history

The Port Hedland International Airport has always played a vital role connecting the town to Perth and beyond. In 1921 the first airfield was developed at the site of the current racetrack. The first regular service linking Port Hedland to Perth took two days and was through Western Australian Airlines. Among the first pilots was a young Charles Kingsford Smith who later became a famous Australian aviation icon when he was the first pilot to complete the trans-Pacific and trans-Tasman crossing.

The Royal Flying Doctor Services' first main base in Western Australia was founded in Port Hedland in October 1935, to provide emergency and primary health care services to remote Pilbara communities. The service was, and still is, a lifeline for the Port Hedland community.

During World War II, up to 70 bombs were dropped on the Port Hedland airfield severely damaging all runways and surrounding buildings.

Since the growth of the mining industry in the 1960s, air passenger numbers have been on a steady increase. In 1956 a fibro-cement terminal building was built to replace the original hut and by 1971 the terminal building was again rebuilt to cope with renewed demands from the mining sector. The building was upgraded in the late 1990s to accommodate the increasing passenger numbers.

2.2 Ownership and operational model

The Port Hedland International Airport is owned and operated by the Town of Port Hedland. Its development is overseen by the Airport Committee which comprises of elected members and community members.

The airport currently employs ten officers across the areas of compliance, operations and paid parking with business, project and administration (human resources, information technology etc) support provided by Town executive and officers.

Ground service agent, North West Aviation Services, mange aircraft movements and check-in facilities. Security services, including checked bag and passenger screening, are provided by MSS Security. AirServices Australia provide flight information and fire and rescue services. Fuel is administered by AirBP.

2.3 Previous plans

The Port Hedland International Airport master plan was finalised in March 2012. It provides a 20 year planning framework for future development of the airport to meet long-term business needs, operational objectives, and regional requirements. It summarises key aviation issues and opportunities and provides detail for the phasing of key infrastructure. The plan also outlines distinct precincts and suitable land uses for these precincts.

The Town had originally allocated a capital works program of $70.5 million over a five year period to transform the airport precinct. It was originally envisaged that in the coming years the airport would accommodate up to 700,000 passengers. Key projects included airside upgrades (apron extensions, runway reseal), landside developments (bus and taxi parking area, car park upgrades), infrastructure upgrades (electrical network, wastewater treatment plant), commercial developments (airport hotel, freight facility, logistics precinct) and terminal upgrades.

A request for proposal to develop an airport hotel was put to the market and while there was good interest, a suitable business case was not provided. This proposal was subsequently put on hold while the redevelopment review was being undertaken. Currently occupancy levels have stabilised and vacancy rates have increased, which has resulted in a softening of demand for new hotels – a review of the proposal has therefore been pushed out to 2015.

The main Regular Public Transport (RPT) apron expansion was progressed and competed in late 2013 with the expansion of the General Aviation northern apron planned for 2014.

Strategic reviews were required to ensure that the proposed planning framework met the region's future growth needs, including the originally proposed projects. As part of these reviews, the redevelopment program was tested and updated to ensure vital aviation infrastructure will be delivered when and where it is needed, as well as maximising the significant economic, social and environmental benefits.

2.4 State Aviation Strategy

The draft State Aviation Strategy was released in late 2013 and outlined the Western Australia government's vision to establish a world-class aviation network and infrastructure that supports and promotes State's economic and social development. It noted that West Australia has experienced rapid growth which brings associated challenges. There have been historical gross underestimates of growth which have resulted in underinvestment in infrastructure and therefore congestion and delays.

The State has identified an opportunity to review governance models for regional airports. Specifically it has identified a number of key actions:

- improve reliability and scope of aviation forecasting
- improve airport planning across the State
- provide long-term capacity (second airport) in Perth metro
- assist in timely delivery of Perth Airport infrastructure
- improve infrastructure planning and development at regional airports
    - develop master plan template
    - establish policy framework for master planning
    - actively engage with all stakeholders during master planning processes
    - engage with Perth Airport in coordinating aviation infrastructure across State's network
    - seek to resolve land tenure issues that restrict development and inhibit commercial viability
- seek aviation security cost recovery approach based on network pricing
- encourage private sector investment in regional airports to improve effectiveness and efficiency
- foster development of tourism
- encourage competition and seek reduction in high cost airfares
- conduct regulated route review
- conduct tender for Kimberley air services

Relevant to the development of Port Hedland International Airport is the consideration of alternative governance models and recognising that passenger forecasts have been grossly underestimated. These themes are explored further in this document.

3.0 VISION AND DEVELOPMENT OBJECTIVES

The Town of Port Hedland's strategic community plan outlines a goal to develop Port Hedland International Airport as a leading regional airport in the area of passenger and freight movements and customer satisfaction, including:

- redevelop and upgrade airport
- increase passenger and freight traffic
- increase revenue
- improve customer satisfaction

Our vision is for the Port Hedland International Airport to become a modern and well-serviced airport that provides a welcoming gateway to Australia's North West.

Our development philosophy is based around key objectives of:

- safety – ensuring that assets are fit for purpose and meet regulatory requirements
- facilitation – customer and stakeholder satisfaction
- sustainable growth management
    - master planning
    - operational
    - financial/commercial
    - social
    - environmental

4.0 PORT HEDLAND INTERNATIONAL AIRPORT TODAY

Port Hedland International Airport is experiencing rapid growth in the numbers of passengers and service providers for both domestic and international flights.

The airport land is divided into four precincts – terminal and surrounds (precinct 1), transient worker accommodation (precinct 2), Kingsford Smith Business Park (precinct 3) and unallocated areas (precinct 4). The terminal and surrounds is the key focus of the redevelopment strategy.

4.1 Existing facilities

The area around the terminal (precinct 1) is the most developed component of the airport and includes a variety of land uses. Most are directly or incidentally related to the function of the runway and terminal, including car hire, terminal services, Royal Flying Doctor Service and Bureau of Meteorology, as well as freight and general aviation. This area is currently considered to be cluttered and ad hoc, and does not function optimally.

The existing facilities at Port Hedland International Airport include:

- passenger terminal – including three departure gates, passenger and checked baggage screening, Qantas and Virgin Australia check-in desks and Qantas self-check-in kiosks, Qantas lounge, office space, hire car operator booths, Westpac ATM, amenities, international processing (customs and quarantine facilities) and bar and café with internal and external seating areas
- hire car operations such as workshops, ready bays and storage facilities for seven companies including Avis, Budget, Europcar, Hertz, McLaren Raw Hire, North West Rentals and Thrifty
- general aviation hangars and offices for Royal Flying Doctors Service, School of the Air, Polar Aviation and Russell Aviation
- domestic and international freight operators – respectively Port Hedland Air Freight and Pilbara Cargo Terminal
- Air BP fuelling facility
- air traffic control tower (to be reinstated)
- airport residences
- Bureau of Meteorology
- fire pump house facility and two 300,000 litre water storage tanks
- incinerator building
- old fire station facility (currently unused)
- new fire station (currently under construction)
- short and long-term paid parking
- staff car park
- Town of Port Hedland records archive building
- airport operations workshop

The passenger terminal is single level and caters for regional, domestic and international services. The existing total area of the terminal is approximately 2800m^2. The terminal is capacity constrained and expansion is required to meet current and future demand. Two stages of terminal development have been identified and are outlined in section 8.3.

There are a number of land use and activity conflicts within the terminal precinct, including:

- freight, general aviation (GA) and Regular Public Transport (RPT) activities which are located in close proximity and need to be separated

- there is insufficient car parking for vehicle hire and public car parking
- outdated facilities such as the terminal and car parking areas need to be expanded and upgraded – additionally as the airport continues to grow there will be increased demand for growth in freight and logistics, tourism and vehicle hire

To resolve these conflicts and provide for growth, the following needed to be considered:

- resolve existing land use conflicts by rationalising land uses, especially in close proximity to the terminal
- identify new locations for some existing uses
- provide for the expansion of land uses as required

These are outlined in section 8.3

4.2 Airside facilities

The existing airfield movement area consists of two runways and adjoining taxiways. The main runway 14/32 is 2500m long and 45m wide with turning bays at each end. Runway 18/36 is 1000m long and 18m wide. These runways are considered adequate for current operations and were therefore not subject to further review.

There are three sealed apron areas in use at Port Hedland International Airport:

- the northern general aviation (GA) apron
- the main Regular Public Transport (RPT) parking apron
- southern apron and helicopter operations area

There currently exist conflicts between GA, charter and helicopter operations and RPT operations. Additionally RPT services operate on a power-in power-out basis requiring aircraft to park at an angle to the terminal building. This results in a large amount of space being required to facilitate aircraft turning circles resulting in RPT parking being limited to four spaces. In peak periods, or in the event of an unscheduled arrival, the RPT apron parking area can reach full capacity. It also presents jet blast issues across the front of the terminal.

4.3 Aviation security

Port Hedland International Airport is classified as a level 4 security controlled airport under the federal *Aviation Transport Security Act 2004*. As owner and operator of the airport, the Town of Port Hedland is required to ensure the security integrity of the domestic and international aviation networks. This is achieved by the preparation and adherence to the Transport Security Plan. Passenger and checked baggage security screening measures are in place.

We take security very seriously and have implemented other key measures such as:

- CCTV operating across the precinct enabling monitoring of activity across the airport
- security fencing surrounding the airport
- conducting emergency exercises on a bi-annual basis to test and train emergency response and recovery processes

4.4 Aviation operations

The Port Hedland International Airport currently operates general passenger and freight flights to Perth, Melbourne, Brisbane, Broome and Denpasar (Bali). Several flights operate to transport workers from Port Hedland to remote mine

sites. Some international charter flights, such as Department of Immigration and Citizenship and private charters, stop at Port Hedland for fuel and customs checks.

Qantas currently operates B737-800 and B717 aircraft on the Perth, Brisbane and Melbourne routes. Virgin Australia operates B737-800 and Embraer 190 services on the Perth route, and F100 aircraft to Bali. Air North, Network Aviation, Alliance Aviation, Skytraders and Skippers Aviation also operate from Port Hedland. Other operations include irregular freight operations by Antonov 124 aircraft, corporate jet aviation, small itinerant aircraft and helicopter operations.

The airport is also designated as an alternate use and restricted use international airport by the Department of Infrastructure and Transport under the *Air Navigation Act 1920* for aircraft up to Code E size. This means that aircraft that are unable to land at Perth or other destinations due to weather or other incidents can land and be fuelled at Port Hedland if and when required. Customs, health and immigration procedures can only be made available on a restricted basis for flights with prior approval.

AirServices Australia operates an Aviation Flight Information Service from the airport and provide Aviation Fire and Rescue Services. There are plans underway to upgrade the information service to a control tower.

4.5 Infrastructure

The electrical network is outdated and requires an upgrade. The airport precinct operates its sewerage disposal on a septic system which is nearing capacity. Water is supplied from South Hedland. Section 9.0 outlines how the infrastructure will be upgraded.

5.0 AVIATION FORECASTS

Forecasts of passenger and aircraft movements were developed by Tourism Futures International (TFI) and update previous projections on which the 2012 Master Plan was based. The Master Plan is included at appendix 1.

TFI considers it likely that the mining investment growth phase will peak by 2015 at around 500,000 to 600,000 passengers and stabilise around 400,000 to 500,000 passengers depending on the future mix of resident and fly-in/fly-out (FIFO) employment. Additional mining projects and construction of additional port facilities could increase these passenger numbers by more than 50,000. TFI's upper limit estimate for passenger traffic at Port Hedland by 2033 is 730,000 passengers.

Challenges in accurately forecasting future traffic for Port Hedland and other mining-driven airports were acknowledged within the TFI report. An alternative growth projection based on a compound annual growth rate of 5% per annum was developed by airport consulting group Rehbein to provide a sensitivity check. This growth, if it occurred, would result in approximately 1.36 million passengers by 2033. While this level of traffic may represent a longer-term proposition, it was considered to form an appropriate basis for the planning of passenger terminal facilities when taken in the context of a building life of 40 plus years.

The below table outlines the comparative growth projections:

	2010	**2015**	**2020**	**2025**	**2030**
TFI (2011 report)	297,000	610,000	641,000	671,000	702,000
TFI (2013 report)	297,000	523,000	573,000	648,000	709,000
5% growth p.a. (on 2013 figures)	297,000	566,000	722,000	921,000	1,175,000
3% growth p.a. (on 2013 figures)	297,000	544,000	631,000	731,000	848,000

6.0 STRATEGIC REVIEWS

The Town of Port Hedland engaged various specialised consultancies to conduct a series of reviews – including the master plan (land use planning and aeronautical compliance), future growth planning, terminal and car park design, freight and logistics zone, place making and governance structure.

The key outcomes of the reviews, which are explored further in this section, were:

- **airside planning** outcomes offered logical, rational and sensible solutions which were appropriate to meet expected future aeronautical requirements – key programs include apron expansion, moving general aviation operations to a separate apron, new taxiway and changing to power-in/power-out aircraft operations
- nominated **land uses** were considered to be generally sound with strong stakeholder support to develop an international freight hub
- existing **passenger terminal** is undersized and operationally inefficient in peak periods – which provides an opportunity to significantly expand the terminal in its current location, including doubling footprint, creating mezzanine level and building extensive plaza and covered walkways
- reconfiguration of the **ground transport** and car parks is recommended – including creating shared zones, a separate bus parking area, expanding the short-term car park expansion, extending existing service roads and creating new two-way access to freight and logistics zone
- development of a new **freight and logistics zone** with direct airside access lots is recommended to leverage freight opportunities and relocate hire car operations
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- explore an alternative **governance structure** that is more efficient and economically viable

6.1 Community engagement and consultation

Extensive consultation with key internal and external stakeholders was undertaken. This included data gathering, design and placemaking workshops. Workshops were held in Port Hedland on 3 and 4 September 2013 and in Port Hedland and Perth during the week of 28 October to 1 November 2013. They were attended by airline representatives, government agencies, tenants, resources companies, industry groups and community members. Governance workshops were held with key internal staff and elected members in late 2013 and early 2014. Further information sessions were provided to stakeholders and airport tenants.

A community perceptions survey was undertaken by the Town in early 2014 (with 641 respondents). While the survey addressed all of the Town's functions and services, there were a number of key insights specific to the airport. Respondents noted:

- happiness about security screening, check-in and car park facilities
- least happiness with taxi service, café, departure lounge and amenities
- concern about the cost of services and facilities such as café products, parking and flights – it should be noted that of these, the Town only controls parking costs
- concern regarding waiting times and that airport facilities were too small

6.2 Consultancies

To inform the redevelopment strategy, the Town of Port Hedland engaged specialised consultancies to conduct a series of reviews across the areas of master planning, place making and governance structure.

6.2.1 Master plan review and ultimate development outcomes (Rehbein Airport Consulting)

The Town commissioned Rehbein Airport Consulting to undertake a strategic review of the development proposals in the context of the Master Plan. The principal objective of the review was to ensure that existing plans would meet future growth needs and regional requirements to position Port Hedland as a vibrant city of 50,000 people by 2035.

The review focused on the main elements of the Master Plan. It assessed the requirements for each element in more detail and took into account how each element would interface with the others. Related projects, outside the review scope but with the potential to impact on or be impacted by the redevelopment proposals, were also considered as part of the review. The review was structured to cover five themes: airside planning, land use, passenger terminal, car park/ground transport and the freight/logistics zone. Specific objectives relating to each aspect of the review included:

- ensure future growth and regional needs are met
- verify the timing for infrastructure delivery
- maximise the economic, social and environmental benefits of the upgrade
- ensure an integrated, holistic approach
- provide a sound basis for investment.

6.2.2 Place plan (Village Well)

A Place Plan was developed by Village Well to help guide the airport's future redevelopment. The intention is that the redevelopment will be informed by clear placemaking directions shaped by the Port Hedland community.

6.2.3 Governance review (The Airport Group)

The Airport Group were engaged to review the airport's governance structure. Airport investments were previously funded through a combination of government grants and from the airport capital reserve. The scale of the future investments and increasing pressure on public finances may challenge the ability to completely fund future development from traditional sources. This presents an opportunity to review the future governance structure of the airport business to ensure it remains financially viable.

7.0 PLACE PLAN

Village Well was engaged to produce a place plan to guide future master planning and development and to integrate community perspectives and aspirations into the redevelopment project.

Placemaking is the art and science of making authentic, vibrant and resilient places that are valued by their communities and admired by visitors. It is a holistic approach to planning and developing places that involves understanding the culture, qualities and wisdom of the community. It involves collaboration between many stakeholders to articulate a vision for a place and to plan and deliver that vision.

The research phase of the project involved extensive desktop research and field studies in and around the town. Stakeholder engagement explored aspirations for the airport and placemaking opportunities and challenges.

The plan articulates the 'essence' of Port Hedland and outlines principles to guide the redevelopment – these are clear statements that outlined what is special about Port Hedland and how this can be captured in the future role and experience of the airport. The place plan is included at appendix 4.

The essence of Port Hedland was identified as:

- a coastal oasis of mangroves, red raw earth and endless Pilbara sky
- a welcoming, friendly and diverse community with active lifestyles
- many stories and proud traditions of indigenous culture, pearling, shipping, aviation and mining
- a hidden treasure trove of local enterprises, celebrating the convergence of different traditions and passions
- building new industries for the township as a lasting legacy of the mining boom

The principles to guide the redevelopment include:

Proudly sharing the stories and treasures of Port Hedland and the Pilbara	Port Hedland International Airport immerses visitors in the colours, shades and favours of the frontier township, its ancient culture and stunning landscape. In the terminal, the architecture and art collection combine to capture the spirit and vision of the community. Locally produced food and gifts of exceptional quality are on offer at the airport lounge.
A vibrant meeting place	The airport is not just a gateway but a destination and meeting place for the local community, including non-resident workers and business people from the region. Conveniently located between the Port and South Hedland it is a place where people choose to gather for welcome parties and farewells or to meet for business. The terminal is active day and night, and at low traffic times the carpark is a venue for community pop-up markets and events.
Connecting the Port Hedland community	The airport provides an immediate connection with the local community. Upon arrival visitors are met with friendly service and have instant access to community information about what's happening and what's worth a visit in town and beyond
Enjoying the wait	At Port Hedland Airport waiting is a pleasurable experience thanks to comfortable indoor and outdoor lounge areas, convenient services and a choice of quality food and beverage. Children can play and watch planes while departing passengers can enjoy a quiet moment before the flight. Airport operations are quiet and efficient – almost invisible. With smart technology and efficient design the airport services are hassle-free from check-in to boarding, leaving plenty of time for relaxation. A long, uncomfortable wait is a thing of the past.

8.0 AIRPORT DEVELOPMENT

The Town of Port Hedland has developed an ambitious $100 million redevelopment program for the Port Hedland International Airport that will see it transform into a modern and well-serviced welcoming gateway to Australia's North West. We are committed to being a vibrant meeting place that welcomes travellers to the friendly Port Hedland community and treasures of the Pilbara, coupled with our core business of providing efficient passenger and freight services.

A series of reviews were undertaken to inform the redevelopment program. A desktop review of the master plan and associated background material was undertaken by Rehbein Airport Consulting. The findings of this review were then tested in a series of workshops with internal and external stakeholders. The key outcomes are summarised in the following sub-sections:

- land use
- airside planning
- passenger terminal
- ground transport and car park
- freight and logistics zone
- apron extensions

The Port Hedland International Airport redevelopment program review compiled by Rehbein Airport Consulting is included at appendix 2.

The Town is committed to expanding the airport's domestic and international services. International route development will form a key part of commercial discussions with airlines to leverage Hedland's unique geographical position to Asia and Pilbara industry.

An interim improvements program was also developed to start to ease congestion within the terminal pending the significant redevelopment works.

8.1 Land use

The review identified that the nominated additional land uses were considered to be generally sound – these included commercial (hire cars, hotel, office space, service stations and convenience stores), transient worker accommodation, light-industrial, turf farm and solar plant.

To overcome the challenges noted in section 4.1, it is recommended that:

- land uses conflicting with RPT activities and terminal expansion, such as domestic freight operations and general aviation, are relocated
- new freight and logistics precinct is developed to accommodate these uses
- access and traffic flow around the terminal precinct is rationalized
- northern and southern GA aprons are extended to accommodate expansion opportunities
- landscaping and entry statements are upgraded

Significant upgrades to car parking and terminal facilities are proposed. Land has been allocated close to the terminal for uses directly related to the terminal, such as parking, storage and airport operations workshops. Uses that conflict with

terminal activities, such as logistics and freight, are located within a specific precinct for this purpose. Similarly commercial airport uses such as vehicle hire and GA and charter services are located within specific areas.

8.2 Airside planning

The review acknowledged that the expansion of airfield and other airside infrastructure would be a logical, rational and sensible solution to meet expected future aeronautical requirements.

The airside planning review was based on forecast peak hour aircraft movement and stand demand. The airside planning concepts were developed to provide flexibility to respond in both the short term and long term aviation requirements. Planning has been based on a demand scenario where the airport may cater to regular services by wide bodied aircraft (both on domestic and international routes) supporting aircraft up to Code E.

To accommodate the previously mentioned aviation conflicts and planning parameters it was determined that a combination of apron extensions and changed aircraft parking operations to power-in pushback was required.

Specifically, the review noted:

- the majority of future passenger traffic will be served by Code C passenger aircraft size (Boeing 737-800/A320) with the potential for some services to operate using larger Code E aircraft such as Airbus A330-200
- provision for dedicated freight operations by aircraft up to Code F (Antonov an-224) size is required
- opportunity for future expansion of the southern apron to the south-west, running adjacent the boundary with precinct 2
- provision of a Code F taxiway connecting the southern apron and expansion to Taxiway B2 and Runway 14/32
- expansion of the GA apron to the north and widening to increase its capacity including for helicopter operations
- flexibility for apron and terminal facilities to respond to coincident international and domestic operations

The most influential development associated with this review is the proposed change from power-in/power-out to power-in/push back operations on the RPT apron. This change is proposed as part of the apron expansion project which has already been completed. The change will require agreement with the airlines and ground handling contractor in relation to the arrangements for procurement and operation of the necessary ground support equipment, as well as appropriate provision for staging, storage and maintenance.

The original master plan indicated a concept layout for the RPT apron development to accommodate a mix of Code C and Code E aircraft, a Code F connection from the Southern Apron to Taxiway B2 and Runway 14/32 with ultimate expansion to the south-west parallel to the boundary with Precincts 1 and 2.

The current design layout is considered appropriate for the aircraft parking needs at Port Hedland in the short-term. The review concludes that the aircraft parking arrangements as designed should be implemented as planned.

An ultimate apron concept layout was developed and included the following features:

- power-in/push-back parking adjacent to the passenger terminal for up to seven (7) B737-900 size aircraft, or three (3) B737-900 plus two (2) A330-200 aircraft
- A330-200 positions are limited to the western end of the terminal due to push-back interaction with aircraft parked on the Southern Apron
- provision for a covered passenger walkway adjacent the terminal face, head-of-stand airside road, tug zone and equipment staging areas
- a Code E apron edge taxiway with sufficient clearance to form a complete loop back to Taxiway B2

- power-in/power-out positions on the Southern Apron for two B737-800 aircraft or one wide-body aircraft up to AN-224 Code F
- future Code F taxiway linking the Southern Apron with Taxiway B2 and Runway 14/32
- implementation of currently designed aircraft parking arrangements – noting further expansion of the concrete hardstands at aircraft parking positions will be required at a future date to maximize flexibility
- future freight apron expansion adjacent to the Freight and Logistics Subdivision and continuing to the south west adjacent to Precinct 2

8.2.1 Runways and taxiways

The main runway will be improved in 2016 with a new overlay. Reconstruction of the taxiways are planned for late 2014.

8.2.2 Aprons

New concrete aircraft parking bays on the main apron will be constructed when power in/push back operations have commenced.

The extension to the northern apron to create a separate general aviation zone is scheduled to commence in late 2014. The northern apron will be extend 360 metres to the north and will be 65 metres wide. The area will have an asphalt finished surface. The most northern part will be constructed to accommodate helicopter operations.

8.2.3 Emergency services

AirServices Australia operate Aviation Fire and Rescue Services at the airport. An airport emergency plan is also in place which involves all the local services in across the Port Hedland area. Emergency exercises are held on a regular basis to ensure compliance with this place. The emergency plan covers incidents up to level 3 – 560 seats.

8.2.4 New control tower

The existing air traffic control tower is expected to be upgrade to class D in November 2014. AirServices Australia are proposing to build a new tower which should be completed by mid-2015.

8.3 Passenger terminal

The existing passenger terminal is more than 40 years old. It is unable to accommodate current peak period traffic levels, is operationally inefficient, and lacks the passenger comfort and amenities associated with modern airport terminal facilities.

The review identified that the passenger terminal should be retained in the current location with provision for significant expansion to the north, south, east and west. It initially identified a single phase redevelopment to accommodate 1.35 million passengers per year – however this was considered too costly and a staged approach should be adopted (the staged concept is included in appendix 3).

stage 1	**stage 2**
maintain existing location	maintain existing location
create internal area of 4600m^2 and unconditioned area of	create internal area of 7000m^2 and unconditioned area of

2400m^2	1800m^2
accommodate 850,000 passengers	accommodate 1,350,000 passengers
establish international departures and arrivals swing lounge	establish international departures and arrivals on a mezzanine level
create plaza areas to connect terminal and car park	create plaza areas to connect terminal and car park
build covered walkways along airside of terminal	build covered walkways along airside of terminal
invest $44 million	invest $78 million

The concept layouts take into account the functional area space requirements necessary to accommodate the design principles, the constraints to expansion, and parameters set out in the preceding sections. It adopts a spatial configuration which is considered to be optimal in terms of the available terminal site, interactions with adjacent airport activities, and the operational requirements particular to Port Hedland.

The ultimate concept incorporates the following elements (noting a staged approach will be implemented):

- **check-in** area at the eastern end of the terminal. This places the departures entry door at the start of the terminal kerbside, which is a standard arrangement at single-level airport terminals and typically understood by travellers. It also allows for interaction of airline and ground handling personnel between the check-in and baggage make-up areas, which is where the majority of operational workload takes place, with the adjacent airport operations area. The check-in area is nominally sized to accommodate 16 standard check-in/service desks or bag drop counters;
- area for **checked baggage screening and make-up** of baggage loads for outbound flights, located behind check-in to minimise baggage flow paths. The area maximises the flexibility to accommodate a baggage storage and circulation carousel, and enable access and egress of baggage tugs and barrows from the eastern end of the building to minimise interaction with passenger access to and from the terminal and the aircraft.
- landside **concourse** area, where travelling passengers can dwell to use amenities or farewell friends, family and colleagues prior to passing through to the secure departures areas. Non-travelling airport users may also use the concourse to partake in food and beverage or retail offerings, while awaiting arriving flights or visiting the airport for other purposes. This area also functions as general circulation between the check-in and arrivals spaces for passengers and operational personnel.
- passenger **security** screening point, located between the check-in and concourse areas and oriented towards the check-in area, in order to offer direct access to the primary flow of departing passengers for ease of wayfinding.
- **departures** lounge in which passengers dwell awaiting the departure of their domestic flight or prior to passing through further international security and immigration checks. The departures lounge is located centrally, in order to maximise allowable ceiling height within the applicable aerodrome obstacle restrictions. It provides direct connection to the apron and balances the width of apron frontage for passenger boarding gates with sufficient depth to allow comfortable circulation, provision of an appropriate level of retail and food and beverage offer, and space for airline premium lounges – all subject to relevant commercial arrangements.
- mezzanine area to accommodate additional security screening and outward immigration processes for **international departures**, and a waiting lounge with apron views. The mezzanine is conceptually located to the east side of the departures area so as to minimise the impact on full-height views of the apron from within the departures lounge as well as the potential for visual connectivity through from the landside concourse area. It is anticipated that vertical transportation to the mezzanine and back to apron level would be located adjacent the eastern wall.

- covered passenger **arrivals/departures walkway** allowing passenger flows across the terminal apron face while minimising interaction with vehicle operations on the apron.
- domestic **arrivals** via a dedicated corridor directly to the baggage reclaim area. This minimises counter-flows and congestion which can occur if arriving passengers pass back through the departures lounge.
- **international arrivals** through an adjacent corridor with dedicated space for duty free collection, primary line queuing and inwards immigration processes. A swing arrangement allows baggage collection from one of the reclaim carousels. Passengers then pass through a dedicated area for secondary examination processes which will incorporate offices and specific facilities for the use of the border protection agencies before re-entering the domestic arrivals corridor.
- **baggage breakdown** area at the western end, allowing baggage tugs and barrows to enter and exit from the north-west corner of the RPT apron, minimising the conflicts with passenger movements across the face of the terminal.
- external **plaza** areas to connect the terminal with the drop-off/pick up area and through to the short-term car park, rental car and shuttle bus zones and the long-term car parking beyond. It is envisaged this area will be appropriately shaded, and that the central portion in particular will be activated and connected to the internal concourse.

Further information on the proposed concepts is outlined in the Rehbein redevelopment program review at appendix 2.

8.4 Ground transport

Reconfiguration of the ground transport and car parks is recommended to ensure optimal traffic flow, including creating a separate bus parking area, expanding the short-term car park, extending the existing service roads and installing a new two-way access to freight and logistics zone.

The master plan set out a broad concept for car parking and ground transport with short-term and rental parking immediately to the north of the terminal reserve, long term parking further north, and bus parking to the east of the terminal access road. The review identified that the existing infrastructure should be maintained and re-used as far as possible with some adjustments to maximise its practicality.

Airport front-of-house security requirements make it necessary to limit the size and number of vehicles permitted access to the terminal kerbside and dictate enforcement of waiting time restrictions. At the same time, emergency vehicle access as close as possible to the terminal needs to be facilitated in the event of fire. It is therefore proposed that a separate bus parking area is installed away from the front of the terminal.

Rental vehicles form a large proportion of transport demand at the airport. However rental car companies find it challenging to provide estimates of future demand as this is fundamentally driven by resource company shift patterns. This tends to exacerbate the need for additional ready-bays in close proximity to the terminal during peak flight periods. Therefore some flexibility in the number of rental vehicle ready bays provided is required.

As with the passenger terminal, moving to the ultimate plan was determined too costly. A staged approach is recommended (the staged concept is included in appendix 3):

stage 1	**stage 2**
maintain existing traffic flow	install new access roads and improve traffic flow
create shared pick-up/drop-off through short term car park and terminal plaza with double exit boom gates	create shared pick-up/drop-off through short term car park and terminal plaza with double exit boom gates

develop remote bus parking area	develop remote bus parking area
extend car rental areas	extend car rental areas and short term car park
maintain existing long-term car park	maintain existing long-term car park
install pedestrian access routes	install pedestrian access routes
extend GA apron service road	extend GA apron service road
invest $4 million	invest $10 million

Key highlights of the ultimate ground transport arrangements (noting a staged approach will be implemented) are:

- relocation of the pick-up/drop off zone to the north to accommodate terminal expansion with access is to be co-located with the entry to the short-term car park and controlled via a boom gate and terminal
- reconfiguration of the existing short-term car park entry and exit arrangements to provide for direct access to the short-term parking from the pick-up/drop off area for users that exceed the permitted free time allocation, or those who wish to drop off passengers prior to parking
- provision of dual exit gates from the short term parking to alleviate congestion and queuing during peak periods
- incorporation of permanent mini-bus and coach parking area to better address resource company requirements for transit of employees.
- remove transverse circulation roadway to the north of the existing short-term car park and therefore the constraint on relocation of the short-term parking to accommodate terminal expansion and the need for pedestrians transiting to and from the rental car and bus parking areas to cross any significant roadways
- development of expanded short-term parking to the north of the existing, and formalisation and expansion of the rental car parking area to the south of the existing long-term parking. Whilst the full development requires relocation of the existing car rental facilities and fire water storage tanks, sub-stages of this development in accordance with the overall concept could be considered.
- provision of 185 short-term public car park spaces and 265 rental car ready-bay spaces
- boundary between the short-term public and rental car ready bays is to be of a flexible nature, utilising relocatable bollards or other ‘soft’ barriers rather than hard form such as kerbs, so that relative number of spaces for each use may be easily adjusted in the future to suit actual demand
- location of access and egress to the rental car and bus/coach parking from the existing transverse road to the south of the long-term parking.
- retention of the existing long term parking area without alteration
- dual, well-defined and relatively direct pedestrian access routes linking the terminal plaza with a central node surrounding the bus and coach parking and northwards to the long-term parking
- a new seagull intersection to enable extension of the existing service road serving the northern apron hangars to be aligned more closely to and parallel with the main terminal egress – this facilitates further hangar development in this area.
- removal of staff parking from the main paid car parking areas with provision of staff parking spaces to the south of the Polar Aviation hangar, accessed via the service road
- provision of a new two-way access to the freight and logistics subdivision passing to the north and east of the airport personnel houses to facilitate connectivity between the rental car ready-bays and the storage lots in the subdivision, in particular for vehicles travelling to the ready bays

8.5 Freight and logistics zone

International air freight has been identified as a potential area for growth for the airport. An area has been reserved for this activity on both the airside (through development of a dedicated Code F capable freight apron) and landside (through reserving an appropriate size block of land for a possible cargo terminal). The provision of a new cargo and freight facilities will be driven by the developing business needs and will require sufficient landside area and access roads to keep freight trucks off the main airport access roads.

The master plan proposed the development of facilities for freight and logistics uses in an area to the south and east of the terminal. An area reserved for airport operations uses was also identified to the east and north of the terminal.

The recommended concept layout for the freight and logistics subdivision is included in the Rehbein redevelopment program review at appendix 2 and has the following features:

- provision of thirteen (13) lots with five (5) direct airside lots
- provision for airport operations lot
- allowance for internal roads, rather than access road along airside perimeter as is currently in place

The area to the north of the existing Air BP facility has limited access to the airside due to the location immediately adjacent the RPT Apron. This area would therefore be best suited for the consolidation of airport operations activities including an airport operations centre, emergency operations facilities, ground service equipment storage and maintenance, administration and support.

Proposed airside access lots provide a logical location for international and domestic freight facilities. This area offers convenient access to dedicated freight operations on the existing southern apron and any future expansion of this to the south-west, as well as for handling of belly-hold freight in passenger aircraft on the RPT apron.

8.6 Apron extensions

The existing northern apron will be extended to create a separate general aviation area. This will include a 360 metre extension to the north. It will be 65m wide and have an asphalt finished surface. The new apron will allow for additional hangars to be built along the east side with direct apron access. Additional parking will be available for light aircraft.

The most northerly part of the new apron will be designated for helicopters. A new main aiming point and helicopter areas will be constructed.

8.7 Interim improvements

A series of works were identified to ease congestion within the terminal, improve the amenity of the precinct and start to position the airport as a welcoming gateway to the North West that reflects Port Hedland's unique sense of place.

The $2 million program will see the creation of a larger departures area, introduction of public art and visitor information, and improved seating options. External to the terminal, works will include installing shade sails across front of terminal, shaded seating areas, new signage and painting. A separate bus facility will also be installed.

8.8 International route development

Port Hedland International Airport is the only international RPT close charter airport north of Perth. Virgin Australia currently operate a direct Bali flight on weekends with extended services during peak school holiday periods and the airport services international freight operations with a licensed international freight cargo terminal operator. The airport also acts as a technical fuel stop for international charters and processing point for Department of Immigration and Citizenship flights.

The Town recognizes there is significant opportunity to expand these services and leverage Port Hedland's unique geographical position to Asia and Pilbara industry.

Outcomes from stakeholder workshops recognized the unique opportunity to expand these freight services and position Port Hedland as the international freight hub of the North West – this directly links with our booming industry, port operations and accessible location along the Great Northern Highway in relative close proximity to resource operations and mine sites. Anecdotal evidence suggests that freight is flown from Asia to Perth and transferred to road trains for delivery to the Pilbara – there is an opportunity for this freight to be delivered directly into Port Hedland.

With the increase in freight operations also comes the opportunity to expand passenger services with new airlines and routes. Together with this, and through the establishment of interconnection routes between the regional Pilbara airports there exists a larger catchment opportunity for international passenger services. The Town is continuing these discussions with respective airlines.

9.0 INFRASTRUCTURE SERVICES

A review of infrastructure services has identified the need to significantly upgrade the existing essential services – electricity, water and wastewater.

9.1 Electricity

The airport has a 1 million volt-amperes (MVA) low voltage electrical distribution system. To accommodate the redevelopment program, future growth and demand it is anticipated that the airport will require a 4.5MVA high voltage electrical distribution system (to provide 3.6 megawatts to the precinct). This requires significant upgrades to the existing infrastructure and the provision of new equipment and infrastructure, including:

- upgrade to low-voltage distribution network
- replacement of the old low voltage ring main with a more effective radial network
- establishment of new high-voltage distribution network to deliver:
    - power to the new freight and logistics subdivision
    - power to the new passenger terminal
    - power to new Northern Apron expansion
    - capacity to provide power to new AirServices Australia fire station and air traffic control tower
    - capacity to receive solar power from the pilot site
- installation of two new generators
- installation of three additional sub-stations allowing separate meters
- upgrade of Horizon Power's connection to the airport precinct allowing additional power provision
- installation of airside lighting control unit

9.2 Solar power

A pilot solar power site within the Kingsford Smith Business Park area is being considered by the Town. The project is anticipated to initially provide 2 megawatts, increasing to 10 megawatts within a couple of years. The pilot program focuses initially on a 3 hectare site with potential to accommodate a further 17 hectares. There is potential for the airport to access this power as well as surrounding tenancies.

9.3 Water

It was identified that to accommodate the redevelopment program, future growth and demands that the water mains to the airport would need to be upgraded. This could include extension of works being undertaken to the Kingsford Smith Business Park. The Town is working with Water Corporation to undertake this project.

9.4 Sewerage

The airport currently maintains a septic system. To provide greater capacity to meet future demand, the Town is investigating either a wastewater treatment plant or wastewater pumping system to the South Hedland Water Treatment Plant.

The upgrade of these essential water and sewerage services will benefit both the airport and its surrounding areas laying the foundation for economic development within the area. As a key example wastewater upgrades will enable the existing accommodation providers to move from their current septic facilities to a wastewater connection to the South Hedland wastewater treatment plant. In addition these upgrades would significantly improve wildlife hazard management (by removing waste water ponds and associated bird attraction issues) and environmental impacts across the airport precincts.

The Town is working with Water Corporation to undertake this project.

GOVERNANCE REVIEW

The Airport Group was engaged to review the airport's governance structure. Airport investments were previously funded through a combination of government grants and from the airport capital reserve. The scale of the future investments and increasing pressure on public finances may challenge the ability to completely fund future development from traditional sources. This presents an opportunity to review the future governance structure of the airport business to ensure it remains financially viable.

As part of the review several workshops were held with key staff and elected members. The review identified several alternate governance approaches to be further investigated. Of the governance and ownership options examined it was identified that:

- there is a clear preference for a council controlled organisation (that will include increased commercialisation), together with a lease option, since these options will retain airport ownership
- there is no support for a freehold sale, and little support for amalgamations, shared services, management agreements or owner/operator

9.5 Objectives

The agreed governance objectives that will underpin the consideration of a future governance model include:

- retain ownership of the asset
- overall financial return must be better than the status quo if any change is to proceed (for example comparable financial return, plus a sizeable initial financial incentive)
- real figures of the cash flow and the asset value of the airport as a stand-alone entity must be used in any decision on the governance model
- essential services (such as Royal Flying Doctor Service) must be maintained
- there must be an expanded benefit (for example sense of place) to the local community
- depth of management expertise must be enhanced through access to a wider pool of qualified people
- the overall level of risk to the Council must be reduced through an appropriate governance structure (for example financial and operational risks must be capped, limited or transferred)
- maximise the use and the return from the existing land and facility at the airport through smart planning and infrastructure, irrespective of the governance model chosen

9.6 Critical success factors

The following critical success factors were identified as a prerequisite for any governance transition:

- allowing greater access to debt funding against airport asset base and quarantining of debt risk to the airport assets
- establishing an appropriate level of airport operator autonomy and maintaining a reasonable degree of strategic influence while maximising financial returns to the Town
- establishing a greater level of commercial focus by allowing for sufficient decision making flexibly to ensure financial sustainability
- ongoing operational decision making and operating and capital expenditure rests with others, who have the necessary airport management expertise to efficiently run the airport

- allowing access to qualified staff and greater economies of scale through wider commercial network.

The Town will continue to review the governance structure and determine the most appropriate model for the airport.

10.0 IMPLEMENTATION

The ambitious $100 million redevelopment program for the Port Hedland International Airport that will see it transform into a modern and well-serviced welcoming gateway to Australia's North West.

10.1 Funding and timeline

More than $100 million of projects have been identified and are programmed to be completed over next five years, including:

project	budget estimate	timeline
terminal	$ 44,000,000	provisionally scheduled to commence construction in late 2017 with completion anticipated for end 2018. Although it is noted that with the increased scope of the interim works program additional departure lounge capacity will be created, which it is anticipated will extend the existing terminal's life by up to five additional years
car park	$4,000,000	provisionally scheduled to commence construction in late 2016, but with the introduction of the staged planning framework this project has been broken up into a number of elements which can be undertaken much earlier – subject to phasing considerations
freight and logistics zone	$ 8,500,000	programed to commence construction in late 2014 and is scheduled for completion by mid-2015
apron extension	$ 9,000,000	the main RPT apron expansion has now been completed and the northern general aviation expansion is scheduled for completion by end 2014
runway rebuild and runway resheet	$5,500,000	currently scheduled to commence in mid-2015 but is under technical review and may be deferred to later in the five year program
security fencing	$1,500,000	scheduled for mid-2014
water/wastewater services	$ 14,000,000	it is anticipated that construction may commence as early as end 2014 with the entire project expected to take two years to complete. The Town has commenced negotiations with the Pilbara Development Commission for co-contribution to the upgrade
electrical network	$5,000,000	commenced in late 2013 and is expected to be completed by end 2014 – it is noted that potential upgrades to Horizon Power's north west interconnected system may be required, which could add an

		additional $3,000,000 to budgeted costs. The Town has commenced negotiations with the Pilbara Development Commission for co-contribution to the upgrade
other related infrastructure and upgrades	$16,000,000	program varies depending on project item

10.1.1 Funding sources

A number of funding sources have been identified including:

- airport capital reserve
- revenue (sale and lease) from Kingsford Smith Business Park
- new revenue sources (retail, airfreight, general aviation hangars, uplift to concessions)
- loan funds and additional Town funds

Given the proposed timing and size of the capex program there are a number of challenges associated with the funding task. Over the five to seven year program $30 million in funding has been budgeted from site rents and lot sales within the Kingsford Smith Business Park Precinct with $10 million of this funding budgeted to be provided within the first year. However, there have been delays in the issuing of titles, which is impacting on this funding source.

Around $52 million in surplus funds from future operations and new revenue initiatives have also been identified with $6.7 million relying on new revenue sources. This also assumes airport revenues will grow at 5% per annum while expenditure only grows at 3.5% per annum.

In terms of municipal reserves potential funding of $19 million has been assumed which will be coming from airport reserve. Finally, and to achieve a balanced capex to funding budget, a further $13.5 million would need to be sourced from debt. Given the above it is noted there does exist some funding risks. These risks are being considered as part of the governance review.

This program will be by its nature is subject to regular and constant review and various elements and amounts may and will change over time. An indicative five year program and cashflow have been included at appendix 5.

10.2 Communications and engagement strategy

The Town is committed to engaging with the community, stakeholders and tenants as the redevelopment program moves forwards. This will include:

- launch and promotion of airport redevelopment program
- provision of regular and timely information
- maintain clear airport visual identity

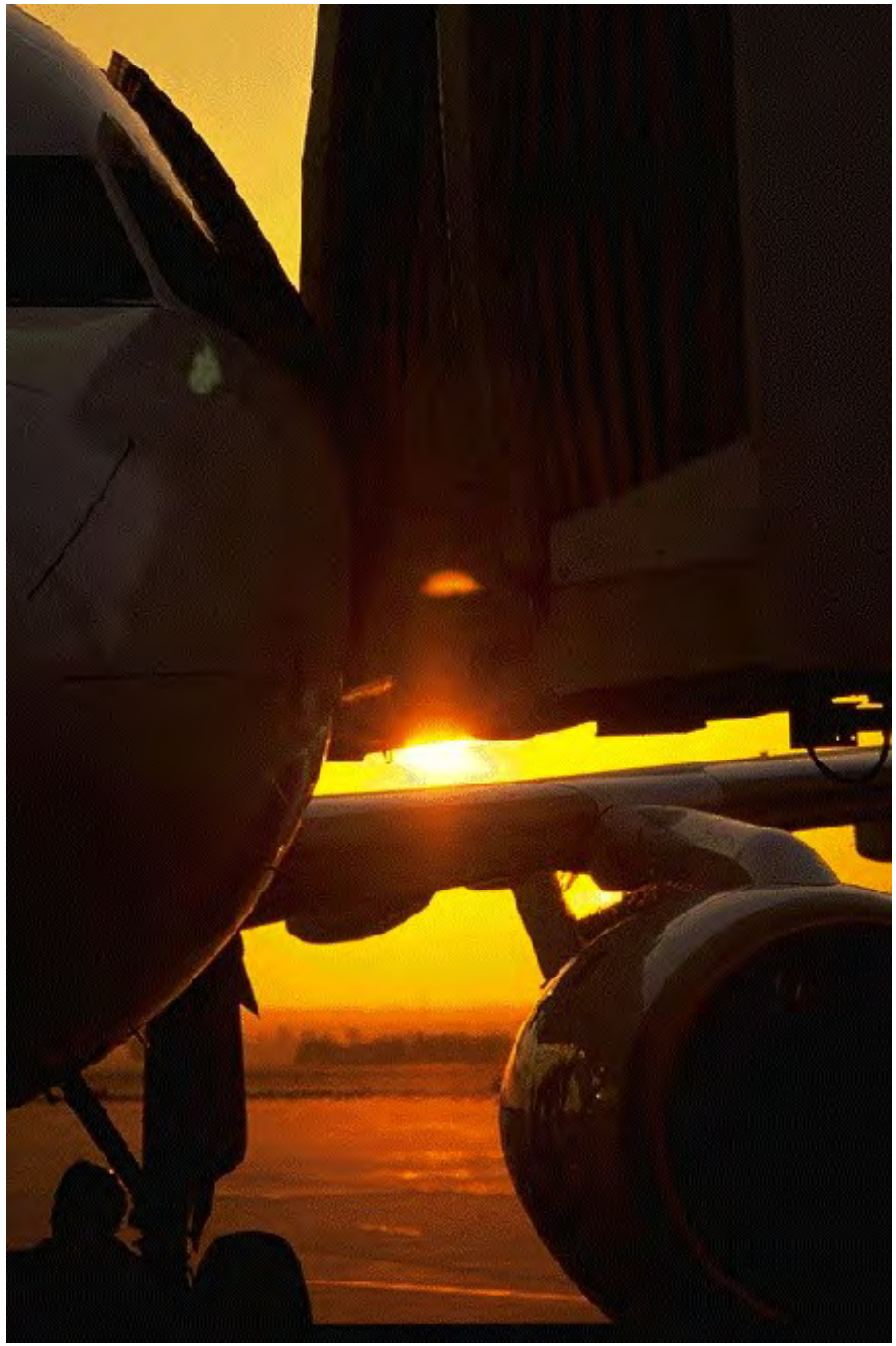
Appendix 1

Port Hedland International Airport master plan March 2012 – AirBiz Aero

Port Hedland International Airport

Master Plan

March 2012



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LIST OF REFERENCED DOCUMENTS

1. PHIA Master Plan, Whelans & PB January 2011,
2. PHIA Master Plan 2008, AMPC,
3. PHIA Strategic Master Plan 2007/17, ToPH.
4. Port Hedland International Airport Terminal Redevelopment Concept Masterplan, July 2011, THINC Projects, Sandover Pinder, Rider Levett Bucknall,
5. Port Hedland Terminal Plan Stakeholder Consultation, December 2008, Airbiz
6. Air Traffic Forecasts for Port Hedland Airport, March 2011, Tourism Futures International (TFI)

1 Introduction

1.1. Master Planning Objectives

The Port Hedland International Airport (PHE) Master Plan provides a planning framework for future development of the airport to meet long-term business and operational objectives and regional requirements.

A number of airport studies on various aspects of land use, demand and terminal development have been undertaken in recent years. However, the airport lacked a single strategic document that summarises the key aviation and related issues and opportunities, and a roadmap to guide airport development.

The overall objective of this Master Plan is to assess the current and future infrastructure needs of the airport serving one of Western Australia's major regional centres.

This Airport Master Plan has considered the following recent studies completed for the Town of Port Hedland;

- PHIA Master Plan, Whelans & PB January 2011
- PHIA Master Plan 2008, AMPC
- PHIA Strategic Master Plan 2007/17, ToPH.

In addition it also considers other studies including;

- Port Hedland International Airport Terminal Redevelopment Concept Masterplan, July 2011, THINC Projects, Sandover Pinder, Rider Levett Bucknall,
- Port Hedland Terminal Plan Stakeholder Consultation, December 2008, Airbiz
- Air Traffic Forecasts for Port Hedland Airport, March 2011, Tourism Futures International (TFI).

It establishes a 20 year development framework (2011-2031) for the airport within the parameters of demand and capacity analysis.

The Master Plan is a useful, relevant and living planning document which addresses strategic and commercial issues. It examines development opportunities which may be appropriate for Port Hedland International Airport. The Airport Master Plan should be reviewed at regular intervals throughout the life of the document to ensure that it adequately responds to any changes in key drivers, such as demand and business objectives.

The airport provides the ground facility infrastructure to enable the air transportation of passengers, freight, the conduct of aerial work and access for the private aviator. This Master Plan provides a vision for the development of the airport to meet these needs taking due account of the growth of the business sectors facilitated, the community and the catchment that it serves. The Master Plan sets the land use framework for orderly development to meet actual demand over time.

This Master Plan reviews and updates previously written material and focuses on:

1. Updated air traffic forecasts to 2030/31
2. Medium to long term aviation demand and infrastructure requirements
3. The provision for flexible planning requirements factoring potential changes in aviation industry requirements over time
4. Providing the Town of Port Hedland (TOPH) with confidence to pursue new Regular Passenger Transport (RPT) services.

2 Airport Description

2.1. Introduction

The Town of Port Hedland is located in the Pilbara Region approximately 1,300km north of Perth, Western Australia. The town consists of two main residential areas, Port Hedland and South Hedland. Two major features dot the town, the first being the Wedgefield industrial areas and the second the BHP Billiton Iron Ore Nelson Point crushing and shipping facility.

The port is one of the world's largest by tonnage and plans are underway to expand the capability of the port due to rapid growth in mineral exports from the surrounding mining operations.

2.2. Aircraft Operations

The Port Hedland International Airport currently operates general passenger and freight flights from/to Perth, Brisbane, Melbourne (via Perth), Darwin, Broome, Karratha and Bali. Several flights operate to transport workers from Port Hedland to remote mine sites. Some international flights stop at Port Hedland for fuel or customs checks.

The Qantas group currently operate B737-800 and B717 aircraft on the Perth and Melbourne route. Virgin Australia also operates B737-800 and Embraer 190 services on the Perth route. Strategic Airlines operate A320 aircraft on the Port Hedland Brisbane route.

Skywest Airlines operates F100 aircraft to Port Hedland. It also offers international services from Port Hedland to Bali/Denpasar in Indonesia. Other airlines serving the airport include Air North, Network Aviation, Alliance Aviation, Skytraders, and Skippers Aviation

Port Hedland Airport has a regular although unscheduled flow of charter flights servicing the large mining community that surrounds it.

Other operations include irregular freight operations by Antonov 124 aircraft, corporate jet aviation, small itinerant aircraft and helicopter operations.

Port Hedland Airport is also designated as an Alternate Use and Restricted Use International Airport by the Department of Infrastructure and Transport under the Air Navigation Act 1920for aircraft up to Code E size. This means that aircraft that cannot land at Perth or other destinations due to weather or other incidents can land and be fuelled at Port Hedland if and when required. Customs, Health and Immigrations procedures can only be made available on a restricted basis for flights with prior approval.

FIGURE 2-1 CURRENT MAIN ROUTES FROM / TO PORT HEDLAND

2.3. Runways

The existing airfield movement area consists of two runways and adjoining taxiways illustrated in Figure 2-2.

Table 2-1 gives the key characteristic of the two runways.

Runway	Length	Runway Width	Strip Width
14/32	2,500m	45m	300m
18/36	1,000m	18m	90m

TABLE 2-1 PORT HEDLAND AIRPORT RUNWAY SYSTEM

FIGURE 2-2 EXISTING AIRFIELD

Runway 14 / 32

The main runway 14/32 is 2,500m long and 45m wide with turning bays at each end. Based on the International Civil Aviation Organisations (ICAO) classification system the main runway can be classified as Code 4.

The runway was constructed with a pavement classification number (PCN) of 27 with a flexible (F) pavement (as opposed to rigid (concrete) pavement) consisting of an asphalt/bitumen surface with a sub grade strength category classified as high strength (A). The runway is designed for aircraft operating with a tyre pressure of 1200 psi (174 kPA).

Pavements are classified in relation to the Aircraft Classification Number (ACN) to PCN Ratio. The ACN expresses the effect of a specific aircraft on a nominated pavement for a specified standard subgrade strength. The Pavement Classification number expresses the bearing strength of a pavement for unrestricted movements and is determined from the CBR of the subgrade, design wheel load and pavement thickness.

Any aircraft with an ACN equal to or less than the published PCN of a runway can operate on an unrestricted basis subject to tyre pressure constraints. Any aircraft with an ACN greater than the PCN may still operate with a pavement concession issued by the aerodrome. The aerodrome may also issue a concession for tyre pressure.

A 1999 airport management commissioned a report by Shawman Pty Ltd for an engineering assessment of runway and apron areas. The report stated that in 1995 BHP conducted an assessment and that the number of actual movements conducted compared to the design movements equated to only 10 meaning that the life of the runway would be extended. They also amended the design aircraft to include:

- BAE 146-200 (44,225kg MTOW[1]) aircraft 18 operations per week
- B737-300 (62,823kg) aircraft 8 operations per week
- A330-300 (223,000kg) aircraft 3 operations per year
- B767-300 (181,440kg) aircraft 3 operations per year

The assessment was carried out at a PCN of 27 and based on this information estimated that the pavement was expected to reach its end of life in 2034. The 1999 report revised the runway PCN up to 39 from the previous recorded PCN of 27. The report concluded that the intermittent use of the pavement by larger aircraft, B767-300 or equivalent and A330-300 or equivalent, would not significantly accelerate damage and with the revised PCN to 39 should exceed the timeframe predicted by BHP in 1995.

The report recommended that for regular large aircraft movements (B767-300, A330 or equivalent) the runway be strengthened through the application of an asphalt overlay of 50 to 75mm resulting in an increased PCN to 55-62 dependant on thickness of the overlay chosen. The strengthening of the runway by a 50mm overlay would allow for regular services of B767-300ER or equivalent.

Table 2-2 gives detailed characteristics of the main runway.

Description	Runway 14/32
Runway Length	2,500m
Runway Width	45m
Runway Shoulders	7m
Pavement Type	Flexible
Pavement Surface	Chip Seal
Runway Strip Width	150m
Runway Graded Strip Width	150m
Strip Width Maintained	300m
Approach Surfaces	RWY 14: 1.86%, RWY 32: <1.0%
Pavement Classification Number	PCN 39
Pavement Type	Flexible
Subgrade Category	A
Tyre Pressure Limitation	1200psi(174kPA)
Determined by	Technical Inspection
Lighting	Low intensity runway edge lighting
Slope Guidance	PAPI
Description	14/32 Runway

TABLE 2-2 CHARACTERISTICS OF RUNWAY 14/32

[1] MTOW = Maximum Take-Off Weight

Runway 18/36

Runway 18/36 is 1,000m long and 18m wide with turning bays at each end. Based on the International Civil Aviation Organisations (ICAO) classification system the main runway can be classified as a code 2B runway.

Full data on Runway 18/36 is not fully available. The seal is chip seal with a 150mm gravel base course and was constructed in 1971. The runway PCN is 8 and accordingly is limited to light aircraft only (below 5,700kg). The runway is starting to experience a large amount of shape loss. The 2007 technical inspection of the pavement report indicated that works were required for shape correction to the runway. Any works would involve the reconstruction of the runway. Any reconstruction works should include the strengthening and lengthening of the runway to cater for use by larger medium weight aircraft.

Description	Runway 18/36
Runway Length	1,000m
Runway Width	18m
Runway Shoulders	Nil
Pavement Type	Flexible
Pavement Surface	Chip Seal
Runway Strip Width	90m
Runway Graded Strip Width	90m
Strip Width Maintained	90m
Approach Surfaces	RWY 18: <1.0%, RWY 36: <1.0%
Pavement Classification Number	PCN 8/F/A/550/U
Pavement Type	Flexible
Subgrade Category	A

TABLE 2-3 CHARACTERISTICS OF RUNWAY 18/36

Runway 18/36 also forms part of the taxiway configuration for the airport linking the general aviation Northern Apron with Taxiway B via Taxiway E. Inset centreline lighting is used to delineate this use as a taxiway.

2.4. Taxiways

The taxiways in use at Port Hedland Airport are designated Alpha (A), Bravo 1 (B1), Bravo 2 (B2), Bravo 3 (B3), Charlie (C), Delta (D), Echo (E) and Foxtrot (F). Taxiways A, B1, B2, C and D were constructed in 1984. Taxiway E was constructed in 1971. Taxiways B3 and F are under construction and due for completion in November 2011.

Taxiway A provides access from Runway 14/32 to the Main Apron. This Taxiway has a PCN of 33 and is a flexible asphalt pavement with a sub grade category A and tyre pressure limitation of 1200psi (174 kPA) and is suitable for Code D aircraft and has 7m sealed shoulders. Taxiway Alpha was resealed with a 25m asphalt overlay over the chip-seal surface in 2006. The PCN for the taxiway should be reviewed. Inset centreline lighting is used on the taxiway.

Taxiway B is parallel to Runway 14/32. It is the old Main Runway and connects Runway 14/32 via Taxiways A, C, D and Runway 18/36. It is available to aircraft up to 100,000kg MTOW and has 3m sealed shoulders. Inset centreline lighting is used. The 2006 Pavement Technical Report recommended reseal of the taxiway in the short to medium term. Some shape correction is required in places. Asphalt overlay is recommended. Should any reseal be undertaken it is recommended that centreline lighting be replaced with elevated edge lighting.

Taxiway C connects Runway 14/32 to Taxiway B. It is available to aircraft up to 100,000kg MTOW and has 3m sealed shoulders. Inset centreline lighting is used The 2006 Pavement Technical Report recommended reseal of the taxiway in the short to medium term. Some shape correction is required in places. Asphalt overlay is recommended. Should any reseal be undertaken it is recommended that centreline lighting be replaced with elevated edge lighting.

Taxiway D connects Runway 14/32 to Taxiway B. It is available to aircraft up to 100,000kg MTOW and has 3m sealed shoulders. Inset centreline lighting is used. The 2006 Pavement Technical Report recommended reseal of the taxiway in the short to medium term. Some shape correction is required in places. Asphalt overlay is recommended. Should any reseal be undertaken it is recommended that centreline lighting be replaced with elevated edge lighting.

Taxiway E connects Runway 18/36 to the Northern GA Apron and is restricted to aircraft below 5,700kg. Inset centreline lighting is used. Any upgrade of Runway 18/36 should incorporate reconstruction of Taxiway E.

2.5. Aprons

There are three sealed apron areas in use at Port Hedland Airport;

- The Northern General Aviation apron
- The Main RPT Parking Apron
- Southern Apron and Helicopter operations area.

FIGURE 2-3 EXISTING APRONS

Northern Apron

This is the oldest of all the apron areas. The bitumen seal is thin and is for use by aircraft below 5,700kg. This apron has a chip seal surface and apron lighting. The surface was resealed in 1985 and subsequently resealed in 2004 and again in 2006 with a sand seal. There are two hangars, Polar Aviation (northern) and the RFDS, fronting this apron, with an aircraft wash-down bay in the northern section.

This is the parking apron for itinerant aircraft below 5,700kg. The Northern Apron requires extension to cater for increased general aviation traffic at the airport and consolidation of general aviation. Helicopter operations should also be relocated to this apron. Apron lighting should be upgraded to MOS 139 lighting standards and the towers located near the RFDS placed on standby power.

Main RPT Apron

The Main RPT Apron accommodates 5 parking bays for aircraft up to B717, B737-800 and A320 concurrently in a power-in power-out arrangement. This apron has been used by aircraft as large as Antonov 124 in the past and has apron lighting.

This apron was constructed in 1971 and was completely resurfaced in 1984. The average thickness of the apron is 150mm or greater in trafficked areas. This apron has a myriad of asphalt surfaces varying in age. The 1999 report placed the PCN of the main parking apron as 56. Parking Bays 2 and 3 were reconstructed in 2001. Bay 4 was overlayed with shape correction in 2006 and a complete resurface of 30mm asphalt overlay was carried out in 2007. Further engineering reports should be carried out to review the PCN. The 1999 report recommended that as asphalt and bitumen are subject to deterioration due to fuel spillages that consideration be given to removing existing pavements in parking areas to subgrade depth and replaced with a cement stabilised bitumen or base course followed by concrete pads or concrete block pavers.

The passenger terminal and the operations building face this apron. Two hangars also front the apron: the Air Freight hangar which is ageing and should be demolished; the other hangar which is modern and one of the largest hangars at the airport. It is currently leased by a general aviation operator Golden Eagle Airlines operating propeller aircraft under 5,700kgs.

Southern Apron

The Antonov 124 uses this area for extended parking and larger aircraft such as the Shorts Belfast and AN12, Illyushin II76 and C-130. The Southern Apron has one hangar fronting, which is used by local operators Polar Aviation who operates aircraft below 5,700kg. The area is used by itinerant aircraft above 5,700kg as well as other locally based aircraft not requiring parking on the Main Apron. It has an asphalt surface and apron lighting. The apron was not included in the 1999 Shawmac Report and a further engineering assessment of the pavement should be undertaken to determine its PCN. The Southern Apron was constructed in 1984 as part of the airport upgrade carried out by BHP. Although records of construction are not able to be located the construction has been identified by airport management to be 25mm of asphalt over 150mm of crushed base course.

Helicopter Operations

The helicopter landing area and two concrete parking bays are located on the eastern side of the Southern Apron. The location of the parking bays close to Gate 1 is undesirable because of the potential conflict between road vehicles and the vertical descent profiles of helicopter operations. Helicopter operations are increasing due to the growth in resource activity into remote locations. There is no direct pedestrian access to the Southern Apron with access only via Gate 2 or the terminal. This causes security and screening issues during RPT operations. Helicopter operations should be relocated to a dedicated area at the end of the Northern Apron ensuring appropriate separation from other operations.

2.6. Terminal Facilities

The original terminal building was built on the current site in 1971. This terminal building was extended in 1990 to include the international area. The terminal was further extended in 1999/2000 to include the arrivals area, additions to the international area and modification of the departure lounges. The current terminal is area is 3,000sqm and has three departure gates. Gate 3 is used by both domestic and international operations.

The current terminal building has a number of issues that have on a number of occasions tried to be rectified without success. The electrical services are ageing and in some cases substandard with the Town of Port Hedland addressing these electrical issues.

The terminal is subject to leaks during heavy rain. Given the extensive air-conditioning ducting systems it is difficult to pinpoint the location of the actual points of egress. The flat roof design with box gutters is not appropriate for the heavy cyclonic rains that are experienced in Port Hedland. The building décor is blue grey and presents a very clinical appearance to terminal users. The extensive use of windows throughout the terminal causes concerns during severe weather events and increases demand on the air-conditioning system to maintain a pleasant air temperature on hot days.

CCTV is currently being installed to allow for remote visual observation of the terminal areas including the international areas and airside movement areas when the Administration and operations unit re-locates to new premises in the original ASA maintenance facility. The Public Address system is aging, has been superseded by current technology and cannot be maintained due to its age.

The current terminal was designed without consideration of future expansion of operations and aviation security requirements. Since the terminal was extended in 2000 passenger security screening has been introduced, checked baggage screening for international and now domestic jet RPT flights has also commenced. Passenger numbers have increased dramatically and aircraft types have grown in size from Boeing B717 and Fokker F100 to Boeing 737-800 and A320 operations. At peak times and with maximum load factors, this can create congestion in check-in areas, the screening point and departure lounges.

Airport Bar and Café

The current facilities and structure of the Airport Bar and Café was part of the 1990 terminal extension and remained unchanged in the 2000 extension. The refrigeration systems and café equipment are ageing and no longer operate to efficient energy levels. The Café is not on the emergency power supply for the terminal. The cafe has undergone quite extensive modifications but still lacks space.

Passenger facilities

Existing floor space is at a premium. Qantas, Skywest, Virgin Australia, Airnorth and Strategic currently operate from the terminal however new operations are not possible as there is not adequate space within the current building. The VIP room is inadequate for current requirements and check-in facilities are inadequate for current operations and further strain will be put on this infrastructure with the introduction of larger aircraft and increased loads from 117 to 150-180 passengers depending on seating configuration.

Air-conditioning

The terminal is serviced by 14 roof mounted air-conditioners with extensive ducting through the terminal. The system is controlled through a computerised management system.

CJ Lommer Pty Ltd Mechanical Engineers stated in a 2007 report of the status of the terminal air-conditioning stated that the air-conditioning units were reaching the end of their serviceable life in the Pilbara's harsh climate. The report also stated that preliminary investigation of sections of the ducting showed that sections viewed were deteriorating.

Seating

Seating within the terminal is not adequate both for departing passengers and "meeters and greeters'.

Departure Areas

The current departure areas are at capacity at the moment and will not be able to accommodate the larger number of passengers with the change in aircraft type. The current screening point is a bottle neck for passengers. The slow movement of passengers through the screening area is a concern for all airports and in keeping flights departing on time. The area needs to be modified for smoother passenger flow. There are no food, water or toilet facilities in the departure areas.

Baggage Facilities

There is only one baggage reclaim belt which is at capacity at the moment. The introduction of the larger aircraft or the parallel scheduled arrival of aircraft will not be able to be accommodated with the current facility.

The back of house baggage makeup areas are not adequate. The introduction of checked baggage screening will require extensive modification of the baggage make up area to accommodate the x-ray equipment and the introduction of conveyor systems to feed bags through.

International Area

Port Hedland Airport is the only airport in the North West that is operationally set up to handle international passenger traffic with a dedicated international area. The current area has customs and quarantine office areas, toilet facilities and baggage area. When operational, Gate 3 is separated from the general passenger area. The area no longer adequately accommodates passengers or provides appropriate facilities due to the increase in passenger growth. The area is heavily congested reducing passenger amenity. The international baggage collection area has a baggage carousel.

Terminal Fire Services

The terminal fire panel has been replaced however the overall fire detection system within the terminal required upgrading to ensure the utmost compliance with building standards for public buildings. The current system does not allow for early warning of roof cavity fires. The terminal does not have a sprinkler system for the confined roof spaces or the general terminal areas.

Sensors are not placed appropriately as the alarm is activated during hot weather when terminal doors open.

The internal ceilings within the terminal, although having excellent acoustic properties, inhibit access to the roof cavity and access is restricted.

The current layout and design of the terminal will continue to cause congestion and may be further compromised with the introduction of larger aircraft in the future.

2.7. Landside Areas

Avis Maintenance Yard

The building was constructed in circa 1970 and is in poor condition. The surrounding yard is in reasonable condition but is no longer suitable for the Avis operations. There are underground and above ground fuel tanks which are licensed by Avis however as the tank was in placed prior to the current lessee occupying the premises. The Town of Port Hedland will be responsible for any decontamination issues. All infrastructure is owned by the Town of Port Hedland. The yard is subject to access and flooding issues in heavy rain. The parking areas within the yard are not sufficient with the excess vehicles being placed in public car parking spaces. This adds further pressure on existing facilities. It is recommended that the current facility be demolished with land being made available for lease for the establishment of modern facilities which comply with current environmental standards.

Hertz Maintenance Facility

This facility consists of a small maintenance shed and wash-down bays. It is an open faced shed and is not appropriate for current operations. It is in a poor state and has issues with waste water disposal. The parking areas within the yard are not sufficient with the excess vehicles being placed in public car parking spaces which adds further pressure on existing facilities. It is recommended that the current facility be demolished with land being made available for lease for the establishment of modern facilities which comply with current environmental standards.

Budget Hire Cars Maintenance and Office Facility

The facility consists of an office facility and two undercover wash bays with parking areas. The date of construction is not known but is circa 1970. The facility is ageing and although in reasonable condition it is no longer suitable for current operations. Underground fuel tanks located on site are licensed by the operator. However, as the tank was in placed prior to the current lessee occupying the premises, the Town of Port Hedland will be responsible for any decontamination issues.

The parking areas within the yard are not sufficient with the excess vehicles being placed in public car parking spaces. This adds further pressure on existing facilities. It is recommended that the current facility

be demolished and land made available for lease for the establishment of modern facilities which comply with current environmental standards.

2.8. Landing Aids

Non-Directional Beacon (NDB); High Frequency Antenna Array

The NDB is a navigation aid located in the south eastern corner of the airport. The NDB and High Frequency Radio Antenna Array consist of transmitter and receiver towers, antenna arrays and related infrastructure huts. Buffers are required to this infrastructure, namely restrictions on the height of structures within the buffer area, to protect radio reception and transmission. These buffers extend to 500 metres from the NDB, at an angle of 3 degrees vertical from the NDB antenna array.

The effect of this buffer is to limit the potential height of any buildings or structures within the controlled area.

Distance Measuring Equipment (DME)

The DME is a ground transponder that provides a radio pulse enabling distance to be measured between the aircraft and the ground beacon.

The DME is located on the southern side of Runway 14/32. This equipment requires a buffer with height restrictions to below a plane measured between 10 and 1500 metres from 1 metre below the antenna, at an angle of 0.5 degrees. This results in a height limit of approximately 4 metres at 300 metres from the DME, and a limit of 13 metres at 1500 metres from the DME.

Doppler Very high frequency Omni Range (DVOR)

DVOR is another air navigation aid that requires specific height restrictions. This equipment is located at the same site as the DME, on the southern side of Runway 14/32. This equipment also requires buffers with height restrictions to below a plane measured between 10 and 1500 metres from 1 metre below the antenna, at an angle of 0.5 degrees. Unlike the DME, which requires linear buffers, the DVOR requires height limits on a radial basis from the DVOR. These buffers range from 150 metres to 1000 metres, again with a buffer extending at an angle from the DVOR. This results in a graduated height limit ranging from 20 - 35 metres.

Other

Airservices maintains High Frequency communication facilities that border on Precinct 2. These need to be protected from signal and electrical interference restrictions, details of which are available from Airservices. Similarly there needs to be restrictions for Radio Frequency interference for the NavAids as per Airservices specifications.

2.9. Air Traffic Service Communications Facilities

Airservices Australia Facilities

Airservices Australia holds a lease over navigational facilities at the airport which has been in place since the Town commenced operating the airport.

2.10. GA Facilities

Polar Aviation Northern Hangar

The hangar and office complex is located on the Northern General Aviation Hangar. A new 30 metre x 30 metre hangar and office complex was constructed in 2010. The hangar is located in a prime location near the main airport terminal.

Air Freight Hangar

The Town of Port Hedland owns this facility. A comprehensive upgrade is required for continued operation. Redevelopment of the terminal precinct should include the demolition of the facility and relocation of freight services to a dedicated area away from the main passenger operations.

Golden Eagle Aviation Offices and Hangar

This office and hangar complex was constructed in 1999 by the Town of Port Hedland and is currently leased by Golden Eagle Aviation. The hangar has frontage to the main apron. Given the location of the hangar on the main apron the most appropriate use for it should be for an operator with aircraft over 5,700kg and jet operations. Conflicts do exist with parking for jet aircraft when the operator has light aircraft out of the hangar and security issues regarding checked baggage and passenger screening during the operational period. The current operation should be relocated to the Northern General Aviation when extended.

Polar Aviation Southern Hangar

This hangar building is located on the Southern (high-strength) Apron area which is currently lease by Polar Aviation. The hangar is in good condition but it does not have the capacity to store larger aircraft currently using the airport. The use of the hangar by GA (light aircraft) operator is an underutilisation of the heavy apron area. The current location of the hangar causes security and access issues. It is recommended that this facility be demolished or relocated to the Northern GA Area to consolidate GA to one area.

2.11. Fuelling Facilities

Mobil Aviation Fuel Facility

This facility was constructed by Mobil but is not currently in use. All infrastructure on the site is the responsibility of Mobil. The buildings and surrounding fuel storage areas are not being maintained to an appropriate standard by the current lessee. The site is in a highly visible location in the terminal precinct and should the facility become active again it would cause major issues relating to access, traffic and terminal evacuation procedures and it is not an appropriate location for a fuel facility. It is recommended that the current facility be demolished with land being made available for lease near the current Air BP fuel facility to establish modern facilities complying with current environmental standards.

Air BP Facility

The current facility is in an excellent condition and well maintained by the current operator. All infrastructure is owned by the lessee. The Avgas swipe bowser located on the main apron is also maintained by the current operator to an acceptable standard. The swipe bowser is to be removed and a 12000 litre self-bundled above ground card swipe avgas tank is to be situated on the northern GA apron to service GA aircraft and remove them from the RPT apron. The Air BP fuel depot is to be resited to an expanded Southern Apron.

2.12. Other Facilities

Royal Flying Doctor Service (RFDS) Base and Administration

Located on the Northern General Aviation Apron, the RFDS Base and Administration was redeveloped in 1999 with the original hanger being extended to its present size and the adjoining medical and administrative centre being constructed on the site of the previous hangar building. The existing structures were constructed by the RFDS and are subject to commercial lease arrangements.

A portion of the Administration Centre is subleased to the Minister for Education to provide “School of the Air” services to the Region. This sublease is subject to the same lease terms as the RFDS lease.

The buildings are new and in very good condition. Currently there is no emergency power or standby power arrangements. The RFDS has proposed an extension of the lease area to provide dedicated staff and operational vehicle parking. The RFDS have a dedicated refuelling facility located near their hangar which is maintained by Air BP under arrangement.

School of the Air - Storage Unit

This building is currently being used for storage by the School of the Air. The building is brick and was previously used as the office facility by Air BP prior to the construction of their present facilities. It is a reasonably good condition. It is an appropriate location for a security guard point.

Hedland Riders Compound

This facility is currently subject to monthly tenancy, but there are a number of issues relating its use as a public building. The building currently does not comply with required electrical standards and contains asbestos. The Town of Port Hedland is responsible for the facility. The facility has access to highway frontage. It is recommended that the building be demolished.

Bureau of Meteorology

This building and the immediate environment is the responsibility of the Bureau of Meteorology and is in excellent condition. It is subject to lease and occupies highway frontage at the entrance to the airport.

Town of Port Hedland Archive Building

This building is located within the Mechanical Workshop compound and is currently used by the Town of Port Hedland Administration Services as an archival facility. The building also consists of a double bay workshop which is currently being used by the Town of Port Hedland Building Maintenance Officer.

Mechanical Workshop

This workshop was used by Aerodrome Rescue and Fire Fighting Services (ARFFS) for maintenance of mobile fire fighting equipment prior to the withdrawal of fire services to Port Hedland. The eastern end of the workshop is still subject to a lease to Airservices Australia. Discussions have been held with Airservices Australia for the surrender of this facility. The remainder of the building is used for general storage.

The remainder of the building is currently used for storage purposes. The location of the Town of Port Hedland’s archival facility does not allow for the commercial leasing of this compound. It is recommended that the Airport Operations relocate from the present depot site to this location given the proximity to the terminal and airside areas.

Fire Station Facility

The fire services were withdrawn from Port Hedland by Airservices Australia approximately seven years ago. Since this time the facility has been vacant. Airservices Australia is responsible for the maintenance of

the facility. The facility is located adjacent to the main runway and is in reasonable condition. ARFFS is to be reinstated to the Port Hedland airport in the near future.

Airservices Australia also has a satellite dish station which is not part of the lease. The facility is located near the Control Tower. They have advised that plans to relocate the facility to the Transmitter facility are well advanced. Airservices Australia also occupies the generator room and communications room at the base of the air traffic Control Tower. This is a joint facility used by Airservices Australia and the Town of Port Hedland. Airservices Australia maintains the generator facilities.

Airservices Australia is exploring options for including a specific workshop capability within a new fire station development model.

RFDS Transmitter Building and Arrays

This facility is located at the cemetery end of the main runway and is used by the RFDS for communication purposes. The RFDS are responsible for maintenance of the facility.

2.13. AIRPORT BUILDINGS: OPERATIONS

Landside

Airport Operations Building

The Operations Building is currently occupied by Town of Port Hedland Airport Management. The building's lower floor was used by the State Emergency Service for its operational headquarters.

During Cyclone George in March 2007 the building suffered extensive water inundation. Structural engineers have indicated that the building is not suitable for use as an operational centre during a severe weather event however it is suitable as shelter. The building occupies a prime location on the airport with frontage to both the main and northern general aviation aprons. The building also contains asbestos building material and floor tiles. Any redevelopment of the terminal area should include the demolition of this building.

Residence 12

This residence is currently occupied by Airport Operational Staff. The property is ageing and is in a reasonable condition. The fibro three bedroom residence contains asbestos and there is evidence of deterioration of the footings.

Residence 10

This four bedroom two bathroom residence was constructed in the late 1990's with airport funds. It is currently occupied by airport operational staff and the property is in excellent condition.

Airport Depot

This compound consists of a brick office building with toilet and shower facilities, a workshop and store area and an open equipment storage shed. There is also an ageing bulk fuel storage facility.

The workshop and store is currently used to maintain airport equipment and vehicles. The building was originally constructed by the Civil Aviation Authority as a carpenter's workshop.

The compound is large and would be suitable for a commercial freight facility.

Fire Pump House Facility

The facility consists of a building containing two diesel fire pumps and jacking pump with two large 300,000 litre water storage tanks. This facility provides fire fighting booster facilities to the terminal building and red fire hydrants on the main apron. It is well maintained, however consideration should be given to the relocation of the facility to a more appropriate and more secure location within the airport.

Airside

Incinerator Building

This facility is a diesel fuelled incinerator with high intensity burners and afterburners used for quarantine purposes for international flights. The facility is in good working order and is well maintained. The facility is regularly used by law enforcement agencies for the destruction of seized items.

Air Traffic Control Tower Facility

The Control Tower facility is owned by the Town of Port Hedland. The generator and communications rooms at the base of the Tower are jointly used by the Airservices Australia and the Town of Port Hedland for navigation and operational equipment. The Aerodrome Beacon is located on the roof of the Tower. The Tower is currently closed but will re-open at a period after the ARFFS have returned to the Port Hedland International Airport. An asbestos study indicated the control tower at a P3 status (leave and monitor). The internal tower/cabin is in a reasonably good condition and if the location is suitable the existing tower infrastructure could be

refurbished. The Facilities Management area at the base of the control tower is still in use and in good condition.

Power House

Located on the eastern end of the RPT jet apron, the powerhouse supplies standby power to critical airport facilities such as runway and associate airfield lighting and also supports essential facilities within the terminal and operations facilities. Although well maintained, the current generators are ageing making servicing a problem in the future.

3 Aviation Forecasts

3.1. Introduction

Annual passenger and aircraft movement forecasts for this Master Plan were prepared by Tourism Futures International (TFI).

This section discusses air traffic forecasts for Port Hedland International Airport for the planning period 2010/2011 through to 2030/31. It summarises both the influences on traffic growth in the short, medium and longer term, and the latest passenger forecasts for Port Hedland International Airport. In addition these forecasts set out the busy hour assumptions derived to determine key development such as aircraft parking and terminal requirements.

The main driver of the passenger market for Port Hedland is the mining sector and in particular Iron Ore and Base Metals. Port Hedland is in Western Australia's Pilbara Region, a key part of the State's mining sector. Apart from Port Hedland other airports in the Pilbara include Karratha (mainly iron ore and oil and gas), Paraburdoo and Port Newman (both iron ore producers). Passenger growth over recent years has been strong to all of these Pilbara airports. Since the immediate impact of the Global Financial Crisis (GFC) there has been an improvement in global economic forecasts. However the high levels of sovereign and household debt in developed countries is causing further concern and could promote further financial crises. The necessary debt reduction (by governments, companies and consumers) across much of the developed world, allied with the need to reduce the GFC fiscal stimulus, suggests a downward pressure on economic recovery.

This global position is important to airports such as Port Hedland Airport because much of the passenger demand derives from mining-related activities for minerals exported to countries such as China and India.

The challenges in forecasting for Port Hedland and other mining-driven airports arise because:

- Strong demand for commodities over recent years has driven up commodity prices and these high prices justify huge increases in mining investment.
- Construction activity for new iron ore projects in the Pilbara has been responsible for the growth in passenger traffic.
- High prices lead to supplier countries expanding capacity at the same time as emerging market steel manufacturers look for cheaper alternative sources of supply.

- These factors lead to an excess supply and falling prices. In response new resource projects are deferred.
- This can lead to periods of strong growth in traffic followed by periods of decline. One of the greatest forecasting challenges is predicting when such a cycle will end and when a new cycle will begin.

As a result TFI has used a scenario-based process for projecting Port Hedland traffic. TFI has developed a number of scenarios based on assumptions with respect to the total traffic incorporating mining traffic and the underlying growth in community traffic and 'normal' levels of mining traffic.

3.2. Traffic History for Port Hedland

Current Airline Services at Port Hedland

Current airline services to/from Port Hedland (PHE) are summarised in Table 3-1. Most services operate to/from Perth with Qantas/QantasLink and Virgin Australia providing 37 services per week. A limited number of services are also operated to/from other intrastate locations; Karratha and Broome. Services also operate to/from Melbourne, Brisbane and Denpasar.

Port	Airline Return Services Per Week					Total Return Services
	Qantas/QantasLink	Virgin Australia	Airnorth	Skywest	Strategic	
Within WA						
Perth	28	14				**42**
Karratha			1			**1**
Broome			1	1		**2**
Outside WA						
Melbourne	1					**1**
Brisbane					1	**1**
Denpasar				2		**2**
Total	**26**	**12**	**2**	**3**	**1**	**49**

TABLE 3-1 RETURN SERVICES PER WEEK AT PORT HEDLAND
SOURCE: AIRLINE SCHEDULES
NOTE: STRATEGIC IS WITHDRAWING PORT HEDLAND TO BALI DIRECT FLIGHTS FROM THE END OF MARCH 2011

TFI has received monthly data from the airport for the period July 2008 through to December 2010. Figure 3.1 shows the numbers of passengers and growth over the period. Month to month growth has been very strong over the period shown.

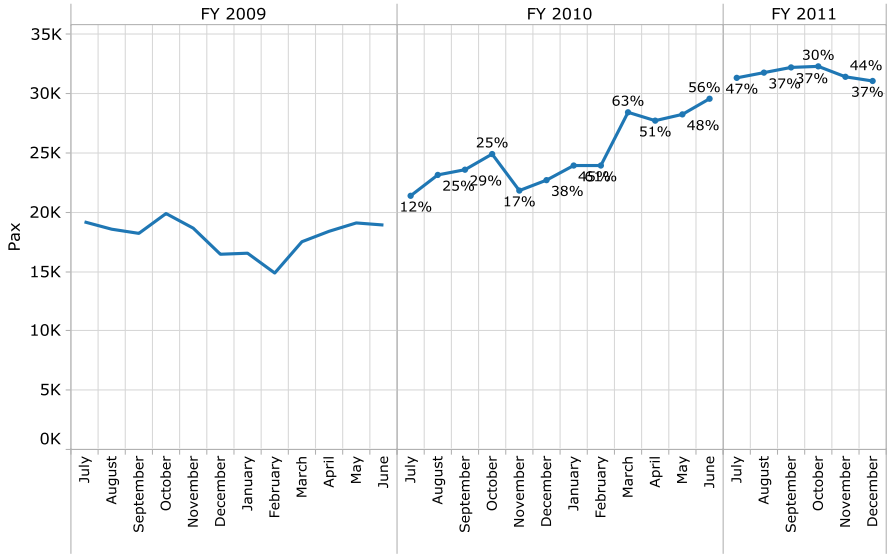


FIGURE 3-1 MONTHLY PASSENGER MOVEMENTS/CHANGE OVER PREVIOUS YEARS
SOURCE: PHE DATA

Bureau of Infrastructure, Transport and Regional Economics Data

In addition to the local airport-provided data, domestic data (for passengers and aircraft movements) is regularly published for the top routes in the Bureau of Infrastructure, Transport and Regional Economics (BITRE) publication Australian Domestic Airline Activity. This data is published as traffic on board by stages and includes all traffic on each flight stage between two directly connected airports. It thus includes domestic transit passengers.

A second BITRE publication used by TFI is Air Transport Statistics: Airport Traffic Data which contains a time series of annual airport traffic data for Australian airports receiving more than 7,000 revenue passenger movements annually. It includes International, Domestic and Regional.

Airline Data

Table 3-2 provides the BITRE data for the financial years 2005 to 2010. Note that the overall passenger CAGR over the period has amounted to 24.2%. During this same period the CAGR for aircraft movements has been much slower at just 4.5%. This suggests that a large proportion of the passenger growth has been accommodated through the use of larger aircraft.

Longer Term History

Figure 3.2 uses BITRE data to show passenger movements at Port Hedland Airport over a long time period, from 1977/78 through to 2009/10. It is evident that Port Hedland has experienced strong volatility over the period. TFI has broken the period into two 'eras':

- The period from 1977/78 to 2002, characterised by a strong growth period and then a slow decline in passenger numbers.
- The most recent period from 2002 with strong and relatively sustained growth. The slower growth in 2007/08 and particularly 2008/09 results from the Global Financial Crisis (GFC).

Figure 3.3 uses BITRE aircraft movement data to show aircraft movement performance for Port Hedland Airport. The figure also shows the average numbers of passengers per aircraft movement. The key drivers for the aircraft movements have been the passenger numbers, the types of airlines carrying those passengers and their aircraft type decisions.

The average number of passengers per movement increased from 10-15 over the period to 1984/85, to 29-40 through to 2006 and from there the increase has been to 85 by 2009/10.

	Years end 30 June						CAGR for 2005 to 2010
	• 2005	• 2006	• 2007	2008	2009	2010	
Passengers							
From PHE					215,940	298,941	n.a.
BITRE Domestic	84,168	109,359	151,740	189,475	206,501	295,152	28.5%
BITRE Regional	16,262	11,572	7,015	6,777	2,318	1,658	-36.7%
Total BITRE	100,430	120,931	158,755	196,252	208,819	296,810	24.2%
RPT Aircraft							
BITRE Domestic	1,835	1,451	1,860	2,228	2,653	3,344	12.8%
BITRE Regional	956	649	299	360	104	133	-32.6%
Total BITRE	2,791	2,100	2,159	2,588	2,757	3,477	4.5%

TABLE 3-2 PASSENGER AND RPT AIRCRAFT MOVEMENTS

SOURCE: *PHE, BITRE DATA*

NOTES: N.A. = NOT AVAILABLE; CAGR = COMPOUND ANNUAL GROWTH RATE.

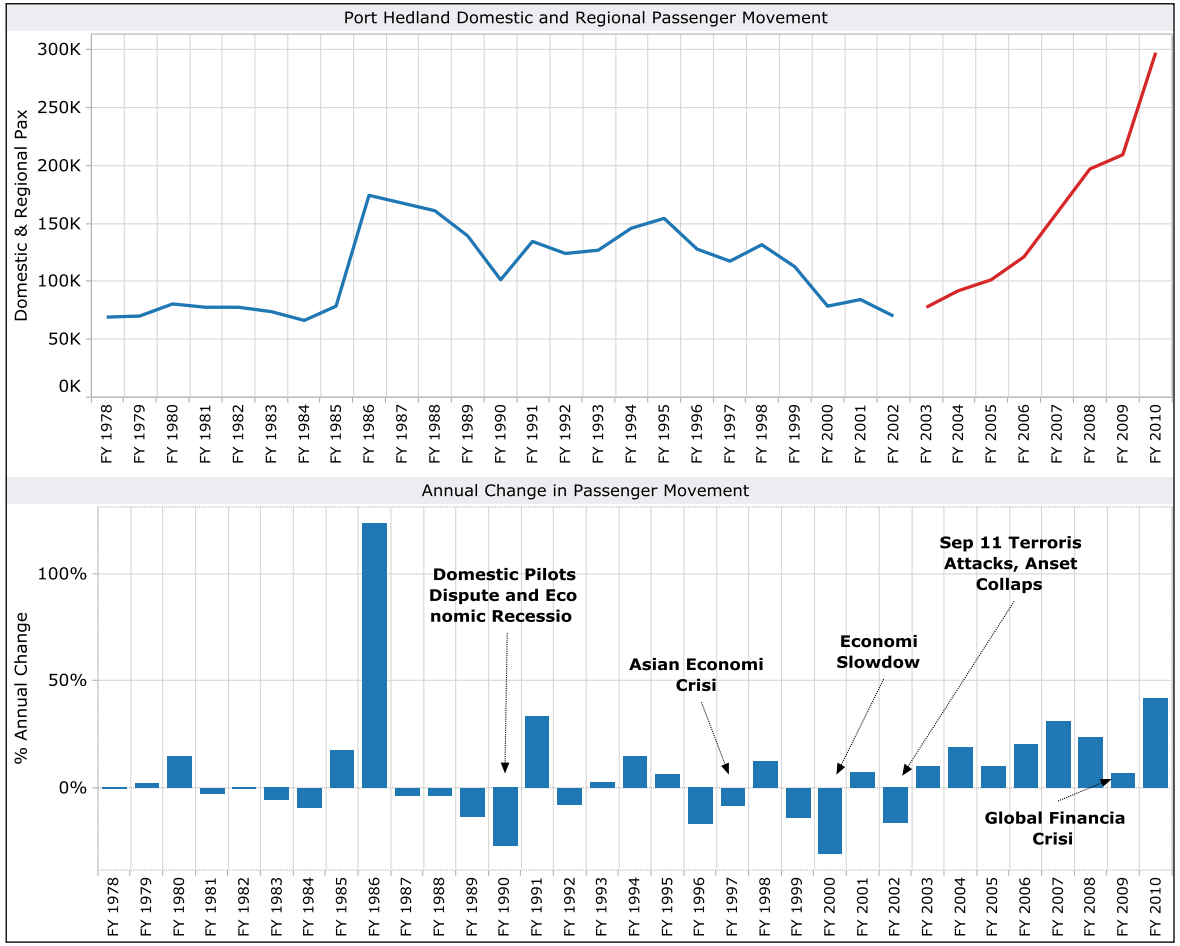


FIGURE 3-2 DOMESTIC/ REGIONAL PASSENGER MOVEMENTS AND ANNUAL CHANGE

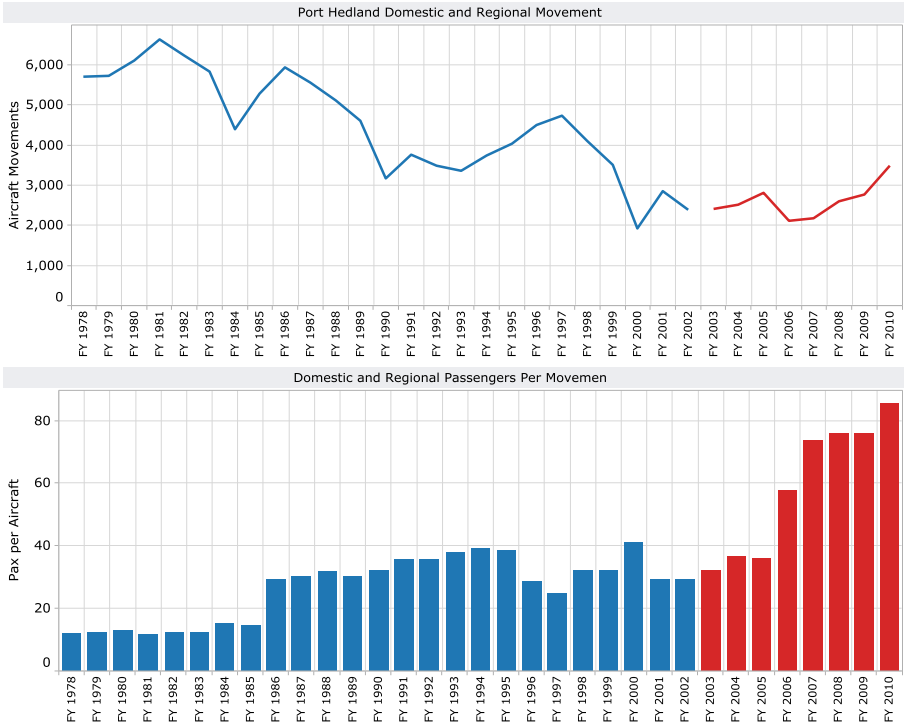


FIGURE 3-3 DOMESTIC AND REGIONAL AIRCRAFT MOVEMENTS; AVE PAX/MVNT
SOURCE: BITRE DATA

International Traffic History

Note that the data above shows the performance of Port Hedland Airport for domestic and regional traffic. Port Hedland Airport has recently seen the addition of some international traffic. Port Hedland Airport has seen international services before, specifically over the period from 1983/84 to 1999/2000. Figure 3-4 shows that during this earlier period, international passengers at Port Hedland Airport averaged around 3,800 per year on an average 95 movements per year.

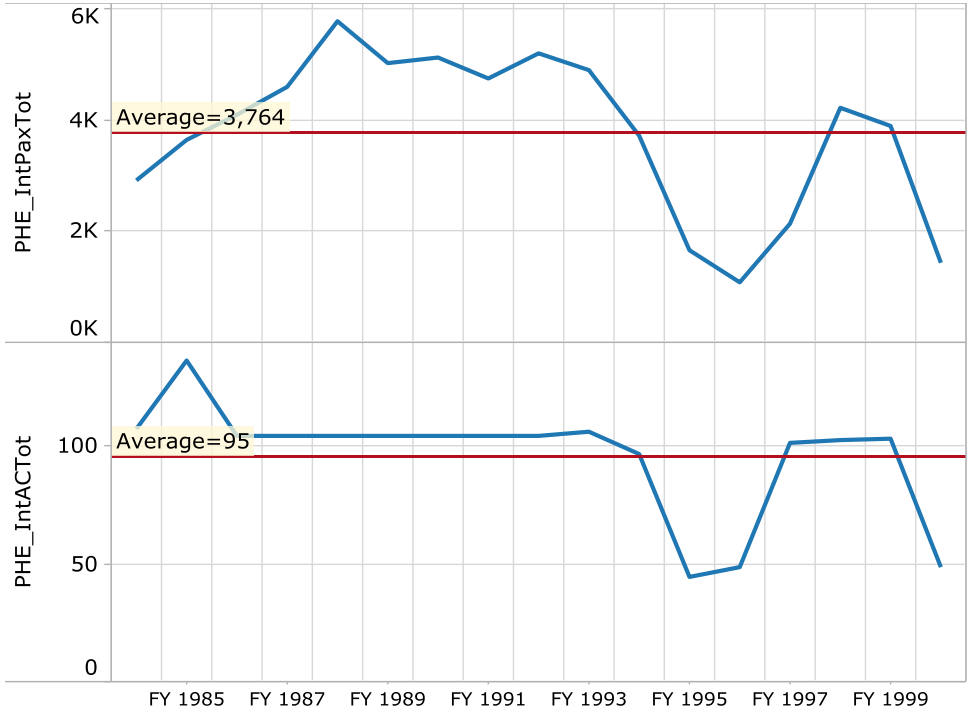


FIGURE 3-4 INTERNTIONAL PASSENGER AND AIRCRAFT MOVEMENTS
SOURCE: BITRE DATA

3.3. Projections

Forecasting Approach

In reality a large number of factors influence the growth of passenger movements at an airport.

These include:

- Economic activity related to specific industries such as mining.
- The incomes of travellers or potential travellers. Both the level of income and confidence that these levels will be maintained and grow are important.
- The prices of air transport and the ground component of travel.
- The competitiveness (quality, product attributes and price) of a destination compared to alternative destinations.
- The supply of airline services – frequency, reliability, quality of service.
- Tourism promotion by Governments, airlines and industry bodies.
- Consumer tastes and available time for travel.
- One off factors and shocks. These include the travel impacts of events such as the Olympics, September 11, the collapse of an airline such as Ansett, and health concerns such as those generated by SARS.

However only some of these factors can be measured and their impacts included in forecasting models.

The approach adopted by TFI in preparing the Port Hedland Airport forecasts was based on a number of elements:

- A review of the traffic history available for Port Hedland Airport and an assessment of statistical trends.
- A review and analysis of the general aviation and business environment and current airline schedules. This assists in the development of assumptions and identification of qualitative factors that might influence traffic outcomes.
- Development of models linking drivers and traffic. In the case of Port Hedland Airport, the mining sector activity is key in determining likely growth rates and peaks in the future.

Overall, TFI's approach is to:

- Include as much information in the forecasting process as possible (given time and budget constraints).
- Adopt a number of perspectives (macro and a micro approach).
- Utilise econometric and time series models.
- Prepare a range of forecasts and indicate sensitivities.

The Challenge of Forecasting Mining-Related Growth

The challenges in forecasting for Port Hedland and other mining-driven airports arise because:

- Strong demand for commodities over recent years has driven up commodity prices and these high prices justify huge increases in mining investment.
- Construction activity for new iron ore projects in the Pilbara has been responsible for the growth in passenger traffic.
- High prices lead to supplier countries expanding capacity at the same time as emerging market steel manufacturers look for cheaper alternative sources of supply.

These factors lead to an excess supply and falling prices. In response new resource projects are deferred.

This can lead to periods of strong growth in traffic followed by periods of decline. One of the greatest forecasting challenges is predicting when such a cycle will end and when a new cycle will begin.

TFI has tested a number of models linking Port Hedland Airport traffic to drivers such as:

- National economic factors such as GDP and Private Consumption Expenditure (PCE).
- Economic growth in countries that import minerals from WA and the Pilbara.
- WA Gross State Product (GSP).
- National, WA and regional populations.
- WA variables such as production, exports and imports, CPI, employment levels.
- Mining-related variables such as national iron production, iron ore prices and WA construction activity (much of which is mining related).

A number of the models performed well in explaining past growth. For example, models related to WA GSP. They project steady growth over the next 20 years. However use of mining-related variables leads to strong growth in the two to five year period, reaching high levels of traffic before declining. This occurs because of a reasonable expectation that mining is cyclical even when there is strong demand from countries such as China and India.

The best models relate activity levels at Port Hedland Airport to WA Real Final Demand (RFD) and WA Iron Ore Production levels. As production levels grow passenger traffic accelerates. On the other hand a slowing of production growth leads to a decline in passenger numbers. The pattern is one of strong growth over the next few years and then a decline.

TFI has used a scenario-based process for projecting Port Hedland traffic. Traffic has been projected based on:

- Growth in total traffic incorporating both resource-oriented and non-resource-oriented traffic.

  Two levels of forecast were developed – one with iron ore production levels projected by TFI using time series analysis, the other based on growth rates for national iron ore production as projected by ABARES.
- Growth in non-resource-oriented traffic. In reviewing traffic behaviour prior to the collapse of Ansett in September 2001 and prior to the acceleration in mining-related traffic from around 2003, TFI found an elasticity of passenger traffic to RFD of around 0.5 to 1.0 (i.e. every 1% increase in RFD generates between a 0.5% and 1% increase in passenger traffic to Port Hedland Airport).

Based on this analysis TFI has developed the following four scenarios:

- Scenario 1: based on the higher level of iron ore production and with a higher base (non-mining boom) level of traffic. Traffic for Port Hedland peaks at around 610,000 passenger movements in 2014/15 and begins to decline towards the base traffic levels.
- Scenario 2: based on a lower level of iron ore production and a lower base level of traffic than Scenario 1. Traffic for Port Hedland peaks at 460,000 in 2013/14 for this scenario.
- Scenario 3: Scenarios 3 and 4 are extensions of the first two scenarios. Scenario 3 takes the peak level of 610,000 for 2014/15 from Scenario 1 and extends it forward to a level of 700,000 by 2030/31 (the CAGR for 2009/10 to 2030/31 is 4.2% for this scenario).
- Scenario 4: This Scenario takes the peak level of 460,000 for 2013/14 from Scenario 1 and extends it forward to a level of 600,000 by 2030/31 (the CAGR for 2009/10 to 2030/31 is 3.4% for this scenario).

Passenger Projections

Table 3-3 shows the passenger movement forecasts (they are also shown in Figure 3-5). Scenarios 1 and 2 show the passenger movements growing from 297,000 in 2009/10 to peak at 610,000 in 2014/15 (for Scenario 1) and 460,000 by 2013/14 (for Scenario 2). Scenarios 1 and 2 show the decline from these peaks back to underlying base traffic levels before increasing.

Scenarios 3 and 4 show the growth from the peak levels of Scenarios 1 and 2 to between 600,000 and 700,000 passengers by 2030/31.

Note that TFI's expectation is for limited growth in international passengers driven largely by outbound travel related to mining activity. However it is also possible that growth could occur due to the need to expand the labour force from overseas.

Years end 30 June	Actual Pax	Pax Scenario 1	Pax Scenario 2	Pax Scenario 3	Pax Scenario 4
	'000s Passenger Movements				
2010	297	297	297	297	297
2014		596	460	596	460
2015		610	449	610	468
2020		485	336	641	509
2025		340	220	671	551
2030		409	237	702	592
2031		424	241	700	600
2020 on 2010		5.0%	1.2%	8.0%	5.6%
2031 on 2010		1.7%	-1.0%	4.2%	3.4%

TABLE 3-3 PASSENGER PROJECTION SCENARIOS

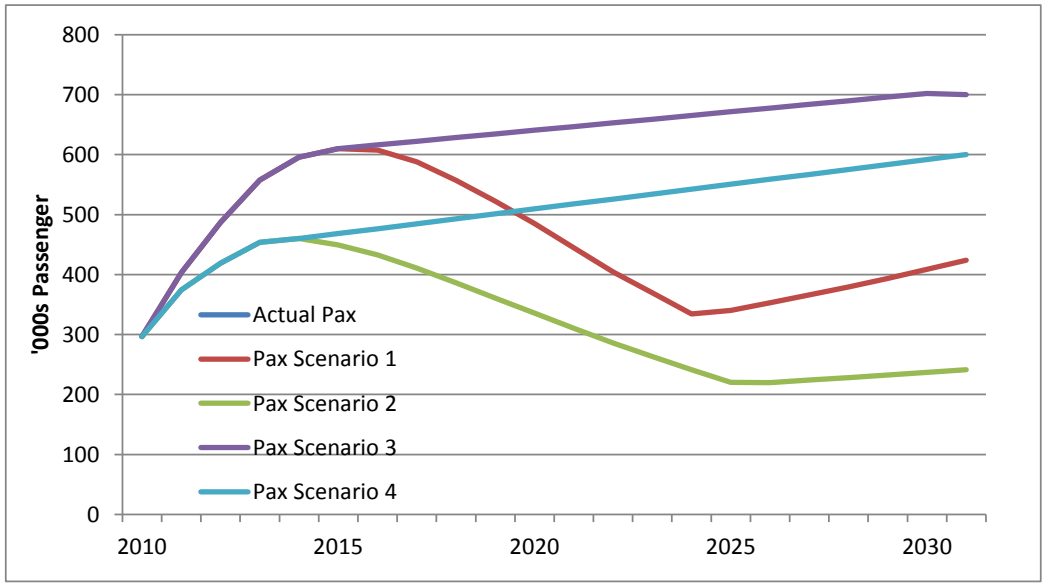


FIGURE 3-5 PASSENGER PROJECTIONS

Aircraft Movement Projections

Table 3-4 shows the total aircraft movement projections. The passenger forecasts are used to generate aircraft movement forecasts. The current mix is around 47% of RPT aircraft movements with aircraft of B737/A320 size (average of around 166 seats) with 49% of 100 to 115 seats and a small number of movements with 76 seat aircraft. TFI expects the proportion of B737 size aircraft to increase over time. Only the one movement mix scenario has been developed at this stage.

Years end 30 June	Actual RPT Aircraft Mvts	Aircraft Movements for Pax Scenario			
		1	2	3	4
	'000s Aircraft Movements				
2010	3.5	3.5	3.5	3.5	3.5
2014		6.7	5.3	6.7	5.2
2015		6.9	5.2	6.9	5.3
2020		5.4	3.9	7.2	5.7
2025		3.8	2.6	7.4	6.2
2030		4.5	2.7	7.7	6.6
2031		4.5	2.6	7.4	6.5
2020 on 2010		4.6%	1.1%	7.5%	5.1%
2031 on 2010		1.2%	-1.0%	3.7%	2.9%

TABLE 3-4 TOTAL AIRCRAFT MOVEMENT PROJECTIONS

SOURCE: TFI

3.4. Master Plan Busy Hour Demand

The airside areas of this Master Plan, in particular the RPT Apron and Passenger Terminal areas are based on a range of busy hour demand assumptions driven by factors including the Airport Vision, existing operations, industry consultation, passenger forecasts and collective local and national industry knowledge.

The key busy hour demand assumptions that the Master Plan is based on are listed below;

1. There is potential for regular passenger transport services by Code E aircraft on both domestic and international routes.
   - Growth in services from Australia's East Cost destinations such as Sydney and Brisbane by Code E aircraft should be considered. Qantas have indicated they may replace some Code C operations with Code E A333 aircraft on a Port Hedland routes in the future.
   - It is possible that Port Hedland Airport may receive international Code E services to Singapore (for example) or other Asian destinations (i.e. SYD-PHE-SIN)
2. Based on existing schedule information it is quite possible that international and domestic services could arrive/depart the airport in the same hour (a coincident domestic and international peak hour) at some stage in the future. This means that the terminal and apron facilities need to be flexible in their ability to respond to coincident international and domestic operations.

Based on these assumptions the demand scenario shown in Table 3-5 was developed for the 2031 planning horizon;

Aircraft Type	No.	Seats	Load Factor	Passengers	Sector
B738	2	170	80%	272	*Dom*
B787/A332	1	300	65%	195	*Int*
B787/A332	1	300	65%	195	*Dom*
A320	1	150	80%	120	*Dom*
Total Passengers				**782**	

TABLE 3-5 BUSY HOUR DEMAND

The demand scenario is optimistic to give Port Hedland International Airport flexibility to respond to uncertain future demand requirements. In this respect infrastructure developments provide capacity to cater to both increases in Code E and/or increases Code C operations.

4 Airside Planning

4.1. Introduction

Airside planning is based on the selected design aircraft and forecast peak hour aircraft movement and stand demand. In the development of an airport, the airport owner and stakeholders have made significant investments in the facilities that make up the airport. An airport Master Plan should therefore retain as much as possible of existing infrastructure and facilities, where this is economically and operationally feasible.

Airside planning has been developed specifically to provide flexibility to respond in both the short term and long term aviation requirements.

Earlier work did not envisage that Port Hedland Airport would cater to RPT services by Code E aircraft. However discussions with airlines during the consultation process and the current economic boom in the region have somewhat tempered this view and the flexibility to accommodate Code E RPT operations should be preserved in the Master Plan.

Planning has therefore been based on a demand scenario where Port Hedland Airport may cater to regular services by wide bodied aircraft (both on Domestic and International routes) supporting aircraft up to Code E. With the introduction of new domestic and international aircraft types such as the B777, A330, B787 and the A350, all of which are Code 4E, the future geometric development of the airside needs to cater for a higher code category to provide flexibility for future business development.

Qantas is currently replacing many of its B767 (Code D) aircraft with the Code E A330 and potentially the B787 aircraft type over the next 5 years.

Design Aircraft

Airside planning is based on the geometric layout of Runway 14/32 and its associated parallel taxiway and RPT apron being used by aircraft up to Code E size.

Whilst Port Hedland International Airport already has some unscheduled Code F Antonov 124 operations it is not appropriate to plan the entire airport to Code F standards, although planning does allow for Code F in specific areas (i.e. Cargo). The existing parallel taxiway is already located at a Code F separation although it is not envisaged that Antonov aircraft will require this taxiway unless conflicts with peak RPT operations occur.

Considering this, and the demand assumptions detailed earlier, the design aircraft is the Code E A333 / B787. As discussed there is the potential for airlines such as Qantas to use the A333 (or a similar airline with B787 types) on Port Hedland and east coast routes in place of some Code C (B738 services) or on international routes possibly from Singapore.

Operations by the Antonov 124 will continue to use the main runway and a new apron access point.

The secondary runway 18/36 is available for general aviation and business jet aircraft. A 500m runway reserve has been allowed for in this Master Plan. If developed, the runway would become a Code 2B runway and the new 1,500m length will allow for larger Code C aircraft types to use the runway including the following aircraft types:

- Dash-300
- Q400 (with possible weight restrictions)
- ATR-42/72
- Metro II/III
- B1900D
- SF340B (with possible weight restrictions).

Airfield Planning Parameters

The master planning principles specific to Port Hedland Airport are established from International and Australian standards and recommended practices. International standards and recommended practices are provided in the International Civil Aviation Organisation (ICAO) publications, in particular Annex 14 Volume 1 'Aerodrome Design and Operations'. As a signatory to the Chicago Convention on Civil Aviation, Australia has adopted ICAO Annex 14 standards and practices, subject to notified differences.

Australian regulations governing aviation and aerodromes are contained in the Civil Aviation Act 1988 and accompanying Regulations and Orders. This legislative authority is supplemented by the Manual of Standards (MOS) Part 139 (Aerodromes) and Civil Aviation Safety Authority (CASA) is the national regulatory agency.

Key planning parameters for the main runway (assuming a non-precision approach runway) are summarised in Table 4-1.

FIGURE 4-1 DESIGN AIRCRAFT

Criteria	Code C	Code E	Code F
Runway strip width	300m	300m	300m
Runway centreline – Taxiway centreline	168m	182.5m	190m
Runway width	45m	45m	60m
Runway shoulder width (each side)	-	7.5m	7.5m
Taxiway centreline – Apron edge centreline	44m	80m	97.5m
Apron edge taxiway - Taxilane clearance	26m	46.5m	50.5
Taxiway width	15m	23m	25m

TABLE 4-1 PLANNING PARAMETERS FOR MAIN RUNWAY 14/32

Runway Usability

Generally operations occur with early morning approaches on Runway 14. This is understood to commonly switch onto operations using Runway 32 from midmorning until evening.

4.2. Summary Airside Master Plan Developments

Key additions to airfield infrastructure are summarised below;

- Reserve land for 500m Runway 14/32 extension (and associated taxiways)
- Reserve land for 500m Runway 18/36 extension (and associated taxiways)
- Expansion of parallel Taxiway to 23m wide (Code E capable) and provision of taxiway shoulders
- Addition of stub taxiways (joining the parallel taxiway to the main runway): 1 Code F capable, 1 Code C capable
- Widening of existing main Taxiway A to be Code E capable
- Expansion of RPT apron to allow for power-in push-back Code E operations
- Provision of a Code E apron edge taxilane on the RPT apron and additional taxiway exit point from RPT apron to improve circulation
- Expansion of Runway 18/36 to 30m wide (Code C capable)
- Expansion of GA apron to be Code C capable
- Provision of Code C taxilane on extended GA apron
- Reserve land for Code F freight apron and terminal facility
- Terminal Expansion – Phases I and II
- Reserve land for future Terminal expansion
- Relocation of Helicopter facilities into GA area.

4.3. Runways

The current length and width of the main runway 14/32 at 2,500m x 45m is sufficient to allow for restricted Code E operations (meaning some Code E wide-body aircraft must operate with weight restrictions/payload penalties).

Airside planning is developed with provision for Code E RPT services to operate from the main runway. A small number of runway and airfield improvements were identified to improve airfield efficiency and to provide flexibility for a reduction in operating restrictions for Code E wide-body aircraft if required in the future, these are set out below.

It should be noted that at present Runway 14/32 does not have any capacity issues. The airfield improvements identified here will reduce the possibility of capacity issues arising in the future, in particular the widening of the parallel taxiway to be Code E capable.

Runway Length

The take-off and landing length requirements of a particular aircraft is dependent on performance characteristics which may vary with take-off mass, range, temperature, weather, engines fitted, airport altitude, atmospheric conditions and runway slope.

Runway length required is determined from aircraft manufacturers' published information. Here we set out a brief assessment of runway lengths and the aircraft and routes that could potentially be served. This assessment has been made at a master planning level. More detailed study would be required prior to any detailed design.

Runway 14/32

Runway 14/32 is presently constructed to a length of 2,500 metres. Airside planning provides for a 500m extension reserve to the northern end of the runway. A future 500m extension would reduce operating restrictions placed on Code E wide body aircraft and provide flexibility to cater to unrestricted wide-body aircraft services, possibly from Australia's east coast or other international destinations such as Singapore or further.

An assessment of the required runway length was undertaken to determine an appropriate area to reserve for runway expansion. This assessment was based on possible aircraft types and destinations and used publicly available material from Boeing and Airbus.

Information from Airbus for the A330 aircraft and Boeing for the 787 is not sufficiently available to accurately determine the runway length required specifically for Port Hedland. For these aircraft, an estimation of the

runway lengths to allow unrestricted operations at Maximum Take-off Weight (MTOW) and based on 37 degrees (ISA + 22) and an elevation of 10m, is as follows:

- A330-300 At least 3,400m (for an estimated range of 7,000 - 7,200nm)
- B787-8 At least 3,100m (for an estimated range of 7,600nm – 8,200nm)

Therefore if the maximum design range was to fly to Sydney (1,911nm) or Singapore (1,793nm) (as illustrated in Figure 4-2), the required runway length could be reduced (given the aircraft would carry less fuel). Existing runway pavement strengths will also need to be compared against airline and aircraft requirements to determine if further payload restrictions apply.

For the B737-800w and A320-200, the main runway length is adequate. However the B737-800w may have some weight restrictions for MTOW operations.

Note that the specific airlines should be consulted when an accurate determination of the runway length is required for design.

Following this assessment it was determined that a 500m runway reserve would be appropriate for master planning purposes. The decision to extend the runway will need to be conducted on a business case study which will most probably be triggered by the potential for new long haul airline routes.

Runway 18/36

The existing cross runway 18/36 at 1,000m x 18m is suitable for Code 1A and 1B aircraft, but cannot be used by Code C aircraft. It is considered appropriate from a master planning perspective to reserve land for a runway expansion to accommodate Code C aircraft operations.

Therefore airside planning provide for the widening of the runway to 30m (Code C capable) and for a 500m runway reserve on the northern end of the runway. These additions will allow the runway to be used by a larger range of aircraft (assuming appropriate pavement strength).

Typical aircraft that can use the existing 1,000m long runway will depend on the destinations and airline configurations however the following aircraft could probably use the cross runway:

- Dornier 228
- Twin Otter (with possible restrictions, dependant on destination)
- Beech King Air 200

FIGURE 4-2 POSSIBLE FUTURE ROUTES

By increasing the length of the runway by 500m and the width from 18m to 30m, provided the pavement strength was adequate, the runway could be used by up to Code C aircraft such as:

- Dash-300
- Q400 (with possible weight restrictions)
- ATR-42/72
- Metro II/III
- B1900D
- SF340B (with possible weight restrictions)

Airlines should be consulted for aircraft specific data to accurately determine the required runway length prior to detailed design.

The decision to extend this runway will be driven primarily by the growth in GA services or capacity issues surrounding the main runway 14/32.

If GA and itinerant traffic are causing delays in RPT services on the main runway and slowing access to the RPT apron the decision may be made to remove all or some GA traffic from the main runway 14/32 and placing them onto Runway 18/36. It is considered unlikely that this will happen in the medium term but may need to be studied in more detail as air traffic increases.

Runway Shoulders

For Code E aircraft operations runway shoulders must be provided and the total width of the runway and shoulders must not be less than 60 metres.

Port Hedland Airport currently has a 45 metre runway and 7.5 metre wide shoulders on each side to support Code E aircraft operations. This is sufficient for the design aircraft. However, operations by Antonov 124 aircraft may be required to operate with a concession of some type.

Runway Strip

The main runway has a 300m wide runway strip which allows for precision and non-precision approaches by Code E aircraft.

Runway End Safety Area (RESA)

Runway End Safety Areas (RESA) are cleared and graded areas extending from the end of a runway strip to reduce the risk of damage to an aeroplane in the event of a runway undershoot or overrun. CASA requires a RESA unless the runway's code number is 1 or 2 and it is not an instrument runway.

The CASA RESA requirements are:

- Minimum length of the RESA must be 90m where the associated runway is suitable for aircraft with a code number 3 or 4 and is used by air transport jets
- The width of the RESA must not be less than twice the width of the associated runway
- The RESA must be free of fixed objects, other than visual or navigation aids for the guidance of aircraft
- The RESA must be prepared or constructed so as to reduce the risk of damage to an aircraft, reduce aircraft deceleration and facilitate the movement of rescue and fire fighting vehicles
- The recommended RESA length for international operations is 240m
- A RESA is required for new runways and existing runways when lengthened.

For international alternate operations, a RESA of 240 meters is recommended at the runway ends. A 240m RESA has been planned for Runway 14/32.

Runway Protection Zones (RPZ)

To protect the public from the risk of an incident of an aircraft undershooting or overshooting a runway, many national authorities define a zone beyond the runway end in order to enhance the protection of people and property on the ground beyond the end of a runway. These zones are provided to prevent congregation of people in areas which might subject them to increased risk of death or injury in the event of an aircraft incident. Such zones are often referred to as a Public Safety Zone (PSZ).

Currently there is no national regulation requiring the provision of RPZs in Australia and ICAO Annex 14 does not refer to the provision of such zones. Future protection could be considered in line with the guidelines of the United States Federal Aviation Administration (FAA) Runway Protection Zone (RPZ) or similar to Queensland which has enacted legislation relating to the provision of RPZ's (termed Public Safety Zones (PSZ's)) around airports within the state (http://www.dlgp.qld.gov.au/docs/ipa/spp1_02guidelines.pdf).

The Queensland Government legislation states *"Although air travel is relatively very safe and the probability of an incident during any single operation is very low, the highest risk of an accident occurs during take-off or landing. This is when the aircraft is aligned with the extended runway centreline and relatively close to the end of the runway. An analysis of aircraft accidents reported to the International Civil*

Aviation Organisation (ICAO) since 1970 suggests most of these accidents occur within 1,000m before the runway on arrival or within 500m beyond the runway end on departure. Consideration should therefore be given to restricting development within this vicinity on the grounds of public safety. UK research undertaken for the Department of the Environment, Transport and the Regions (in particular R&D Report 96368 and R&D Report 97059) suggests the public safety area should take the form of an isosceles triangle, tapering in width away from the runway end, having a base line of 350m and extending up to 3,500m from the runway end.

At less busy airports, such as those in Queensland, with a higher proportion of light general aviation movements, the risk contour reduces to around 1,000m. The public safety area defined in Annex 3 of SPP 1/02

therefore reflects the international findings and standards modified for the Queensland situation."

The Queensland Government and FAA RPZ's are illustrated in Figure 4-3.

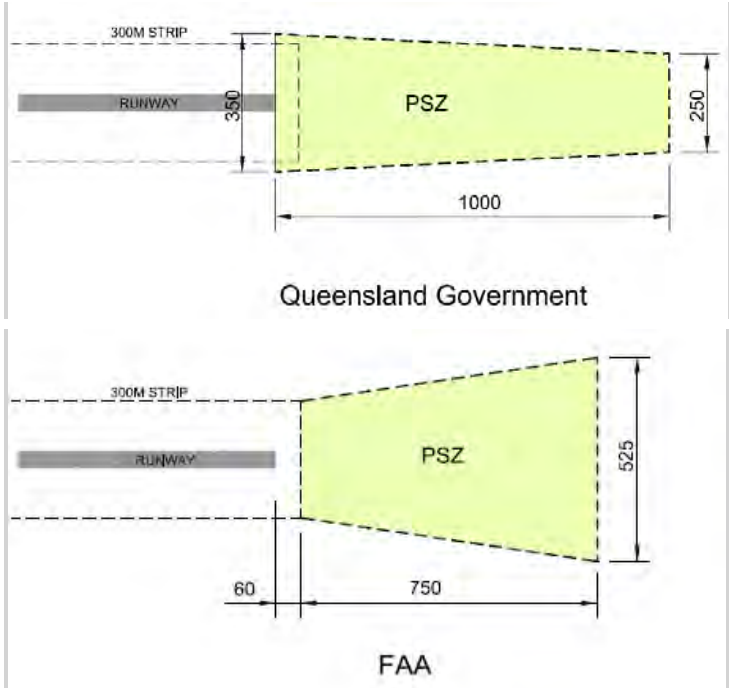


FIGURE 4-3 RUNWAY PROTECTION ZONES

Other methods (such as that adopted in the UK) vary the RPZ dimensions are a function of the type of aircraft and approach visibility minimum associated with the end of a runway. Protection for future RPZs is considered at each end of Runway 14/32 and will be based on the forecast aircraft mix and individual runway risk contours.

The notional RPZ at each end of the runway lies substantially on land outside the boundary of the Airport.

It is recommended that the ToPH either acquires sufficient land to accommodate the RPZs or gives consideration to working with neighbouring land occupants to institute appropriate land use controls within the notional RPZ at each runway end to achieve the following:.

1. Land uses recommended to be permitted under the RPZ should be activities that do not attract the assembly of a large number of people, such as:
    - Golf courses (not club houses)
    - Agricultural operations (other than forestry or livestock)
    - Plant and machinery buildings
    - Low occupancy warehousing
    - Car parking.
2. Land uses recommended to be discouraged, avoided or prohibited should be activities that may attract the assembly of large number of people or that have the potential to be highly hazardous in the event of an incident involving an aircraft, such as:
    - Residences and public places of assembly (churches, schools, hospitals, office buildings, shopping malls etc.)
    - Playgrounds, sports grounds,
    - Fuel storage facilities.

Taxiways

Taxiways development will facilitate an efficient airfield flow at peak times. These will include the widening of existing taxiways and additions of new taxiways to service runway extensions and a more flexible RPT and freight apron layout. Proposed taxiway developments are summarised in Table 4-2 and shown in Figure 4-4.

The new stub taxiway indicated as number 3 in Figure 4-4 has been approximately located to allow for Code C aircraft (such as the B738) to land and exit the runway without having to taxi to the runway threshold. It is not considered necessary to place rapid exit taxiways on the airfield as runway capacity is not an issue at present or within the planning horizon.

Ref. (1)	Taxiway	Total Length Required (m)	Total Width Required (m)
1	Parallel taxiway widening and extension to Runway 32 threshold	2,500m	23m + 10.5m shoulders each side
2	New apron edge taxilane to service GA area and expanded Runway 18/36	1,000m	18m + 3.5m shoulders each side
3	New Stub taxiway – Code C	180m	18m + 3.5m shoulders each side
4	Widening of existing Taxiway A to be Code E capable	n/a	23m + 10.5m shoulders per side
5	New Stub taxiway -Code F	180m	25m + 17.5m shoulders each side
6	New access taxiway for RPT and Freight apron – Code F		23m + 17.5m shoulders per side
7	New Code E apron edge taxilane to service RPT apron		

Note (1) Indicated in Red on Figure 4-4

TABLE 4-2 PROPOSED TAXIWAY DEVELOPMENTS

4.4. Aprons

RPT

The current RPT apron has five power-in power-out bays suitable for handling 4 x B717/B737 and 1 x F100 aircraft concurrently. A parking bay, identified as 2A, is configured to handle a B767 aircraft on power-in power -out arrangements.

Planning for the RPT apron has considered a long term demand scenario with an apron area with the flexibility to cater to both Code C and Code E concurrent aircraft operations (on both international and domestic sectors).

Apron planning assumptions at the planning horizon are as follows;

- 2 x Code E aircraft parking stands (A333/B787) - one international and one domestic, one stand in Multi-Aircraft Ramp System (MARS) configuration
- 3 x Code C aircraft (A320/B738) – three domestic

The apron layout rationalises the existing apron by changing the existing bays to power-in push-back positions and by providing for two Code E stands. In the MARS configuration one of the Code E positions also provides two Code C positions (when the Code E position is vacant) providing flexibility on the apron to cater to different demand scenarios.

The Master Plan takes the long term future growth of the apron in a south-easterly direction parallel with the main runway. The apron layout is in part driven by a desire to attain more depth in the terminal area and move terminal growth into a less constrained area.

It is expected that the RPT apron will operate alongside a freight apron located south east of the RPT apron.

Phased RPT Apron Development

Apron development could occur in two phases, driven by demand and run concurrently with phased terminal expansion (discussed in Section 5-2). Phase I would involve rotating the existing power-in power-out stands to power-in push-back positions. This would require the addition of an apron edge taxilane. Initial assessment has shown that this configuration would also allow for a single rotated Code E position at the western end of the RPT apron.

Figure 4-5 shows the Phase I Apron Plan (the terminal reserve illustrated on Figure 4-5 is discussed in Section 5-2).

Phase II, also depending on demand, would see the ultimate Master Plan configuration achieved with two power-in push-back Code E positions (one in MARS configuration) and three Code C positions including a Code E apron edge taxilane.

FIGURE 4-4 PROPOSED TAXIWAY DEVELOPMENTS

General and Itinerant Aviation

General Aviation (GA) and other itinerant operations currently operate from the Northern Apron with a limited number using the RPT and southern aprons (Golden Eagle and helicopter operations).

Presently some itinerant aircraft operations are parked on the RPT apron due to a lack of aircraft parking space in other areas. This has the potential to conflict with RPT services. This Master Plan provides additional aircraft parking capacity for itinerant aircraft away from the RPT apron in the form of a Code C capable GA apron.

Current helicopter operations occur near the RPT and Freight aprons. The Master Plan has relocated all helicopter operations away from the main RPT apron to a new expanded GA area to avoid conflicts between fixed and rotary wing aircraft and itinerant and scheduled services.

The Master Plan has provided a GA apron capable of parking Code C aircraft and an associated Code C parallel taxiway servicing the area. The dimensions of this area are based on Runway 18/36 operating as an instrument non-precision approach runway.

Freight

Currently there are irregular operations by Antonov 124 aircraft, however most air freight consists of just-in-time material and small parcels.

Air freight has been identified (through the consultation process) as a potential area for growth and an area has been reserved for this activity in the Master Plan. The notional facility provides for nose-in parking by Code F aircraft and reserves sufficient area for ground operations.

It is considered appropriate that, in the longer term, apron growth will continue in a southerly direction and development of a freight apron may be interchangeable with RPT operations if required.

4.5. Obstacle Limitation Surfaces

The approach and departure surfaces as well as circling areas surrounding an Airport are defined by Obstacle Limitation Surfaces (OLS). OLS are conceptual (imaginary) surfaces associated with a runway system which identify the lower limits of the airspace surrounding an aerodrome above which objects become obstacles to aircraft operations. Activities and structures must not exceed a height indicated by the Airport Height Areas and Approach Surfaces, which are set out in local town plans, unless an aeronautical study (in accordance with Civil Aviation Safety Authority guidelines) determines the proposal would not adversely affect the safety or significantly affect the regularity of aviation operations.

The PANS-OPS are a second set of surfaces determined by aircraft flight operations under instrument conditions that form an envelope over the existing obstacle environment. These surfaces are established by the instrument procedure designer to ensure that an aircraft will have a specified minimum clearance above any accountable obstacle in situations where the pilot is relying entirely on the information derived from cockpit instruments and may have no external visual reference to the ground, to obstacles or to other aircraft. As a result, PANS-OPS surfaces cannot be infringed in any circumstances.

The prescribed airspace for this Master Plan makes provision for a 500m extension to the northern end of Runway 14/32, providing a total length of 3,000m, and a 500m extension on the northern end of Runway 18/36, providing a total length of 1,500m.

The OLS provides the basis for future planning of the airport and surrounding precincts to meet aviation, commercial and legislative demands. The OLS based on the indicated Runway layout is illustrated in Figure 4-6.

4.6. Navigation Aids and Landing Aids

Navigational aids are supplied and maintained by Airservices Australia under the Airservices Australia Act.

The Non-Directional Beacon (NDB) is a navigation aid located in the south-eastern corner of the airfield. The NDB and High Frequency Radio Antenna Array consists of transmitter and receiver towers, antenna arrays and related infrastructure huts. Buffers are required to this infrastructure, namely restrictions on the height of structures within the buffer area, to protect radio receipt and transmission.

These buffers extend to 500 metres from the NDB, at an angle of 3 degrees vertical from the NDB antenna array.

The effect of this buffer is to limit the potential height of any buildings or structures within area.

To be sure that any height restrictions are captured and accounted for, it is recommended that height limits are encapsulated in relevant town planning documents.

Any proposed rezoning of the land or any subdivision or development should be referred to Civil Aviation Safety Authority (CASA) as well as Airservices Australia to ensure that any height restrictions are calculated and can then be used to formulate specific Scheme provisions to protect this equipment.

The VOR and DME NavAids have recently been upgraded and the NDB NavAid is scheduled to be upgrade early 2012. Considering the anticipated transition to Global Navigation Satellite Systems (GNSS) a selection of non-precision NavAids across Australia have been classified as the Future Navigation Network (FNN). The FNN provides a ground-based alternative to GNSS. All three NavAids located at PHIA have been selected to form part of this future network and will be retained for the foreseeable future.

No demand presently exists for an Instrument Landing System (ILS). Situations of low cloud and fog (particularly during winter) would generate demand but its high cost may not warrant installation. RNP approaches may improve airport access in poor weather conditions in the future, subject to the suitable equipage of aircraft fleet operating into/out of the airport. These types of procedures could be considered for this aerodrome in the future.

Airservices also maintains a Satellite Ground Station (SGS) and Very High Frequency (VHF) communications facilities, as well as power and communications cables which run between Airservices leased sites.

4.7. Aerodrome Rescue and Fire Fighting Services (ARFFS)

ARFFS are required if the aerodrome has a scheduled international passenger service or handles more than 350,000 passengers per year.

The regulatory requirements for the provision of ARFFS are extensive. They include provision on the aerodrome of a fire station, training facilities, water storage, facilities for the maintenance of vehicles and communication facilities. In addition, the officer in charge must hold appropriate Australian Fire Competencies qualifications.

FIGURE 4-5 RPT APRON PHASE I

A suitable location for the ARFF that complies with Manual of Standards (MOS) response times has been identified in studies undertaken for Airservices Australia. The proposed location is close to the present location. The airport will need to provide emergency crash gates and access to facilitate ARFF response to incidents in accordance with CASA standards.

Owners and operators on land in close proximity to the fire station should be consulted to ensure that their activities will not limit or restrict routine ARFF operations. It should be noted that the land adjacent to the ARFF facility will be subject to high levels of noise and lighting impacts associated with day to day operations of the fire station, including crash/alerting systems and fire vehicle activity.

Airservices should be consulted with early in the planning process for the cross runway 18/36 extension outlined in Section 4.2, to ensure that future ARFF facilities continue to meet CASR (Civil Aviation Safety Regulations) requirements.

4.8. Air Traffic Control Tower

Port Hedland Airport is non-controlled and has no air traffic control service although it does have an unused facility. The siting of the Control Tower is aimed at providing views for the controllers that incorporate the following key elements:

- Adequate visibility of all of the manoeuvring area and airspace under the controller's area of responsibility, including runway approach lights, graded areas at least 300m from the runway threshold and take-off climb surfaces
- A view of all runway ends and fire fighting routes
- Minimised glare from the sun
- The ability to detect the movement of an aircraft commencing its take-off run within an appropriate time frame (recommended to be four seconds, with an upper limit of five seconds)
- Lines of sight that are not impaired by external light sources.

Air Traffic Control line of sight will be impacted if the proposed ARFF exceeds 8.2 m in height. At this stage the proposed ARFF is at 5 m.

We have conducted a brief assessment of the Control Tower location against CASA recommended response times as shown in Figure 4-7.

The assessment shows that the existing thresholds are close to the CASA recommended time of 4 seconds. The existing Control Tower location is sufficient to serve the runway in its current configuration.

Should the cross runway 18/36 be extended it is probable that the Control Tower location would be unsuitable and impact on requirements of a Class D tower service. Depending on the outcome of a detailed study may require a new location.

The previous ATC tower service at PHlA was disestablished in 1999 due to a significant fall in aircraft movements influenced by a resource sector downturn.

The recent CASA Aeronautical Study for the Port Hedland Regional Airspace may result in a recommendation to re-establish an Air Traffic Management (ATM) service. Options to deliver an ATM service at PHIA may include remote tower technology subject to:

- Airservices' evaluation proving that the technology is acceptable and meets required standards for both Airservices and CASA; and
- The technology being available for deployment in an appropriate timeframe.

Port Hedland NavAids and ATS location are strategically important for the future ATS in northern Western Australia. Future development proposals (including wind farms) in the vicinity of the aerodrome will need to be assessed by Airservices for potential impacts on aeronautical procedures, communications and navigational facilities.

Airservices should be consulted with early in the planning process for the cross runway 18/36 extension outlined in Section 4.2, to ensure that future ATC facilities continue to meet CASR requirements.

4.9. Aircraft Noise Impacts

A desktop assessment of airport noise related to the Australian Noise Exposure Forecast (ANEF) System was carried out to determine if the airport required an update of its airport noise contours based on the future aircraft traffic mix and number of aircraft movements.

The study confirmed that based on the aircraft movement forecasts and due to the location of the airport in relation to the town and associated residential development, no existing communities are likely to be adversely affected by a projected increase in aircraft type or frequency.

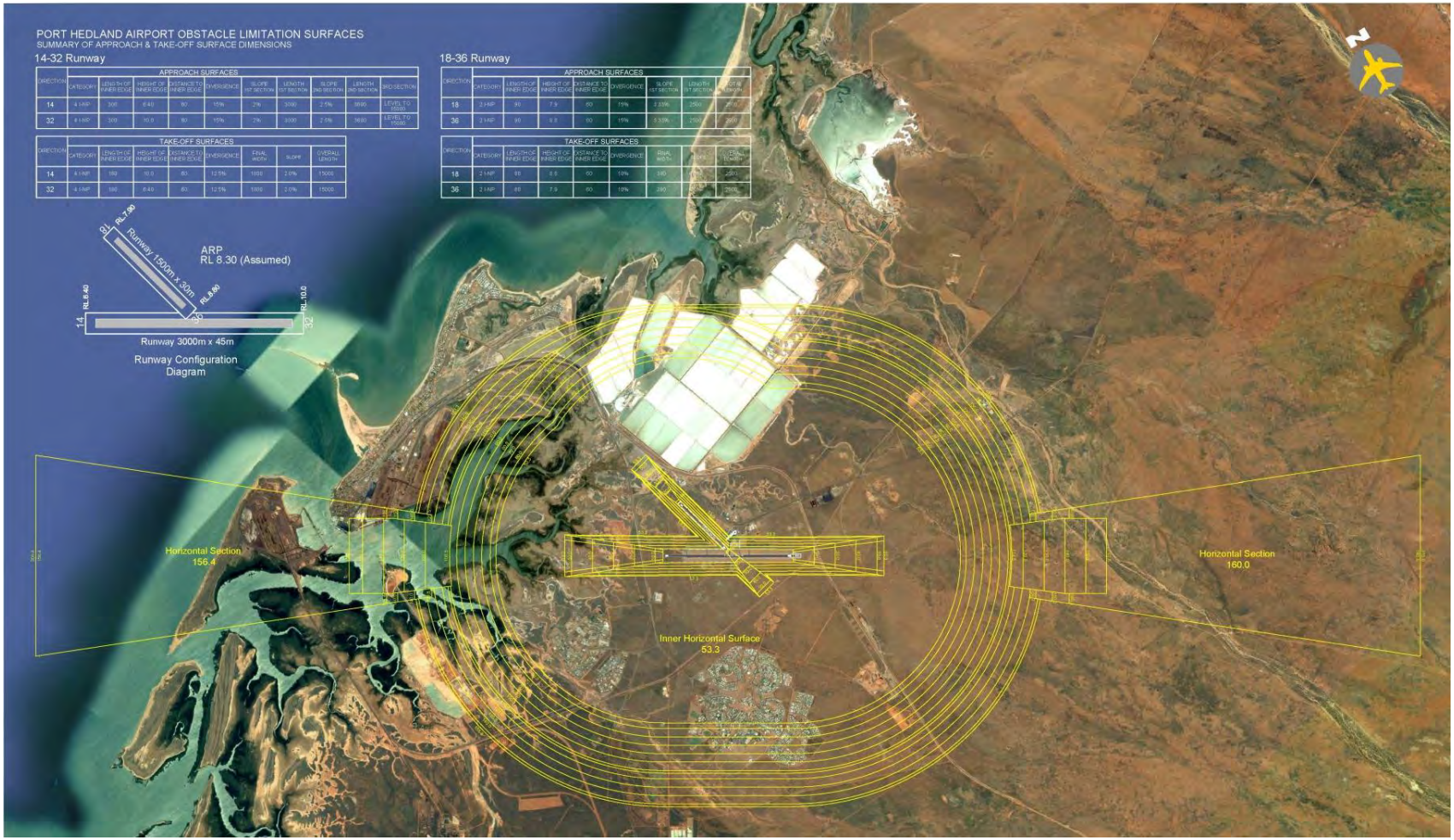


FIGURE 4-6 OBSTACLE LIMITATION SURFACES

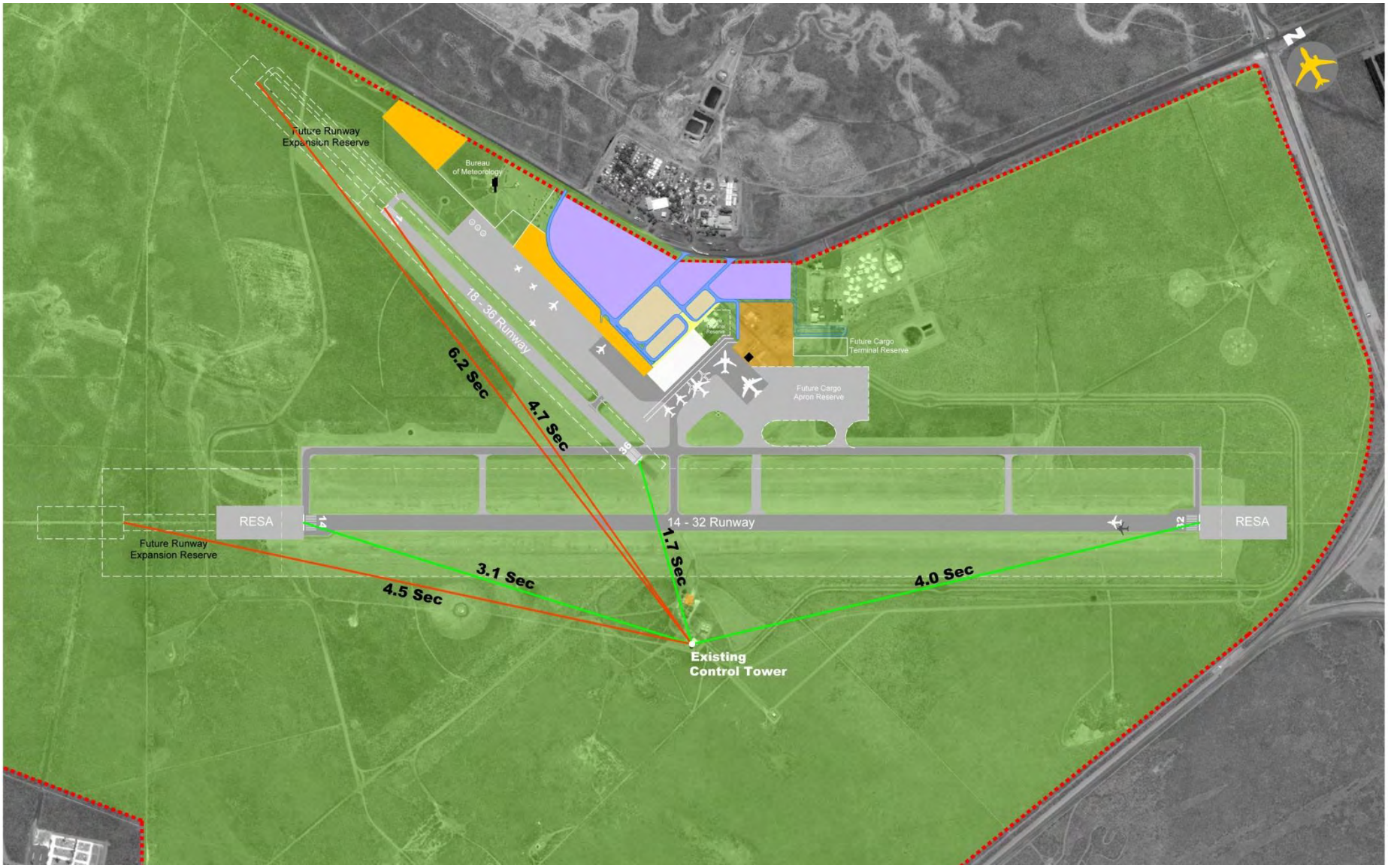


FIGURE 4-7 CONTROL TOWER RESPONSE TIMES

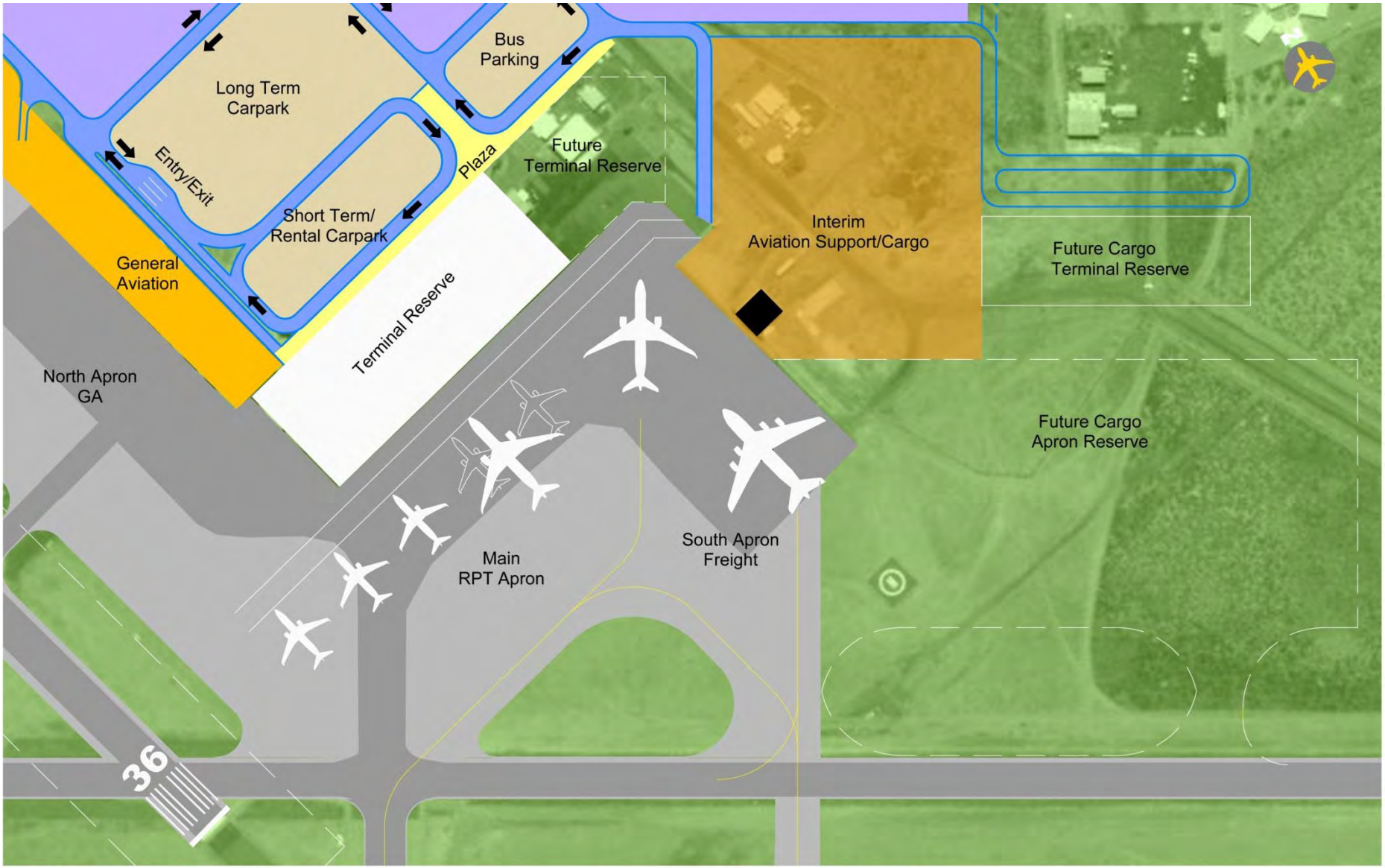


FIGURE 4-8 PROPOSED APRON LAYOUT 2031

5 Landside Planning

5.1. Introduction

Landside planning has been developed in four precincts (refer Figure 5-1). The work presented here includes landside developments carried out in the “Port Hedland International Airport Master Plan” prepared by Whelans Town Planning and Parsons Brinkerhoff.

Terminal developments are based on an assessment of terminal requirements completed for this Master Plan based on the passenger demand identified in the forecasts. At the time of writing independent terminal development planning was underway. This Master Plan has considered this work and included it where appropriate.

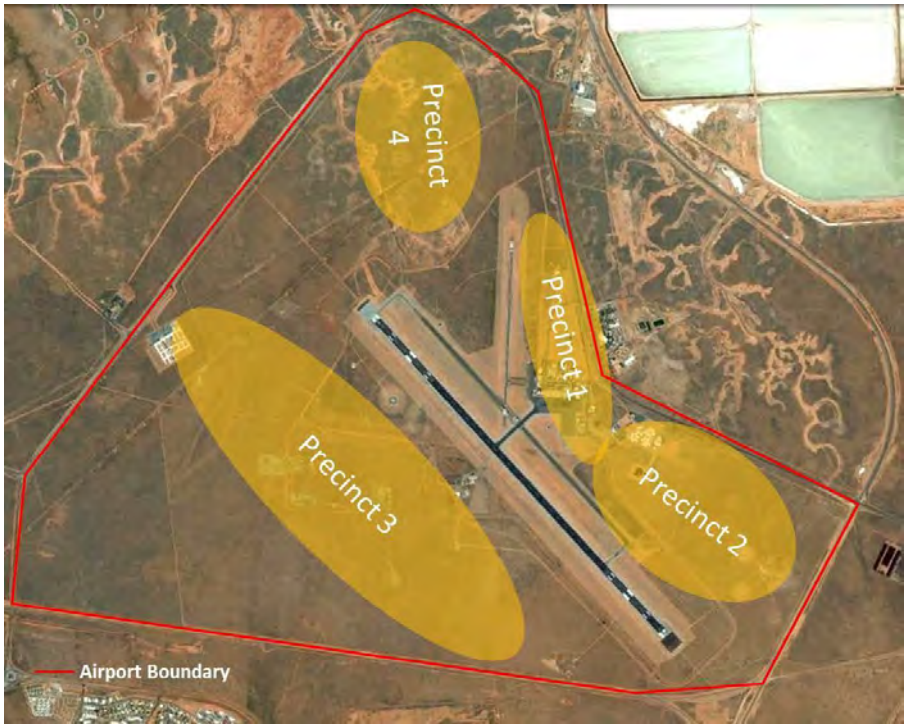


FIGURE 5-1 LANDSIDE PRECINCTS

5.2. Precinct 1

RPT Terminal

The existing terminal building is approximately 30m in depth and is constrained on its western end by the GA apron and Airport Operations building, and on its eastern end by a General Aviation hangar. On the northern side of the terminal is the kerbside and car parking facilities.

Building expansion towards the west can occur in a limited fashion by extending the terminal to the edge of the GA apron and removing the Airport Operations building.

This Master Plan has developed a terminal reserve to the west, east and south of the existing terminal following the future growth of the RPT apron. Growth in a southerly direction out over the existing apron will allow for an increase in terminal depth needed to implement simple in-line passenger processing facilities. Future growth of the terminal outside of the planning horizon could then continue parallel to the main runway in a south-easterly direction.

Expansion of the terminal in the manner identified will require alterations to the existing apron configuration and the landside configuration of roads and car parking facilities. A utility/power house exists in the area suggested for long term terminal expansion, beyond the Master Plan time horizon and would require relocation at that time.

Terminal Building Expansion

Port Hedland currently operates a single level terminal catering to regional, domestic and international services.

The existing total area of the terminal is approximately 2,800m^2. The terminal is understood to be capacity constrained and at the writing of this Master Plan expansion planning was being carried out by Sandover Pinder, Rider Levett Bucknall and THINC Projects.

This Master Plan has identified two phases of terminal development and considers the ongoing work described above.

Terminal Expansion Phase I

Due to the pressing requirement for better all-around terminal facilities and the need to develop larger passenger processing facilities, in particular international, an independent terminal development project is currently underway. The planning work has identified upgrades to the existing terminal and expansion work. As this work is ongoing at the time of writing, we have considered the terminal concepts from this work in the Phase I terminal development outlined below.

A Phase I demand scenario as agreed with Port Hedland Airport, reflects the short to medium term market potential:

- 2 x B738 aircraft (domestic)
- 1 x A320 aircraft (domestic)
- 1 x A333 aircraft (international)
- 1 x F100 aircraft (charter)

The total terminal area required to service this demand scenario has been calculated at approximately 10,000m^2, an additional 25% Gross Floor Area (GFA) has been allowed for in determining an appropriate Phase I terminal expansion reserve. This allowance will give Port Hedland Airport flexibility to develop an expanded terminal within this reserve.

A terminal expansion within the reserve to achieve this floor area and improve the functionality of the existing terminal could occur with.

1. Expansion of the south-west end of the existing terminal building possibly allowing for an expanded international offering and housing baggage claim
2. Expansion of the terminal south over the existing apron to take the total terminal depth to approximately 70m in order to achieve linear passenger processing and allow for swing capabilities between domestic and international operations.
3. Expansion of the north eastern end of the building.

The Phase I terminal expansion reserve is intended to provide an area within which the required terminal expansions could occur. The actual dimensions of a Phase I terminal expansion will be derived from more detailed planning work as it occurs and will be dependent on the way passenger processing facilities are to be laid out. However, the reserve area provided is considered appropriate for planning purposes.

Phase I terminal development would likely coincide with the Phase I apron developments identified in Figure 4-5.

Terminal Expansion Phase II

The second phase of terminal expansion is based on the ultimate Master Plan demand scenario and sees the terminal expanded to a footprint of approximately 11,000m^2.

Given that the Phase 1 development area has been calculated at 10,000m^2, an additional 1,000m^2 of terminal shell could be constructed at this time allowing within fit-out when required by demand. Alternatively voids would be created within the building for infilling as functional areas require expansion.

In the longer term if International Code E services are likely to occur with more frequency the airport may be better served by migrating International processing into an expanded facility in the area shown as 'future terminal reserve ' on Figure 5-3. A new international facility could be developed in the extended terminal where an increase in terminal and apron depth would be most beneficial and in close proximity to the future location for Code E international aircraft parking. There would also be the potential to develop some domestic/international swing capabilities (international departure lounge used for overflow of domestic passengers, when international services are not operating) between the existing terminal and new international component dependent on the coincidence of domestic and international peak hours and internal terminal configuration. The decision to develop the terminal further will be based on passenger numbers, particularly international, and the peak periods for international and domestic passengers coinciding.

Figure 5-3 shows the terminal reserve based on the 2031 peak hour demand.

Landside Area

The area around the existing Terminal is the most developed component of the Airport and includes a variety of existing land uses. Most are directly or incidentally related to the function of the runway and terminal uses, and include car hire, terminal services, Royal Flying Doctor Service and Bureau of Meteorology, as well as Freight and General Aviation.

This area is currently considered to be cluttered and ad hoc, and does not function optimally.

FIGURE 5-2 TERMINAL RESERVE

There are a number of land use and activity conflicts within this precinct:

- Freight, GA and RPT activities are located in close proximity, and need to be separated
- There is insufficient car parking for vehicle hire and public car parking
- Outdated facilities such as the Terminal and car parking areas need to be expanded and upgraded. Additionally, as the airport continues to grow, there will be increased demand for growth in freight and logistics, tourism and vehicle hire.

To resolve these conflicts and provide for growth, the purpose of the Master Plan in this area is therefore threefold:

- Resolve existing land use conflicts by rationalising land uses, especially in close proximity to the Terminal
- Identify new locations for some existing uses and
- Provide for the expansion of land uses as required.

To achieve these objectives the following recommendations are made regarding land use and development:

- Relocate land uses conflicting with RPT activities and terminal expansion
- Implement a freight and logistics precinct to accommodate rationalisation and expansion of these uses
- Create lots for car hire company operations within close proximity to parking areas and the Terminal
- Expand public car parking areas
- Rationalise access and traffic flow
- Extend the northern and southern GA aprons and accommodate expansion of GA away from RPT activities
- Create 'cut off' drains to divert stormwater away from the precinct
- Extend drainage lines and install attenuation basins to adequately manage stormwater
- Implement landscaping and entry statements to primary access point.

Significant upgrades to car parking and terminal facilities are proposed.

Significant modifications to existing drainage network are also required to better deal with stormwater drainage in landside areas.

Accordingly, the Master Plan allocates land such that uses directly related to Terminal activities, such as parking, storage and workshops are all located within close proximity to the terminal, and uses that conflict with terminal activities, such as logistics and freight, are located within a specific precinct for this purpose. Similarly, commercial airport uses such as vehicle hire and GA and charter services are located within specific precincts.

Freight and Maintenance Facilities

Air freight has been identified (through the consultation process) as a potential area for growth. An area has been reserved for this activity in the Master Plan on both the airside (through development of a dedicated Code F capable freight apron) and landside (through reserving an appropriate size block of land for a possible Cargo terminal) as shown in Figure 5-3. The area could also be used for aircraft maintenance and could support a large 50 x 50m maintenance hangar and operation.

The provision of a new cargo and maintenance facilities will be driven by business needs and will require sufficient landside area and access roads to keep freight trucks off the main airport access roads.

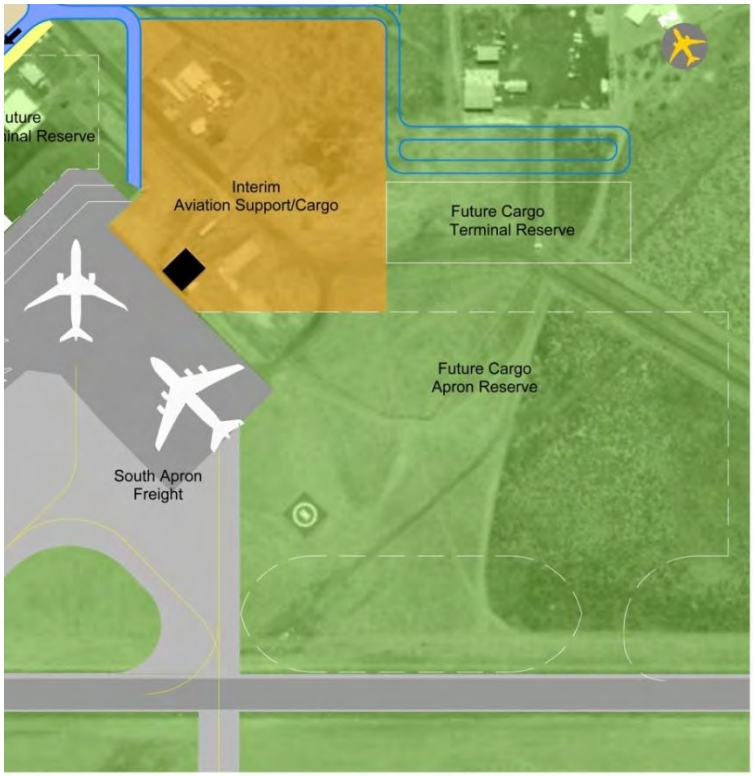


FIGURE 5-3 RESERVE FOR FREIGHT AND MAINTENANCE FACILITIES

General Aviation (GA)

The GA area has been retained in its existing location and expanded in the master plan as it is positioned away from the Terminal and RPT apron. There is sufficient landside area to accommodate future small hangar developments for future GA and Corporate aviation operations. Helicopter operations have also been relocated away from the main apron to this area and the landside will need to support this operation.

The area could also house a small GA/Corporate passenger processing facility if required.

Facilities that currently lie in the way of future terminal expansion such as Golden Eagle will be relocated to this area. Expansion of the GA area can occur in two phases based on a 250m apron extension followed by a later 250m extension to its fullest form shown in Figure 5-4. The provision of services sites in this area will be based on specific business cases.

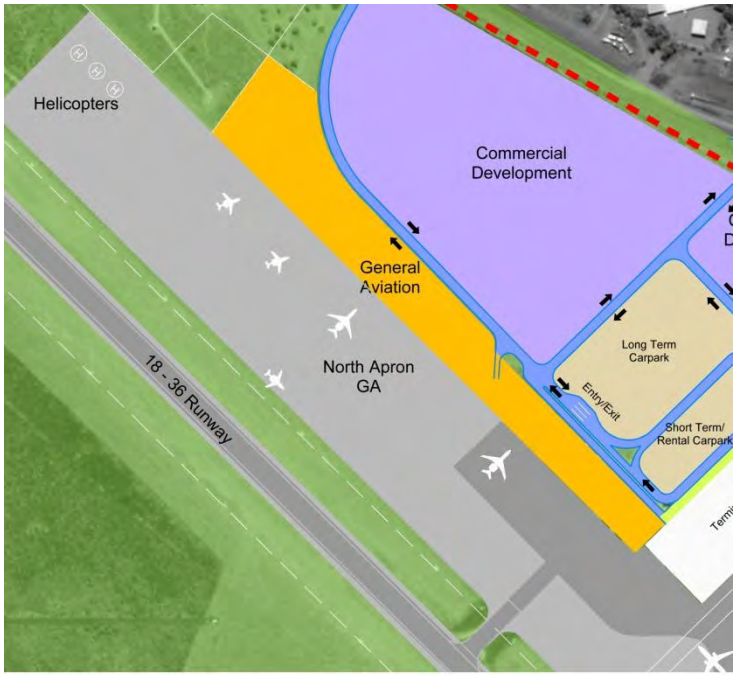


FIGURE 5-4 GENERAL AVIATION AREA

Interim Aviation Support Facilities (including Fuel)

An area has been identified as “Interim Aviation Support Facilities” on the Master Plan. This area currently houses BP Fuelling Facilities and a Hangar facility.

It is the intention of this Master Plan that the area is reserved for future growth of the apron and terminal. As a result uses of the area in the interim should be kept to non-permanent facilities. The BP fuel facility can eventually be pushed east nearer the future freight reserve. The existing hangar can be relocated into the General Aviation area.

Land Uses

At a high level, land areas within this area not required for aviation uses have been categorised as commercial areas such as car rental areas and possibly a hotel/motel. In the Report ‘Port Hedland International Airport Master Plan’ prepared by Whelans Town Planning and Parsons Brinckerhoff July 2011, (see Appendix II) more detail is given as to the specific land uses in this area.

Commercial

The landside area shown as Commercial in the Master Plan (Figure 6-2) can be subdivided into land parcels suitable for commercial development.

The commercial objective must be to maximize the return from the land and to attract aviation and other related business to the airport.

The land is high value property due to its uniqueness. Port Hedland has only one airport and hence there are few competitive demands on location presented to aviation related businesses if they seek to be close to their market. The airport presents another opportunity to enhance regional values and diversity in a manner which is fitting of a regional gateway.

The airport is conveniently located to the Port Hedland, South Hedland, Wedgefield and Red Bank centres. These centres provide a range of services, accommodation and retail options. Residential and industrial subdivisions are located in reasonable proximity to the airport.

The adjacency of these facilities and amenities is relevant to the potential role and shape of developments which are suited to and appropriate at the airport as a transport interchange, an aviation centre and a gateway for the region.

Having regard to this situation and the role served by the airport, opportunities which deserve consideration for development within the airport precinct include:

- International Flying College – the airport site is well served by nearby community infrastructure which provides a range of social and recreational outlets for flying school residents and staff. The provision of an International Flying College would be a complementary use of airport land.
- Hotel/Convention/Business Centre – as the primary gateway for business/workforce visitors into and through Port Hedland, the availability of a hotel and associated convention and business facilities would offer these typically short-stay visitors with convenient accommodation well connected to Airservices.
- Commercial office – the provision of office accommodation at airports is attractive to businesses with high air-transport usage
- Showcase opportunities – as a regional gateway, the airport precinct offers unrivalled opportunities for outdoor signage and display yards showcasing relevant products, services, materials and equipment.

Beyond the airport boundary the provision of complimentary commercial developments would enhance the airport visitor experience and the eventual airport development opportunity were the full range of commercial uses listed above realized. As this land is external to the airport, the airport would not exert direct influence in planning and development of these areas. However just as it is important to state the value to the airport of adjacent residential, industrial, retail and recreation facilities, it is also relevant to suggest the establishment of other land uses which would continue to develop the diversity of activities and services which would be potentially complimentary to the airports development interests.

In particular development of complimentary airport land uses such as:

- Service stations
- Convenience stores
- Fast food outlets
- Outdoor advertising
- Other similar passer-by and service oriented uses.

The primary planning objective has been to establish future planning principles for commercial development of the RPT and GA sectors.

Transport and Access

The development of Precinct 1 will require some reconfiguration of the existing roadways to allow the following;

- Reconfigured drop-off kerb and bus parking area adjacent to new terminal pedestrian plaza area
- Additional access point off the Great Northern Highway (GNH)
- Possibly a second additional access point for a dedicated Freight area if developed.

5.3. Precinct 2

Precinct 2 has been predominantly developed with two Transient Workforce Accommodation developments; Auzcorp's Mia Mia site, and the 2000+ person Port Haven site. Airservices Australia's navigation and communications infrastructure is also located within this precinct, consisting of the NDB and a High Frequency Radio Antenna Array. The State Emergency Service depot is also located within the precinct, to the south-east of the Mia Mia encampment.

Development within this precinct must recognise existing land uses to ensure that conflicts are minimised. Future growth of the RPT and Freight aprons may in the longer term encroach into this area and the resulting landside infrastructure will need to be provided in this area. Additionally, it is recommended that long term use of the land is embargoed to ensure that any long term requirement for the use of this land for airport related uses can be pursued. Accordingly it is recommended that this land, even if subdivided, should be leased, and not sold to developers. This will ensure that the land is protected for the long term. Developments within this precinct are further discussed in Appendix II.

Airservices has an easement, adjacent to an accommodation development, which provides for access to communications and power cables to the SGS/VHF site (located adjacent to the NDB and HF facilities that border on Precinct 2). These are critical services that require protection and need to be subject to building restrictions.

Land Uses

Only land uses compatible with existing Precinct 2 land uses and that will not impact on the NDB or Antenna Array should be considered for this Precinct. Land uses considered compatible with these uses are:

- Transient Workers Accommodation
- Transport Development [consistent TDZ draft Scheme provisions]
- Hotel/Motel.

Again, it is critical that land uses not consistent with or directly related to airport activities are prohibited from this Precinct.

Transport and Access

Access to developable portions of Precinct 2 can be provided off the Great Northern Highway (GNH).

Given that there are multiple access points along this stretch of the GNH, access to the Mia Mia TWA and SES depot can be rationalised to reduce the number of access points on to the GNH. Alternatively, should this precinct be utilised by a single owner, a single common access could be developed that would also provide access to the SES and Mia Mia sites.

5.4. Precinct 3

The ARFFS and Control Tower are located in this Precinct. It is not envisaged that this area will be required in the near or longer term for other airport related activities. Precinct 3, while constrained by height limits from DVOR and DME infrastructure and OLS surfaces, has significant potential for subdivision and development. Restrictions to land uses will be required to ensure that the operating parameters of the DVOR and DME are not detrimentally affected.

Subdivision of this precinct will require access from GNH. Limited points are available to access the ToPH land due to existing land leases and the cemetery site consuming the majority of the frontage to GNH. As a result only one location for access is available, situated on the northern side of the ToPH cemetery. The subdivision of Precinct 3 is a logical expansion of the Wedgefield Industrial Area and the TDZ currently being planned for by LandCorp. Additionally, the presence of the runways and railway lines further limit the potential for this land to be developed for anything other than Industrial purposes.

The existing ToPH Incinerator and Airservices Australia Fire Training Module currently located within this precinct may be required to be relocated, if so alternative locations should be able to be readily identified.

Location of Fire Training areas for hot fire training will need to take into account wind patterns to minimise impact of smoke on airport operations or non-airport infrastructure beyond the airport precinct.

Land Uses

As discussed above, logical use and development of this land is to extend and integrate industrial and transport uses, both existing within the adjacent Wedgefield Industrial Area as well as proposed as part of LandCorp's TDZ (providing specifically for transport laydown, vehicle break down and storage areas).

The substantial available developable land area of Precinct 3 presents the potential to provide for a considerable range of lot sizes that cannot be provided in other areas of the township capable of being developed for Industrial land use purposes. Significantly, it can provide for larger lots in the range of 10 to 20 hectares should market demand require. However, land uses within this precinct, will be constrained by heights restrictions. Detailed analysis in this regard should be undertaken by, or in conjunction with, CASA and Airservices Australia, to ensure the necessary land use controls are implemented.

A parcel of land of approximately 50 hectares in area has also been identified in previous studies for Precinct 3, for potential development of a Department of Defence base, as per the ToPH's request. Should this base proceed, this will not impact upon the traffic movement or drainage for the rest of the Precinct.

Developments within this precinct are further discussed in Appendix II.

5.5. Precinct 4

Precinct 4 is located at the junction of Great Northern Highway and Port Hedland Road. This precinct is bounded by the GNH, which effectively "wraps" around the precinct, and both runways. This land has some clear physical characteristics that result in the land likely being subject to inundation. Combined with buffers and access issues due to its locational constraints, this Precinct is the most prohibited for development potential.

Land Uses

Given the location of the site, hydrological and access issues, this Precinct is only suitable for "passive" uses rather than active land uses such as industrial or commercial development. Passive uses constitute land uses that generate little traffic or access requirements, and don't require significant development other than earthworks.

Land uses such as plant or turf farm, solar farm, wind farm or long term storage would suit this precinct. Public utilities such as a waste water recycling plant could also be considered. Uses such as plant or turf farms and solar farms, however, generate potential conflicts with aircraft, such as attracting birds in the case of plant farms or reflections and glare in the case of a solar farm. These uses will require careful consideration prior to implementation. It is noted that solar farms have been developed on airport land in other locations, such as Alice Springs airport, and may be suitable, subject to design considerations to ensure glare does not affect aircraft. A wind farm would need to comply with OLS requirements, however, it is considered that a wind farm can be accommodated, and would be an excellent use of the land. Storage, such as the Transport Development Zone proposed on the other side of the Highway, would be suitable, however, may not be aesthetically acceptable, and access may be problematic. Notwithstanding aesthetics, this use would be compatible with proposed adjoining land uses, and if access and aesthetics can be resolved, part of the land that is not subject to inundation could be utilised.

Another use that may be permitted in this precinct is a "fly-in estate". An estate of this type provides a taxiway from a runway to an area of land that can be developed with aircraft hangers and a dwelling, either separate or on top of the hanger, and allows for residents to park aircraft within the estate. Given the high costs involved (taxiways and apron costs would have to be absorbed onto the estate costs) demand for this type of development is not likely to be high; however, this type of development is a recent innovation. Given the constraints on Precinct 4, this use may be suitable, as it is unlikely to generate significant traffic, and can utilise proximity to the secondary runway.

Any land uses proposed for this precinct will require careful consideration, as well as development provisions to accommodate minimum floor levels to ensure it is not subject to inundation, as this precinct is identified as potentially subject to inundation as discussed above.

Developments within this precinct are further discussed in Appendix II.

Figure 5-5 shows the 2031 landside layout in Precinct 1.

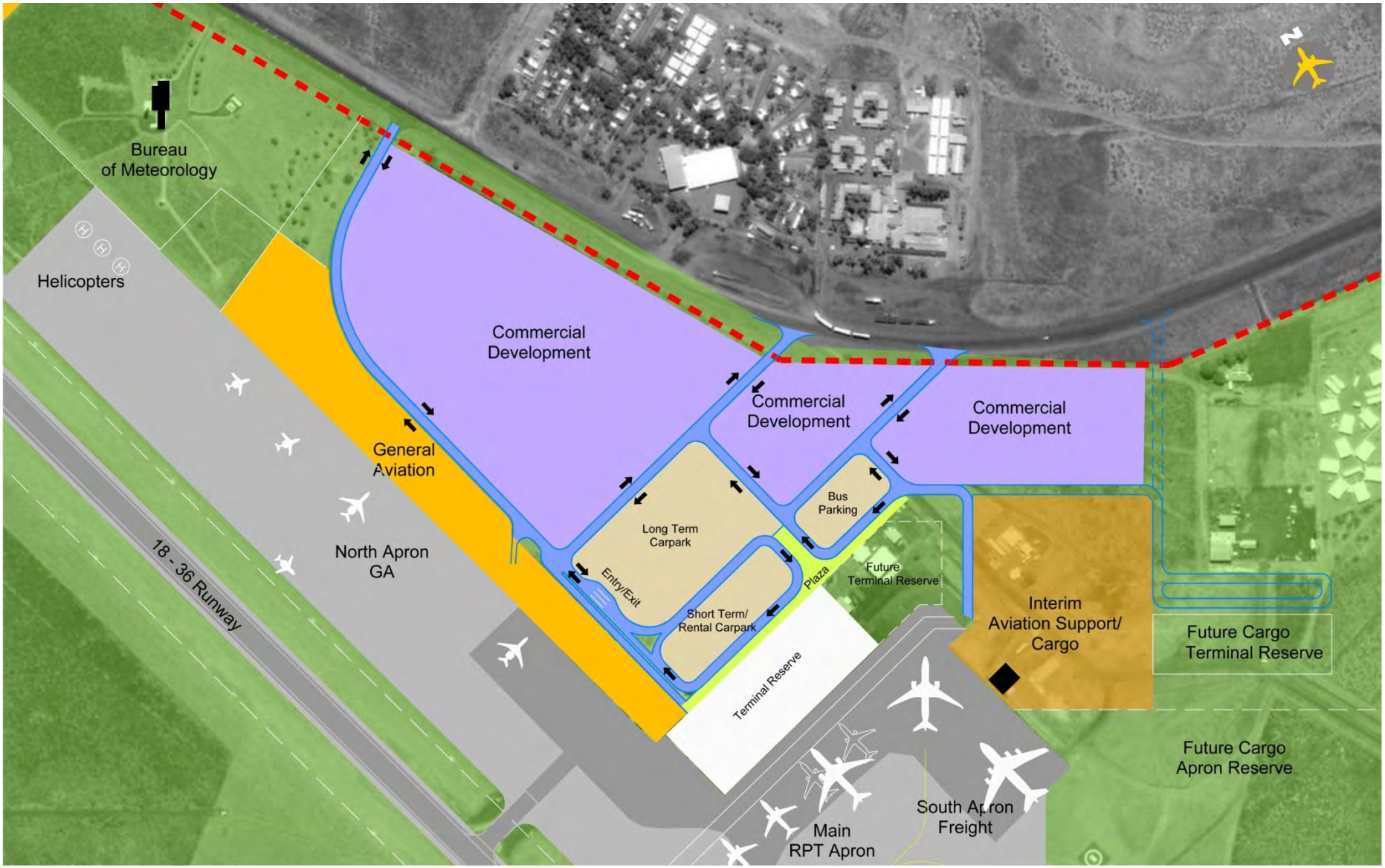


FIGURE 5-5 LANDSIDE LAYOUT 2031 IN PRECINCT 1

6 Master Plan

6.1. Airport Master Plan

Figure 6-1 shows the Port Hedland International Airport 2031 Master Plan It addresses all the features discussed in this report.

The key features of the Master Plan are:

- Protection of 300m strip around the main runway
- Identification and protection of areas for possible future RESAs at both ends of the runway
- Protection for long-term extension of the main runway and cross runway
- Retention of the existing passenger terminal with provision for future expansion
- Expansion of RPT apron to allow for power-in push-back Code E operations and provide flexibility for future airline traffic
- Future GA expansion zone to the east of the cross-runway 18/36
- Provision for future commercial zones are provided to the north of the terminal
- Retention of the existing Control Tower and Aerodrome Rescue and Fire Fighting Services
- Development of additional stub taxiways to improve airfield circulation
- Widening of parallel taxiway to allow Code E aircraft operations
- Widening of existing Taxiway A to be Code E capable
- Expansion of Runway 18/36 to 30m wide (Code C capable)
- Provision of Code C parallel taxilane on extended GA apron
- Reserve land for Code F cargo apron and cargo terminal facility and aircraft maintenance.

6.2. Phasing – Provision of Key Infrastructure

The development years for each piece of airside infrastructure are primarily driven by forecast demand. Should the demand not eventuate as forecast, the year(s) each piece of infrastructure is required may shift.

These developments are shown in Figure 6-2 and described below for:

- Phase I: 2011-2021
- Phase II: 2021-2031
- Long Term: Beyond 2031

Phase I – 2011 – 2021

The following describes key additions to infrastructure in Phase I.

Development	***Trigger***
Expansion of RPT apron to allow for power-in push-back operations by Code C aircraft allowing for additional Code C positions	*Congestion issues on RPT apron, peak hour demand, off schedule requirements*
Phase I expansion of GA apron (develop Code C apron by 250m north).	*Business drivers such as expanding number of GA operations who want apron frontage and demand for corporate jets*
New Code C apron edge taxilane for GA area (developed at same time as new GA apron additions	*GA apron growth and increasing GA traffic on cross runway*
New Code F taxiway (removing need for Antonov 124 to cross RPT apron)	*Conflicting taxiing flows with RPT traffic, operational flexibility, frequency and timing of freight operations*
Terminal expansion - Phase I (expansion based on existing planning work and expansion into existing Airport Operations building and Freight Building)	*Terminal congestion and peak hour passenger demand, new services, changes in fleet*

Phase II – 2021 - 2031

The following describes key additions to infrastructure in Phase II.

Development	***Trigger***
Expansion of RPT apron to allow for two Code E power-in push –back positions and associated Code E apron edge taxilane	*Increasing services by Code E aircraft, 2 concurrent Code E operations in peak periods*
Phase II expansion of GA apron (develop Code C apron to full length required).	*Business drivers such as expanding number of GA operations who want apron frontage*
Widening of parallel taxiway to be Code E capable	*Develop at same time as Code E RPT apron development. Capacity issues on main runway require Code E aircraft to taxi to runway thresholds off the main runway i.e. on parallel taxiway to reduce runway delays*
Terminal expansion - Phase II (develop terminal area to the east of existing terminal and parallel with main runway and associated landside infrastructure)	*Increasing international services require larger in-line processing area and demand/capacity issues in existing terminal, Code E aircraft operations*
Develop Cargo apron and terminal and Aircraft Maintenance	*Business drivers such as a specified desire by freight operators to develop a purpose built facility.*

Long Term – 2031 +

The following describes additional growth outside of the planning period;

- Expansion of RPT apron in south easterly direction to accommodate additional Code E MARS configured aircraft parking positions
- Expansion of Passenger Terminal in south easterly direction
- Expansion of freight and aircraft maintenance area
- Possible expansion of runways if required (triggered by the addition of new airline routes requiring aircraft to operate from a greater runway length).

FIGURE 6-1 PORT HEDLAND AIRPORT MASTER PLAN 2031

7 Staged Development Costing

7.1. Introduction

Staged development costing for input to the Port Hedland International Airport forward budgeting were provided by Turner and Townsend as part of this Master Plan. Capital expenditure projects are based on the airside and landside developments included in the Airport Master Plan and have been categorised in two Phases consistent with the Master Plan.

The CAPEX Summary is shown on Table 7-1.

Stage 1 Short term 2011 to 2021	
Terminal and External Works	71,700,000
GA apron, apron edge TWY and TWY upgrade to RWY	8,000,000
RPT apron expansion phase 1	2,600,000
Code F TWY from RWY to Cargo apron	7,200,000
Sub Total Phase 1	**89,500,000**
Stage 2 Long term 2021 to 2031	
Terminal expansion fit-out	3,900,000
Terminal landside plaza	500,000
GA Apron extension	6,200,000
RPT Apron expansion	8,200,000
Code C stub taxiway	1,100,000
Landside roads expansion	500,000
Balance of External Works	3,200,000
Parallel Taxiway upgrade to Code E	25,800,000
Sub Total Phase 2	**49,400,000**

Exclusions:

(1) Any upgrade the ARFFS, Control Tower, or Navaids is by others

(2) Escalation of cost is excluded, all costs are current prices

(3) Code C pavement costs based on similar works at another airport in the region. The specification for Code E and Code F compliant aprons and taxiways has been deduced from CBRs issued in Aerodrome Standards documentation and needs to be verified by an engineer

(4) Loose furniture fittings and equipment

(5) Work outside the boundary of the site

(6) Infrastructure upgrade costs to meet additional demand if required

(7) GST

TABLE 7-1 CAPEX SUMMARY

Appendix I – Stakeholder Consultation

Stakeholder Consultation

Stakeholders were consulted throughout the range of studies used in this Master Plan, in the writing of the reports referenced in this document and an earlier Terminal Upgrade Study prepared by Airbiz. The results of this consultation also formed the basis for consideration in development of the Master Plan. Appendix I details the stakeholder consultation undertaken during recent terminal planning works and is directly relevant to this Master Plan.

Port Hedland Airport

Terminal Plan

Stakeholder Consultation

08 December 2010

Contents

1 Introduction

This report provides the outcomes and recommendations of the Stakeholder Consultation process undertaken at the commencement of concept design for the Port Hedland International Airport terminal expansion project.

2 Methodology

Airbiz developed a list of stakeholders based on input from airport committee and management

Identified stakeholders can be broadly grouped as follows:

- Airport owner and operator – the Town of Port Hedland , the airport committee and airport management
- Business and Community - major employers and business and tourism collectives
- Airlines – RPT and charter operators
- Government Agencies – border control and other
- Other service providers – current and prospective including the car rental industry and retail operators

During visits to Port Hedland on 18 October and 9-10 November, Airbiz engaged in face-to-face meetings with groups or individuals from these stakeholder groupings.

Further engagement was undertaken through meetings in Perth and through email and phone communications to other locations including Canberra, Sydney, Brisbane and Darwin.

This report includes:

- Project Background
- Specific Requirements identified by the following stakeholder groups:
  - Airport Owner and Operator
  - Business and Community
  - Airlines
  - Government Agencies
  - Other Service Providers
- Statement of Requirements – Planning Parameters

3 Project Background

The Town of Port Hedland (TOPH) owns and operates the Port Hedland International Airport (PHIA).

The Port Hedland International Airport (PHIA) is experiencing rapid growth in the numbers of passengers and service providers for both domestic and international flights. The 3,000m^2 Terminal building will need to be extended/redeveloped to accommodate long term growth in passenger numbers of the Port Hedland International Airport.

The PHIA currently operates general passenger and freight flights from/to Perth, Darwin, Broome, Karratha and Bali. There is potential for flights from/to Newman, Melbourne, Brisbane, Singapore and other destinations, pending discussions with relevant stakeholders. Several flights operate to transport workers from Port Hedland to remote mine sites. Some international flights stop at Port Hedland for fuel or customs checks.

This project specifically addresses the refurbishment and expansion of the PHIA Terminal Building and Parking Upgrade and does not include airside works.

4 Stakeholder Consultation

4.1. Stakeholder Consultation

To ensure consideration of all relevant aspects in the concept design process, the TOPH engaged Airbiz Aviation Strategies to:

- Undertake consultation with stakeholders to identify their needs and develop statements of technical requirements
- Coordinate with the design team to input stakeholder requirements in design

4.2. Stakeholder Consultation Process

Airport projects inevitably involve a wide range of stakeholders. During the concept development phase of a passenger terminal among the key stakeholders are:

- The airport owner/operator – management and senior staff
- The airlines – current and potential future
- Airport tenants – current and potential future
- Local, State and Federal government departments and agencies such as security, quarantine, immigration, customs
- Airport and terminal service providers such as fuel, freight, cargo
- Major commercial airport users groups.

4.3. The Objectives of the Consultative Process

The purpose of the stakeholder consultation process is to prepare an operations-oriented statement of how the refurbished and expanded PHIA Terminal will function to:

- Reflect updated operating and product intentions of airlines, particularly where these may be in a state of change
- Document the processes, technologies and manning/resource levels that government agencies will need to commit to in order that the Terminal facility functions in line with the airport owner's expectations and user requirements (particularly airlines) and Design team assumptions
- Identify and resolve any conflicts or contradictions between assumptions that various stakeholders may have about how other stakeholders will be operating

- Update and inform the Design Team, primarily to confirm the basis of their design brief, but also to identify where possible design changes may be deemed necessary so that the building and facilities is optimally aligned to the intended operating methodologies of all stakeholders.

For each of the functional elements within the PHIA Terminal expansion the methodology will comprise:

- Overall description of function and critical performance / outcome goals
- Process flow chart if applicable
- Relationship with adjacent functional areas including inputs (dependencies) and outputs
- Facilities and spatial requirements as appropriate
- Summary of design attributes and operational resources required to carry out the function to meet agreed demand levels

The statement of technical requirements will define departing and arriving passenger flows through the refurbished and expanded Terminal and all other movements and processes that are critical to terminal functions such as farewellers, meeters and greeters, staff, security, goods transfer, waste handling, retail concessions, interfaces with existing terminal infrastructure, cleaning, regular operations and emergency procedures.

5 Airport Owner and Operator

5.1. Vision for Terminal Expansion

During discussions with the ToPH Airport Committee, the Airport Committee identified the broad vision for the project in the context of the overall vision for development and growth of the Port Hedland economy and community

Planning horizon 2025, anticipated passenger numbers of 1 million, fully licensed international airport to be planned for. These decisions were based on the growth of passenger numbers from 71000 to 350000 in seven years, the expectation of continued strong growth in business demand for fly-in fly-out workers and the time required to establish local services that will encourage a higher level of local worker utilization.

The ToPH Strategic Plan 2010-2015 (adopted by Council on 28 July 2010) goal in regard to the airport states:

Goal 2 - Airport

That the Port Hedland International Airport is recognised as a leading regional airport in the area of passenger and freight movements and customer satisfaction.

Other Actions

1. Undertake upgrades to the terminal and surrounds to improve the functionality of the facility including:
   (a) Creating more common-user check in points
   (b) Improving airport security screening arrangements
   (c) Review parking options and implement an agreed Airport Parking Plan
2. Develop a Capital Improvement Plan for airport infrastructure that ensures Airport infrastructure can cater for projected growth.

Immediate Priorities

1. Complete the development of the Airport Land Development Plan and commence implementation of the key initiatives that are identified.
2. Upgrade runways, taxiways and aprons to facilitate efficient aircraft movement.
3. Progress planning and design for an upgraded and extended terminal building.

5.2. Current Demand

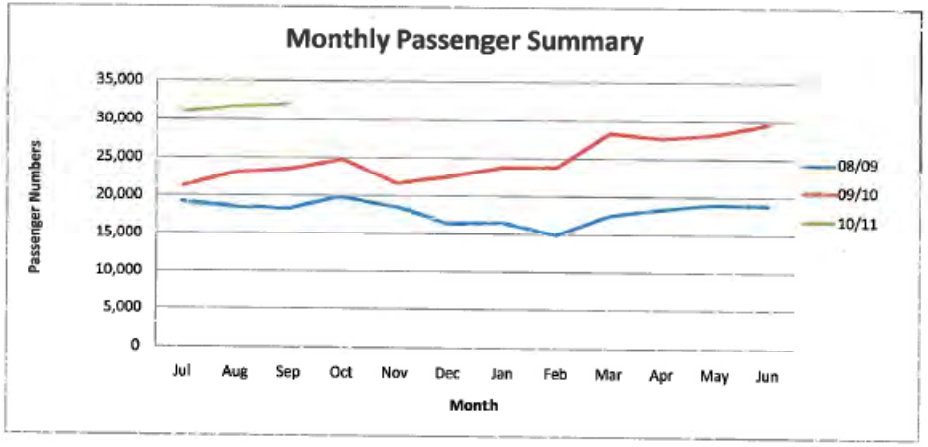
Port Hedland airport is experienceing strong passenger growth. Recent passenger data is presented in the following tables and graph:

Summary Table 08/09 - 09/10 - 10/11

	08/09	09/10	10/11
Jul	19,138	21,347	31,153
Aug	18,545	23,148	31,784
Sep	18,212	23,544	32,180
Oct	19,870	24,833	
Nov	18,594	21,750	
Dec	16,387	22,635	
Jan	16,497	23,872	
Feb	14,874	23,898	
Mar	17,446	28,381	
Apr	18,388	27,718	
May	19,080	28,241	
Jun	18,909	29,574	
Y.T.D	215,940	298,941	95,117

10/11 data entry table

	Qantas	Skywest	Karratha F/S	Airnorth	Strategic
Jul	22,632	1,324	243	210	
Aug	21,904	1,021	326	310	836
Sep	21,612	1,154	336	310	1,383
Oct					
Nov					
Dec					
Jan					
Feb					
Mar					
Apr					
May					
Jun					



5.3. Passenger Demand and Future Proofing of Development Concept

With the airport currently handling almost 400,000 passengers over the past year and given the confidence of a variety of business and community stakeholders with increasing economic activity in the resource sector supporting further passenger growth, the prospect of the airport reaching 600,000 passengers per annum by 2015 as flagged by previous master planning consultants, Airport Master Plan Consultants, appears to be not unrealistic.

Further growth towards the Airport Committee vision of 1,000,000 passengers by 2025 would represent 6% average annual growth from the current base.

As these projections represent on-going strong growth over a 15 year period, it should be understood that to sustain this level of growth over such a long period may be unrealistic. In terms of terminal expansion, therefore, a staged development towards a future concept which could accommodate the 2025 vision would amount to a prudent and “future-proofed” approach to development.

5.4. Master Plan

The ToPH has prepared and recently issued for comment a draft Master Plan for the Airport. A focus of the draft Master Plan, prepared for the Town of Port Hedland by Parsons Brinkerhoff & Whelans Town Planning, is to provide security to airport related land uses and the protection of operational aspects of the airport.

The airport terminal precinct, Precinct 1 as identified in the draft Master Plan, encompasses the airport terminal and the surrounding airport related commercial leases, extending to the north beyond the Bureau of Meteorology site. The site is bound by Great Northern Highway to the east, and a runway to the west. The southern boundary for this precinct has been defined by the town planning and engineering considerations to the south, and the location of the existing Council work depot.

The Airport terminal is located approximately 13 kilometres from the town centre of Port Hedland, and some 10 kilometres from the centre of South Hedland.

The proposal to expand the airport passenger terminal and to develop car parking and other airport specific commercial developments in Precinct 1 is consistent with the Airport Committee's direction to the Project Team to prepare a concept design for passenger terminal expansion.

5.5. Site Constraints

The Airport Committee identified that expansion of the terminal potentially occurring to the east, to the west and to the landside should be considered within the concept design scope. Extensions upward into a second level would also be considered.

The Airport Committee noted that consideration of other potential terminal sites was not part of the scope of the terminal expansion project.

5.6. Existing Facility Limitations

The Airport Committee and Airport Management noted that there were a number of shortcomings with the existing terminal facilities including but not limited to:

- Limited building depth for optimum facilitation arrangements
- Limitations on the throughput of international passengers
- Limited retail offering (scale, positioning and mix)
- Segregated check-in facilities
- Constraints on security point
- Limitations on departure lounge facilities
- Inadequate airline lounge facilities
- Limited car rental facilities
- Out-dated services including CCTV
- Inadequate dock and storage facilities

5.7. Proposed Facilities

The Airport Committee was briefed on design aspects of contemporary passenger terminal including:

- Combined international/domestic terminal layouts
- "Swing" facilities – where terminal facilities and spaces are used to efficiently manage peak activities
- New technologies being adopted for check-in, security and border agency screening
- Terminal layouts for optimized retail penetration
- Wider precinct commercial opportunities consistent with modern airport layouts and suited to Port Hedland's particular requirements

The Airport Committee noted that these considerations and opportunities should be considered in the concept design stage of the terminal expansion project.

5.8. Stakeholder Consultation

Airport Management and the ToPH assisted with the identification and contact details of stakeholders potentially relevant to the expansion of the airport terminal.

5.9. Outcome of Specific Consultations

The outcome of consultations with the airport owner and operator is summarised in the following table:

Airport Committee	Committee members	Design Horizon 2025 Target Passenger throughput 1 milliion passenger per annum (current approx 400,000 pa) Address car parking requirements as a priority Consider: • Terminal expansion eastwards, westwards and towards car park • Opportunity for swing facilities Possibility of commercial office and hotel development within the precinct
Airport Manager	Mr Bob Couzens	Areas for improvement: • Departures facilities/toilets • Upgrading from restricted international licence • Common use check-in • Club lounge expansion (particularly Qantas) • Upgraded Airservices facilities and operations with passenger threshold exceeded • Possible additional rental car facilities • Retail study to consider gift, newsagent, duty free & ATM over and above existing Food & Beverage retail offering • CCTV system coverage and amenity • Asbestos, mechanical services condition, other service capacities to be considered
Town of Port Hedland – planning and commercial	Ms Jasmine Person, Serge Doumergue Jenella Voitkevich	Meeting with Airbiz & ToPH officers in PHE on 10 Nov 2010 • Stated there was a high demand for retail/commercial office space. • Has current enquiries for 6000 sq mt office space and 5000 sq mt retail space • Would like to fastrack the development of 3000 sq mt office space and lease to mining companies for a 5 year period • suggested strong demand for meeting/conference space at airport • stated that current market rates are: o retail $440/sqmt inc. GST + outgoings o new office $660/sqmt inc. GST o old office $550/sqmt inc. GST • stated multi-storey carpark would not happen • a hotel would cause infrastructure issues and therefore would not be feasible • accepted that the needs/demands and use of terminal at PHIA is not necessarily the same as similar sized terminals due to high component of FIFO's and lack of tourism in greater community

		• currently renegotiating leases with car rental companies and suggested that there is an opportunity to expand to six providers
		• is looking at increasing booth size in terminal for the car rental companies
		• supported need for presence in terminal to include:
		  o F+B
		  o News/gift
		  o Tourism
		  o Car rental
		  o Airline lounges
		• Supported need for “wall of ATM’s” & currency exchange
		• Suggested that any commercial offers in airport precinct shouldn’t conflict with downtown offers
		• Stated that there were no sub-leases within terminal
		• Supported inbound/outbound duty free offer
		Will supply contact details for car rental companies

6 Business and Community

Several business and community groups were identified amongst key stakeholders and approached to understand passenger demographics and community expectations in regard to airport facilities and amenities, and other relevant factors.

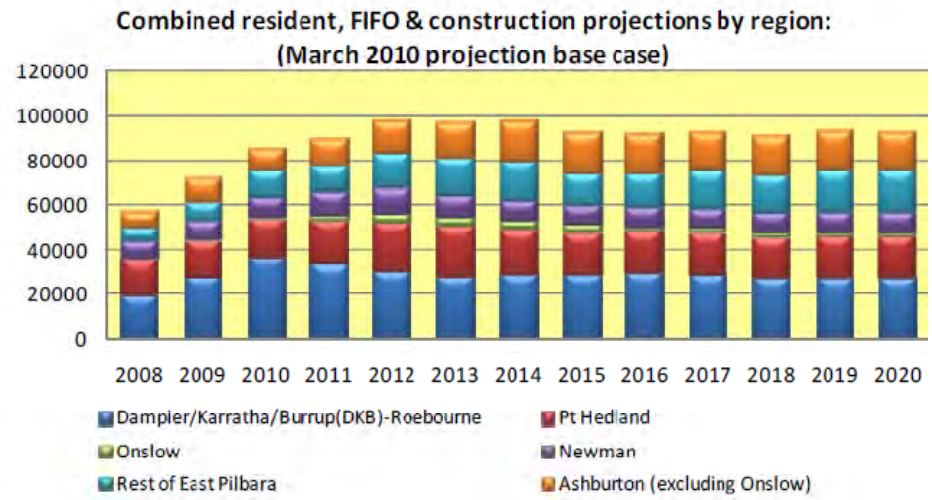
Several organisations provided feedback through meetings and other direct communication:

- BHP Billiton
- FMG
- Rio Tinto
- Port Hedland Visitor Centre
- Port Hedland Chamber of Commerce Inc – including views received from several PHCCI constituents.

There is broad support from Business and Community groups for improved airport facilities including:

- Terminal expansion to meet additional demand and to facilitate improved services and air route opportunities
- Upgraded lounge facilities
- Retail variety and amenity
- Kerbside and parking facilities
- Commercial developments such as hotel, business centre and office within the airport terminal precinct
- Continued support facilities for charter operations

The major resource industry companies identified projected strong growth in direct and indirect employment requiring an appropriate infrastructure response within the community generally and the airport specifically. Evidence of this expected growth was provided by BHP Billiton in the form of industry sponsored report which focussed on resource industry projected population affects relevant to the Pilbara region:



Source: *Heuris Partners Ltd March 2010 Report provided by BHP Billiton*

FMCG also noted strong projected workforce growth

6.1. Tourism

The Port Hedland Visitors Centre expressed interest in establishing a presence within an expanded airport terminal to facilitate better promotion of the town and region to visitors. The Visitor Centre also is supportive of improved retail services and outlets operating at the terminal and its associated precinct to assist in lifting the image of services available within the town.

6.2. Outcome of Specific Consultations

The outcome of consultations with business and community stakeholders is summarised in the following table:

FMG	Vicki James	• FMG has 350 staff currently working in area with a proposed expansion of up to 800 within short period • A high percentage of these staff will be local residence rather than FIFO's • DJ is FMG's current preferred carrier (all their staff are Gold Members therefore high demand on lounge facilities) • With expansion in workforce see the opportunity to engage with DJ to use larger planes rather than more services • FMG have their own 18 seat plane which transports indigenous staff only (mainly to Cloudbreak) • Sees current issues with airport to be: o lack of covered footpaths between terminal and carpark o lack of area for airline lounges (especially during delays) o shaded area at kerbside whilst waiting for pick-up o limited bus zone access for group pick-ups o security of cars during long-term stays o terminal in not child friendly • stated that ancillary businesses are growing as a result of the expansion in mining • stated that a lot of their staff are ex Brisbane (where a similar skill set is prevalent) • believes that opportunities are being missed by the lack of presence in terminal from the Visitors Centre to inform FIFO's what they can do on their RDO's • stated that a lot of their staff are very IT savvy • suggested the following would be desirable at airport: o gifts/news - wider variety of foods o duty free - IT/electronic store o Car wash/detail facility - Boarding facilities for pets o Hangar space o Convenience store - - Lockers/storage • Supported survey opportunity with FIFO's to advise of what they feel is missing • Suggested contacting Andre Bush from the Port Authority • Capacity for additional commercial flights • Parking and secure parking options with cement footpaths to these areas • Club lounge waiting area • Shade outside the terminal waiting areas Meeting FMG & Airbiz 10 Nov 2010 in PHE – see Retail & Commercial Study for detailed feedback

BHP Billiton 	Patrik Mellberg; Gerry Gorman	• Industry initiated Pilbara demographic study provided • On-going requirement for BHP charter flights ex PHE to Newman etc using Karratha Flying Service, Heliwest etc Meeting BHPB & Airbiz 10 Nov 2010 in PHE – • Suggested retail needed to provide range of choices other than just a bar at airport • Keen on improving airline lounges with high number of staff users • Very strong on the need to separate the "drinkers in the bar" from family groups within terminal • Suggested child amusement centre/playground would be valued by their staff within the terminal • Felt need for better food choices and quality • Suggested that there should be outside areas for general public not just for the smokers • Patrick will provide us with HR data on demographics of workforce • Patrick offered to distribute a survey amongst their staff to obtain feedback on what they would like to see at airport • Suggested other services within terminal could include: o medical centre o gifts/tourist information o news/books o convenience/personal hygiene o vending o lockers/storage for FIFO to leave work gear o short stay hotel o shower facilities o IT access o Hangar facilities for light aircraft (have staff who have enquired re flying up from PER)
Rio Tinto (Dampier Salt Ltd) RioTinto	Scott Mathewson	Contact initiated through Scott Mathewson in Port Hedland – requirements include: • Additional check in counters • Larger café / bar facility. Improved outdoor area. Entertainment TV's installed • Internet café / access • Improved International facility, luggage collection and customs area

Port Hedland Port Authority 	Andre Bush Katerina Businoska	**General comment** Additional increase in the local population is necessary for new resource projects and port development projects to proceed in the Pilbara region. The Pilbara region has a large number of transient workers (including FIFO) and this population accounts for a significant proportion of the population in many Pilbara towns including Port Hedland. Within the Port Hedland area, the PHPA and current and emerging port users have a number of significant port development projects planned which will require additional workforce to deliver those projects over the next 3 to 5 years. The PHPA is also planning for an increase in port staff to ensure the port can operate at the current growth levels and a further boost to staff numbers to facilitate and operate a Port in excess of 800 million tonnes per annum. The proposal to develop a Master Plan to expand the Port Hedland International Airport to support the growth in population and transient workers is fully supported by PHPA. The Master Plan and concept design for the airport should consider requirements to the 2025 timeframe and beyond to ensure we are planning well ahead for the future and not just current pressures we are facing. **Preservation of strategic areas** Appropriate protection mechanisms should be applied to strategic areas in the Pilbara which are required to be preserved and protected by the State. The PHPA supports a protection mechanism to be applied over the proposed expansion area for the Port Hedland International Airport. It is also important to consult with the Department of Regional Development and Lands (State Land Services) as they are responsible for allocating Crown Land for specific projects and they need to ensure that there are no conflicting issues with other land uses planned within the proposed expansion area or in close proximity. **Passenger demand** Please note that PHPA does not have information on passenger demand. The Department of State Development should have this information as they are aware of all project developments planned within the Pilbara region, and the Department of Planning should also be able to advise their views on population growth. **Potential for air cargo** The proposed airport expansion should take into consideration the potential to handle air cargo. To reduce impacts on the road freight network, consideration should be given to providing adequate facilities to facilitate growth in air cargo transportation. This will enable goods such as food (perishable and non-perishable), household goods (e.g. furniture) and other heavy or bulky goods to be transported by air rather than by road or ship. The proposal to accommodate air cargo fits in with PHPA's port plans for a general cargo hub for the North West initially catered for over the existing 3 public berths on the Port Hedland town side of the port, expanding rapidly in the coming years via the Lumsden Hub and SW Creek berths. These will also service urgent deliveries to the offshore oil and gas industry. In the future potential exists for a much larger transhipment port (similar to the Port of Salalah in Oman). The strong transport and infrastructure links between air and sea could be beneficial to the region. If at all possible future planning should cater for this potential.

		Comment on design vision and associated facilities • Need for adequate parking area. Current parking area is insufficient. • There is a significant impact on the community, workers/visitors and the region as there is a serious accommodation shortage in Port and South Hedland. Additional hotel accommodation of good standard in close proximity to the Port Hedland International Airport would help alleviate accommodation pressures. • Need for major general amenity improvements. • Need for improved seating. • Need for improved VIP lounges. The existing VIP Qantas lounge is very very small currently and needs to be expanded. A Virgin VIP lounge should also be accommodated. • Need for Duty Free shopping, adequate cafes and restaurant facilities. • Need for improved entry and exist between the airport and the planes. An airbridge arrangement should be considered. • Need for improved luggage handling to ensure its managed in a more streamlined way.
Port Hedland Chamber of Commerce PORT HEDLAND Chamber of Commerce Inc		Constituents contacted. 3 responses received: • Designtech – offering engineering and design/drafting services • Bullbuck (ground transport service provider) – increased/improved parking for shuttle services; F&B service hours to meet delayed flights; improved view amenity from terminal • Glenys Pike – proposal for news/lotto/duty free outlet at airport terminal Further discussions between CCI & Airbiz occurred on 9 Nov 2010 in Port Hedland
Port Hedland Visitor Centre PORT HEDLAND Visitor Centre	Peter Wood & Julie Broad	• Meeting between PHVC & Airbiz on 9 Nov 2010 in PHE • Indicated interest in Visitor Centre presence within expanded terminal • raised lack of accommodation and lack of affordable accommodation in town as restricting tourism growth (mining companies block book hotels) • suggested that the FIFO do not spend a lot of money in town • Peter has recently commenced a shuttle service from airport targeting FIFO's. • Would like to get presence within terminal • Believe that good quality coffee/food is needed at airport • Mentioned that BHP spend 1% of their GP back into community • Weren't supportive of the need for additional meeting rooms at airport • Stated that long term parking has high demand at airport • Suggested that the airport could become a retail hub for the community with certain services not provided currently in town (these included dry cleaners, butchers, bakery, commercial offices)

7 Airlines

The engagement in the design process and support from airlines is considered fundamental to the success of any airport terminal development project. A table of existing RPT services at Port Hedland is included below. Consequently airlines were approached to obtain their views and plans for future operations at Port Hedland.

Input was received from the following airlines:

- Qantas
- Virgin Blue
- Strategic
- Airnorth

At the time of preparing this draft report, input was still awaited from Skywest Airlines.

Melbourne-based low cost carrier Tiger Airways indicated that there may be interest in operating through Port Hedland in the future.

Perth-based charter operator Maroomba provided input relevant to charter operations through Port Hedland airport.

There is acknowledgement from airlines of passenger growth and route development opportunities through Port Hedland airport:

- Qantas flagged potential busy hour growth – to 2 x B737-800 aircraft
- Qantas further identified the possible future operations with wide-bodied aircraft of B767/A330/B787 types - Note: only In lieu of rather than additional to the two narrow bodied B737 aircraft requirement identified above.
- Virgin Blue flagged potential introduction of some direct eastern states and international services. Also a possible overnight aircraft parking requirement was also identified.
- Lounge developments for Qantas and possibly Virgin Blue (together with a partner airline)
- Opportunities for application of new technologies in check-in processes
- Ongoing back-of house office requirements with good access to CBS and baggage make-up

- Increased technological demands as new technologies are introduced.
- Vehicle parking requirements and amenities for use by ground handling agents
- Strategic supports the expansion of international passenger facilities and the removal of restrictions to enable full international services for A320 aircraft

Airlines are supportive of terminal improvements at Port Hedland but stressed that they wish to be consulted regularly as concept plans are developed and before any commitment to new developments is made.

7.1. Departures Facilities

Qantas has indicated a future move to self serve check-in facilities similar to those currently being introduced in Perth and Sydney. Use of this type of technologies offers spatial, staffing and process time efficiencies which can assist with passenger experience and can indirectly lead to improved airside retail results.

Similarly, Virgin Blue identified a potential move from traditional check-in to their standard self-serve kiosk with bag drop.

Strategic and Airnorth also remained open to introducing new check-in technologies to deliver process improvements and efficiencies.

The airlines are supportive of airside retail and the establishment of airside airline lounges as this concept assists with airline on-time performance.

7.2. Lounge Facilities

Both Qantas and Virgin Blue identified lounge requirements.

Specific details of Qantas lounge requirements remain outstanding at the time of preparing this report.

While Virgin Blue identified a possible 300 square metre requirement, it was non-committal on whether that would be needed at the completion of the terminal extensions or rather as a planning allocation for future expansion. Virgin Blue flagged a possible partner airline involvement in any new lounge facilities.

Strategic currently has arrangements with Qantas for use of the Qantas lounge. Strategic would either continue with this arrangement or is potentially interested in a future common lounge offering.

7.3. Other Facilities

Reference to possible wide bodied aircraft operations, passenger movements to and from aircraft, GSE parking and other requirements relevant to the aircraft parking apron were made by various airlines.

These airside requirements should be considered during terminal expansion concept planning and design in terms of apron layouts and operational plans.

	Arrivals			Departures		
	Flight	**ETA**	**FROM**	**FLIGHT**	**ETD**	**TO**
Monday	Virgin Blue DJ1837	8:05	PER	Virgin Blue DJ1840	8:35	PER
	Qantas 1110	8:25	PER	Qantas 1111	9:05	PER
	Qantas 1812	10:10	PER	Qantas 1813	10:50	PER
	Qantas 1828	12:25	PER	Qantas 1829	13:05	PER
	Qantas 1116	17:40	PER	Qantas 1117	18:20	PER
	Virgin Blue DJ1843	17:20	PER	Virgin Blue DJ1846	18:00	PER
Tuesday	Virgin Blue DJ1837	8:05	PER	Virgin Blue DJ1840	8:35	PER
	Qantas 1110	8:25	PER	Qantas 998	9:05	MEL
	Qantas 1812	10:10	PER	Qantas 1813	10:50	PER
	Qantas 997	11:40	MEL	Qantas 1113	12:20	PER
	Qantas 1128	12:25	PER	Qantas 1829	13:05	PER
	Strategic VC510	12:40	BNE	Strategic VC210	14:15	DPS
	Air North TL355	17:00	KTA	Air North TL355	17:30	BME
	Qantas1116	17:40	PER	Qantas 1117	18:20	PER
	Virgin Blue DJ1843	17:20	PER	Virgin Blue DJ1846	18:00	PER
Wednesday	Virgin Blue DJ1837	8:05	PER	Virgin Blue DJ1840	8:35	PER
	Qantas 1110	8:25	PER	Qantas 1111	9:05	PER
	Strategic VC211	9:55	DPS	Strategic VC511	12:05	BNE
	Qantas 1828	12:25	PER	Qantas 1829	13:05	PER
	Qantas 1814	16:10	PER	Qantas 1815	16:50	PER
	Qantas 1116	17:40	PER	Qantas 1117	18:20	PER
	Virgin Blue DJ1843	17:20	PER	Virgin Blue DJ1846	18:00	PER
Thursday	Virgin Blue DJ1837	8:05	PER	Virgin Blue DJ1840	8:35	PER
	Qantas 1110	8:25	PER	Qantas 1111	9:05	PER
	Qantas 1828	12:25	PER	Qantas 1829	13:05	PER
	Qantas 1814	16:10	PER	Qantas 1815	16:50	PER
	Qantas 1116	17:40	PER	Qantas 1117	18:20	PER
	Virgin Blue DJ1843	17:20	PER	Virgin Blue DJ1846	18:00	PER
Friday	Virgin Blue DJ1837	8:05	PER	Virgin Blue DJ1840	8:35	PER
	Qantas 1110	8:25	PER	Qantas 1111	9:05	PER
	Air North TL352	9:05	BME	Air North TL353	9:35	KTA
	Qantas 1828	12:25	PER	Qantas 1829	13:05	PER
	Qantas 1814	16:10	PER	Qantas 1815	16:50	PER
	Qantas 1116	17:40	PER	Qantas 1117	18:20	PER
	Virgin Blue DJ1843	17:20	PER	Virgin Blue DJ1846	18:00	PER
Saturday	Virgin Blue DJ1837	8:05	PER	Virgin Blue DJ1840	8:35	PER
	QF 1810	8:25	PER	QF 1811	9:05	PER
	Skywest XR31	9:00	BME	Skywest XR251	10:00	DPS
	Skywest XR252	15:20	DPS			
	QF1816	17:40	PER	QF1817	18:20	PER
Sunday				Skywest XR253	8:00	DPS
	Qantas 1812	10:10	PER	Qantas 1813	10:50	PER
	Skywest XR 254	13:20	DPS	Skywest XR32	14:20	BME
	Qantas 1116	17:40	PER	Qantas 1117	18:20	PER
	Virgin Blue DJ1843	17:20	PER	Virgin Blue DJ1846	18:00	PER
	QF 1818	18:45	PER	QF 1819	19:25	PER

TABLE 7-1 RPT FLIGHT SCHEDULE - 9TH NOVEMBER 2010 - 26TH MARCH 2011

7.4. Outcome of Specific Consultations

The outcome of consultations with the airlines is summarised in the following table:

Qantas 	Darren Batty	• Communication initiated through Qantas WA manager (Rowan Chalmers) • Discussions with Adrian Boys (perth) and Darren Batty (Sydney) re future demand • Contact for Qantas Security provided (Roberta Stumpo in Sydney) **Qantas Input:** • Review of overall functions, processes and goals In the long run we expect that fewer staff will be needed and processes will be more streamlined due to technology changes • Impact of new technologies Aspects of Next Gen check-in will be introduced next year (Q-tag readers and podiums). We envisage that in the medium term Next Gen or 'future gen' by 2025, pax possibly wouldn't see any staff, only technology • Current check-in counter allocation, operations and utilisation Moving forward we'd like to have Auto Bag Drop's instead of check-in counters (auto-bag-drops - next gen technology) with little or no staffing. Therefore check-in counters will reduce rather than increase. • Current and future plans for check-in facilities and operations Moving from manpower to next gen technology - everything automated from check-in to bag drop • Current and future plans for lounge facilities — Qantas Product's review of future lounge requirements: o Sqm per pax 3.5sqm o Pax using lounge 60 pax o Lounge size ~200sqm These numbers are for high level analysis only. These numbers are based on significant growth and any increase in lounge size would only occur if it was commercial sound to invest in such a jump in space. You can treat 200sqm as your ultimate lounge size for masterplanning purposes and not for what is required currently. Qantas estimates that current requirements are around the 100sqm mark (v 45sqm existing cap). • Current boarding procedures for aircraft departures — Boarding in the future via electronic means rather than manual i.e retina scans or waving b/cards in front of scanners. — Consider boarding capability direct from larger lounge • Staff interfaces with departures and arrivals processes Less interaction as new technologies developed and less staff

		• Staff access to support / administration offices and rest areas Back office and easy access to airside • Input into high level process and detailed flow charts Please provide before we can comment • Gate requirements Plan for up to two simultaneous 73Hs or one B763/A330 in the future.
Virgin Blue 	Mr Brian Lewis; Ms Leigh Balderson	The Virgin Blue Group is currently undergoing a network review and as such my response to your request is outlined to the best of our ability at this current point in time. Key markets such as Western Australia are indeed important to our strategy moving forward and Port Hedland is well positioned to incorporate potential increases to services. To assist in your planning we deem there is opportunity to increase services to PHE of around 2-3 trans-con services per week and the potential for up to 2 international services per week, of course, this information is strictly confidential and we have not had any official decisions made as yet on these services or which routes they would be. Below is some information on the key areas for our operation, following the network review we will be better placed to discuss the actual effects for Port Hedland. **Check in** • Our current and future plans for check in counters are dependent on services to and from Port Hedland, under our current schedule the allocation of counters is sufficient for our operation • Should our schedules increase we would need to re-address the allocation and associated equipment to ensure sufficient ability to service our operation. As the allocation requirement are schedule driven, I am not currently in a position to advise if we will or will not require and increase in check in counters • Virgin is willing to work with the airport to ensure the most efficient allocation of counters etc. be that under a dedicated counter assignment or a common use environment, ensuring that any equipment installed meets the requirements of the airline • As our airline moves towards a more "self service" focus, we will be looking at opportunities to potentially install kiosks in the terminal, this would most likely be our standard kiosk offering which offers check in and seat allocation functionality whilst the check in of baggage would be conducted via a standard check in counter Lounge Facilities • Even though Port Hedland is viewed as a key port in the Virgin Blue Group, we do not have an immediate need for a lounge facility, however, we would request that during the planning stages, Port Hedland keeps in mind that our Airline may in fact wish to include Port Hedland on its list of Airports that offers some form of Lounge facility be that solely Virgin or a joint lounge with other carriers. **Office Space / Rest Areas** • Virgin or our GHA will require access to an office facility in order to manage the day to day operational matters, under normal circumstances a space of around 25-30sqm would be suitable, but as per above this is also

		driven by schedules and staffing levels. • We would also require a suitable space to install our IT server and radio communication equipment. We are happy for this to be a common use area so long as the space meets our requirements ie. suitable power supply, air conditioning etc. • Toilets, lunch areas etc. under normal circumstances we look at utilising common use space for standard amenities **Security** • Office areas to be suitably secured via locking system (key, proxy access etc.) • Access to CBS and Passenger screening systems • Dependant on schedule, may require access to CCTV for any aircraft that may overnight **Vehicle Parking Requirements** • Could you please elaborate a little more on this point, are you interested in parking requirements for GSE, Staff vehicles, Aircraft parking bays??
Strategic 	Mr Phil Warth	*Review of Overall Functions, Processes and Goals* • Strategic Airlines currently believes the area of greatest concern is specific to the processing of international passengers. The current customs and border protection area is insufficient to service a full passenger load of 156 people on an Airbus A320. The introduction of a larger international passenger processing area will ensure that services can continue into the future. • The current infrastructure at the airport is not sustainable for increased domestic passenger numbers. This includes more baggage belts to cater for increased flight numbers, security screening point, passenger amenities, lounge facilities and so on. • International passenger processing is difficult currently, as referred to earlier. The federal government currently administers classification of international airports via the 'International Airports Operators Guide' which defines the standard for international classified airports. This process also allows for government funding to be assigned to the port for inclusion of border agency services. The issue with this is the infrastructure requirements required to establish a full international port are fairly capital intensive. The government has granted ongoing international status to other airports, namely Coolangatta Airport, without going through this process previously. Strategic Airlines suggests that the Gold Coast airport is used as a case study and applications developed from that point. As an aside, the last airport to go through the full process was Cairns International approximately 15 years ago, there may be some value in referring to them also. *Impact of New Technologies* • Strategic Airlines is reviewing a number of options for the introduction of new technologies to the business. These are in the main from a passenger experience and check-in processing perspective. These include the introduction of kiosk/next generation check-in facilities at ports, and the introduction of departure control systems that work in a common user terminal environment. These technologies will allow for significant

		efficiencies in passenger processing. • At this stage Strategic Airlines cannot further define requirements without engaging on specific planned airport technology introductions. *Current Check-in Counter Allocation, Operations and Utilisation* • The current check-in counter allocation and utilisation at Port Hedland airport is sufficient to service operations for our current schedule. Utilisation may be improved over time with the introduction of CUTE. *Current and Future Plans for Check-in Facilities and Operations* • Please refer to impact of new technologies above for further information. *Current and Future Plans for Lounge Facilities* • Currently Strategic Airlines utilises the Qantas Lounge at Port Hedland airport. The lounge in itself requires a larger space, and a refurbishment, which is most likely at Qantas' expense. • Future plans Strategic would like to be involved in a common user lounge on the current schedule. If Strategic were to increase number of services to Port Hedland opportunity for a Strategic branded lounge would be reviewed. *Current Boarding Procedures for Aircraft Departures* • Boarding procedures are currently difficult from an OH&S perspective for all departing aircraft. Passengers currently move from the terminal directly to the aircraft via the tarmac. Two issues arise with this – departing aircraft and risk of jet blast to passengers, monitoring passengers in a secure zone of the airport is difficult to maintain. A good example of full stand off for passenger movements is the Gold Coast airport updates where shelter is maintained for passengers and protected direct lines in place. • Disembarking procedures also have the same issue, however, somewhat enhanced due to the baggage belt being at the very far end of the terminal. *Staff Interfaces with Departures and Arrivals Processes* • Similar issues as discussed in the procedures above. Other than that the staff interface within the airport environment is achieved to a satisfactory standard currently due to the size of the terminal. *Review Adjacencies of Functional Areas Including Inputs (dependencies) and Outputs* • Further clarification of the request is sought by Strategic Airlines for this question. *Staff Access to Support / Administration Offices and Rest Areas* • Currently Strategic Airlines have no requirements for support or administration offices at the terminal. • Longer term, dependent on Strategic Airlines schedule expansion, there may be a requirement for a crew rest / administration area, however a common user area would be a workable solution as long as IT infrastructure between all stakeholders can be agreed to.

		Input into High Level Process and Detailed Flow Charts / Identification of Exceptions and How They are to be Handled / Fallback Procedures if Appropriate • Further clarifications of the requests detailed above are sought by Strategic Airlines. A number of items Strategic would like to have input on, however a better understanding of what is requested is required prior to an accurate response is given. *Vehicle Parking Requirements* As stated above Strategic have no permanent staff based in Port Hedland currently. If operations were to expand this situation may change, however our Ground Handler currently completes this service on the airlines behalf. One item to consider is the ongoing storage of GSE airside and increasing schedules requires increasing amounts of equipment.
Skywest	Mr Richard Pickford	Contact initiated through Mr Terry Cooper and Richard Pickford in Perth • Advice remains outstanding
Air North	Ms Tanya Cason	Contact initiated through Simone Saunders, David Gooch and Tanya Cason in Darwin • Currently Airnorth is operating E170 – 76 seater aircraft into PHE, and don't envisage increasing the aircraft size in the near future. • At present Airnorth has no proposed routing changes that would include PHE in any other services. • Airnorth current and potential future use of check-in counters would be for 2 staff and 1 service desk • Currently utilise check-in counters do not envisage using kiosks • Web check-in with a bag drop (future requirement) • Nil requirements for lounge facility • Gate access – 1 boarding gate use forward stairs on aircraft only • Boarding gate 1 staff required/ / Arrivals 1 staff required
Tiger Airways	Michael Jarvis	Possible interest in future services expressed

Maroomba' 	Mr Steve Young	• Ongoing adhoc charter on Govt, commercial and medivac business anticipated • Requires continuing landside/airside access to suitable apron parking preferably in proximity to terminal

8 Government Agencies

With the existing terminal operating only limited international services, the airport's vision of increased international capacity and services is dependent on cooperation from Federal border agencies and support from State organisations.

During the consultation process, input was sought from:

- Australian Quarantine and Inspection Service (AQIS)
- Australian Customs Service (ACS), and
- Department of Immigration and Citizenship (DIAC)
- WA Department of Transport

Advice from Federal border agencies provided reference to the joint agency publication ***International Airport Operator's Guide - Version 1.2.1***

This Guide provides information and advice on accommodation and infrastructure requirements for:

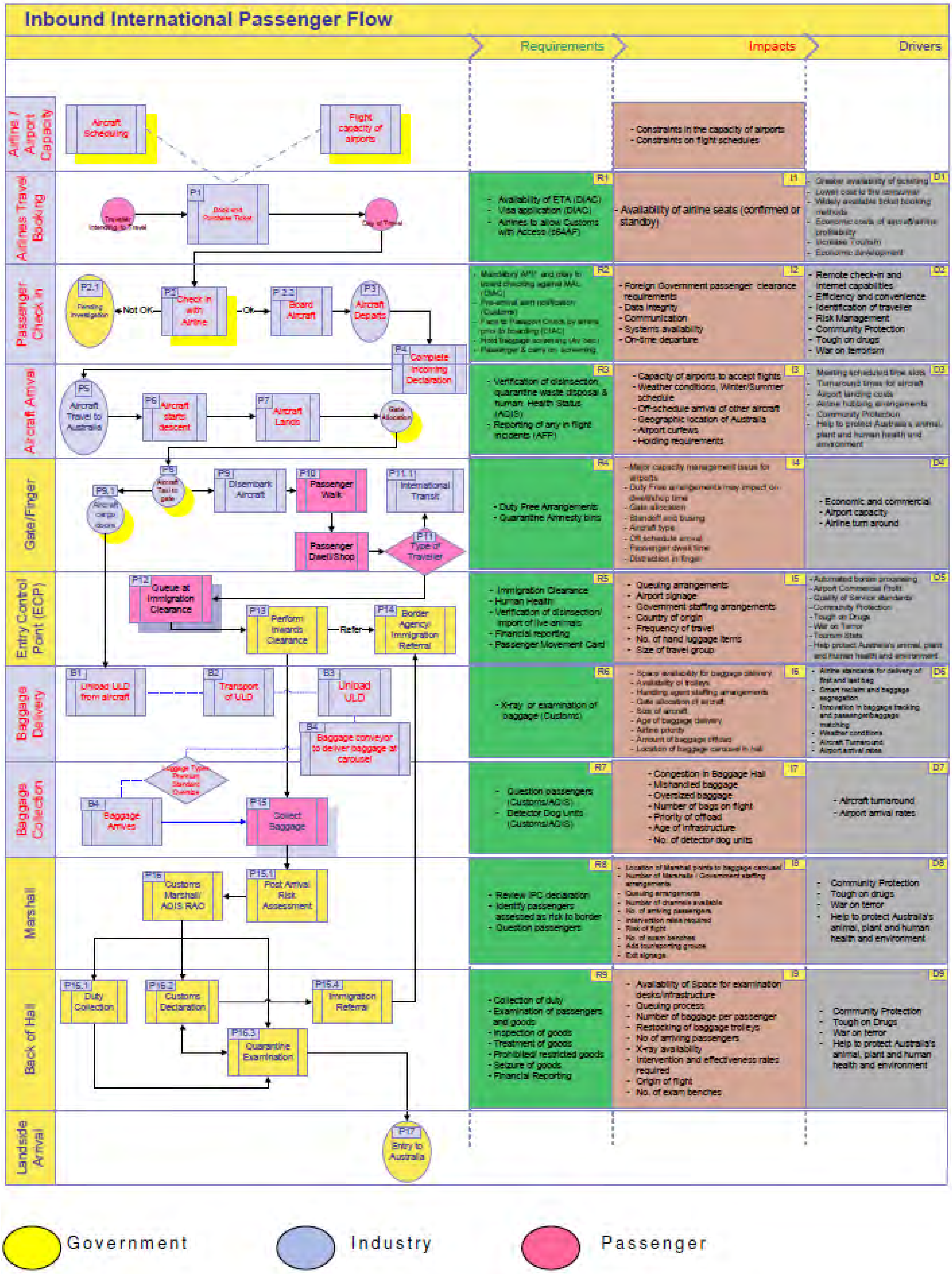
(a) existing international airport operators in relation to day to day agency requirements and for the purposes of planning refurbishment or redevelopment of airport terminals; and

(b) airport operators planning to process regular international flights.

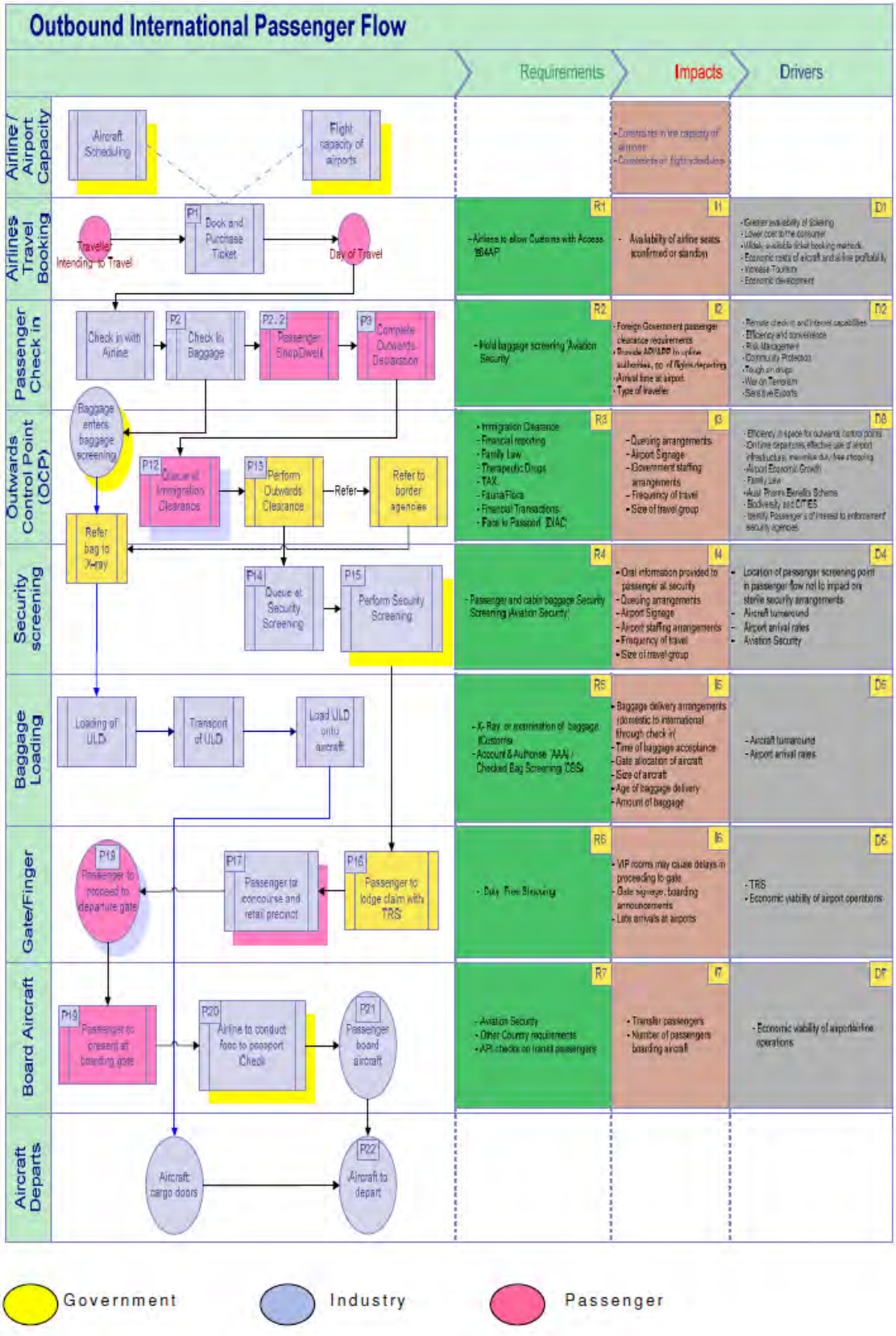
Existing and prospective international airport operators are responsible for the provision of adequate facilities to enable border and border related agencies to process arriving and departing passengers, and the goods they bring with them, in a secure environment.

8.1. Passenger Processing

The following flowcharts represent the interrelationship between Government, industry and passengers, and provides a 'whole of airport' business process for international passenger flow in terminals.



Inbound International Passenger Flow
Requirements
Impacts
Drivers
Airline / Airport Capacity
Aircraft Scheduling
Flight capacity of airports
- Constraints in the capacity of airports
- Constraints on flight schedules
Airlines Travel Booking
P1
Book and Purchase Ticket
Day of Travel
R1
- Availability of ETA (DIAC)
- Visa application (DIAC)
- Airlines to allow Customs with Access (eSAAF)
I1
- Availability of airline seats (confirmed or standby)
D1
Passenger Check in
P2.1
Pending Investigation
Not OK
P2
Check in with Airline
OK
P2.2
Board Aircraft
P3
Aircraft Departs
P4
Complete Incoming Declaration
I2
- Foreign Government passenger clearance requirements
- Data integrity
- Communication
- Systems availability
- On-time departure
D2
- Remote check-in and internet capabilities
- Efficiency and convenience
- Identification of traveller
- Risk Management
- Community Protection
- Tough on drugs
- War on terrorism
Aircraft Arrival
P5
Aircraft Travel to Australia
P6
Aircraft starts descent
P7
Aircraft Lands
Gate Allocation
R3
- Verification of disinsection quarantine waste disposal & human Health Status (AQIS)
- Reporting of any in flight incidents (AFP)
I3
- Capacity of airports to accept flights
- Weather conditions, Winter/Summer schedule
- Off-schedule arrival of other aircraft
- Geographic location of Australia
- Airport curfews
- Holding requirements
D3
Gate/Finger
P8
P9.1
P9
Disembark Aircraft
P10
Passenger Walk
P11.1
International Transit
Passenger Dwell/Shop
P11
Type of Traveler
R4
- Duty Free Arrangements
- Quarantine Amnesty bins
I4
D4
- Economic and commercial
- Airport capacity
- Airline turn around
Entry Control Point (ECP)
P12
Queue at Immigration Clearance
P13
Perform Inwards Clearance
Refer
P14
Border Agency/ Immigration Referral
R5
- Immigration Clearance
- Human Health
- Verification of disinsection/ import of live animals
- Financial reporting
- Passenger Movement Card
I5
- Queuing arrangements
- Airport signage
- Government staffing arrangements
- Country of origin
- Frequency of travel
- No. of hand luggage items
- Size of travel group
D5
Baggage Delivery
B1
Unload ULD from aircraft
B2
Transport of ULD
B3
Unload ULD
B4
Baggage conveyor to deliver baggage at carousel
R6
- X-ray or examination of baggage (Customs)
I6
D6
Baggage Collection
B4
Baggage Arrives
P15
Collect Baggage
R7
- Question passengers (Customs/AQIS)
- Detector Dog Units (Customs/AQIS)
I7
- Congestion in Baggage Hall
- Mishandled baggage
- Oversized baggage
- Number of bags on flight
- Priority of offload
- Age of infrastructure
- No. of detector dog units
D7
- Aircraft turnaround
- Airport arrival rates
Marshall
P16
Customs Marshall/ AQIS RAO
P15.1
Post Arrival Risk Assessment
R8
- Review IPC declaration
- Identify passengers assessed as risk to border
- Question passengers
I8
D8
- Community Protection
- Tough on drugs
- War on terror
- Help to protect Australia's animal, plant and human health and environment
Back of Hall
P16.1
Duty Collection
P16.2
Customs Declaration
P16.4
Immigration Referral
P16.3
Quarantine Examination
R9
- Collection of duty
- Examination of passengers and goods
- Inspection of goods
- Treatment of goods
- Prohibited/ restricted goods
- Seizure of goods
- Financial Reporting
I9
- Availability of Space for examination desks/infrastructure
- Queuing process
- Number of baggage per passenger
- Restocking of baggage trolleys
- No of arriving passengers
- X-ray availability
- Intervention and effectiveness rates required
- Origin of flight
- No. of exam benches
D9
- Community Protection
- Tough on Drugs
- War on terror
- Help to protect Australia's animal, plant and human health and environment
Landside Arrival
P17
Entry to Australia
Government
Industry
Passenger


Outbound International Passenger Flow
Requirements
Impacts
Drivers
Airline / Airport Capacity
Aircraft Scheduling
Flight capacity of airports
Airlines Travel Booking
Traveller Intending to Travel
P1 Book and Purchase Ticket
Day of Travel
Passenger Check in
Check in with Airline
P2 Check In Baggage
P2..2 Passenger Enquiry
P3 Complete Outwards Declaration
Outwards Control Point (OCP)
Baggage enters baggage screening
P12 Queue at Immigration Clearance
P13 Perform Outwards Clearance
Refer
Refer to border agencies
Refer bag to X-ray
Security screening
P14 Queue at Security Screening
P15 Perform Security Screening
Baggage Loading
Loading of ULDs
Transport of ULD
Load ULD onto aircraft
Gate/Finger
P19 Passenger to proceed to departure gate
P17 Passenger to concourse and retail precinct
P16 Passenger to lodge claim with TRS
Board Aircraft
P18 Passenger to present at boarding gate
P20 Airline to conduct face to passport Check
P21 Passenger board aircraft
Aircraft Departs
Aircraft cargo doors
P22 Aircraft to depart
R1
- Airlines to allow Customs with Access 'I64AP'
I1
- Availability of airline seats (confirmed or standby)
D1
- Greater availability of ticketing
- Lower cost to the consumer
- Wider available ticket booking methods
- Economic costs of aircraft and airline profitability
- Increase Tourism
- Economic development
R2
- Hold baggage screening (Aviation Security)
I2
- Foreign Government passenger clearance requirements
- Arrival time at airport
- Type of traveller
D2
- Efficiency and convenience
- Risk Management
- Community Protection
- Tough on drugs
- War on Terrorism
- Sensitive Exports
R3
- Immigration Clearance
- Financial reporting
- Family Law
- Therapeutic Drugs
- TAX
- Fauna/Flora
- Financial Transactions
- Face to Passport (DIAC)
I3
- Queuing arrangements
- Airport Signage
- (Government staffing arrangements
- Frequency of travel
- Size of travel group
D3
- Efficiency in space for outwards control points
- On time departures, effective use of airport infrastructure, maximise duty free shopping
- Airport Economic Growth
- Family Law
- Australian Benefits Scheme
- Biodiversity, and CITES
- Identify Passengers of interest to enforcement security agencies
R4
- Passenger and cabin baggage Security Screening (Aviation Security)
I4
- Oral information provided to passenger at security
- Queuing arrangements
- Airport Signage
- Airport staffing arrangements
- Frequency of travel
- Size of travel group
D4
- Location of passenger screening point in passenger flow not to impact on sterile security arrangements
- Aircraft turnaround
- Airport arrival rates
- Aviation Security
R5
- X-Ray or examination of baggage (Customs)
- Account & Authorise 'AAA' / Checked Bag Screening (CBS)
I5
- Baggage delivery arrangements (domestic to international through check in)
- Time of baggage acceptance
- Gate allocation of aircraft
- Size of aircraft
- Age of baggage delivery
- Amount of baggage
D5
- Aircraft turnaround
- Airport arrival rates
R6
- Duty Free Shopping
I6
- VIP rooms may cause delays in proceeding to gate
- Gate signage, boarding announcements
- Late arrivals at airports
D6
- TRS
- Economic viability of airport operations
R7
- Aviation Security
- Other Country requirements
- API checks on transit passengers
I7
- Transfer passengers
- Number of passengers boarding aircraft
D7
- Economic viability of airport/airline operations
Government
Industry
Passenger

8.2. Terminal Design – Government Agency Perspective

In the design of terminal facilities to accommodate the carrying out of Government regulatory functions the following is relevant:

8.3. Design Objectives

Each functional element should be flexible enough to allow them to be readily and economically rearranged or expanded to meet changing demands and technologies. Potential for shared facilities for the border agencies wherever possible to foster interagency collaboration and minimise the impact on terminal infrastructure and cost to the operator. Adoption of materials that are planned, designed and suited to their function to minimise maintenance and cleaning and to maximise operational efficiency. Provision of functional areas sized and situated to meet demand in terms of expected passenger movements at peak operating periods and capable of expansion for forecast passenger and aircraft movement levels for the anticipated design horizon of the terminal.

- Planned facilities that support the safe and orderly conduct of each functional element without compromising border agencies' security or the integrity of the Australian border.
- Use of processing stations that are clearly identifiable and logically arranged to suit their functions.
- All weather facilities with appropriate climate control.
- Natural light wherever possible. Where natural light is not available, adequate artificial light is to be provided.

8.4. Terminal Infrastructure

The terminal infrastructure provided by airport terminal operators is fundamental to the level of service experienced by the passenger and significant in the measure of success that border agencies can achieve in meeting agreed processing standards and objectives. The number of processing points, queue zone areas, signage, straight-line passenger flows, baggage delivery and flexibility of the terminal to adapt to new technologies, airline requirements, airline and border agencies' initiatives are all significant elements of achieving cost effective passenger processing. The general and specific requirements are as follows.

8.5. General Requirements

- Base fit out for operations and operational support areas, ready for border agencies to occupy.
- Public toilet facilities, drinking fountains and seating in sterile processing areas.
- Data and communications, electrical, mechanical, hydraulic and fire services to support the specific requirements of border agencies' operations and administration.

8.6. Specific Requirements

Passenger Clearance

- To support border integrity and control measures, arriving and departing international and domestic passengers and their baggage are to be separated. Domestic passengers travelling on international flights through international terminals will not require separation from international passengers and their baggage.
- To support bio-security and quarantine measures, no live plants are to be placed between the aircraft and landside arrival including international transit areas.
- Multi-use or combined terminals:
  - areas that are primarily dedicated to domestic passenger flows must be able to be cleared and secured for Customs & Border Protection purposes prior to the establishment of international processing. The clearance process includes toilet facilities, retail outlets, interview rooms and any areas that might be accessible to international passengers; and
  - before the area is returned to domestic passenger use, all waste is required to be collected, transported and treated as quarantine waste by the airport operator in accordance with AQIS requirements.
  - • International passenger flows:
  - uncleared international arriving passengers are to be separated from international departing passengers; and
  - transit passengers are to be separated from arrivals prior to the Entry Control Point and directed to the departure lounge area via a security check.

- Clear lines of sight are required for all passenger processing areas, including baggage reclaim halls, to allow passengers to identify relevant processing streams and directional signage, and for border agencies to maintain observation and surveillance of passengers (including CCTV) for border protection and clearance purposes.
- Areas established under and in accordance with the *Customs Act 1901* (section 234AA) are required for use by Customs & Border Protection for questioning or searching passengers disembarking from or embarking on an aircraft, or their personal baggage; and as a holding point for such passengers.

8.7. Outcome of Specific Consultation

The outcome of consultations with government agencies is summarised in the flowing table:

Border agencies		Interaction with local representatives held during Airbiz visit on 09 Nov 2010.
	Mr Sanjay Boothalingam	Requirements document reference provided by AQIS - joint agency publication ***International Airport Operator's Guide - Version 1.2.1***
Dept of Transport WA	Ms Carole Theobald Mr Michael Kennedy	Confirmation of RADS funding in years 2010/11 and 11/12 for PHE projects including terminal upgrade

9 Other Service Providers

9.1. Retail

Retail requirements for the proposed terminal expansion were reviewed in the Commercial and Retail Demand Study undertaken by Airbiz and issued as a draft report on 24 November 2010. The draft report recommends retail area requirements for staged terminal development passenger throughput levels.

In terms of stakeholder consultation, input was provided by existing and potential future service providers and is reflected in the table below.

9.2. Car Rental operators

Six car rental service providers (including four existing and two prospective) were asked for input.

The only formal respondent was Europcar which identified industry requirements typical at airports:

- Desk access within terminal
- Ready bays with good proximity to terminal
- Additional storage with contingency space for seasonal requirements
- Wash and service facilities available nearby

McLaren indicated an interest in establishing rental car services at Port Hedland airport.

9.3. Aviation Support

Aviation Support service providers typically provide services to airlines such as:

- Ground Handling services
- Security services
- Aviation Fuel services
- Catering services

At this concept design stage, the direction provided by airlines in terms of future service requirements will dictate how these service providers respond and what their facility requirements might be.

Engagement with aviation support service providers should therefore follow the endorsement by airlines of preliminary concept design options.

9.4. Outcome of Specific Consultations

The outcome of consultations with the other service providers is summarised in the flowing table:

Rental Car		Interaction with local representatives held during Airbiz visit on 09/10 Nov 2010. Request for feedback issued to 6 companies. Response received from Europcar.
Europcar 	Eoin MacNeill	Port Hedland represents challenges for car rental companies as investing in facilities to process vehicles is difficult due to the recourse boom bust cycles. We are looking to expand into the region in the future Biggest issue is parking bays that can accommodate the fly in fly out market and wash facilities Desks spaces in terminal Staff access does not seem to be a big issue We are interested in the flow of operations and passenger movements within and without terminals Most positive steps appear to be in consulting the industry and involvement in planning and design of facilities desks, parking and back up facilities Not sure what you mean by fallback Parking is a big issue - our needs are peculiar in that the customer wants to be closest for pick up and return (given luggage etc this is understandable) however our customers tend to all come in at similar times and depart at similar times putting capacity strains on available spaces and proximity We also have the seasonal and shift patterns of our customers that lead to the need for overflow parking for short periods such as over holiday periods
Fuel Companies	Ms Julie Ingram - AirBP	Current operations do not present any significant fuel supply issues. Interested to participate subsequent to airlines input
Esplanade Hotel 	Mr Doug Gould Ms Shelley Wood	• Took over existing café operations 1 Jan 2010 • Experiencing issues with peak times. Penetration rate lower due to crowding of outlet • Flow an issue with creation of bottleneck at that end of the terminal • Sees opportunity in trying other styles of foods • Supported increased retail in terminal (particularly duty free) and a separate news/gift • Currently supplies airlines with in-flight food • When brands were mentioned didn't react strongly to this opportunity • raised issue of access for deliveries and waste into/out of existing facility • current rental agreement is a flat fee

Duty Free proponent	Ms Glenys Pyke	• Initial review has indicated that Glenys still has more investigation to make re business case for operating a duty free outlet within terminal. She needs to consider: o capital investment o return on investment o desired floor space (for outlet plus bond store) o expected revenues and margins o supply chain o legislative requirements to operate a duty free outlet o expected rents • stated that she would be happy to run a temporary site (not necessarily duty free) to determine what pax were after in range of duty free products (her initial thoughts were cigarettes and alcohol only) • Would be interested in establishing a Lotto agency within terminal. Similar to above all considerations still need investigating
Westpac	Susan Heyder	• The existing ATM installation arrangement is about 1 year into a 3 year term; extensions would be considered and subject to negotiations with ToPH • The installed ATM is running at about 3,000 transactions per month; this is well below the 10,000 transactions per month which would normally be considered the point at which some facility augmentation would be required • Westpac unlikely to consider Foreign Exchange kiosk but could consider self-serve foreign exchange through an enhanced ATM • Westpac would be interested to be further consulted during design development of the terminal expansion.

9.5. Statement of Requirements – Planning Parameters

After receiving input from a range of key stakeholders including airlines, Airbiz in consultation with Airport Management prepared a table of planning parameters for input to the concept design process. These parameters are intended to inform the spatial requirements for the assessed busy hour demand for staged development of the Port Hedland airport terminal.

Functional	Parameter	Allowance	SOURCE (ToPH confirmed or Airbiz assumed)
Passengers	Departing busy hour passengers	As per demand	
	Arriving busy hour passengers	As per demand	
	Busy hour load factor	80%	Confirmed by ToPH
	Passenger to friend ratio (departing)	1 : 0.3	Confirmed by ToPH
	Passenger to friend ratio (arriving)	1 : 0.3	Confirmed by ToPH
	Percentage of priority passengers	10%	Confirmed by ToPH
	Percentage of economy passengers	90%	Confirmed by ToPH
	Groups	0%0%	Confirmed by ToPH
Check-In & Baggage Make-up	Average priority passenger processing time	1.5 min/pax	Confirmed by ToPH
	Average economy passenger processing time	1.5 min/pax	Confirmed by ToPH
	Max. acceptable delay for priority passengers	5 mins	Confirmed by ToPH
	Max. acceptable delay for economy passengers	15 mins	Confirmed by ToPH
	Percentage of passengers with checked bags	80%	Confirmed by ToPH
	No. of checked bags per passenger with checked bags	1.2 bags/pax	Confirmed by ToPH
	No. of separations (barrows/containers) per flight	2 or 3	Baggage Consultant to confirm
Outbound Immigration (OCP)	Average passenger processing time	30 secs	Confirmed by ToPH
	Max. acceptable delay	15 mins	Confirmed by ToPH
Security	Passenger processing rate	300 pax/hr	Airbiz assumed
	Items per passenger	1.5 items	Confirmed by ToPH
	Items per friend	1 item	Confirmed by ToPH
Common Departure Lounge	Departing passenger & friends dwell time	45 mins	Confirmed by ToPH
	Arriving passengers' friends dwell time	30 mins	Confirmed by ToPH
	Percentage of passengers in common departure lounge	50%	Confirmed by ToPH
	Percentage of passengers in airline lounge	20% average 40% test	Confirmed by ToPH
	Percentage of passengers in concessions	30%	Confirmed by ToPH
	Percentage of friends airside of security	50%	Confirmed by ToPH
	Percentage of friends airside of security in common departure lounge	70%	Confirmed by ToPH
	Percentage of passengers in concessions	30%	Confirmed by ToPH
	Percentage of arriving passenger's friends in common departure lounge	20%	Confirmed by ToPH
	Proportion of passengers seated	80%	Confirmed by ToPH

Functional	Parameter	Allowance	SOURCE (ToPH confirmed or Airbiz assumed)
Common Departure Lounge	Proportion of passengers standing	20%	Confirmed by ToPH
	Area per seated passenger	1.7 m²	Confirmed by ToPH
	Area per standing passenger	1.2 m²	Confirmed by ToPH
	Retail Areas	As recommended	See Commercial and Retail Demand Paper
Airline Lounge	Area per passenger / friend	4.0 m²	Confirmed by ToPH
Inbound Immigration (ECP)	Average passenger processing time	45 secs	Confirmed by ToPH
	Max. acceptable delay	20 mins	Confirmed by ToPH
Secondary Examination	Percentage of passengers checked	100%	Confirmed by ToPH
	Percentage of passengers fully checked	50%	Confirmed by ToPH
	Average ACS search time	10 mins	Confirmed by ToPH
	Average AQIS search time	5 mins	Confirmed by ToPH
	X-Ray processing time	300 bags/hr	Confirmed by ToPH
Baggage Claim & Arrivals Hall	Claim utilisation per NB aircraft	25 mins	Confirmed by ToPH
	Claim utilisation per WB aircraft	40 mins	Confirmed by ToPH
	No. of barrows/containers per flight	3	Confirmed by ToPH
	Effective presentation length (NB)	35m	Confirmed by ToPH
	Effective presentation length (WB)	45m	Confirmed by ToPH
	Percentage of passengers with checked bags	80%	Confirmed by ToPH
	Checked bags per passenger	1.3 bags/pax	Confirmed by ToPH
	Time for first / last passenger bag (NB)	5 / 20 mins	Confirmed by ToPH
	Time for first / last passenger bag (WB)	10 / 35 mins	Confirmed by ToPH
	Passenger dwell time	10 mins	Confirmed by ToPH
	Friends dwell time	30 mins	Confirmed by ToPH
	Percentage of passengers in hall at one time	80%	Confirmed by ToPH
	Percentage of friends in hall at one time	80%	Confirmed by ToPH

Appendix II – Land Use Master Plan

Land Use Master Plan

The following report, Port Hedland International Airport Master Plan' prepared by Whelans Town Planning and Parsons Brinckerhoff July 2011 has been used to develop this Master Plan. Extracts are provided in this Appendix.

TOWN OF PORT HEDLAND

PORT HEDLAND INTERNATIONAL AIRPORT MASTER PLAN

PREPARED BY:

whelans TOWN PLANNING

AND

PB PARSONS BRINCKERHOFF 125 YEARS

REVISION 3.2
JANUARY 2011

PARSONS BRINCKERHOFF 125 YEARS

whelans TOWN PLANNING

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1. EXECUTIVE SUMMARY

The Port Hedland International Airport [PHIA] is located between the settlements of Port Hedland, and South Hedland, on over 900 hectares of land that is predominantly owned by the Town of Port Hedland [ToPH].

The airport is an integral part of the community and the economy of Port Hedland, and is a critical component of the resource industry of the Pilbara region, providing for Regular Passenger Transport [RPT] and General Aviation [GA] air services to service the community and industry. The airport accommodates more than 250,000 passengers and 20,000 flights annually.

The airport has 2 Runways, one at 2500 metres [direction 14/32], used primarily for RPT, and one at 1000 metres [direction 18/36], used primarily for GA.

Increased development pressure within the township in recent years, due to a number of factors, has provided the impetus to develop airport land, which is largely vacant with the exception of airport infrastructure and related commercial use around the terminal. The requirement for preparation of the Master Plan was therefore determined to ensure that development of any land within the airport occurs on a planned, orderly and rational basis.

Whelans and Parsons Brinckerhoff have prepared this report on behalf of the Town of Port Hedland [the Town].

The purpose of the Master Plan is to guide the subdivision and development of land owned by the Town over time, whilst providing security to Airport related land uses. A fundamental aspect of this report and the Master Plans is the protection of operational aspects of the airport.

The Master Plan is divided into logical Precincts that are defined by both geography and preferred land use. There are four land use precincts, which have been identified as having subdivision and land use potential, and a fifth 'airport' precinct, which contains existing airport land uses and allows for expansion of operational land uses [no Master Plan has been prepared for this last precinct].

A number of issues have been identified, including buffers required to air navigation infrastructure and aircraft operational requirements; land assembly requirements; critical infrastructure constraints, especially water and road transport, as well as potential land use conflicts.

The Master Plan identifies that there is, indeed, significant development potential, and that the development issues, while guiding development in each precinct in specific directions, should not prohibit development. The report identifies that it is, however, important to develop any land in an integrated manner, and not in isolation to other subdivision and land development projects occurring in Port Hedland, and that careful use of land use planning controls will be required.

It will be important to develop a range of land use planning and land tenure controls to ensure that development of land within each precinct does not detrimentally impact the long term future of the airport.

The Draft Master Plan was advertised in October and November 2010. Advertising consisted of consultation with specific agencies and stakeholders, as well broad public notice advertising to the general public. Few submissions were received, and only minor amendments to the report and plans were required as a result of the advertising process.

The Master Plans for Precincts 1 & 2 build on existing airport related land uses and development within these precincts, and attempt to resolve existing land use and development conflicts [especially Precinct 1].

Precinct 3, despite having some building height constraints, has been identified as having significant development potential, and is a logical extension of Industrial land uses that are expanding on the western side of Great Northern Highway and Wallwork Road, in the vicinity of the Wedgefield Industrial Area. The land within Precinct 3 has potential to create over 250 Industrial lots, ranging from 2000 square metres to over 20 hectares.

The Master Plan has determined that Precinct 4 has significant constraints, and has the least development potential. Notwithstanding this, there is significant land area in this precinct, and it does have some development potential.

Overall, it is considered that the Port Hedland International Airport requires some rationalisation of land uses, and has significant development potential, and this Master Plan will form an important guide in future development of the airport.

6. PORT HEDLAND INTERNATIONAL AIRPORT MASTER PLAN

This report and the accompanying plans form the Port Hedland International Airport Master Plan. Specific precinct plans have been prepared for each precinct, and this report should be read in conjunction with these plans, and vice versa.

6.1 PRECINCTS

As previously discussed, the PHIA Master Plan is divided into Precincts to guide development according to geographic and land use considerations. Each precinct has distinct objectives with specific strategies according to the location and existing and preferred land tenure and land use. Each precinct should provide for a variety of land uses according to the Master Plan for that specific precinct. However, it is recommended that no commercial or retail land uses not directly related to airport associated uses should be permitted in any of the precincts.

Descriptions of each precinct are detailed below. Proposed zoning for each of the precincts is outlined in Section 7.1.

6.1.1 PRECINCT 1 - TERMINAL PRECINCT

Precinct 1 is the most developed component of the Airport and includes a variety of existing land uses. Most are directly or incidentally related to the function of the runway and terminal uses, and includes car hire, terminal services, Royal Flying Doctor Service and Bureau of Meteorology, as well as freight and General Aviation.

This precinct is currently considered to be cluttered and ad hoc, and does not function optimally. There are a number of land use and activity conflicts within this precinct:

- ➔ Freight, GA and RPT activities are located in close proximity, and need to be separated;
- ➔ There is insufficient car parking for vehicle hire and public car parking; and
- ➔ Outdated facilities such as the Terminal and car parking areas need to be expanded and upgraded.

Additionally, as the airport continues to grow, there will be increased demand for growth in freight and logistics, tourism and vehicle hire. To resolve these conflicts and provide for growth, the purpose of the Master Plan for Precinct 1 is therefore threefold:

- ➔ Resolve existing land use conflicts by rationalising land uses, especially in close proximity to the Terminal and Aprons;
- ➔ Indentify new locations for some existing uses; and
- ➔ Provide for the expansion of land uses as required.

To achieve these objectives the following recommendations are made regarding land use and development:

- ➔ Relocate land uses conflicting with RPT activities and terminal expansion
- ➔ Implement a freight and logistics precinct to accommodate rationalisation and expansion of these uses.
- ➔ Create lots for car hire company operations within close proximity to parking areas and the Terminal
- ➔ Expand public car parking areas
- ➔ Rationalise access and traffic flow
- ➔ Extend the northern and southern GA aprons and accommodate expansion of GA away from RPT activities
- ➔ Create 'cut off' drains to divert stormwater away from the precinct
- ➔ Extend drainage lines and install attenuation basins to adequately manage stormwater
- ➔ Implement landscaping and entry statements to the primary access point from GNH

Significant upgrades to car parking and terminal facilities are proposed. In the longer term, the land identified as 'short term' parking on the Master Plan can be developed with a multi story car park providing elevated access to proposed new terminal facilities. A hotel/motel could then be developed on the land identified as 'medium and long term' parking, as proposed by the Town. Accordingly, these parking areas are shown as separate lots to be created to accommodate successional land use.

Significant modifications to existing drainage network are also proposed to better deal with stormwater drainage in this precinct.

6.1.1.1 LAND USES

The Master Plan for Precinct 1 has been developed to further categorise land uses into distinct groupings within the precinct. These can be categorised as Airport Operations [such as terminal, maintenance and emergency services], Freight and Logistics, and Airport Commercial [such as GA, RFDS, Vehicle Hire and Tourism].

Accordingly, the Master Plan allocates land such that uses directly related to Terminal activities, such as parking, storage and workshops are all located within close proximity to the terminal, and uses that conflict with terminal activities, such as logistics and freight,

are located within a specific precinct for this purpose. Similarly, commercial airport uses such as vehicle hire and GA and charter services are located within specific precincts. The Master Plan creates 39 new lots to accommodate these land uses, with an additional two lots subject to existing lease area modification. The following land use categories are identified within this precinct:

Table 22: Proposed Land Use Categories & Yields

CATEGORY	PROPOSED LAND USES	No LOTS
Airport Operations	Terminal Services, Car Parking, Aircraft fuel supply	NA
Freight / Logistics	Air Freight & Logistics	18
Airport Commercial	Vehicle Hire Compounds, Charter, General Aviation, Tourism	21 (+2)

A number of the Airport Commercial lots are created on the northern side of the BOM site. The use of these lots is dependent on access to the GNH, and their development potential may be impacted on by this requirement. A service or slip road may be required to provide access to these sites. Additionally, it is suggested that the BOM lease could be modified to create additional lots, to both the north and south of this lease area. Lots 1-10, which are adjacent to the runway, are proposed with access to extended northern Aprons to allow for GA uses.

The Freight and Logistics category area is proposed to the east and south of the terminal. This area provides land in close proximity to the apron and runways, whilst having separate vehicular access from the GNH to passenger terminal area. This land will also provide sites to enable resolution of some land use and built form conflicts which currently exist.

There are currently a number of buildings that are located within close proximity to the terminal that conflict with the terminal RPT use, such as the existing freight shed adjacent to the terminal building and Golden Eagle Aviation. It is proposed to relocate these uses over the medium to long term to the Freight and Logistics categorised land, to remove this conflict. While no specific lot allocation is proposed under this Master Plan, there are sufficient lots created that will be capable of accommodating these land uses. Extensions to the northern and southern GA aprons will facilitate relocation of conflicting uses.

A variety of existing land uses within this precinct are not directly related to these above prescribed use categories. The Royal Flying Doctor Service, Bureau of Meteorology [BOM] and ASA all have infrastructure and buildings located within this precinct. While the BOM and RFDS leases should be maintained, the ASA building is currently vacant, and any future need for office or storage floorspace could be provided for in an alternative location.

The Air BP lease is proposed to be retained with a modified lease area to allow for a proposed road extension and realignment, as well as improved heavy vehicle traffic movement through the site, provided by a battleaxe leg.

The Port Hedland Riders Club lease, which does not have access internal to this precinct, should also be maintained. However, revised access is proposed to reduce crossovers to the GNH.

The Council Works Depot, situated adjacent to the Riders Club is proposed to be relocated to allow for coherent land use within the Freight and Logistics category area. However, should the Town wish to retain this use in its current location, Lots 37 and 38 could be used for this purpose on a long term or successional basis.

Existing staff housing has been retained in its current location, with additional land set aside for any future need for more on-site housing. This land has been included within the 'Airport Operations Use' land.

Land uses areas that are identified as being in conflict with Terminal RPT uses should be encouraged to relocate, and accordingly leases for these sites should not be renewed.

It is unlikely that the number of lots allocated to Freight and Logistics or Airport Commercial land uses will sustain the demand for such land supply within the medium term. Therefore the Master Plan is intended to identify strategic long term land supply for these land uses, subject to evolving demand and supply factors. It is anticipated that the Master Plan identifies land supply in the order of 10 - 15 years for Airport Commercial and Freight/Logistics land uses.

It is critical that land uses not consistent with or directly related to Airport activities are prohibited from this Precinct. This is addressed further in Section 7.1.

6.1.1.2 LOT LAYOUT

The design of Precinct 1 is predicated on the existing access roads and land uses. A number of lots are proposed to be created under the Master Plan for Precinct 1. The table below shows the break up of lots that are proposed to be created:

Table 23: Proposed Lot Categories, Yields & Areas

CATEGORY	No LOTS	LOT RANGE	AVERAGE SIZE
Airport Operations	NA	NA	NA
Freight Logistics	18	2,270 – 11,000m^2	3,200m^2
Airport Commercial	21	1,522-5955m^2	3,700m^2

Lots are proposed to be located along extended northern and southern GA Aprons. This will provide for expanded logistics, freight and charter GA services. Additionally, lots are proposed to be created for vehicle hire companies. These are located within close proximity to the public car parking and terminal facilities.

Once these lots are created, they can be sold. Freehold land ownership in this precinct is not considered to be detrimental to the future of airport operations, and will be an important method of raising capital for upgrades to terminal and parking facilities.

Along with lots for Airport Commercial, Freight and Logistics lots, it is recommended that lots are created for specific airport related land uses:

- ➔ Short and Medium and Long Term Car Parking
- ➔ ToPH Airport Housing
- ➔ Operations and maintenance

6.1.1.3 TRANSPORT AND ACCESS

Public access to Precinct 1 is currently off Great Northern Highway. A secondary access point with no public access is located to the south of the public access point. No additional access points are proposed within close proximity to this precinct. The only exception is access to proposed Lots 1 & 2 which will depend on land use and demand.

It is recommended that the public access to this precinct be landscaped and better delineated to provide a landmark gateway to the airport terminal.

The secondary access point is currently restricted, and is used for airport operations and refuelling of aviation fuel facilities. It is proposed to relocate this access to provide improved vehicle movement to the expanded freight and logistics precinct. This will provide increased separation to other access points on the highway. General public access should not be provided through this new entrance. The existing access to the 'Riders Club' lease area can be provided from this new access, allowing for the closure of the existing access and crossover to the highway.

As part of the redesigned layout of lease areas and road access, the emergency access points to the aprons and runway have been relocated. These remove restrictions on the extension of the RPS terminal and RFDS lease, whilst providing efficient emergency vehicle access and movement.

6.1.1.4 DRAINAGE

The drainage system proposed in Precinct 1 follows the recommendations provided in Section 5.1.2 of this report. The existing drainage has been relocated in order to integrate with the proposed roads and realignments of existing roads. The length of the drainage course has been significantly lengthened to enable increased capacity to better attenuate heavy rainfall and flooding scenarios. Two detention/infiltration basins have also been proposed to further increase capacity.

To the south of the Freight and Logistics lots, it is proposed to construct an earth bund to redirect drainage off the runway away from the main apron, and into the drainage system within the road reserve. A drainage swale also runs along the extended apron north of the terminal, directing run-off north towards Precinct 4.

6.1.2 PRECINCT 2 - EASTERN PRECINCT

Precinct 2 has been predominantly developed with two Transient Workforce Accommodation developments; Auzcorp's Mia Mia site, and the 2000+ person Port Haven site. ASA's navigation and communications infrastructure is also located within this precinct, consisting of the NDB and a High Frequency Radio Antenna Array as discussed in Section 3.4. The State Emergency Service depot is also located within the precinct, to the south-east of the Mia Mia encampment.

Development within this precinct must recognise existing land uses to ensure that conflicts are minimised. Additionally, it is recommended that long term use of the land is embargoed to ensure that any long term requirement for the use of this land for airport related uses can be pursued. Accordingly it is recommended that this land, even if subdivided, should be leased, and not sold to developers. This will ensure that the land is protected for the long term.

6.1.2.1 LAND USES

Only land uses compatible with existing Precinct 2 land uses and that will not impact on the NDB or Antenna Array should be considered for this Precinct. Land uses considered compatible with these uses are:

- ➔ Transient Workers Accommodation
- ➔ Transport Development [consistent TDZ draft Scheme provisions]
- ➔ Hotel/Motel

This precinct provides for subdivision into multiple lots, or development of a single lot, depending on proposed land use and requisite lot sizes. If smaller lots are required, a range of lot areas can be provided, while if a large TWA similar to the Port Haven TWA is required, a single lease could be pursued. This is demonstrated on the precinct plan.

Again, it is critical that land uses not consistent with or directly related to Airport activities are prohibited from this Precinct. This is addressed further in Section 7.1.

6.1.2.2 LOT LAYOUT

The layout of lots within Precinct 2 will be dependent on the type/s of land uses that are located on the land, determined by land use controls as well as demand side factors. Two options are proposed, one providing 11 new lots, 2 of which require relocation of existing evaporation ponds serving the Mia Mia TWA. The alternative proposes a single lot for a large scale use, such as a TWA encampment.

Table 24: Proposed Lot, Areas & Yields:

Option	LOT SIZE RANGE	No LOTS
1	1ha - 2ha	6
	2-5ha	4
	5ha +	1
2	30 ha	1

Modification of the Port Haven TWA lease area has been proposed, to rationalise the boundary alignments and include the treated wastewater disposal site within the designated lease area.

An easement has also been proposed between Lots 7 and 8 to protect water pipeline infrastructure.

6.1.2.3 TRANSPORT AND ACCESS

Access to developable portions of Precinct 2 can be provided off GNH. If subdivided into multiple lots, access can be provided via a loop road system that would theoretically provide access for trucks and potentially road trains.

Given that there are multiple access points along this stretch of the GNH, access to the Mia Mia TWA and SES depot can be rationalised to reduce the number of access points on to the GNH. Alternatively, should this precinct be utilised by a single owner, a single common access could be developed that would also provide access to the SES and Mia Mia sites.

The access arrangement to and from the ASA infrastructure to the runway, has been modified to reflect the proposed lot boundaries.

Landscaping has also been proposed along GNH to provide a visual buffer as well as a potential entry statement to the additional land uses.

6.1.3 PRECINCT 3 - SOUTH WESTERN PRECINCT

Precinct 3, while constrained by height limits from DVOR and DME infrastructure [see Section 3.4], has significant potential for subdivision and development. This precinct can yield over 250 lots, ranging in size from 2000m^2 to over 20ha. Restrictions to land uses will be required to ensure that the operating parameters of the DVOE and DME are not detrimentally affected. This is discussed further in Section 7.

Subdivision of this precinct will require access from GNH. Limited points are available to access the ToPH land due to UCL lot 253 and the cemetery site consuming the majority of the frontage to GNH. As a result only one location for access is available, situated on the northern side of the ToPH cemetery.

The subdivision of Precinct 3 is a logical expansion of the Wedgefield Industrial Area and the TDZ currently being planned for by LandCorp. Additionally, the presence of the runways and railway lines further limit the potential for this land to be developed for anything other than Industrial purposes.

The existing ToPH Incinerator and ASA Fire Training Module currently located within this precinct will be required to be relocated. These pieces of infrastructure are not considered to be significant, and alternative locations should be able to be readily identified. Given that Precinct 4 is constrained by access and hydrology issues, these may be able to be relocated to this precinct, although other suitable locations should be able to be readily determined.

6.1.3.1 LAND USES

As discussed above, logical use and development of this land is to extend and integrate industrial and transport uses, both existing within the adjacent Wedgefield Industrial Area as well as proposed as part of LandCorp's TDZ [providing specifically for transport laydown, vehicle break down and storage areas]. The expansion of industrial uses into this land was also identified within the LUMP.

The substantial available developable land area of Precinct 3 presents the potential to provide for a considerable range of lot sizes that cannot be provided in other areas of the township capable of being developed for Industrial land use purposes. Significantly, it can provide for larger lots in the range of 10 to 20 hectares should market demand require.

However, land uses within this precinct, specifically those with the ToPH land, will be constrained by heights restrictions, as identified Section 3.4. Detailed analysis in this regard should be undertaken by, or in conjunction with, CASA and ASA, to ensure the necessary land use controls are implemented – discussed further in Section 7.

6.1.3.2 LOT LAYOUT

Lot sizes within this precinct range from 2000 square metres to over 20 hectares or 200,000 square metres. This represents a significant lot variance capability. The following table demonstrates the projected lot yield, divided into land owned by the ToPH and UCL.

Table 25: Lot Ownership, Areas & Yields

LOCATION	LOT SIZE RANGE	No LOTS
ToPH Land	2000 sq m - 5000 sq m	13
	5000 sq m - 1 ha	13
	1ha - 2ha	23
	2 ha - 4 ha	11
	4 ha - 8ha	9
	8 ha +	8
UCL	2000 sq m - 5000 sq m	94
	5000 sq m - 1 ha	21
	1ha - 2ha	3
	2 ha - 4 ha	3
	4 ha - 8ha	2
	8 ha +	0

Lots have been designed to be evenly shaped and sized to accommodate Industrial land uses. Larger lots are generally located further into the subdivisional area, as these are likely to be less reliant on public access. Lots located within the UCL component of the precinct are generally smaller, and represent an extension of the proposed industrial land on the opposite side of Wallwork Road. Lots along the major arterial roads have also been proposed with smaller areas for commercial purposes, as have lots with exposure along GNH.

Lots affected by the water pipeline and fibre optic cable easements will require additional land area to compensate prospective purchasers for this burden, and allow an appropriate land area for development.

A parcel of land of approximately 50 hectares in area has also been identified in the Land Assembly Plan for Precinct 3, for potential development of a Department of Defence base, as per the ToPH's

request. Should this base proceed, this will not impact upon the traffic movement or drainage for the rest of the Precinct. The Land Assembly Plan also identifies the strip of land closest to the runway as a potential buffer to any future second runway, should the need be confirmed.

6.1.3.3 TRANSPORT AND ACCESS

The proposed road network within this precinct provides for a permeable circular traffic movement, designed for industrial traffic. This allows for road trains to easily traverse the road system. Two main entry points are proposed into the precinct. The northern access on the northern side of the cemetery provides road train access to and from the subdivision. Larger lots are all accessible from the northern access point off Great Northern Highway to ensure road train access to these larger sized lots. A roundabout is proposed to provide access into the subdivisional area off Wallwork Road. No road train access will be permitted off this roundabout access.

A road interface with the UCL is provided to account for the untimely acquisition of the UCL.. If this acquisition does not occur within a satisfactory timeframe the two components can be integrated when subdivision of the UCL takes place.

The road network also accommodates a corridor for the existing 300 mm water main traversing this precinct. The road reserve within which this main lies is 50 metres in width to accommodate this infrastructure together with the road carriageway and a swale drain to provide for stormwater drainage. Several roads within this precinct are proposed to be 40 metres wide to accommodate the road carriageway and a swale drain, while roads where drainage will only occur within the carriageway are proposed to be 30 metres in width to provide for industrial traffic and road trains.

A critical issue for access and transport in this precinct will be the acquisition of the UCL at the western side of the site, as this UCL provides for access to Wallwork Road. Without the access point provided by the UCL, a single entry point on the northern side of the cemetery would provide the only access point to the Precinct. While this access will be sufficient, it provides less road frontage and visibility to land uses within the proposed subdivisional area.

Also of consideration to future access and traffic considerations are the Main Roads projects discussed in Section 5.3.4, which are currently in the preliminary design stage. The impacts of these projects on the proposed access and traffic flows will need to be examined in detail once they are further progressed.

6.1.4 PRECINCT 4 - NORTH WESTERN PRECINCT

The North Western Precinct is located at the junction of Great Northern Highway and Port Hedland Road. This precinct is bounded by the GNH, which effectively 'wraps' around the precinct, and both runways. This land has some clear physical characteristics [discussed in detail in Section 3.5] that result in the land likely being subject to inundation. Combined with buffers and access issues due to its locational constraints, this Precinct is the most prohibited for development potential.

6.1.4.1 LAND USES

Given the location of the site, hydrological and access issues, this Precinct is only suitable to be used for 'passive' uses over active land uses such as industrial or commercial development. Hydrological and operational issues are unlikely to be able to be overcome.

Passive uses constitute land uses that generate little traffic or access requirements, and don't require significant development other than earthworks. Land uses such as plant or turf farm, solar farm, wind farm or long term storage would suit this precinct. Public utilities such as a waste water recycling plant could also be considered.

Uses such as plant or turf farms and solar farms, however, generate potential conflicts with aircraft, such as attracting birds in the case of plant farms or reflections and glare in the case of a solar farm. These uses will require careful consideration prior to implementation. It is noted that solar farms have been developed on airport land in other locations, such as Alice Springs airport, and may be suitable, subject to design considerations to ensure glare does not affect aircraft.

A wind farm would need to comply with OLS requirements, however, it is considered that a wind farm can be accommodated, and would be an excellent use of the land.

Storage, such as the Transport Development Zone proposed on the other side of the Highway, would be suitable, however, may not be

aesthetically acceptable, and access may be problematic. Notwithstanding aesthetics, this use would be compatible with proposed adjoining land uses, and if access and aesthetics can be resolved, part of the land that is not subject to inundation could be utilised.

Another use that may be permitted in this precinct is a 'Fly In Estate'. An estate of this type provides a taxiway from a runway to an area of land that can be developed with aircraft hangers and a dwelling, either separate or on top of the hanger, and allows for residents to park aircraft within the estate. Given the high costs involved [taxiways and apron costs would have to be absorbed onto the estate costs] demand for this type of development is not likely to be high, however, this type of development is a recent innovation.

Given the constraints on Precinct 4, this use may be suitable, as it is unlikely to generate significant traffic, and can utilise proximity to the secondary runway.

Any land uses proposed for this precinct will require careful consideration, as well as development provisions to accommodate minimum floor levels to ensure it is not subject to inundation, as this precinct is identified as potentially subject to inundation as discussed above.

6.1.4.2 LOT LAYOUT

Due to proximity to the Port Hedland Road, access restrictions are likely to result in a single or limited entry points into this precinct from Great Northern Highway, and will limit access to any subdivision or development of the site. Lot sizes and lot layout will be dependent on the ultimate use of the land, and have not been shown for this reason. No lot yield is able to be projected for this Precinct, given that no intensive land uses are likely.

Figure 7: Port Hedland International Airport Master Plan

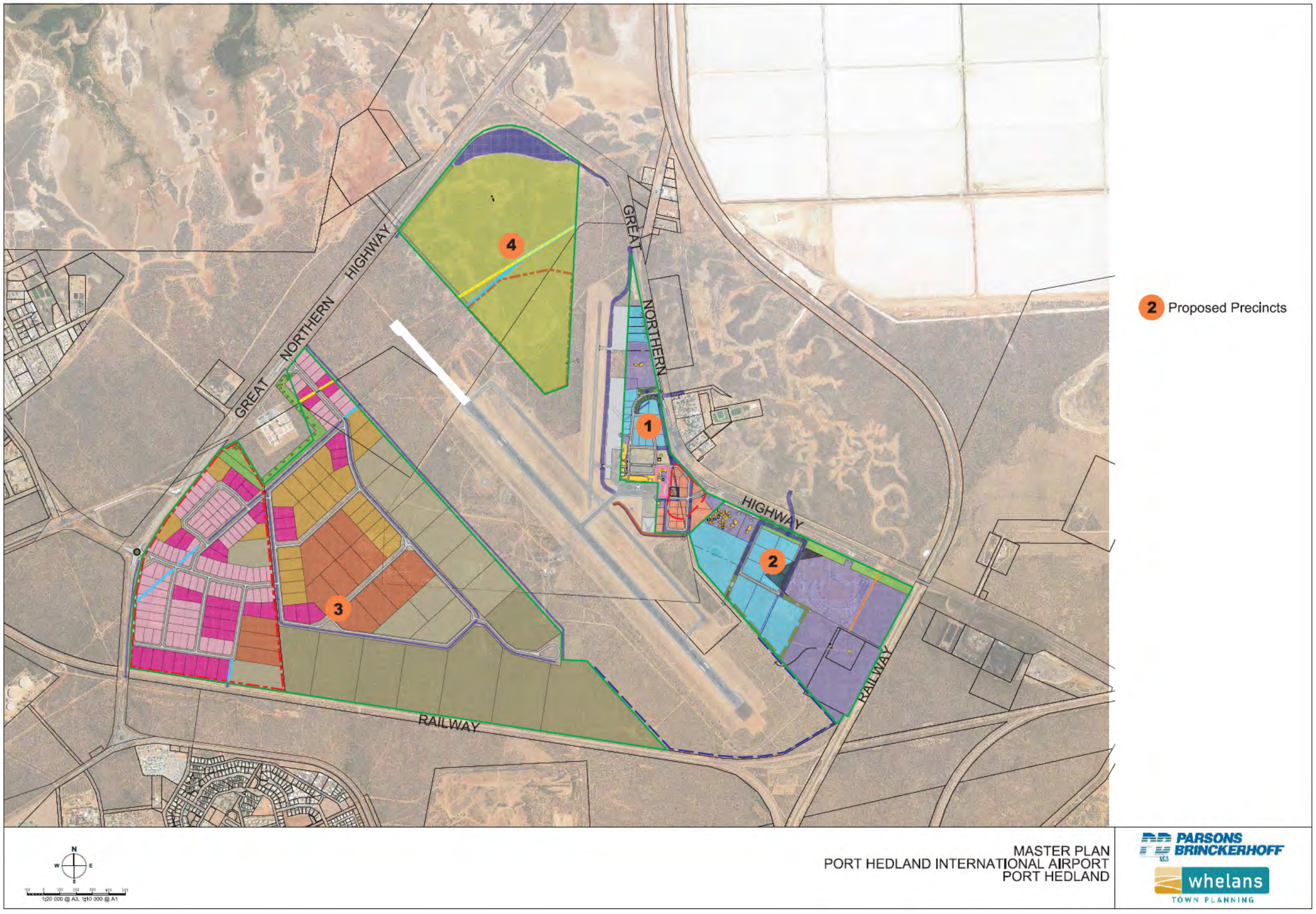
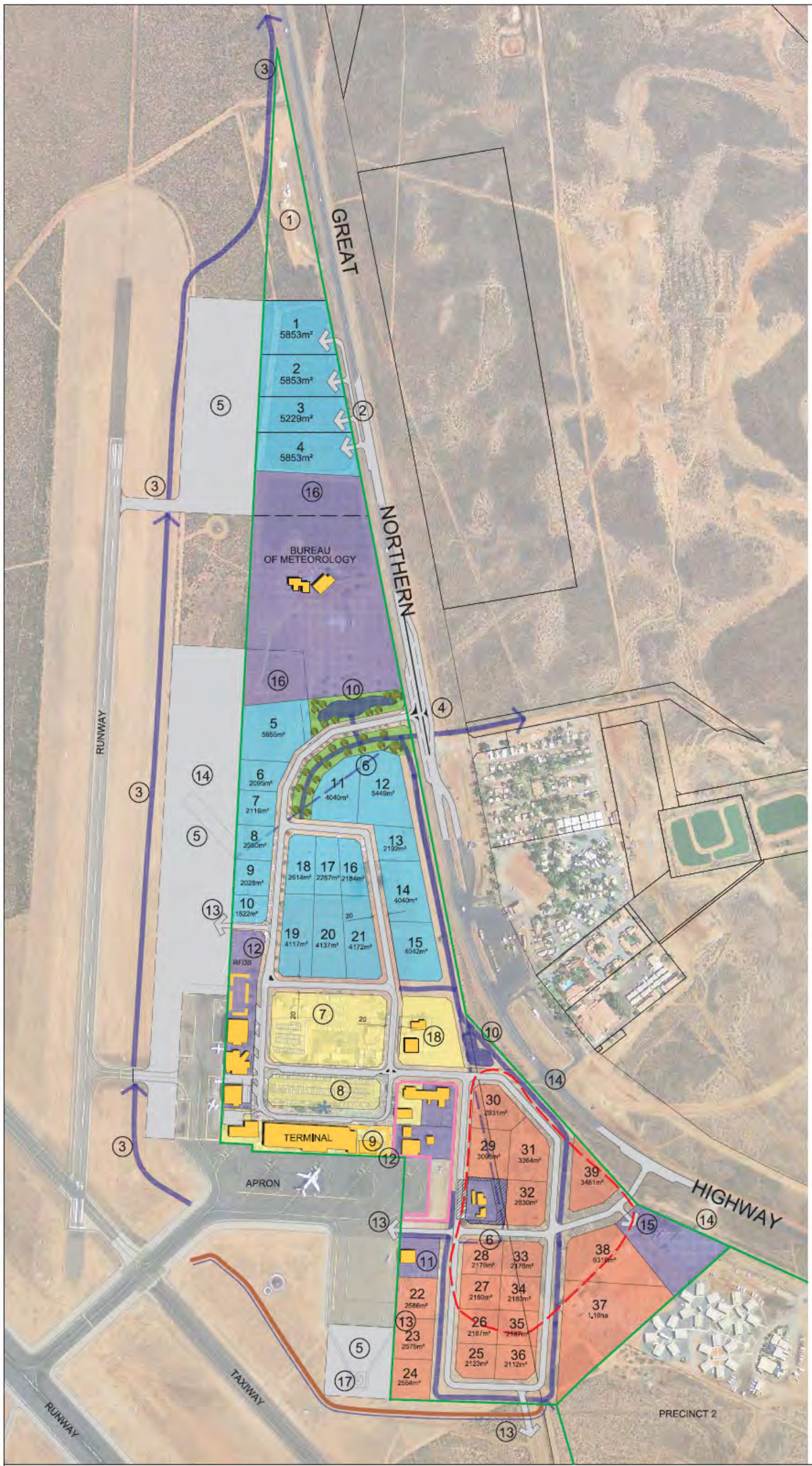


Figure 8. Master Plan - Precinct 1 Master Plan



NOTES

1. Existing information bay
2. Preferred access to proposed lots with single crossover
3. Cut off drain to divert drainage from aprons and runways
4. Access to be upgraded (Intersection detail subject to engineered design)
5. Extended apron to service additional lots
6. Existing drain to be redirected
7. Long term parking
8. Short term parking
9. Terminal extension
10. Attenuation basin
11. Relocated freight building
12. Emergency access to be closed
13. Emergency access relocated
14. Existing access to Great Northern Highway to be closed
15. Relocate access to existing lease with new entry
16. Additional lots subject to BOM lease area modification
17. Helicopter pad to be relocated if required
18. Additonal land for PHIA staff housing

LEGEND

- PRECINCT BOUNDARY
- LANDSCAPING/ENTRY STATEMENT
- AIRPORT SPECIFIC COMMERCIAL LANDUSE
- AIRPORT SPECIFIC FREIGHT/LOGISTICS
- EXISTING LEASE TO REMAIN
- AIRPORT OPERATIONS USE
- AIR BP LEASE TO BE MODIFIED
- 'LIVING STREAM' SWALE DRAINAGE
- DETENTION/ INFILTRATION BASIN
- ABANDONED OPEN DRAIN
- AREA WHERE FILL MAY BE REQUIRED
- EXISTING BUILDINGS
- PROPOSED BUILDINGS
- EARTH BUND AND DRAIN TO REDIRECT DRAINAGE
- TOWN OF PORT HEDLAND MAINTENANCE & OPERATIONS PRECINCT
- PUBLIC ART FEATURE

N W E S

50 0 50 100 150
1:5000 @ A3, 1:2500 @ A1

MASTER PLAN- PRECINCT 1
PORT HEDLAND INTERNATIONAL AIRPORT
PORT HEDLAND

PARSONS BRINCKERHOFF
whelans TOWN PLANNING

13906/100519 master plan design 13906-8

PARSONS BRINCKERHOFF 125 YEARS
whelans TOWN PLANNING

Figure 9. Master Plan - Precinct 1 Indicative Terminal Access & Car parking

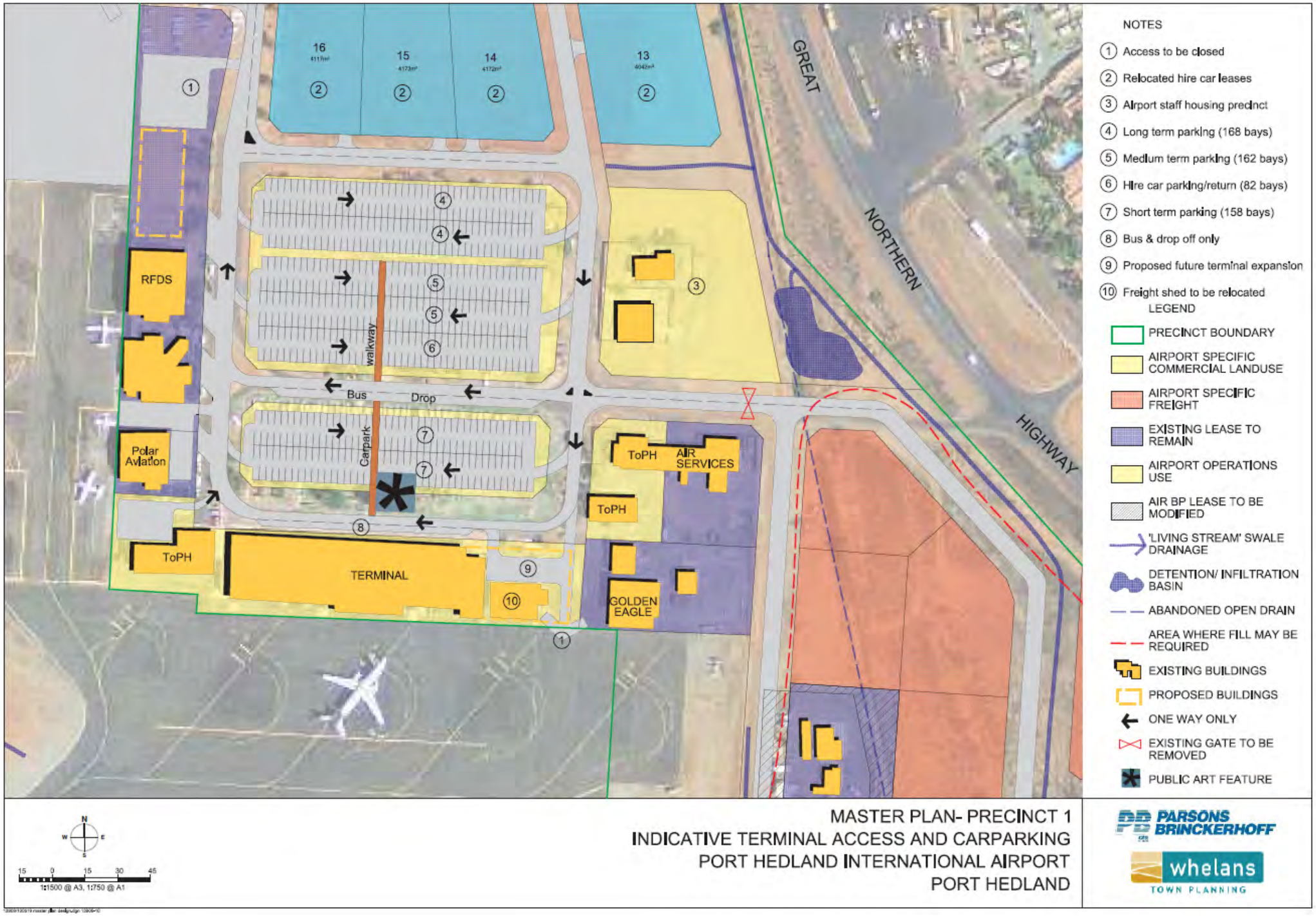


Figure 10. Master Plan - Precinct 2

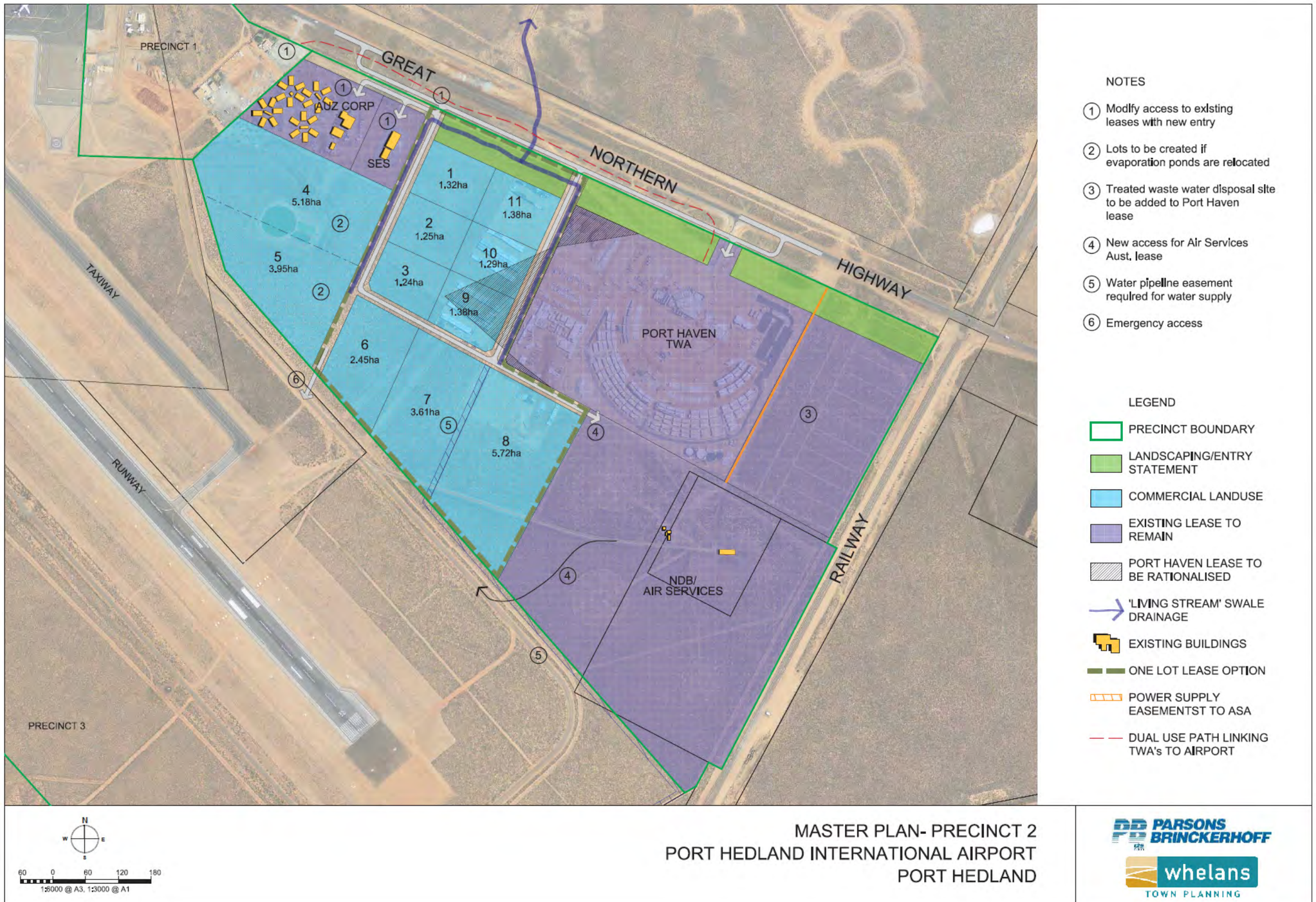


Figure 11: Master Plan - Precinct 3

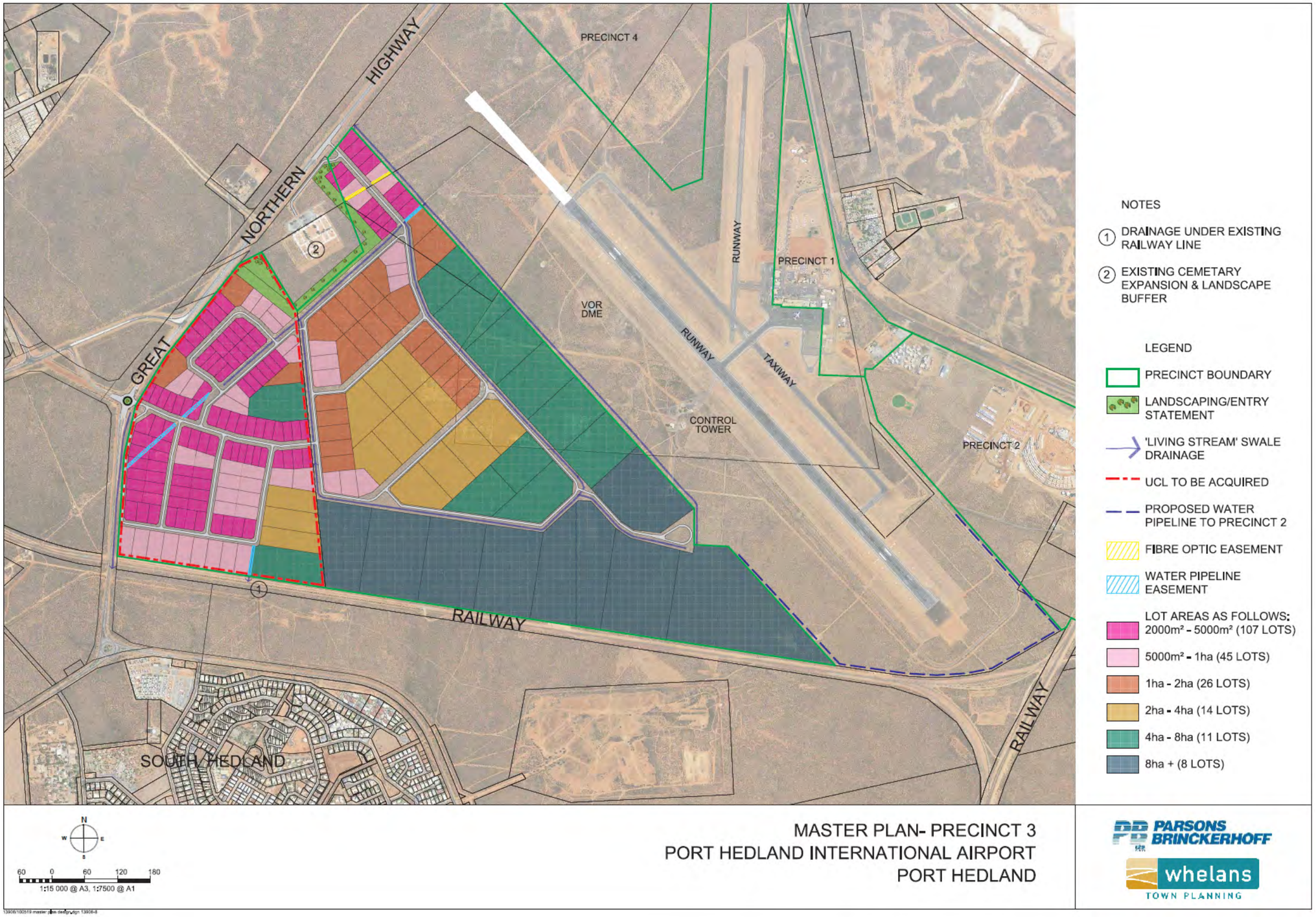


Figure 12: Precinct 3 - Land Assembly Plan

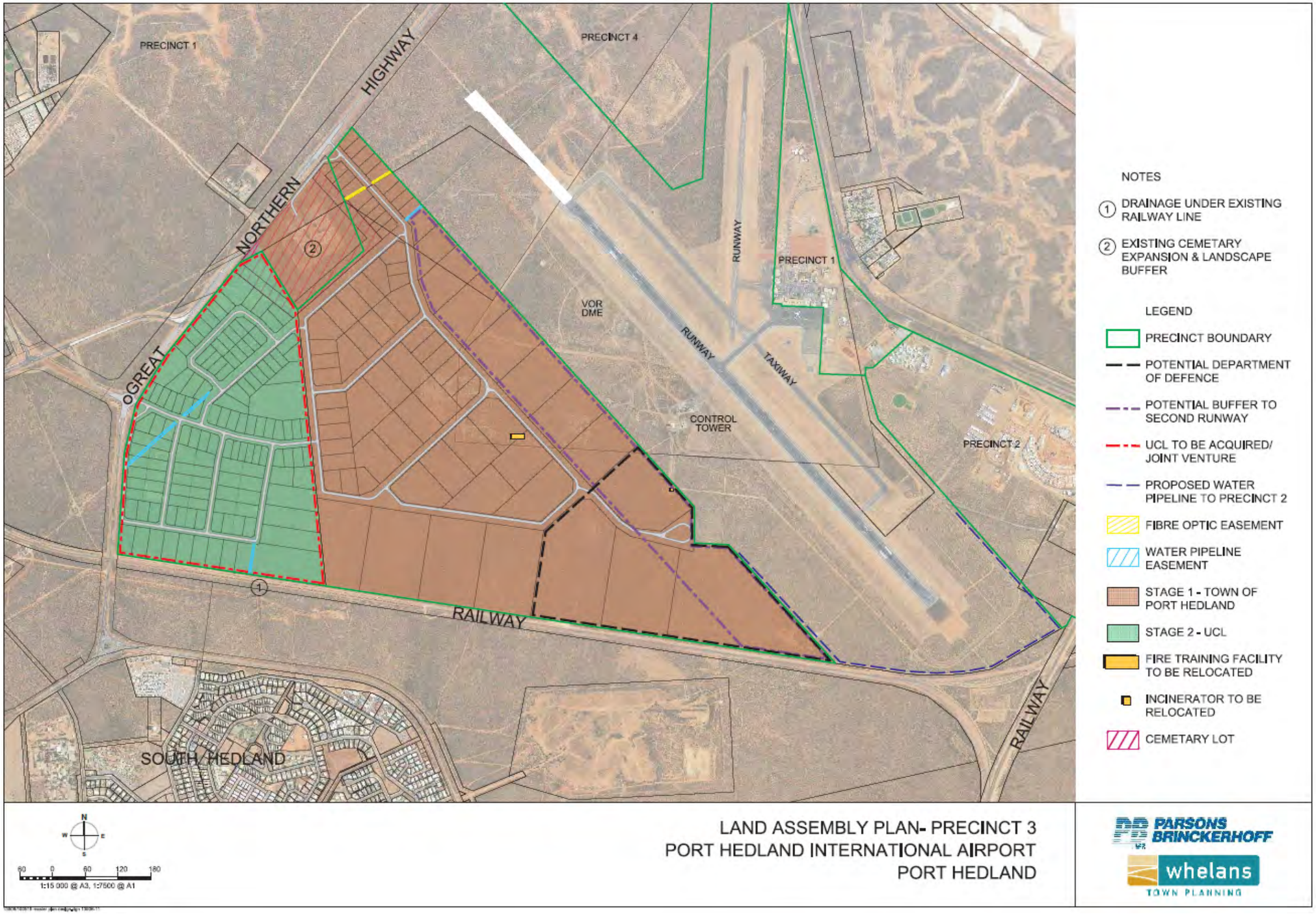
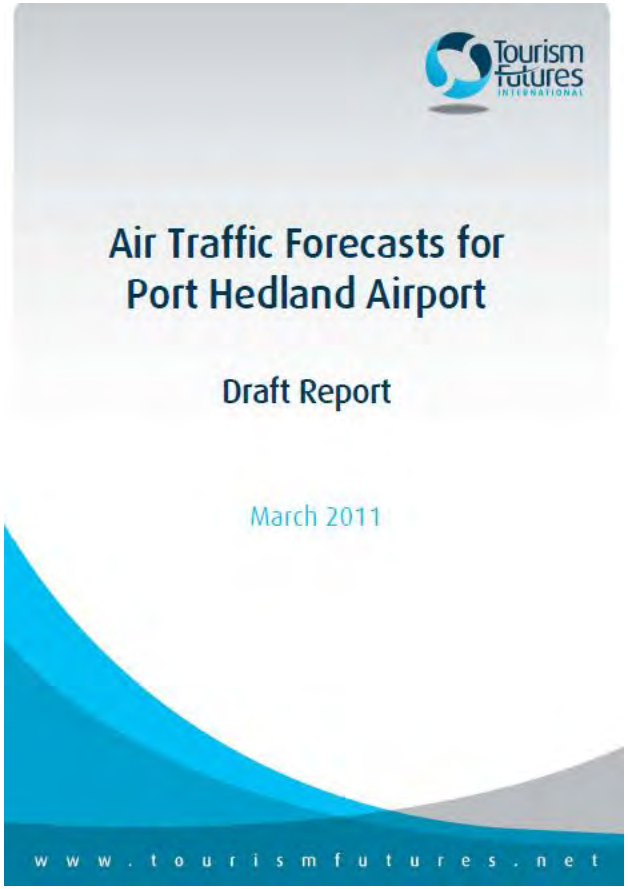


Figure 13: Master Plan - Precinct 4


NOTES
1 Access to apron & runway from estate
LEGEND
PRECINCT BOUNDARY
PASSIVE LOW KEY USES
RELOCATION OF FIRE TRAINING FACILITY & INCINERATOR
SWALE DRAINS FROM PRECINCT 1 & 3
DETENTION/ INFILTRATION BASIN
FIBRE OPTICE EASEMENT
WATER PIPELINE EASEMENT
ACCESS FROM GREAT NORTHERN HIGHWAY
POSSIBLE "FLY IN/FLYOUT" ESTATE
GREAT NORTHERN HIGHWAY
GREAT NORTHERN HIGHWAY
TAXIWAY
RUNWAY
MASTER PLAN- PRECINCT 4
PORT HEDLAND INTERNATIONAL AIRPORT
PORT HEDLAND
1:6000 @ A3, 1:3000 @ A1

Appendix III – Air Traffic Forecasts

The full TFI Air Traffic Forecasts Report for Port Hedland Airport is appended.



Air Traffic Forecasts for Port Hedland Airport

Draft Report

March 2011

Contents

Overview

Tourism Futures International (TFI), with Airbiz, has been engaged to provide air traffic forecasts for Port Hedland Airport (PHE) from 2010/11 through to 2029/30. This Report summarises both the influences on traffic growth in the short, medium and longer term, and the latest passenger forecasts for PHE.

The main driver of the passenger market for Port Hedland is the mining sector and in particular Iron Ore and Base Metals. Port Hedland is in Western Australia's Pilbara Region, a key part of the State's mining sector. Apart from Port Hedland other airports in the Pilbara include Karratha (mainly iron ore and oil and gas), Paraburdoo and Port Newman (both iron ore producers). Passenger growth over recent years has been strong to all of these Pilbara airports.

Since the immediate impact of the Global Financial Crisis (GFC) there has been an improvement in global economic forecasts. However the high levels of sovereign and household debt in developed countries is causing further concern and could promote further financial crises. The necessary debt reduction (by governments, companies and consumers) across much of the developed world, allied with the need to reduce the GFC fiscal stimulus, suggests a downward pressure on economic recovery.

This global position is important to airports such as PHE because much of the passenger demand derives from mining-related activities for minerals exported to countries such as China and India.

The challenges in forecasting for Port Hedland and other mining-driven airports arise because:

- Strong demand for commodities over recent years has driven up commodity prices and these high prices justify huge increases in mining investment.
- Construction activity for new iron ore projects in the Pilbara has been responsible for the growth in passenger traffic.
- High prices lead to supplier countries expanding capacity at the same time as emerging market steel manufacturers look for cheaper alternative sources of supply.
- These factors lead to an excess supply and falling prices. In response new resource projects are deferred.
- This can lead to periods of strong growth in traffic followed by periods of decline. One of the greatest forecasting challenges is predicting when such a cycle will end and when a new cycle will begin.

As a result TFI has used a scenario-based process for projecting Port Hedland traffic. TFI has developed a number of scenarios based on assumptions with respect to the total traffic incorporating mining traffic and the underlying growth in community traffic and 'normal' levels of mining traffic.

1. Traffic History for Port Hedland

1.1 Current Airline Services at Port Hedland

Current airline services to/from Port Hedland (PHE) are summarised in **Table 1.1**. Most services operate to/from Perth with Qantas/QantasLink and Virgin Blue providing 37 services per week.

A limited number of services are also operated to/from other intrastate locations; Karratha and Broome. Services also operate to/from Melbourne, Brisbane and Denpasar.

Table 1.1: Return Services per Week at Port Hedland Airport

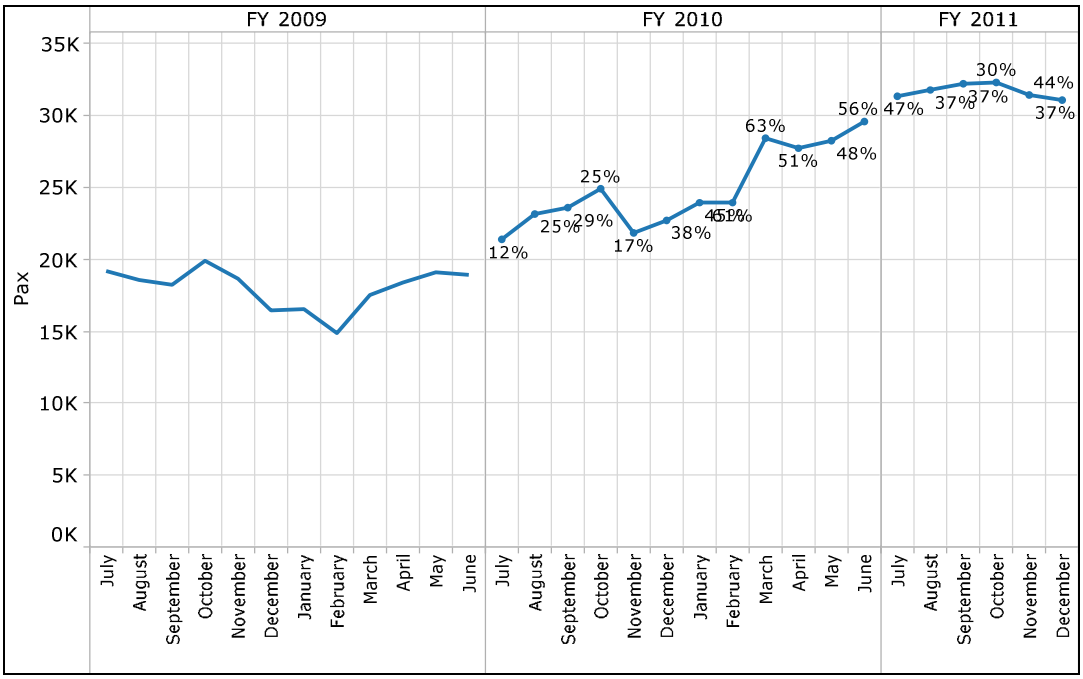
Port	Airline Return Services Per Week					Total Return Services
	Qantas/QantasLink	Virgin Blue	Airnorth	Skywest	Strategic	
Within WA						
Perth	25	12				**37**
Karratha			1			**1**
Broome			1	1		**2**
Outside WA						
Melbourne	1					**1**
Brisbane					1	**1**
Denpasar				2	1	**3**
Total	**26**	**12**	**2**	**3**	**2**	**45**

Source: Airline Schedules. Note: Strategic is withdrawing Port Hedland to Bali direct flights from the end of March 2011.

1.2 Port Hedland Airport (PHE) Data

TFI has received monthly data from the airport for the period July 2008 through to December 2010. **Figure 1.1** shows the numbers of passengers and growth over the period. Month to month growth has been very strong over the period shown.

Figure 1.1: PHE Monthly Passenger Movements and Change over Previous Year, July 2008 to December 2010



Source: PHE data.

1.3 Bureau of Infrastructure, Transport and Regional Economics Data

In addition to the local airport-provided data, domestic data (for passengers and aircraft movements) is regularly published for the top routes in the Bureau of Infrastructure, Transport and Regional Economics (BITRE) publication *Australian Domestic Airline Activity*. This data is published as traffic on board by stages and includes all traffic on each flight stage between two directly connected airports. It thus includes domestic transit passengers.

A second BITRE publication used by TFI is *Air Transport Statistics: Airport Traffic Data* which contains a time series of annual airport traffic data for Australian airports receiving more than 7,000 revenue passenger movements annually. It includes International, Domestic and Regional Airline data.

Table 1.2 provides the BITRE data for the financial years 2005 to 2010. Note that the overall passenger CAGR over the period has amounted to 24.2%. During this same period the CAGR for aircraft movements has been much slower at just 4.5%. This suggests that a large proportion of the passenger growth has been accommodated through the use of larger aircraft.

Table 1.2: Passenger Movements and RPT Aircraft Movements

	Years end 30 June						CAGR for 2005 to 2010
	2005	2006	2007	2008	2009	2010	
Passengers							
From PHE					215,940	298,941	n.a.
BITRE Domestic	84,168	109,359	151,740	189,475	206,501	295,152	28.5%
BITRE Regional	16,262	11,572	7,015	6,777	2,318	1,658	-36.7%
Total BITRE	100,430	120,931	158,755	196,252	208,819	296,810	24.2%
RPT Aircraft							
BITRE Domestic	1,835	1,451	1,860	2,228	2,653	3,344	12.8%
BITRE Regional	956	649	299	360	104	133	-32.6%
Total BITRE	2,791	2,100	2,159	2,588	2,757	3,477	4.5%

Notes: n.a. = not available; CAGR = Compound Annual Growth Rate. Source: PHE, BITRE data.

1.4 Longer Term History

Figure 1.2 uses BITRE data to show passenger movements at PHE over a long time period, from 1977/78 through to 2009/10.

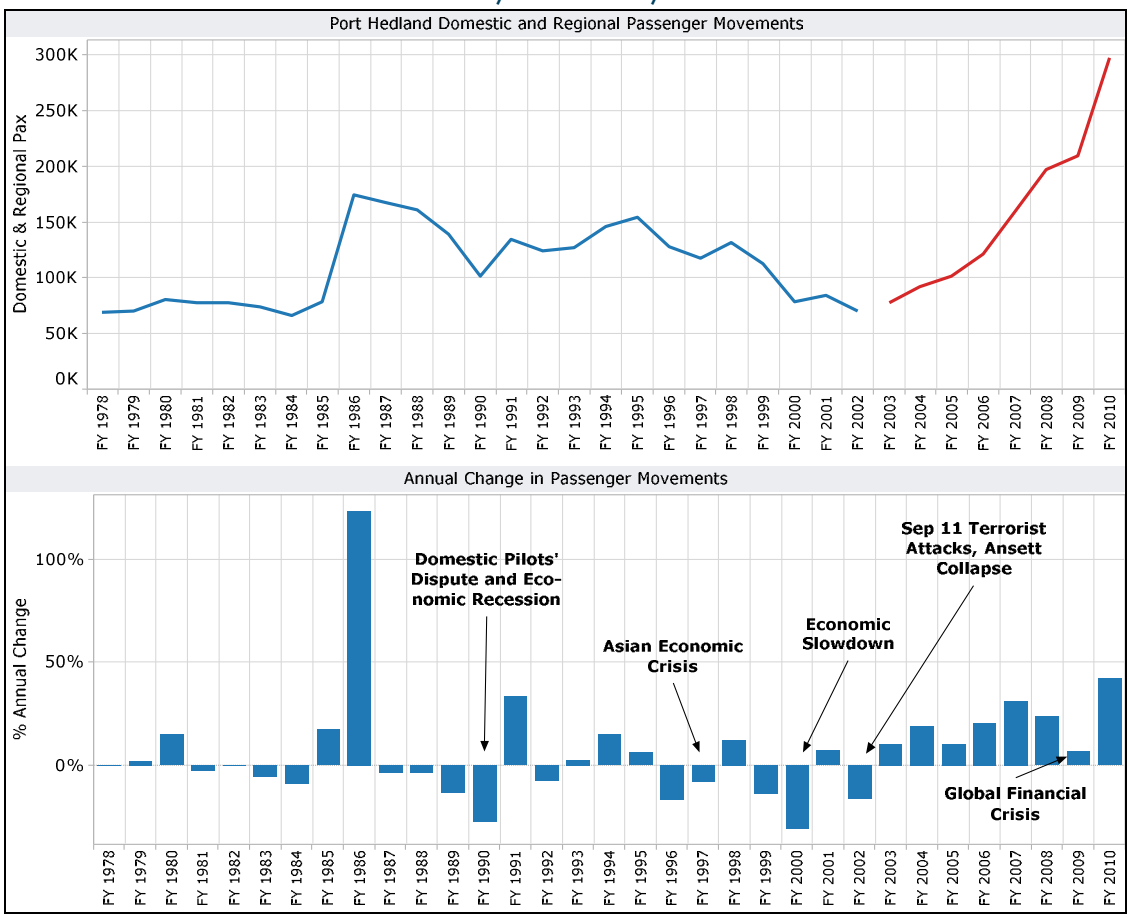
It is evident that Port Hedland has experienced strong volatility over the period. TFI has broken the period into two 'eras':

- The period from 1977/78 to 2002, characterised by a strong growth period and then a slow decline in passenger numbers.
- The most recent period from 2002 with strong and relatively sustained growth. The slower growth in 2007/08 and particularly 2008/09 results from the Global Financial Crisis (GFC).

Figure 1.3 uses BITRE aircraft movement data to show aircraft movement performance for PHE. The figure also shows the average numbers of passengers per aircraft movement. The key drivers for the aircraft movements have been the passenger numbers, the types of airlines carrying those passengers and their aircraft type decisions.

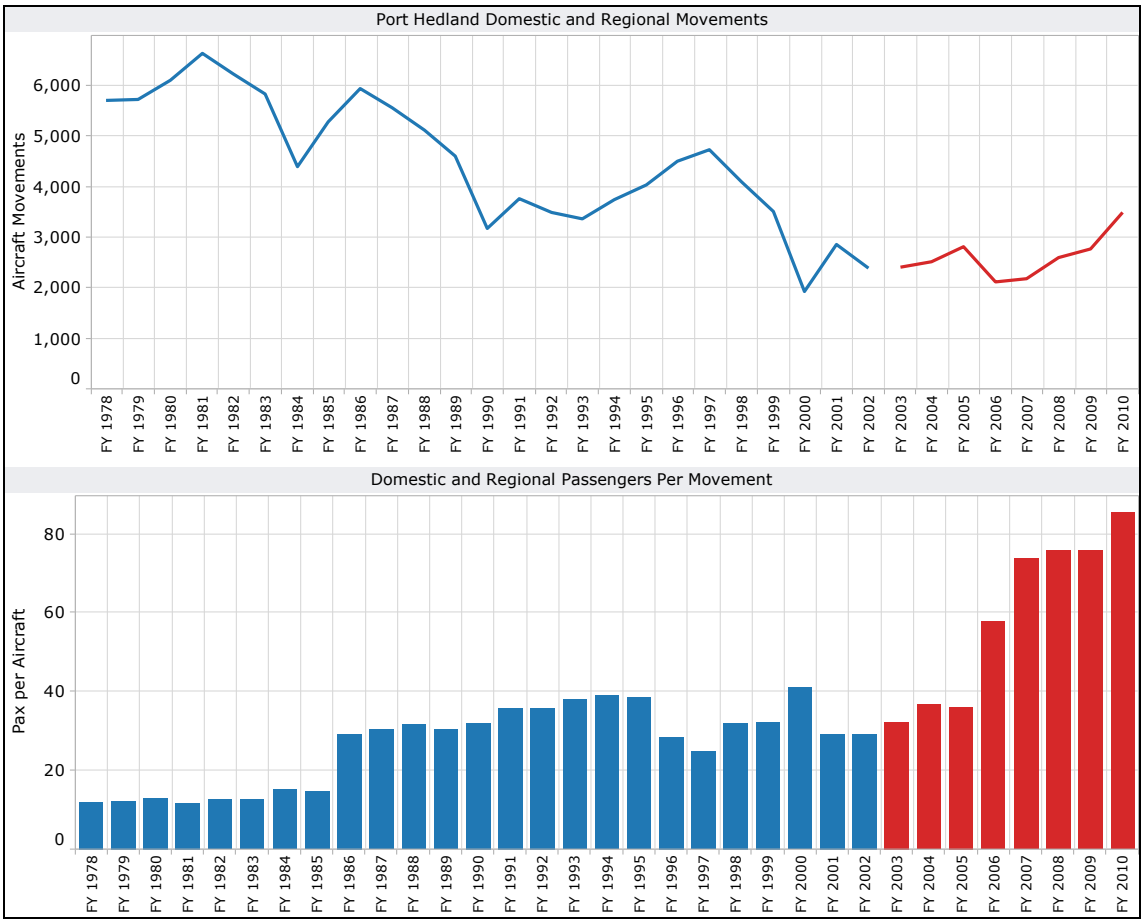
The average number of passengers per movement increased from 10-15 over the period to 1984/85, to 29-40 through to 2006 and from there the increase has been to 85 by 2009/10.

Figure 1.2: PHE Domestic and Regional Passenger Movements and Annual Change in Movements, 1977/78 to 2009/10



Source: BITRE data.

Figure 1.3: PHE Domestic and Regional Aircraft Movements and Average Numbers of Passengers per Movement, 1977/78 to 2009/10

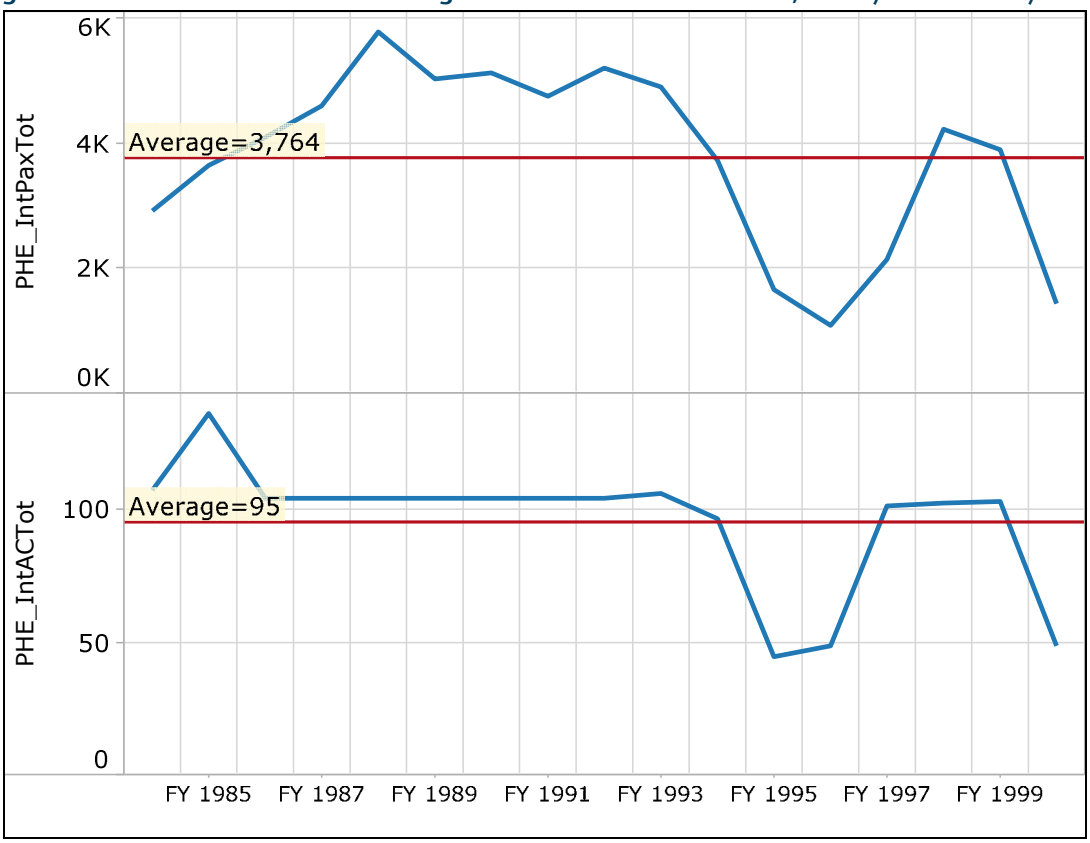


Source: BITRE data.

1.5 International Traffic History

Note that the data above shows the performance of PHE for domestic and regional traffic. PHE has recently seen the addition of some international traffic. PHE has seen international services before, specifically over the period from 1983/84 to 1999/2000. **Figure 1.4** shows that during this earlier period international passengers at PHE averaged around 3,800 per year on an average 95 movements per year.

Figure 1.4: PHE International Passenger and Aircraft Movements, 1983/84 to 1999/2000



Source: BITRE data.

2. Market and Aviation Business Environment

2.1 Forecasting Approach

In reality a large number of factors influence the growth of passenger movements at an airport. These include:

- Economic activity related to specific industries such as mining.
- The incomes of travellers or potential travellers. Both the level of income and confidence that these levels will be maintained and grow are important.
- The prices of air transport and the ground component of travel.
- The competitiveness (quality, product attributes and price) of a destination compared to alternative destinations.
- The supply of airline services – frequency, reliability, quality of service.
- Tourism promotion by Governments, airlines and industry bodies.
- Consumer tastes and available time for travel.
- One off factors and shocks. These include the travel impacts of events such as the Olympics, September 11, the collapse of an airline such as Ansett, and health concerns such as those generated by SARS.

However only some of these factors can be measured and their impacts included in forecasting models.

The approach adopted by TFI in preparing the PHE forecasts was based on a number of elements:

- A review of the traffic history available for PHE and an assessment of statistical trends.
- A review and analysis of the general aviation and business environment and current airline schedules. This assists in the development of assumptions and identification of qualitative factors that might influence traffic outcomes.
- Development of models linking drivers and traffic. In the case of PHE the mining sector activity is key in determining likely growth rates and peaks in the future.

Overall, TFI's approach is to:

- Include as much information in the forecasting process as possible (given time and budget constraints).
- Adopt a number of perspectives (macro and a micro approach).
- Utilise econometric and time series models.
- Prepare a range of forecasts and indicate sensitivities.

2.2 Key Demand Side Drivers

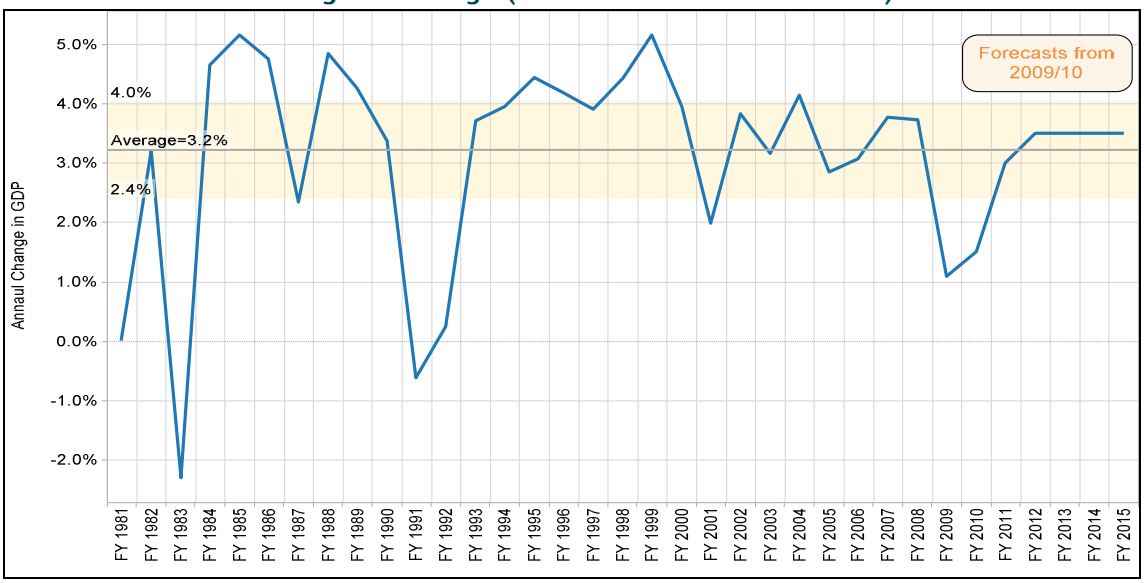
2.2.1 Australian Economic Outlook

Economic indicators found to be important in driving traffic include Australian and State economic factors. **Figure 2.1** shows the annual change in Australian GDP over the period since 1980/81. Also shown are the period average and the range (plus and minus 0.5 standard deviations from the average). It is evident from the chart that the GFC did not impact the Australian economy to the extent of recessions in the early 1980s and 1990s. TFI's projections for Australian GDP are based

on reviews of forecasts by the Australian Treasury, Reserve Bank, Australian Bureau of Agricultural and Resource Economics and Science (ABARES) and private banks and forecasters.

Note that the Australian growth is projected to move to near average levels by 2010/11 and to exceed average levels by 2011/12.

Figure 2.1: Annual Change in Australian GDP – Average and Range (0.5 times Standard Deviation)



Source: TFI.

The Western Australian economy, as measured by Gross State Product (GSP), grew by 4.3% over 2009/10 (**Table 2.2**). This was equal to the historical (20 year) average of GSP growth. Western Australia's 4.3% GSP growth rate was significantly higher than other states. On an industry Gross Value Added basis, the main driver of real GSP growth in 2009/10 for Western Australia was from output in Mining.

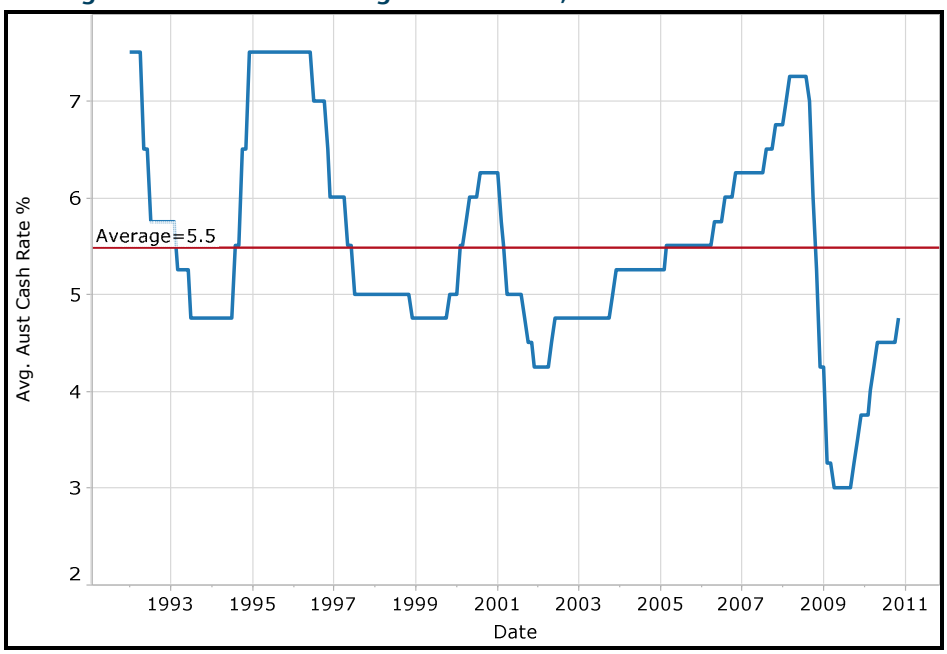
Table 2.2: GDP and WA GSP to 2010, and GSP Assumptions to 2015

	Year end June 30								
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
	Percent Change on Previous Year								
Australia - GDP	3.6	3.8	1.4	2.2	2.7	3.9	3.0	3.0	3.0
WA-GSP	4.4	4.2	4.1	4.3	4.0	4.8	4.5	4.0	4.0
WA-Real Final Demand	10.4	9.6	3.3	3.5	5.25	5.75	5.25	3.75	3.0

Source: ABS, WA Budget Mid-Year Review, Dec 2010, TFI. Note: Chain Volume Measures; financial years.

Whilst many of the Australian economic indicators look positive at present, there is a downside. Because the mining sector is stimulating strong demand there is pressure on Australia's inflation and the Reserve Bank has been increasing interest rates. As can be seen from **Figure 2.2** interest rates are still below their longer term averages and most economists are forecasting continued upward movement.

Figure 2.2: Australian Target Cash Rates, 1992 to November 2010



Source: TFI based on ABS.

2.2.2 International Economic Outlook

The latest International Monetary Fund (IMF) projections available were released in October 2010, with some projections updated in January 2011. As economic conditions have improved the IMF has upwardly revised its growth forecasts. The latest update shows projected world economic growth during 2010 at 5.0%, up from the 3.1% projected last October, and the 1.9% projected in April 2009. Global growth is projected to achieve 4.4% in 2011.

Recovery is expected to remain sluggish in most advanced economies, where private domestic demand remains weak and net exports are not contributing to growth. By contrast, in many emerging market economies consumption, investment, and net exports are all contributing to strong growth, and output is again close to potential.

Strong growth in developing economies including China and India is expected to underpin steady demand for WA's mineral and petroleum products in the coming years, including the major export resource of the Pilbara region, iron ore:

- China is the major market for WA resources and the Chinese market is expected to drive iron ore's demand in 2011. China accounted for 70% of the total amount shipped for 2009/10; Japan received 18%, South Korea 9% and Taiwan 3%.
- India is the WA's largest gold export destination accounting for 52% of total gold exports in 2009/10.

The GDP growth rates shown in **Table 2.3** suggest ongoing recovery from the GFC particularly for the emerging markets – the main growth markets for steel production and usage.

However, the IMF considers that while economic recovery is proceeding broadly as expected, the downside risks remain elevated; "Unless advanced economies can count on stronger private demand, both domestic and foreign, they will find it difficult to achieve fiscal consolidation. And worries about sovereign risk can easily derail growth. If growth stops in advanced economies, emerging market economies will have a hard time decoupling".

Table 2.3: GDP Assumptions to 2015 – IMF Forecasts

	Year end December 31								
	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Percent Change on Previous Year								
Australia	4.8	2.2	1.2	3.0	3.5	3.5	3.3	3.3	3.2
UK	2.7	-0.1	-4.9	1.7	2.0	2.3	2.4	2.5	2.6
EU	3.2	0.8	-4.1	1.7	1.7	2.1	2.2	2.2	2.2
USA	1.9	0.0	-2.6	2.6	2.3	3.0	2.9	2.8	2.6
China	14.2	9.6	9.1	10.5	9.6	9.5	9.5	9.5	9.5
India	9.9	6.4	5.7	9.7	8.4	8.0	8.2	8.1	8.1
Japan	2.4	-1.2	-5.2	2.8	1.5	2.0	1.9	1.8	1.7
Thailand	4.9	2.5	-2.2	7.5	4.0	4.3	4.5	4.8	5.0

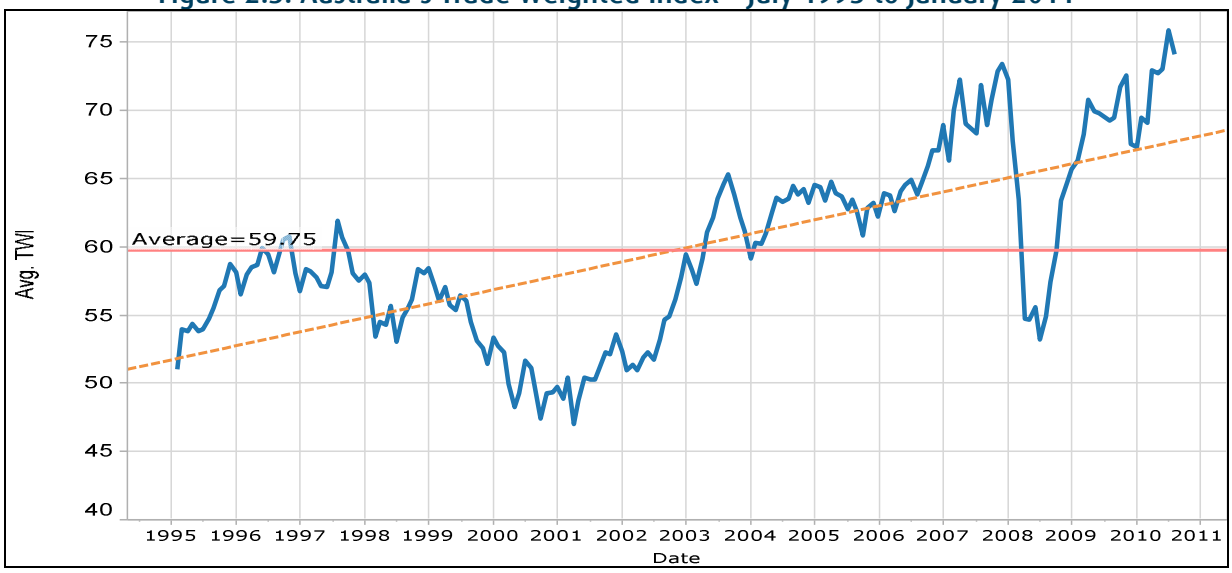
Source: IMF World Economic Outlook October 2010. Note: GDP Constant Prices; IMF estimates 2010 through to 2015; EU European Union.

2.2.3 Exchange Rates

Part of the impact of the mining boom is the high value of the Australian dollar. This is encouraging travel growth overseas by Australians but is discouraging travel to Australia by visitors from overseas. **Figure 2.3** shows the monthly Trade Weighted Index (TWI) for the period from July 1995 to January 2011. The trend to mid-2008 had been for Australia's Trade Weighted Index (TWI) to increase in value (making Australia a more expensive holiday destination). This trend turned from September 2008 with the TWI falling by up to 24%. Rates increased again from September 2009. The January 2011 outcome is 24% above the average for the period shown.

The strongest period in terms of positive impact on Australians travelling abroad (and conversely negative impact on inbound travel) is when the index is above 60 which it has been for much of the period from 2004.

Figure 2.3: Australia's Trade Weighted Index – July 1995 to January 2011



Source: TFI based on Reserve Bank of Australia data.

2.2.4 Mining Industry Outlook for WA and Port Hedland

The Western Australian resources sector is a key driver of the State economy; in 2009/10 the sector accounted for almost 30% of the State's Gross State Product (GSP), and for almost 90% of the State's income from total merchandise exports. China continued to lead as the major market for WA resources.

In 2009/10 the value of sales by the State's mineral and petroleum industry reached $70.9 billion. On average, during the past ten years the resource industry's sales value has grown by 14% per annum. Iron ore remained the State's largest sector in terms of value accounting for $33.7 billion in 2009/10, representing 48% of total sales. The sector shipped record tonnages of iron ore in 2009/10, increasing by 25% to reach 396 million tonnes.

The Pilbara Region accounted for $34.5 billion of the value of mineral and petroleum industry sales in 2009/10 (49% of State total). The immediate Port Hedland and Marble Bar area accounted for $139.8 million in mineral and petroleum sales.

As indicated earlier in this report, the main output from Port Hedland is iron ore. In its recently released publication, *Market Commodities, March Quarter 2011*, ABARES presents its outlook to 2016 for steel and steel-making raw materials. It suggests:

- "Growth in steel consumption in developing Asian economies will form the backbone of world steel demand growth, reflecting the development of infrastructure and rising incomes in these economies."
- "Over the next few years, a significant supply expansion from major iron ore and metallurgical coal producers is expected to place some downward pressure on prices. However, prices for both iron ore and metallurgical coal are forecast to remain well above historical averages."

Table 2.4 summarises the ABARES projections for world crude steel consumption and production and Australia's iron ore production levels.

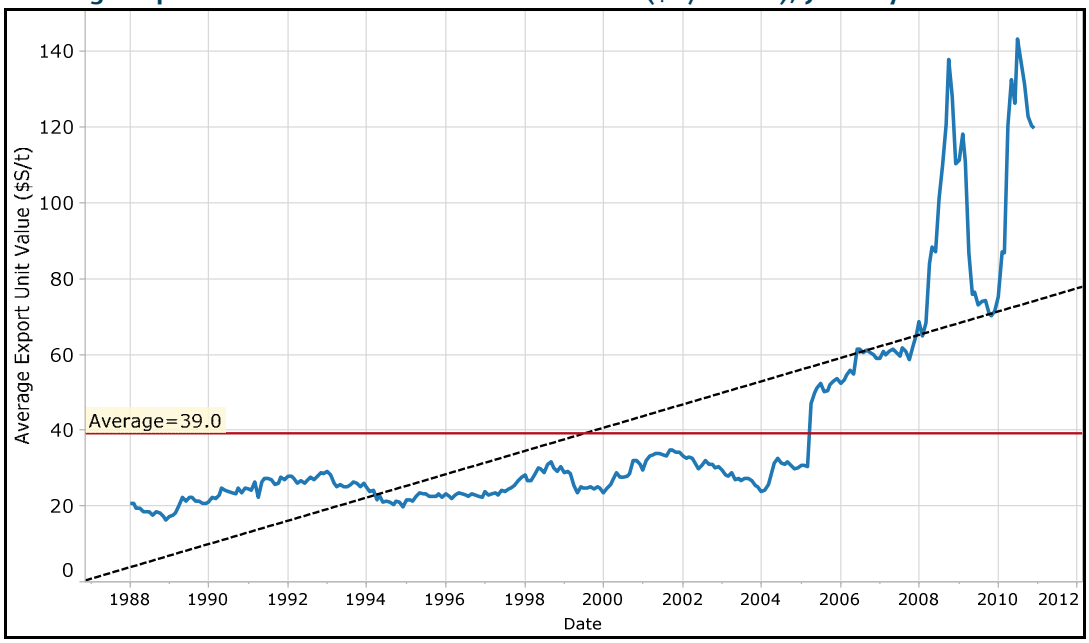
Table 2.4: ABARES Projections - World Crude Steel Consumption and Production; Australian Iron Ore Production, Iron Ore Prices

	2009	2010	2011	2012	2013	2014	2015	2016
	Millions Tonnes							
World Steel Consumption	1,209	1,336	1,410	1,504	1,600	1,703	1,796	1,916
Annual Change (%)		10.5%	5.5%	6.7%	6.4%	6.4%	5.5%	6.7%
World Steel Production	1,220	1,413	1,512	1,609	1,700	1,785	1,887	1,996
Annual Change (%)		15.8%	7.0%	6.4%	5.7%	5.0%	5.7%	5.8%
Australia Iron Ore Production	353	423	448	470	511	538	581	619
Annual Change (%)		19.9%	5.8%	4.9%	8.9%	5.2%	8.0%	6.5%

Source: ABARES.

Figure 2.4 shows the average unit value for Australian iron ore exports since January 1988. Also shown are the trend line and the average unit value over the period. It is clear that by any measure the value obtained for export is well above what might have been expected.

Figure 2.4: Average Export Unit Value for Australian Iron Ore ($A/tonne), January 1988 to December 2010



Source: ABARES.

In its Mid-Year Budget Review the WA Government pointed to the significance of mining activity to economic growth.

- "Investment in the resources sector is being driven by robust demand from key markets in Asia, which has underpinned considerable strength in commodity prices. Reflecting this, a number of major investment decisions have been announced since the budget, including FMG's proposed $US8.4 billion iron ore expansion in the Pilbara, and Rio Tinto's commitment to spend an additional $US7.2 billion to expand its iron ore operations.
- These projects will add to a significant pipeline of existing investment activity, including Chevron's $43 billion Gorgon LNG project, BHP Billiton's Rapid growth Project 5 and Citic Pacific's Sino Iron Ore Project.
- The total value of expected investment spending has increased since earlier in the year. Business investment is expected to grow by 12.0% in 2010-11 and by 10.0% in 2011-12. Although forecasts in the first two years remain relatively consistent with the budget forecasts, forecast growth in the outyears has increased significantly. In 2012-13, business investment is projected to grow by 8.0% in 2012-13 (up from 1.25%) and 4.0% in 2013-14 (up from 1.5%).
- Exports growth is expected to strengthen in 2011-12, supported by an increase in production from major projects in the iron ore and LNG sectors. This includes BHP Billiton's Rapid Growth 5 iron ore project, which will see installed capacity rise by 55 mtpa to 205 mtpa, and Woodside's Pluto LNG plant. Assuming that agricultural exports will also recover, total exports are forecast to grow by 7.0% in 2011-12."

The WA Government's review also indicated a number of risks. These included international factors such as the dependence on continuing growth in emerging economies to fuel commodity growth and domestic factors such as increasing interest rates. In particular the "unpredictable nature of resource investment, particularly in terms of timing, could mean that actual investment patterns are significantly different to those assumed."

A report prepared for Pilbara Industry's Community Council (Heuris Partners Ltd, April 2010) *Planning for resources growth in the Pilbara: revised employment & population projections to 2020* focuses on the need to supply services for the local population but also the strong growth in Fly-In Fly-Out (FIFO) numbers.

The study sought to identify the location of FIFO and construction workforces, drawing on input from individual companies and from local government sources. They serve to demonstrate significant additions to "resident" populations. The conclusion:

- Based on information available as at March 2010, total resource related employment in the Pilbara is projected to grow from some 19,000 in 2008 to some 47,000 in 2015, reaching 53,000+ by 2020. These totals exclude construction workforce numbers which are shown separately.
- Residential employment increases by 28% between 2010 and 2015, from 15,900 to some 20,300, with growth moderating thereafter. FIFO projections grow at a faster rate, increasing by 83% between 2010 and 2015 and by a further 23% to 2020.
- By 2015 57% of Pilbara resource related employment is expected to be FIFO, up from 49% in 2010; by 2020 this proportion increases to 62%.
- Projected construction activity generates construction employment reaching over 22,000 in 2010, peaking at some 28,000 in 2012 and dropping sharply away from 2015 onwards. It is noted that "these numbers are likely to be conservative because a number of companies have only chosen to include expansion/new projects at an advanced planning or approvals stage." Nearly all of these workers can be expected to be FIFO.
- Projections indicate FIFO/construction workers can inflate Estimated Resident Population numbers by 20-40% at peak activity periods.

A study by Syme Marmion & Co. for the WA Regional Development Council, *Extractive Industry and Sustainable Regional Development* (June 2010), also indicates that labour requirements are generally expected to be well above population growth trends in the mining regions, with the requirement for labour highest in the construction phase and moderating once they are fully operational. This requirement for labour over the long term population growth projections indicates a continuing need for FIFO models of employment in the extractive industries.

The WA Department of Mines and Petroleum (DMP) shows the average number of persons employed in the WA iron ore industries during 2009 at 26,051 (and up from 22,416 in 2008). The Heuris report (referred to above) notes that iron ore projects are the dominant driver of operating employment in the Pilbara; oil and gas projects tend to be very capital intensive, employing relatively fewer operating staff but generating very high demands for construction workers.

The latest Department of State Development list of major resource projects (December 2010) indicates that there is more than $42.8 billion worth of iron ore projects either committed or under consideration for the State during the next few years. These projects are expected to create more than 20,450 construction jobs and 9,470 permanent jobs. In contrast oil, gas and condensate projects worth $119 billion are expected to create more than 19,000 construction jobs but generate just 1,500 permanent jobs.

Many of these major resource projects involve direct infrastructure development at Port Hedland. The BHPB Rapid Growth Projects 5 and 6, for example, include dual tracking of sections of the railways and additional berths at Port Hedland inner harbour; Hancock Prospecting's Roy Hill iron ore project (expected to come into production in 2014) also includes the development new railway and port facilities at Port Hedland.

2.2.5 State and Regional Demographic Projections

Population is generally an important longer term influence on traffic growth. However in the case of PHE with its strong FIFO component, the key driver is mining sector requirements for labour. From this perspective the populations of Perth, WA and Australia may be a more important influence than the local population. **Table 2.5** provides population levels and projections for Port Hedland, Perth, WA and Australia:

- Port Hedland's population was estimated at 14,072 persons in 2008/09. The resident population is forecast to grow relatively slowly to reach around 16,300 by 2024/25 and 16,700 by 2029/30.

- Perth's population is projected to grow to 1.9 million by 2024/25 and 2.0 million by 2029/30 with the WA population to grow to 2.7 million by 2024/25 and 2.8 million by 2029/30.

- Australia's population is projected to grow to between 25.7 million and 28.3 million by 2024/25 according to ABS projections. (A 2010 report by the Australian Treasury *Australia to 2050: Future Challenges* indicates that by 2030 the Australian population is projected to reach 29.2 million, the upper end of the ABS projections).

Table 2.5: Population and Projections; Port Hedland, Perth, WA and Australia

FY	2001	2006	2009	2015	2020	2025	2030
	'000s Person 30 June						
Port Hedland							
Actual*	12.8	12.9	14.1				
CAGR		0.1%	3.0%				
Projections**		13.5	14.2	15.0	15.7	16.3	16.7
			1.7%	0.9%	0.9%	0.8%	0.5%
Perth							
Actual*	1,393	1,519	1,659				
		1.7%	3.0%				
Projections**		1,498	1,567	1,711	1,827	1,933	2,026
			1.6%	1.5%	1.4%	1.2%	1.0%
Western Australia							
Actual*	1,901	2,059	2,245				
		1.6%	2.9%				
Projections**		2,049	2,145	2,343	2,504	2,652	2,778
			1.5%	1.5%	1.3%	1.1%	0.9%
Australia							
Actual*	19,413	20,698	21,955				
		1.3%	2.0%				
Projections-Series A***		20,698	21,955	24,017	26,098	28,281	30,500
			2.0%	1.5%	1.7%	1.6%	1.5%
Projections-Series B ***		20,698	21,665	23,636	25,288	26,916	28,484
			1.5%	1.5%	1.4%	1.3%	1.1%
Projections-Series C***		20,587	21,626	23,267	24,548	25,742	26,852
			1.7%	1.2%	1.1%	1.0%	0.8%

Note: CAGR = Compound Annual Growth Rate
Sources: * ABS 3218.0 Regional Population Growth, Australia
** Department for Planning and Infrastructure (2005.) WA Tomorrow Population Report No. 6, Prepared for the Western Australian Planning Commission
*** ABS Projections, 3222.0 Population Projections, Australia, 2006 to 2101, Series B.

TFI is aware that Port Hedland is developing a plan to target a population of 50,000 persons by 2035, a projection generated on the basis of the "aspirational" Pilbara Cities initiative[1]. Under Pilbara Cities, the overall resident population of the Pilbara region is planned to grow to more than

[1] Pilbara planning and infrastructure framework, Draft. WA Planning Commission February 2011

140,000 by 2035 representing 5% annual compound growth, based on a significant diversification of the economic base of the major centres[2].

In the Pilbara Industry's Community Council report referred to earlier, the estimated resident population of Port Hedland is projected to grow from 15,800 in 2010 to 19,000 in 2015 and to 19,900 in 2020. Over the same period the Pilbara population is projected to grow from 51,100 in 2010 to 61,100 in 2015 and to 62,500 in 2020.

[2] Under the Pilbara Cities vision, by 2035 Karratha City (Karratha/Dampier) and Port City (Port Hedland/South Hedland) will each grow to 50,000, Newman to 15,000 and other settlements to 25,000, totalling 140,000 for the Pilbara region.

2.3 Aviation Sector Business Environment

2.3.1 Global Airline Performance

The International Air Transport Association (IATA), in its March 2011 Financial Forecast, provides the industry overview produced in **Table 2.6**. Traffic growth forecasts have been revised upwards as we have moved out of the GFC. IATA also became more positive about financial prospects for 2010, with the latest estimate of a net industry profit of USD16 billion compared with double-digit losses during the previous two years. However forecasts for airline industry profits in 2011 have been significantly downgraded due to the recent surge in oil and jet kerosene prices.

IATA notes the reduction in profitability would have been much greater were it not for upward revisions to economic growth this year together with relatively stable and high load factors; when economies are strong higher yields make it possible for airlines to limit the profitability damage from high oil prices. The risk to this outlook is that should economies weaken, under pressure from commodity prices and debt, airline profits could weaken much faster than currently forecasted.

This global review shows how sensitive the airlines (with their high capital costs and low profit margins) are to economic fluctuations and high oil prices.

Table 2.6: IATA Global Aviation Industry Performance (% change over previous year)

System-wide Commercial Aviation	Years ended 31 December									
	2002	2003	2004	2005	2006	2007	2008	2009	2010E	2011F
Pax Traffic Volume	1.0%	2.3%	14.9%	7.0%	5.0%	6.4%	1.5%	-2.1%	7.3%	5.6%
World Economy	2.7%	2.8%	4.2%	3.4%	4.0%	3.8%	1.7%	-2.3%	3.8%	3.1%
Pax Yield	-1.7%	2.4%	2.6%	2.7%	7.8%	2.7%	9.5%	-14%	6.1%	1.5%
Crude Oil Price, Brent, USD per barrel	$25.1	$28.8	$38.3	$54.5	$65.1	$73.0	$99.0	$62.0	$79.4	$96.0
Fuel as % of Expenses	13%	14%	17%	22%	26%	28%	33%	26%	26%	29%

Notes: Estimate for 2010 and forecast for 2011 as at March 2011. Source: IATA.

2.3.2 Oil Prices

Airline fuel prices will have an impact on airline costs and the ability of airlines to stimulate demand through pricing. Jet fuel prices (shown in **Figure 2.5**) fell from a peak of USD166.48 per barrel in July 2008 to a low of USD52.78 by February 2009. Prices have since increased; at USD96.50 in January 2011 the crude oil price was up 141% on its December 2008 low.

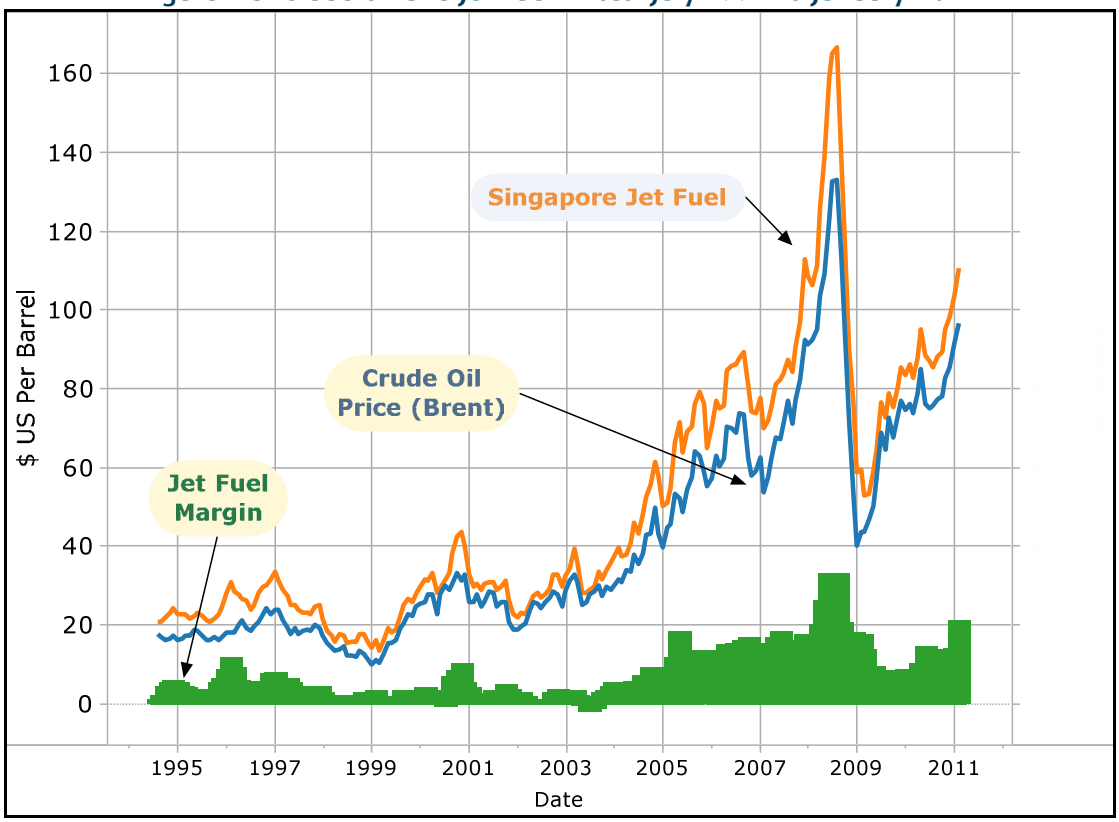
IATA, in its March 2011 Industry Outlook forecasts crude oil prices to rise from an average price per barrel of USD62 in 2009 to USD79 in 2010 and to USD96 in 2011 (shown in **Table 2.6** above).

Airlines, including Qantas, Virgin Blue, Singapore Airlines, British Airways and All Nippon Airways, have announced increases in fuel surcharges. Qantas has also announced an increase in domestic, regional and Tasman air fares by up to 5% as the second part of its response to high oil and jet fuel prices. Virgin Blue is increasing its international short haul fares on Pacific Blue and Polynesian Blue flights by up to $20 per sector and domestic fares by between $6 and $10 per sector. Air New Zealand is increasing fares to Australia and the Pacific Islands by an average of 8% and long haul fares by an average of 7%.

Instability in the Middle East is emerging as a contributing factor to rising fuel prices.

Movements in oil prices remain a significant risk factor.

Figure 2.5: Crude Oil and Jet Fuel Prices: July 1994 to January 2011



Source: TFI based on US Energy Information Administration.

2.3.3 National Domestic Airline Capacity Developments

Qantas Group:

- Thirteen aircraft were added to the Qantas Group fleet during the first half of 2010/11 (six purchased, seven leased). Qantas added one A380 and one A330-200. Jetstar, including Jetstar Asia, added ten A320-200s and one A330-200. One leased B747-400 was returned.
- Fourteen aircraft deliveries were planned for the second half of 2010/11. Three A380s, six B737-800s, one Q400 and three F100s for Qantas. One A330-200 for Jetstar. One B747-400 and two B737-400s are to be retired.
- Expected delivery schedule for the B787s has again been delayed: first eight B787-8 deliveries are now expected from late-2012, with the remaining seven from 2014 along with the 35 B787-9s on order. All 50 are to be delivered by end 2017/18. Jetstar is to receive the first 15 B787s to support international growth. Jetstar's A330-200s will be transferred to Qantas, replacing B767s. Deliveries from 2014 will allow for the retirement of Qantas' remaining B767-300ER fleet and provide for international growth for Jetstar and Qantas. Qantas retains the ability to purchase up to 50 additional aircraft.
- Jetstar's eighth A330 was added in December 2010; fleet is to be increased to eleven by June 2012 to consolidate international growth. Two A330s are to be based in Singapore. The aircraft will allow for Jetstar's international growth ahead of the delivery of the B787s. In its most recent fleet update Qantas announced the lease of another A330-200 for Jetstar. Qantas increased its A330-200 fleet from seven to eight during the first half of 2010/11.
- Jetstar's A320 deliveries are being accelerated. As at January 2011 Jetstar had 56 A320s in the fleet (including 12 for Jetstar Asia, excluding two for Jetstar Pacific), with 44 still to be delivered. Two A320s are to be delivered during second half 2010/11 and 15 during 2011/12 (including to Jetstar Pacific). In its recent fleet update Qantas announced the lease of 10 additional A320s, and the extension of leases on 11 A320s. Firm deliveries of the A320s for Jetstar through to end 2017/18 now totals 54.

- New weekly Qantas B737-800 services from Sydney and Melbourne to Karratha commenced in May 2010 and from Melbourne to Port Hedland in September 2010. As at December 2010 Qantas had 41 B737-800s in its fleet, with 28 still on order. Orders for 12 of the aircraft had been deferred for an average of 14 months during the GFC. As part of its most recent fleet update Qantas announced the lease of five additional B737-800s, and the extension of leases on two B737-800s. Qantas now has 33 B737-800s on order, including the five announced as part of the update.
- Internationally configured wide-body aircraft are to be deployed on routes between the eastern states and Perth, including B747s.
- QantasLink is adding seven new Q400 aircraft to its fleet of 21, the first of which has just entered service. A total of four are scheduled for delivery by December 2011.
- QantasLink will oversee the Group's move into the WA FIFO resources air charter market through the purchase of Network Aviation. Network Aviation operates a fleet of two 100-seat Fokker 100 aircraft and six 30-seat Embraer Brasilia EMB-120ER aircraft.
- Qantas recently announced the purchase of 10 Fokker 100s for Network Aviation and the lease of two additional B717s for QantasLink (taking the number of B717s to 13). The total QantasLink fleet (including Network Aviation) will increase from 61 to 80 by 2015.

Virgin Blue:

- During the first half of 2010/11 Virgin Blue received four B737s (three on lease were returned, taking total to 63), and one B777 (V Australia's fifth). The Group is taking delivery of 10 new aircraft in the remainder of 2010/11 – 5 B737s, 3 E190s and 2 A330s.
- 70 B737s remained on order as at December 2010. This includes the recent fifty firm orders for B737-800NG aircraft (with flexibility to convert to either -700s or -900s) scheduled for delivery from June 2011 through to 2017. 25 additional firm delivery positions have been secured as options and 30 as future purchase rights. A significant percentage of the aircraft is intended for replacement of the existing narrow body fleet.
- Virgin Blue is to add wide body aircraft to its domestic fleet from May 2011. The first of two A330s to be delivered during the third quarter of 2010/11 will be used on the Sydney-Perth route. An additional two new A330-200 aircraft are to be added to the fleet during the third quarter of 2011/12, bringing the total number to four, with these aircraft dedicated to domestic services between the East Coast and Perth.
- All six E170s are to be removed from the fleet (three in the second half of 2010/11 and three during 2011/12); three E190s are to be delivered during 2010/11.
- The Virgin Blue/Air New Zealand alliance, which recently received ACCC approval, will connect regional centres in Australia and New Zealand, as part of a Tasman journey (but does not include domestic-only travel in either Australia or New Zealand).

Virgin Blue/Skywest Alliance:

- The Virgin Blue Group and Skywest airlines have signed a 10 year strategic alliance to service regional Australia. The airlines existing codeshare arrangement covers ten Skywest destinations.
- Virgin Blue will expand its reach throughout regional Australia "… to access untapped opportunities in regional Australian markets, in particular the booming fly-in fly-out resource sector market". Skywest will be a service provider and codeshare partner.
- Up to 18 ATR72 turboprop aircraft are to be introduced as part of the alliance. The first four of the ATR Turboprop 68 seater aircraft will be introduced from the middle of 2011, with a further four to arrive in 2012. The ATR is to form the foundation of Virgin Blue's regional network plans, with the first six replacing the E170 fleet and the additional aircraft flying to new regional destinations in Eastern Australia. Under the wet lease arrangement, Skywest is to provide the technical and cabin crew and source the maintenance provider of the fleet.

Skywest Airlines:

- Skywest Airlines currently operates a fleet of eight Fokker 50 turbo-prop aircraft (46 passengers) and nine Fokker 100 (100 passengers) jet aircraft.
- A leased A320-200 (162 passengers) commenced operations in late 2010, taking the fleet to 18 aircraft. The A320 was to be principally used for resource charter services.
- As at June 2010 the airline estimated that it held a market share of around 28% in relation to FIFO charter services (up from 2% in 2002).
- Skywest has been selected as the preferred proponent for a further licence of 5 years for continuing air services for the regulated proportion of the coastal network, including the routes of Perth to Albany, Esperance in a sole operator capacity and Learmonth/Exmouth in a shared operator capacity. Skywest will continue to fly Perth to Geraldton as a deregulated route, with onward connections to Melbourne. As from 1 March 2011 the airline no longer operates to Carnarvon, Monkey Mia/Shark Bay or Kalbarri (now operated by Skippers Aviation).

Strategic Airlines:

- Strategic acquired its third A320 in early-2010. Also has an A330 in its fleet.
- Launched a new service between the east coast of Australia and the Pilbara region of WA in August 2010. Weekly A320 services are operated from Brisbane to Port Hedland. Plans to operate Melbourne/Port Hedland services were deferred.
- Also in August 2010 Strategic commenced weekly services between Port Hedland and Denpasar (Bali), followed by Townsville-Denpasar services in December 2010. The Port Hedland services are to be withdrawn from 23 March 2011; Brisbane-Denpasar direct services commence the same month.

Airnorth:

- Airnorth currently has three Embraer 170s, four Embraer 120s and three Fairchild Metro 23s in its fleet.
- Two new services were launched in June 2010 - from Darwin to Port Hedland and Karratha, via Broome. The E170 services offer a weekly direct link between Port Hedland and Karratha, and between Port Hedland and Broome.

Tiger Airways:

- Tiger Airways plans to increase its fleet beyond the current ten A320 aircraft based in Australia were deferred until April 2011, at which time the airline plans to increase its Australian seat capacity by at least 20% (for the period April to October 2011).
- Eleventh aircraft for Australia is due in April 2011.
- The Group plans to grow its total fleet from 25 A320 aircraft currently to 35 by March 2012, and 68 by December 2015.
- New routes for early 2011 include Brisbane-Sydney (three daily return services), Brisbane-Avalon (daily), and Sydney-Sunshine Coast (daily). Capacity on a number of routes is to be increased, including Melbourne–Perth and Melbourne–Alice Springs.

3. Projection Summary

3.1 The Challenge of Forecasting Mining-Related Growth

The challenges in forecasting for Port Hedland and other mining-driven airports arise because:

- Strong demand for commodities over recent years has driven up commodity prices and these high prices justify huge increases in mining investment.
- Construction activity for new iron ore projects in the Pilbara has been responsible for the growth in passenger traffic.
- High prices lead to supplier countries expanding capacity at the same time as emerging market steel manufacturers look for cheaper alternative sources of supply.
- These factors lead to an excess supply and falling prices. In response new resource projects are deferred.
- This can lead to periods of strong growth in traffic followed by periods of decline. One of the greatest forecasting challenges is predicting when such a cycle will end and when a new cycle will begin.

TFI has tested a number of models linking PHE traffic to drivers such as:

- National economic factors such as GDP and Private Consumption Expenditure (PCE).
- Economic growth in countries that import minerals from WA and the Pilbara.
- WA Gross State Product (GSP).
- National, WA and regional populations.
- WA variables such as production, exports and imports, CPI, employment levels.
- Mining-related variables such as national iron production, iron ore prices and WA construction activity (much of which is mining related).

A number of the models performed well in explaining past growth. For example, models related to WA GSP. They project steady growth over the next 20 years. However use of mining-related variables leads to strong growth in the two to five year period, reaching high levels of traffic before declining. This occurs because of a reasonable expectation that mining is cyclical even when there is strong demand from countries such as China and India.

The best models relate activity levels at PHE to WA Real Final Demand (RFD) and WA Iron Ore Production levels. As production levels grow passenger traffic accelerates. On the other hand a slowing of production growth leads to a decline in passenger numbers. The pattern is one of strong growth over the next few years and then a decline.

TFI has used a scenario-based process for projecting Port Hedland traffic. Traffic has been projected based on:

- Growth in total traffic incorporating both resource-oriented and non-resource-oriented traffic. Two levels of forecast were developed – one with iron ore production levels projected by TFI using time series analysis, the other based on growth rates for national iron ore production as projected by ABARES.
- Growth in non-resource-oriented traffic. In reviewing traffic behaviour prior to the collapse of Ansett in September 2001 and prior to the acceleration in mining-related traffic from around 2003, TFI found an elasticity of passenger traffic to RFD of around 0.5 to 1.0 (i.e. every 1% increase in RFD generates between a 0.5% and 1% increase in passenger traffic to PHE).

Based on this analysis TFI has developed the following scenarios:

- Scenario 1: based on the higher level of iron ore production and with a higher base (non-mining boom) level of traffic. Traffic for Port Hedland peaks at around 610,000 passenger movements in 2014/15 and begins to decline towards the base traffic levels.
- Scenario 2: based on a lower level of iron ore production and a lower base level of traffic than Scenario 1. Traffic for Port Hedland peaks at 460,000 in 2013/14 for this scenario.
- Scenario 3: Scenarios 3 and 4 are extensions of the first two scenarios. Scenario 3 takes the peak level of 610,000 for 2014/15 from Scenario 1 and extends it forward to a level of 700,000 by 2030/31 (the CAGR for 2009/10 to 2030/31 is 4.2% for this scenario).
- Scenario 4: This Scenario takes the peak level of 460,000 for 2013/14 from Scenario 1 and extends it forward to a level of 600,000 by 2030/31 (the CAGR for 2009/10 to 2030/31 is 3.4% for this scenario).

3.2 Passenger Projections

Table 3.1 shows the passenger movement forecasts (they are also presented in **Figure 3.1**). Scenarios 1 and 2 show the passenger movements growing from 297,000 in 2009/10 to peak at 610,000 in 2014/15 (for Scenario 1) and 460,000 by 2013/14 (for Scenario 2). Scenarios 1 and 2 show the decline from these peaks back to underlying base traffic levels before increasing.

Scenarios 3 and 4 show the growth from the peak levels of Scenarios 1 and 2 to between 600,000 and 700,000 passengers by 2030/31.

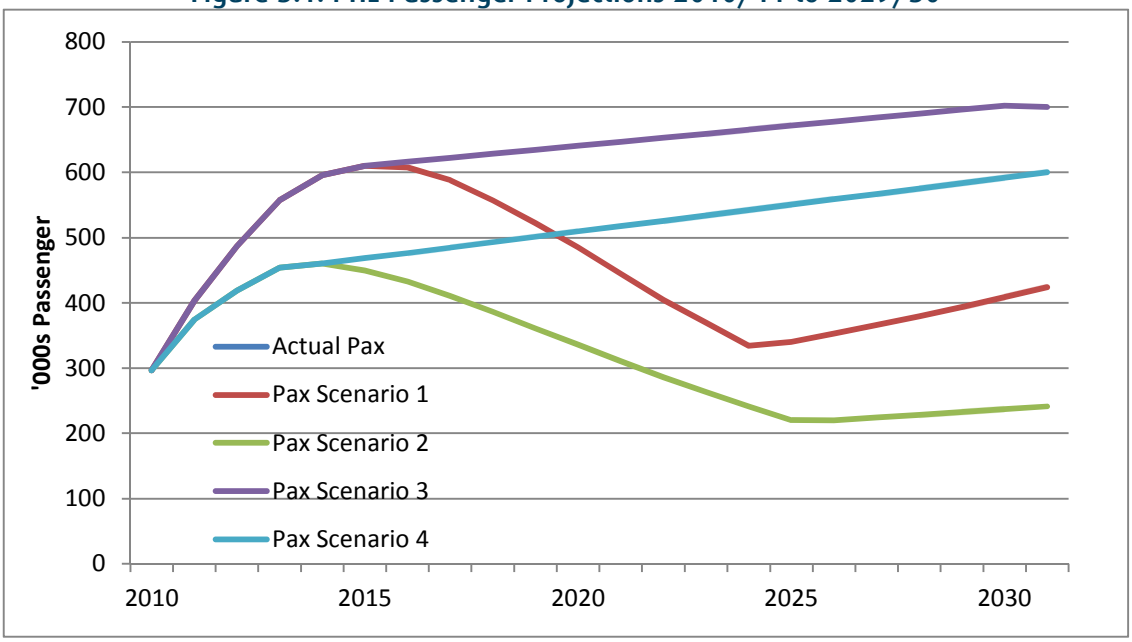
Note that TFI's expectation is for limited growth in international passengers driven largely by outbound travel related to mining activity. However it is also possible that growth could occur due to the need to expand the labour force from overseas.

Table 3.1: PHE Passenger Projections 2010/11 to 2030/31 ('000s Passenger Movements)

Years end 30 June	Actual Pax	Pax Scenario 1	Pax Scenario 2	Pax Scenario 3	Pax Scenario 4
	'000s Passenger Movements				
2010	297	297	297	297	297
2014		596	460	596	460
2015		610	449	610	468
2020		485	336	641	509
2025		340	220	671	551
2030		409	237	702	592
2031		424	241	700	600
2020 on 2010		5.0%	1.2%	8.0%	5.6%
2031 on 2010		1.7%	-1.0%	4.2%	3.4%

Source: TFI.

Figure 3.1: PHE Passenger Projections 2010/11 to 2029/30



Source: TFI.

3.3 Aircraft Movement Projections

Table 3.2 shows the total aircraft movement projections.

The passenger forecasts are used to generate aircraft movement forecasts. The current mix is around 47% of RPT aircraft movements with aircraft of B737/A320 size (average of around 166 seats) with 49% of 100 to 115 seats and a small number of movements with 76 seat aircraft. TFI expects the proportion of B737 size aircraft to increase over time. Only the one movement mix scenario has been developed at this stage.

Table 3.2: PHE Total Aircraft Movement Projections 2010/11 to 2030/31 ('000s Aircraft Movements)

Years end 30 June	Actual RPT Aircraft Movts	Aircraft Movts for Pax Scenario 1	Aircraft Movts for Pax Scenario 2	Aircraft Movts for Pax Scenario 3	Aircraft Movts for Pax Scenario 4
	'000s Aircraft Movements				
2010	3.5	3.5	3.5	3.5	3.5
2014		6.7	5.3	6.7	5.2
2015		6.9	5.2	6.9	5.3
2020		5.4	3.9	7.2	5.7
2025		3.8	2.6	7.4	6.2
2030		4.5	2.7	7.7	6.6
2031		4.5	2.6	7.4	6.5
2020 on 2010		4.6%	1.1%	7.5%	5.1%
2031 on 2010		1.2%	-1.0%	3.7%	2.9%

Source: TFI.

4. Glossary

Data sourced from the Bureau of Infrastructure, Transport and Regional Economics (part of Australian Department of Infrastructure, Transport, Regional Development and Local Government).

Regular public transport (RPT): air service operations in which aircraft are available for the transport of members of the public, or for use by members of the public for the transport of cargo.

Revenue passengers: now includes all passengers paying any fare (frequent flyer redemption passengers are now regarded as revenue passengers). This change is being phased in for international collections.

Major Australian-registered Airlines: those airlines which perform scheduled RPT operations within Australia and its Territories and whose fleets include high capacity aircraft, that is, aircraft with more than 38 seats or with a payload greater than 4,200 kilograms. Subsidiary regional airline operations in jet aircraft are included, while operations in turbo-prop aircraft by subsidiaries are also included for the top 33 competitive pairs only. This latter part of the definition makes it difficult to compare with past data.

Domestic airlines: Revenue traffic carried by the operators of scheduled domestic regular public transport services, and excluding charter (non-scheduled) and regional airline services. This sector includes those airlines performing regular public transport services and whose fleets contain high capacity aircraft, currently defined as aircraft with more than 38 seats or with a payload of more than 4,200 kilograms.

Regional airlines: Revenue traffic carried by the operators of scheduled regional regular public transport services, and excluding charter (non-scheduled) services. This sector includes those airlines performing regular public transport services and whose fleets contain exclusively low capacity aircraft, currently defined as aircraft with 38 seats or less or with a payload of 4,200 kilograms or less.

Airport traffic statistics: cover revenue traffic uplifted and discharged at principal Australian airports by the operators of RPT services. International and regional airline traffic is based on uplifts and discharges within flight. Data for domestic airlines is based on traffic on board by stages, which aggregates all traffic on each flight stage arriving at or departing from the airport.

Available Seat Kilometres (ASKs): Available seat kilometres are calculated by multiplying the number of seats available on each flight stage by the 'Great Circle Distance' in kilometres between the ports.

Origin/Destination: the country of residence or main destination of passengers.

Uplift/Discharge: the point of embarkation or disembarkation on a flight.

Abbreviations

ABARES: Australian Bureau of Agricultural and Resource Economics and Sciences.

ABS: Australian Bureau of Statistics.

BITRE: Bureau of Infrastructure, Transport and Regional Economics.

CAGR: Compound Annual Growth Rate.

CPI: Consumer Price Index.

DMP: Department of Mines and Petroleum, WA.

FIFO: Fly-in Fly-out.

FY: Financial Year.

GDP: Gross Domestic Product.

GFC: Global Financial Crisis.

GSP: Gross State Product.

IATA: International Air Transport Association.

IMF: International Monetary Fund.
PAX: Passengers.
PCE: Private Consumption Expenditure.
PHE: Port Hedland.
RBA: Reserve Bank of Australia.
RFD: Real Final Demand
RPT: Regular Public Transport.
TFI: Tourism Futures International.
TWI: Trade Weighted Index.
USD: United States Dollar.
WA: Western Australia.

Disclaimer

The Forecasts described in this Proposal have been prepared on behalf of, and for the exclusive use of, Port Hedland Airport (PHE) and are not intended for third parties. TFI accepts no liability or responsibility whatever for or in respect of any use of or reliance upon this report by any third party.

Accordingly TFI provides the Forecasts on the understanding that: -

1. The business environment is uncertain and that forecasting provides a guide only in respect of the planning for traffic at PHE. Forecasts are based on a number of economic and other assumptions and must be interpreted in the context of these assumptions;

2. TFI disclaims all and any liability to any person in respect of anything and of the consequences of anything done or omitted to be done by any such person in reliance, whether whole or partial, upon the whole or any part of the Forecasts;

3. TFI is neither responsible for the accuracy of the Forecasts, nor makes any representations nor assumes any duty of care in respect of any of the Forecasts;

4. TFI will not be liable in contract, tort or otherwise for any damages expense, loss or liability suffered or incurred by PHE however caused in respect of the Forecasts;

5. PHE will not rely upon any of the Forecasts in entering into any contract or other arrangements;

6. The Forecasts will be developed solely for use by PHE and not for the use of third parties; and

7. In the event that all or part of the Forecasts are provided by PHE to any third party, PHE will assume responsibility for ensuring that the third party accepts the Forecasts on the same basis as described in (1)-(6) above.

Appendix 2

Port Hedland International Airport redevelopment program review – Rehbein Airport Consulting

REHBEIN AIRPORT CONSULTING

DATE 06 January, 2014

CONTACT BEN HARGREAVES

Port Hedland International Airport Redevelopment Program Review for Town of Port Hedland

EXECUTIVE SUMMARY

The Town of Port Hedland, which owns and operates the Port Hedland International Airport, has made a commitment to transform the airport precinct into a modern and well-serviced facility that provides a welcoming gateway to the North West.

This commitment is based on the Port Hedland International Airport Master Plan which was finalised in March 2012 and incorporates work undertaken by various consultants across a period of two to three years.

The Town commissioned REHBEIN Airport Consulting to undertake a strategic review of the development proposals in the context of the Master Plan. The principal objective of the review was to ensure that existing plans will meet future growth needs and regional requirements to position Port Hedland as a vibrant city of 50,000 people by 2035.

The review has been structured to cover five themes: airside planning, land use, passenger terminal, car park/ground transport and the freight/logistics zone. Specific objectives relating to each aspect of the review included:

- The need to validate previous plans, in order to:
  - Ensure future growth and regional needs are met
  - Verify the timing for infrastructure delivery; and
  - Maximise the economic, social and environmental benefits of the upgrade;
- Ensure an integrated, holistic approach; and
- Provide a sound basis for investment.

Extensive consultation with key internal and external stakeholders through data gathering and design workshops was undertaken, as well as participation in 'placemaking' workshops. Workshops were held in Port Hedland on 3 and 4 September 2013 and in Port Hedland and Perth during the week of 28 October to 1 November 2013. The final design concepts were ultimately informed by stakeholder and community feedback and the workshop outcomes.

Revised forecasts of passenger and aircraft movements were developed by Tourism Futures International (TFI) – these update previous projections on which the Master Plan was based. TFI considers it likely that the mining investment growth phase will peak by 2015 at around 500,000 to 600,000 passengers and stabilise around 400,000 to 500,000 passengers depending on the future mix of resident and fly-in/fly-out (FIFO) employment. Additional mining projects and construction of additional port facilities could increase these passenger numbers by more than 50,000. TFI's upper limit estimate for passenger traffic at Port Hedland by 2033 is 730,000 passengers.

Challenges in accurately forecasting future traffic for Port Hedland and other mining-driven airports are acknowledged within the TFI report. An alternative growth projection based on a compound annual growth rate of 5% per annum was developed by REHBEIN to provide a sensitivity check. This growth, if it occurred, would result in approximately 1.36 million passengers by 2033. While this level of traffic may represent a longer-term proposition, it is considered to form an appropriate basis for the planning of passenger terminal facilities when taken in the context of a building life of 40 plus years.

The review has tested the previous concepts and identifies appropriate refinements to meet the previously noted objectives and accommodate 1.36 million passengers. The key outcomes are intended to inform the subsequent detailed design process and are summarised as follows:

Airside Planning

- The proposed concepts (contained in the Master Plan) for airfield and airside infrastructure expansion offer logical, rational and sensible solutions which are appropriate to expected future aeronautical requirements.
- The change from power-in/power-out to power-in/push-back operations and implementation of new aircraft parking arrangements is endorsed, however it is recommended that the proposed concrete aircraft parking positions are omitted to preserve maximum flexibility.
- A number of principles from these concepts are fully endorsed including:
  - Future expansion of the Southern Apron to the south-west, running adjacent the boundary with Precinct 2;
  - Provision of a future Code F taxiway connecting the Southern Apron and expansion to Taxiway B2 and Runway 14/32;
  - Expansion of the general aviation (GA) apron to the north and widening to increase its capacity including for helicopter operations; and
  - Flexibility for apron and terminal facilities to respond to concurrent international and domestic operations.

Land Use

- The proposed non-aeronautical land-use strategy set out in the Master Plan is considered to be generally sound and the proposed lot layouts and land uses within Precincts 2, 3 and 4 are mostly reasonable.
- The lot layout within Precinct 2 should be reviewed in relation to preserving the capability for ultimate expansion of freight and other major aviation support activities once Precinct 1 is fully occupied.
- The stakeholder consultation revealed a widespread consensus that there is a potential opportunity in the short to medium-term to develop an international freight hub at the airport and that existing proposals for a freight and logistics subdivision within Precinct 1 should be modified if necessary to accommodate this.
- Relocation of the existing freight facilities is essential in order to facilitate the expansion of the terminal to the east.
- The proposed lot layout of the freight/logistics zone needed to be rationalised to facilitate common user international airfreight facilities.

Passenger Terminal

- The existing passenger terminal location should be retained.
- The existing facility is undersized in relation to current peak period traffic levels, operationally inefficient, and lacks the passenger comfort and amenities associated with modern airport terminal facilities.

- Expansion in a single phase to a total footprint of approximately 11,930m^2 is recommended (8,800 m^2 internal and 3,130 m^2 external).
- Incorporation of international departures facilities would be best on a mezzanine to maximise flexibility for concurrent international and domestic operations.
- A covered walkway to the apron face of the terminal should be provided.
- An extensive plaza area connecting terminal to ground transport arrangements will assist with proposals to generate a sense of place and smooth the transition between transport modes.

Car Park/Ground Transport

- Provision of a shared-use pick-up/drop off zone and reconfiguration of the existing short-term car park entry and exit arrangements is recommended.
- Incorporation of a permanent mini-bus and coach parking area to the north of the short-term car park, to address front-of-house security concerns and resource company requirements for transit of employees.
- Development of expanded short-term parking to the north of the existing, and formalisation and expansion of the rental car parking area to the south of the existing long-term parking. The boundary between these areas should be of a flexible nature so that relative number of spaces for each use may be easily adjusted in the future to suit actual demand.
- Retention of the existing long-term parking area without alteration.
- Extension of the existing service road to facilitate further hangar development in this area and a new intersection with the main airport access road.
- Provision of staff parking spaces to the south of the Polar Aviation hangar.
- Development of a new two-way access to the freight and logistics subdivision to facilitate connectivity between the rental car ready-bays and the storage lots in the subdivision.

Freight/Logistics Zone

- Retain the existing layout of Lots 1-8.
- Adjust the road layout creating direct airside access from the Air BP site.
- Develop a new area immediately north of the Air BP site for consolidation of airport operations activities.
- Consolidate proposed Lots 9/10 and 12/13 to provide larger lots with airside access.
- Identification of four lots with direct landside and airside access suitable for development of international and domestic freight hub facilities, individually or in various combinations.

There are a number of matters for consideration for each of the program areas and these are explored further in the report.

As the redevelopment of the airport precinct will be undertaken within and around a live operating airport, there are a number of project sequencing issues that need to be addressed. The key steps in the development sequence are as follows.

- Provision of services (water, wastewater, electricity) and establishment of road access to the proposed lots in the Freight/Logistics Zone.
- Construction of the northern GA apron expansion and provision of additional hangar sites, which will enable relocation of existing general aviation tenants within the airport operations zone.
- Relocation of the existing freight operations to the new freight hub and rental car facilities to the logistics zone.
- Reconfiguration of the short-term car park to accommodate the proposed expansion of the terminal to the north.
- Demolition of the existing building to the west of the terminal.
- Construction of the proposed terminal extension in stages commencing with a new check-in hall at the eastern end.

Indicative costs for key elements of the redevelopment along with appropriate contingencies have been identified for budget purposes and are provided within the report.

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1.0 INTRODUCTION

1.1 BACKGROUND

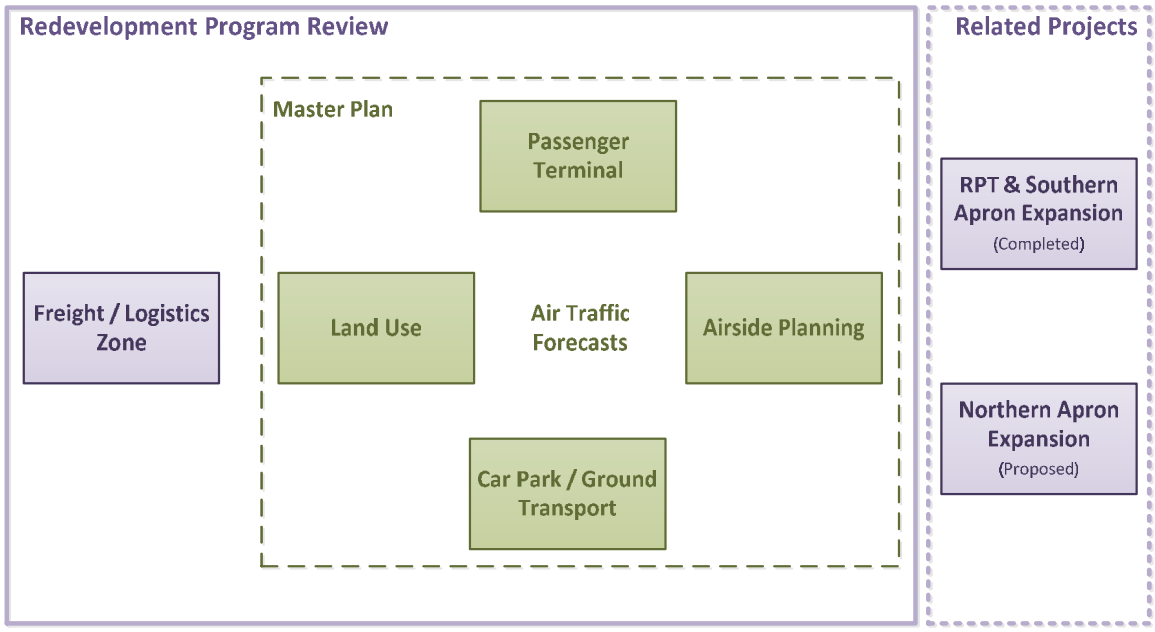
The Town of Port Hedland, which owns and operates the Port Hedland International Airport, has made a commitment to transform the airport precinct into a modern and well-serviced facility that provides a welcoming gateway to the North West.

This commitment is based on the Port Hedland International Airport Master Plan which was finalised in March 2012 and incorporates work undertaken by various consultants across a period of two to three years.

The Town commissioned REHBEIN Airport Consulting to undertake a strategic review of the development proposals in the context of the Master Plan. The principal objective of the review was to ensure that existing plans will meet future growth needs and regional requirements to position Port Hedland as a vibrant city of 50,000 people by 2035.

The review focusses on the main elements of the Master Plan. It assesses the requirements for each element in more detail and takes into account how each element will interface with the others. Related projects, outside the review scope but with the potential to impact on or be impacted by the redevelopment proposals, are also considered. Figure 1 illustrates the various components of the review.

Figure 1: PHIA Review Elements



In preparation for the investment of more than $70 million over the next five years, to transform the airport into a modern, well-serviced facility that will provide a welcoming gateway to the North West, the Town of Port Hedland (The

Town) commissioned REHBEIN Airport Consulting to undertake a strategic review of the development proposals in the context of the Master Plan.

1.2 REVIEW OBJECTIVES

The principal objective of the review was to ensure that existing plans will meet future growth needs and regional requirements to position Port Hedland as a vibrant city of 50,000 people by 2035.

The review was structured to cover four themes established by previous detailed studies: airside planning, land use, passenger terminal and car park/ground transport. A fifth aspect – freight facilities – was subsequently incorporated following initial stakeholder workshops.

Specific objectives relating to each aspect of the review included:

- The need to validate previous plans, in order to:
  - Ensure future growth and regional needs are met
  - Verify the timing for infrastructure delivery; and
  - Maximise the economic, social and environmental benefits of the upgrade;
- Ensure an integrated, holistic approach; and
- Provide a sound basis for investment.

The review has tested the previous concepts and identifies appropriate refinements to meet these objectives. The key outcomes are intended to inform the subsequent detailed design process.

1.3 BACKGROUND MATERIAL

The review has made reference to relevant background material, which includes:

- Port Hedland International Airport Master Plan, March 2012, prepared by Airbiz[1];
- Port Hedland Airport Terminal Plan Stakeholder Consultation, 8 December 2010, Prepared by Airbiz;
- Port Hedland International Airport Master Plan, January 2011, prepared by Whelans Town Planning and Parsons Brinckerhoff;
- Air Traffic Forecasts for Port Hedland Airport, Draft Report, March 2011, prepared by Tourism Futures International;
- Port Hedland International Airport Terminal Redevelopment Concept Master Plan, July 2011, prepared by Thinc Projects, Sandover Pinder and Rider Levitt Bucknall;
- Port Hedland Airport Car Parking Study, November 2010, prepared by Cardno Eppell Olsen;
- Port Hedland Airport Terminal Plan Commercial and Retail Demand, 24 November 2010, prepared by Airbiz;

[1] This document will be referred to hereafter as the Master Plan. Other background documents will be identified by their full name, date and organisation. Some of these background documents were also appended to the Master Plan.

- Port Hedland Airport Car Park Redevelopment Concept, Drawings PE_WAPH0012(2), June 2011, prepared by Opus;
- Port Hedland International Airport Hire Car and Freight Area, Proposed Construction of Earthworks, Roads, Drainage, Waste Water, Water and Associated Works, Town of Port Hedland, June – 2013 (WAPC No 145870), prepared by Parsons Brinckerhoff;
- Drawing No. 2346-A-031/B Port Hedland International Airport Apron Extension Aircraft Marking Plan Push Back – Sequence 1 prepared by Enesar Pty Ltd.

1.4 ENGAGEMENT AND CONSULTATION PROCESS

The review has included extensive consultation with key internal and external stakeholders, through a series of workshops. Key workshop sessions were held at the commencement of the review process, and again once initial concepts had been prepared.

Participation in community and stakeholder 'placemaking' workshops, conducted as part of a complementary Town of Port Hedland initiative, was also undertaken. The ideas generated within these workshops and the subsequent recommendations from the placemaking consultancy, have provided important guidance in relation to several of the concept elements.

Feedback from these reviews and workshops has formed an essential element in guiding the development of the concepts and testing these against future requirements and existing constraints.

Key workshops were held in Port Hedland on 3 and 4 September 2013, and in Port Hedland and Perth during the week of 28 October to 1 November 2013.

1.5 AIR TRAFFIC FORECASTS

Revised forecasts of passenger and aircraft movements have been developed for the Town of Port Hedland by Tourism Futures International (TFI) as part of the redevelopment strategy review. The forecasts are set out and described in the TFI report *Air Traffic Prospects for Port Hedland Airport, Final Report October 2013*. These forecasts review and update the previous projections prepared by TFI in 2011 on which the Master Plan was based.

1.5.1 HISTORICAL GROWTH

Table 1-1 shows the annual passenger and RPT aircraft movement traffic at Port Hedland for selected years since 2005. Growth in passengers has resulted in a sustained compound annual growth rate of almost 25% since 2005.

Table 1-1: Port Hedland International Airport Traffic Growth

Year	2005	2010	2012	2013 Estimated
Passengers	100,430	296,810	473,979	513,000
RPT Aircraft	2,791	3,477	5,450	5,800

Source: TFI, 2013

Growth in aircraft movements has lagged somewhat, but substantial increases over the last three years have resulted in a compound annual growth rate of around 20% over the period since 2005. Weekly return services increased from 45 in 2011 to 58 in 2013. This increase has been almost entirely attributable to an increase in Qantas and QantasLink services.

1.5.2 PROJECTED TRAFFIC

The 2011 TFI forecasts projected annual traffic rising rapidly to between 450,000 and 610,000 by 2014 and between 424,000 and 700,000 by 2031. In its 2013 update of the air traffic forecasts, TFI considers it likely that the mining investment growth phase will peak with a year or so if it has not done so already. Following a peak of around 500,000 to 600,000 passengers, TFI expects the level of passenger traffic to stabilise in the range of 400,000 to 500,000 passengers depending on the mix of resident to FIFO employment in the future. Additional mining projects and construction of additional port facilities could add a further 50,000+ passengers in the years of construction, again depending on the resident/FIFO mix. Based on this projection, passenger traffic at Port Hedland may already be at its peak levels. TFI's upper limit scenario for traffic in 2033 is 730,000 passengers.

Whilst it is recognised that the TFI forecasts are based on extensive research and consideration of a comprehensive range of relevant factors, the challenges in accurately forecasting future traffic for Port Hedland and other mining-driven airports are acknowledged within the TFI report. Similarly, whilst it is important that infrastructure be provided, as far as possible in line with demand, the downside risks associated with planning long-term redevelopment around a particular passenger traffic forecasts are also significant. If an upgrade of the existing facilities is to be undertaken, it is essential that sufficient capacity and flexibility are built in to the development proposals to ensure that any unforeseen future surges in traffic growth can be accommodated without unacceptable operational impacts.

An alternative growth projection was developed by REHBEIN Airport Consulting. This projection was based on a compound annual growth rate of 5% per annum. This growth, if it occurred, would result in approximately 1.36 million passengers by 2033. In light of the TFI report, it is acknowledged that this level of traffic may represent a longer-term proposition than a 20-year horizon. Nonetheless, when taken in the context of a building life of 40+ years, it is considered to form an appropriate basis for the planning of passenger terminal facilities. Bearing in mind that a new terminal is unlikely to be fully operational before 2015, and allowing for a 30-year life beyond that prior to additional expansion, 1.36 million passengers by 2045 would require an average annual growth of just 3% per year which is relatively modest in terms of global air traffic forecasts.

Table 1-2 summarises the various growth forecasts to 2030

Table 1-2: Port Hedland International Airport Traffic Growth Forecasts

Forecast	2010	2015	2020	2025	2030	2045
TFI 2011	297,000	610,000	641,000	671,000	702,000	N/A
TFI 2013	297,000	523,000	573,000	648,000	709,000	N/A
5% p.a. on 2013	297,000	566,000	722,000	921,000	1,175,000	2,444,000
3% p.a. on 2013	297,000	544,000	631,000	731,000	848,000	1,321,000

2.0 KEY REVIEW FINDINGS

A desktop review of the Master Plan and associated background material was undertaken by REHBEIN Airport Consulting. The findings of this review were then tested in a series of workshops with internal and external stakeholders. The key findings of these reviews in relation to each element of the redevelopment program are summarised in the following sub-sections.

2.1 LAND USE

- The proposed non-aeronautical land-use strategy set out in the Master Plan[2] is considered to be generally sound.
- Proposed lot layouts and land uses within Precincts 2, 3 and 4 are mostly reasonable. The suggestion that a wind farm could be accommodated in Precinct 4 or anywhere in the vicinity of the airport is considered to be unacceptable given the associated risks to aircraft safety.
- The lot layout within Precinct 2 should be reviewed in relation to preserving the capability for ultimate expansion of freight and other major aviation support activities once Precinct 1 is fully occupied.
- Relocation of the existing freight facilities is essential in order to facilitate the expansion of the terminal to the east. The existing facilities are aged and in urgent need of replacement.
- The stakeholder consultation revealed a widespread consensus that there is a potential opportunity in the short- to medium-term to develop an international freight hub at the airport and that existing proposals for a freight and logistics subdivision within Precinct 1 should be modified if necessary to accommodate this.
- The lot layout within Precinct 1 should be reviewed in light of recent developments and reconsidered in detail as part of this review.
- The stakeholder feedback highlighted that the current infrastructure to support airport operations is spread across several locations. Operations personnel are housed in facilities that were generally not designed for, and are not optimal for, the required purpose.

2.2 AIRSIDE PLANNING

- The proposed concepts for expansion of airfield and other airside infrastructure set out in the Master Plan are considered, in general, to offer logical, rational and sensible solutions which are appropriate to expected future aeronautical requirements.
- The proposals within the Master Plan are based on the majority of passenger traffic in future being served by Code C passenger aircraft such as Boeing 737-800/A320 size aircraft, with the potential for some services to operate using larger Code E aircraft such as Airbus A330-200. This was confirmed as an appropriate planning strategy by stakeholders.

[2] Port Hedland International Airport Master Plan, January 2011, Whelans Town Planning / Parsons Brinckerhoff (incorporated at Appendix II of the 2012 PHIA Master Plan)

- The Master Plan makes provision for dedicated freight operations by aircraft up to Code F (Antonov AN-224) size
- A number of principles from these concepts are fully endorsed and adopted by the review, including:
  - Future expansion of the Southern Apron to the south-west, running adjacent the boundary with Precinct 2;
  - Provision of a Code F taxiway connecting the Southern Apron and expansion to Taxiway B2 and Runway 14/32;
  - Expansion of the GA apron to the north and widening to increase its capacity including for helicopter operations;
  - Flexibility for apron and terminal facilities to respond to coincident international and domestic operations.
- The most influential development associated with this review is the proposed change from power-in/power-out to power-in/push back operations on the RPT apron. This change is proposed as part of the apron expansion project whose design predates the review, but is consistent with the concept set out in the Master Plan. This change will require agreement with the airlines and ground handling contractor in relation to the arrangements for procurement and operation of the necessary ground support equipment (GSE), as well as appropriate provision for GSE staging, storage and maintenance.

2.3 PASSENGER TERMINAL

- The Master Plan retains the existing passenger terminal location and reserves provision for future expansion.
- The existing terminal is over 40 years old and whilst it has remained functional until this point it is undersized in relation to current peak period traffic levels, is operationally inefficient, and lacks the passenger comfort and amenities associated with modern airport terminal facilities. Stakeholder feedback offered no argument for retaining or attempting to re-use any of the existing building structure.
- The stakeholder consultations identified a number of operational issues which the terminal redevelopment concept needs to consider.
- Several previous terminal redevelopment concepts were reviewed as part of the desktop study and initial drafts of alternative concepts were put forward for stakeholder feedback.
- Space requirements and underlying assumptions were re-considered in light of stakeholder input, especially that resulting from the industry workshops and parallel community placemaking process.
- The layout and interrelationship of the different functional areas within the terminal was reviewed and tested for interaction with adjacent internal and external areas including the apron and car park.
- As a result of the above reviews, a number of changes were made to the internal concept layout of the terminal.

2.4 CAR PARK / GROUND TRANSPORT

- The Master Plan had identified a location immediately to the east of the short-term car park to be dedicated for the use of shuttle buses utilised to transport resource company personnel. Mixed feedback was received from

stakeholders in relation to the most appropriate way to accommodate buses within the constraints posed by aviation security requirements, the operational and HR considerations of resources companies, and community 'sense of place' aspirations.

- Airport front-of-house security requirements make it necessary to limit the size and number of vehicles permitted access to the terminal kerbside and dictate enforcement of waiting time restrictions. At the same time, emergency vehicle access as close as possible to the terminal needs to be facilitated in the event of fire.
- In conjunction with the long-term bus parking arrangements, the construction of interim facilities to accommodate buses away from the terminal kerbside whilst the redevelopment program is implemented is proposed by the Town of Port Hedland.
- Rental vehicles form a large proportion of transport demand at the airport. However rental car companies find it challenging to provide estimates of future demand as this is fundamentally driven by resource company shift patterns. This tends to exacerbate the need for additional ready-bays in close proximity to the terminal during peak flight periods. Some flexibility in the number of rental vehicle ready bays provided is therefore suggested.
- General feedback was received that the single boom gate exit from the existing short-term car park was inadequate and could lead to lengthy queues to exit the car park at peak times.
- Clear feedback was received from organisations who have operations in and around the passenger terminal of the need for safe, accessible and cost-effective car parking to be available for the use of their employees.
- Convenient access to the rental car storage lots and servicing facilities proposed within the freight and logistics subdivision of Precinct 1 is important.

3.0 RECOMMENDED DEVELOPMENT PROPOSALS

Drawing B13341-A-001 at Appendix A shows the key elements of the redevelopment proposals resulting from the review. The proposals are divided into four separate but inter-related areas:

- Freight and Logistics Subdivision;
- Airside Planning;
- Passenger Terminal Expansion; and
- Ground Transport.

The recommended development proposals for each area are summarised in the following sub-sections. Further background and rationale for the proposals, along with key matters which require further consideration in the subsequent detailed design phase, is provided in Sections 4.0 through 7.0 following.

3.1 FREIGHT / LOGISTICS ZONE

The recommended concept layout for the Freight and Logistics Subdivision is shown on Drawing B13341-A-002 at Appendix A. Key development proposals include:

- Development of the previously approved subdivision lot layout for eight (8) lots to the north of Roads 1 and 2;
- Adjustment to the proposed road layout thereby creating direct airside access from the Air BP site;
- Development of a new lot immediately to the south of the existing Air BP site;
- Consolidation of some previously approved lots; and
- Identification of four (4) lots with direct landside and airside access that would be suitable for development of international and domestic freight hub facilities, individually or in various combinations.

3.2 AIRSIDE PLANNING

As a result of the findings of the review, development proposals in relation to airside planning have been limited to consideration of the ultimate aircraft parking layout and future expansion of the Southern Apron. A concept layout showing the envisaged ultimate apron arrangement for RPT and freight operations is shown on Drawing B13341-A-003 at Appendix A. Key development proposals include:

- Implementation of currently designed aircraft parking arrangements, but omission of the proposed concrete hardstands at aircraft parking positions in order to preserve maximum flexibility for the future; and
- Future provision of a Code F taxiway access linking the Southern Apron to Taxiway B2 and Runway 14/32; and

- Ultimate freight apron development to the south west in general accordance with Master Plan proposals.

3.3 PASSENGER TERMINAL

The recommended concept layout for the passenger terminal expansion is shown on Drawing B13341-A-004 at Appendix B. Key development proposals include:

- Expansion in a single phase to a total internal area of footprint of approximately 8,800m^2, capable of handling an estimated 1.35 million passengers per year;
- Incorporation of international departures facilities on a mezzanine level to maximise flexibility in timing of international and domestic services;
- Provision of an extensive plaza area connecting the terminal to ground transport arrangements; and
- Provision for a covered walkway to the apron face of the terminal.

3.4 CAR PARK / GROUND TRANSPORT

A concept layout for car parking and ground transport facilities is shown on Drawing B13341-A-005 at Appendix A. Key development proposals include:

- A shared-use pick-up/drop off zone, reconfiguration of the existing short-term car park entry and exit arrangements;
- Incorporation of permanent mini-bus and coach parking area in the location identified for interim facilities;
- Development of expanded short-term and rental car parking areas to north and south of the bus/coach parking area, with a flexible boundary so that relative number of spaces for each use may be easily adjusted in the future to suit actual demand;
- Retention of the existing long term parking area without alteration;
- Dual, well-defined and relatively direct north-south pedestrian access routes;
- A new seagull intersection with an extension of the existing service road serving the northern apron hangars, facilitating further hangar development in this area;
- Provision of staff parking spaces to the south of the Polar Aviation hangar, accessed via the service road; and
- Provision of a new two-way access to the freight and logistics subdivision, passing to the north and east of the airport personnel houses.

4.0 FREIGHT / LOGISTICS ZONE

4.1 PREVIOUS PROPOSALS

The Master Plan proposes the development of facilities for freight and logistics uses within Precinct 1, in an area to the south and east of the terminal. An area reserved for Airport Operations uses was also identified to the east and north of the terminal.

The layout within the July 2011 Land Use Master Plan was subsequently modified during the detailed design process in an attempt to maximise the value of the subdivision and increase the number of lots with direct airside access. The resulting arrangement of 13 lots, three with direct airside access, was submitted and approved by the Western Australia Planning Commission (WAPC)[3].

Valuable and significant feedback on airport operational uses was obtained during the stakeholder consultation process undertaken as part of the review. In particular the extent of space and facilities necessary for the storage and maintenance of the significant items of ground support equipment (GSE) was identified by airport operations and ground handling representatives.

Additional GSE will be generated as a result of:

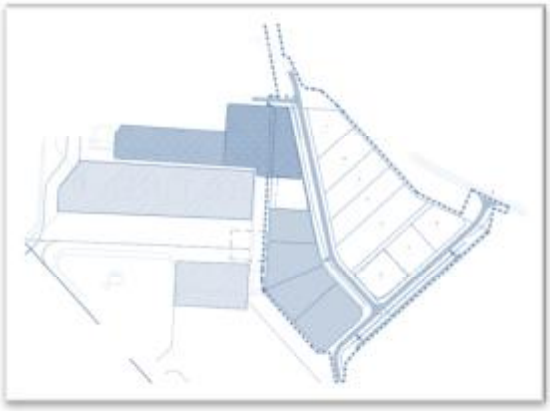
- The proposed change to power-in/push-back operations on the RPT apron; as well as
- The potential for handling wide-body aircraft including unit load devices (ULDs), dollies and loaders.

Additionally, ground handling agents indicated a need for adequate floor space within the terminal to accommodate a number of facilities such as manager's office, training room, lunch room and operations area. By nature of the constraints on the available terminal footprint, it may not be feasible to accommodate all of these internally in the passenger terminal building. It is likely to prove more efficient to provide these facilities separate, but located in close proximity to, the terminal itself.

4.2 RECOMMENDED CONCEPT LAYOUT

The proposed layout of the freight and logistics subdivision is indicated on Drawing B13341-A-002 at Appendix A. The layout:

- Retains the existing layout of Lots 1-8 in accordance with plans previously approved by WAPC;
- Removes the previously proposed publicly accessible Road 3 immediately adjacent the airport perimeter fence between the existing Air BP fuel facility and proposed Lots 9 and 10;
- Consolidates the previously proposed Lots 9/10 and 12/13 to provide larger lots with airside access;



[3] Port Hedland International Airport Hire Car and Freight Area, Proposed Construction of Earthworks, Roads, Drainage, Waste Water, Water and Associated Works, Town of Port Hedland, June – 2013 (WAPC No 145870)

- Retains the existing Air BP facility but provides for direct airside access onto the existing apron taxiway; and
- Modifies the alignment of Road 2 to remain east of the drain, before continuing north to connect with the proposed rental car ready-bay parking area.

The area to the north of the existing Air BP facility has limited access to the airside due to the location immediately adjacent the RPT Apron. This area would therefore be best suited for the consolidation of airport operations activities including an airport operations centre, emergency operations facilities, GSE storage and maintenance, administration and support.

Proposed Lots 9, 10, 11 and 12, individually or in combination, comprise the logical location for international and domestic freight facilities. This area offers convenient access to dedicated freight operations on the existing Southern Apron and any future expansion of this to the south-west, as well as for handling of belly-hold freight in passenger aircraft on the RPT apron.

4.3 MATTERS FOR CONSIDERATION

- Road access to Lots 9-12 would be required across a substantial drain. It will need to be determined whether access is provided by the Town, or to be provided by the lot developer to suit their own layout and operational arrangements.
- An alternative location will need to be found for the proposed pump station.
- The exact location of the airside boundary, lot lease boundaries and associated responsibility for the construction and maintenance of pavement tie-ins and access to edge of existing apron pavement will need to be addressed. It is suggested that an airside road be provided along the eastern perimeter of the airside to provide connectivity for operational vehicles to the RPT apron.

5.0 AIRSIDE PLANNING

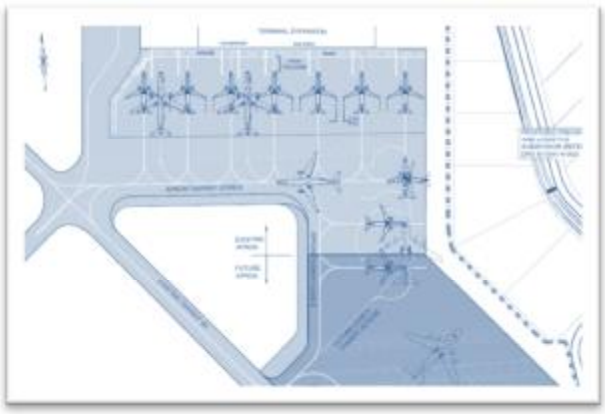
5.1 PREVIOUS PROPOSALS

The Master Plan indicates a concept layout for the RPT apron development to accommodate a mix of Code C and Code E aircraft, a Code F connection from the Southern Apron to Taxiway B2 and Runway 14/32 with ultimate expansion to the south-west parallel to the boundary with Precincts 1 and 2.

As part of the RPT and Southern Apron Extension project, which was underway at the commencement of the review, a more detailed design layout for aircraft parking on the expanded apron was also developed[4].

5.2 RECOMMENDED CONCEPT LAYOUT

The current design layout is considered appropriate for the aircraft parking needs at Port Hedland in the short-term. The review concludes that the aircraft parking arrangements as designed should be implemented as planned.



As part of the review, REHBEIN Airport Consulting undertook an assessment to determine the likely maximum capacity of the extended apron.

This review tested the ability of the apron extent to accommodate potential future parking needs with respect to the following:

- The mix of RPT aircraft that could be accommodated on power-in/push-back positions adjacent the terminal;
- Interaction between passenger movements, GSE operations and the interface with the terminal;
- Push-back operational arrangements; and
- Freight aircraft parking arrangements and the interface with the freight hub facilities.

The ultimate apron concept layout is illustrated in Drawing B13341 A-003 at Appendix A and accommodates the following features:

- Power-in/push-back parking adjacent to the passenger terminal for up to seven (7) B737-900 size aircraft, or three (3) B737-900 plus two (2) A330-200 aircraft;
- A330-200 positions are limited to the western end of the terminal due to push-back interaction with aircraft parked on the Southern Apron;
- Provision for a covered passenger walkway adjacent the terminal face, head-of-stand airside road, tug zone and equipment staging areas;
- A Code E apron edge taxiway with sufficient clearance to form a complete loop back to Taxiway B2;

[4] Enesar Pty Ltd Drg. No. 2346-A-031/B Port Hedland International Airport Apron Extension Aircraft Marking Plan Push Back – Sequence 1

- Power-in, power-out positions on the Southern Apron for two B737-800 aircraft or one wide-body aircraft up to AN-224 Code F;
- Future Code F taxiway linking the Southern Apron with Taxiway B2 and Runway 14/32; and
- Future freight apron expansion adjacent to the Freight and Logistics Subdivision and continuing to the south west adjacent to Precinct 2.

It is, however, recommended that the proposed concrete pads located on aircraft parking positions not be constructed. These would limit the ability of the apron to be reconfigured in future to suit changing demands.

5.3 MATTERS FOR CONSIDERATION

- The Town could consider bringing forward the future Code F taxiway connection to allow a full Code E apron loop in conjunction with some minor extension to the Southern Apron. The taxiway loop is potentially useful to maximise capacity and minimise delays on the RPT apron when multiple aircraft are operating in cul-de-sac arrangement.
- Future expansion of the Southern Apron to the south west beyond the boundary of Precinct 1 could result in interface issues, in relation to interaction with Precinct 2. As a result, land uses proposed for landside areas within Precinct 2 adjacent to the future apron should take into consideration the potential need for apron access.

6.0 PASSENGER TERMINAL

6.1 PREVIOUS PROPOSALS

The Master Plan identified a terminal reserve to the west, east and south of the existing terminal, and also proposed two phases of expansion. Phase I expansion reflects the short- to medium-term market potential of four busy hour domestic narrow body aircraft and an international wide body service. Expansion of the terminal to accommodate this would occur within a footprint of approximately 10,000m^2. Phase II of the expansion would increase the terminal to a total footprint of approximately 11,000m^2 and is based on the ultimate demand scenario envisaged by the Master Plan (the Master Plan does not indicate a particular level of traffic associated with this scenario).

Detailed planning work was undertaken in parallel with the preparation of the Master Plan[5]. This work resulted in a proposed concept plan for the terminal which formed the starting point for discussion with stakeholders. Whilst the high-level concept appears sound, the desktop review conducted by REHBEIN Airport Consulting concluded that some aspects of the layout proved sub-optimal. The redevelopment review process therefore identified a number of potential improvements that could be made to provide additional confidence that the integrity of the final concept can be maintained through the detailed design process.

In addition to this concept, a preliminary terminal upgrade concept plan[6] prepared in-house by the Town of Port Hedland was provided for consideration.

6.2 RECOMMENDED CONCEPT LAYOUT

6.2.1 CONSTRAINTS

Several potential constraints to the expansion of the terminal were identified during the initial desktop review and stakeholder workshop phase of the review. These were:

i) Extensive existing in-ground services running in the verge between the existing front-of-terminal road and the short-term car park, which would be costly to relocate. This effectively sets the northern limit of the new building façade line to the kerb line between the verge and the terminal road. This is approximately 12m north of the existing façade.

ii) As part of the RPT and Southern Apron Extension project, the existing apron floodlighting poles are to be moved to the south sufficiently to accommodate a 15m extension of the terminal. Although there is potential for these lights to moved further south in conjunction with further apron expansion in the future, this effectively sets the limit on the southern façade of the terminal building.

iii) The existing Polar Aviation hangar lease area to the north and west of the terminal presents a potential constraint on access to the western end of the northern façade of the terminal, depending on the extent of construction.

[5] Port Hedland International Airport Terminal Redevelopment Concept Master Plan, July 2011, Thinc Projects, Sandover Pinder and Rider Levitt Bucknall

[6] Designtech Drawing. No. 1224-M-0001/1 – Port Hedland International Airport Main Terminal Building Upgrade Plan

iv) The existing building housing airport operations and other Town personnel immediately to the west of the existing terminal presents a potential constraint. Given its age and condition, there is little value in the retention of this facility other than in the short term. Provision is to be made for alternative Airport Operations facilities as part of the redevelopment program. However, alternative accommodation would need to be found for the various occupants of this building in a timeframe which fits with the redevelopment program.

v) The existing hangar facility to the east of the existing freight shed (currently occupied by Russell Aviation, previously Golden Eagle Airlines) presents a potential constraint to the expansion of the terminal to the east. The Town has negotiated a clause in the lease agreement requiring the lessee to relocate if necessary as part of the redevelopment program. However, timing and availability of an alternative location would need to be considered. Expansion of the Northern Apron currently represents the only suitable site for relocation.

The existing freight shed immediately to the east of the terminal is not considered a constraint. However, these facilities would need to be relocated and so an alternative location, permanent or temporary, would need to be made available.

Constraints (i) and (ii) above effectively limit the depth of the terminal to approximately 55-60m. However, a width of over 200m is potentially available if required.

6.2.2 CONCEPTUAL PLANNING PRINCIPLES

The conceptual planning of the terminal expansion has adopted the following key principles, which were developed through reference to the overall objectives of the review set out in Section 1.2, as well as taking into account stakeholder and community feedback obtained through the consultation process. The principles were:

- Redevelopment of the terminal within an expanded footprint in the same location as the existing facilities, but assuming that all existing building structure will be removed as part of the redevelopment;
- Establishment of a terminal concept capable of accommodating potential long-term growth in traffic, beyond the 20-year forecasting period;
- Provision of a high quality of service and passenger experience, and the flexibility to incorporate aspects contributing to a strong sense of place for the benefit of local residents and visitors to Port Hedland; and
- The ability to facilitate efficient operations to minimise the impacts of FIFO workforce transfer through airport on the operations of the attendant resource companies.

6.2.3 DESIGN PARAMETERS

Design Traffic Loading

Passenger terminals consist of several distinct functional areas where core processing of departing or arriving passengers or baggage is conducted.

A number of approaches exist for estimating the relevant design loading on various elements the common fundamental principle is that each of these processes can be analysed in terms of the number of users (passengers or bags) demanding 'service' over a period of time, the capacity of the facilities and personnel to serve this demand.

At a conceptual level, the 'busy-hour rate' is often used to approximate the complex and often highly variable flow of passengers through a terminal. At relatively high overall flow rates, the busy-hour rate used in combination with an assumed dwell time can provide a reasonable representation of passenger demand. However in cases where flows vary significantly over shorter time periods, this simplification can under-estimate the necessary space required to deliver a particular passenger perception of service quality. Furthermore, due to interactions between sequential processes, a single busy-hour rate does not necessary apply to all of the functional areas. For these reasons, in relation to Port Hedland, some additional consideration of likely flow patterns and the consequential peak demand loading on individual functional areas can offer a more robust approach.

Previous planning work had identified several scenarios with numbers of assumed busy-hour passengers varying from 410 – 544 passengers in the peak hour[7]. In order to validate the spatial planning undertaken previously, REHBEIN Airport Consulting developed a notional future peak-period flight schedule. The schedule was based on the existing weekly flight schedule, with the number of flights and size of some aircraft increased in order to deliver the long-term traffic projection of approximately 1.3 million annual passengers as discussed in Section 1.5. The assumed peak hour demand on the terminal facilities is indicated in Table 6-1.

In order to translate these peak hour nominal flight schedules into assumed design loadings on the processes within the terminal, relevant assumptions are made about how passengers will move from one functional area to another. These assumed flows dictate the demand and service rates which need to be accommodated in order to meet defined queuing time parameters. This in turn determines the maximum number of waiting passengers to be accommodated.

[7] At Port Hedland, due to flight scheduling characteristics the peak period corresponds sufficiently closely to a one hour period that the term 'peak hour' is in fact a valid description.

Table 6-1: Assumed Peak Hour Terminal Demand

Aircraft Type	Number	Seats	LF	Pax
A330-200 (1)	2	278	70%	389
B737-800	2	168	80%	269
B717-200	1	117	90%	105
Total	5	1009	76%	763

(1) In terms of design loading this is equivalent to three 168-seat B737-800 aircraft operating at a load factor of 80%

Level of Service

As described by IATA[8], Level of Service can be considered as an assessment of the ability of supply to meet demand. Level of Service is measured as a range of values from A to F and can be applied to individual processes and the areas dedicated to them to accommodate passengers. This provides an indication of the conditions experienced by passengers subjected to each process and allows comparison between different processes and areas.

Level of Service C is recommended as the minimum design objective by IATA and is described in the IATA Airport Development Manual as:

> *'Good level of service. Conditions of stable flow, acceptable delays for short periods of time and adequate levels of comfort.'*

Based on the conceptual design principles set out above, a minimum Level of Service C in relation to the long-term design loading is considered appropriate. This will provide a much higher level of service in the early years of service of the terminal, until actual traffic reaches the assumed design level.

Spatial requirements for each functional area are defined by IATA with reference to the desired Level of Service and the number of design passengers.

Other Design Assumptions

In order to estimate spatial requirements for key functional areas, a number of other assumptions regarding the design operating day characteristics and service quality parameters need to be made. These assumptions have been established from a combination of reference to previous planning reports, experience in relation to other airports, the expected characteristics of traffic at Port Hedland, and the aspirations of the project with respect to passenger comfort.

There is a relatively large degree of uncertainty in relation to several of these assumptions, many of which require large datasets to accurately determine. Several parameters are also subject to likely changes in technology and process requirements over the life of the terminal, the impacts of which are hard to predict with accuracy. The general approach in these situations has been to adopt assumptions which lead to slightly conservative estimation of space requirements, in order to preserve maximum flexibility for changes which can be expected to occur over time.

Key design assumptions adopted in the development and validation of the passenger terminal concept are summarised in Table 6-2.

[8] Airport Development Reference Manual, 9th Edition 2004, International Airport Transport Association (IATA)

Table 6-2: Key Design Assumptions for Spatial Concept Planning

CHECK-IN	
Proportion of pax using mobile/web check-in	10%
Proportion of pax using kiosk only (no bag drop)	15%
Proportion of pax utilising bag-drop	75%
Average processing time at bag drop	1 min/pax
Maximum queue time at bag-drop	15 mins
Average no of well-wishers per pax	0.2
Minimum no of bag-drop desks	10(1)
Service desks	2
PASSENGER SECURITY SCREENING	
Service rate	3 pax/min/lane
Maximum queue time	10 mins
No of screening lanes	4
DEPARTURES (DOMESTIC)	
Maximum no of pax	531 (2)
Proportion of pax seated	80%
Proportion of food and beverage outlet seating @ average 2.1m^2 per pax (3)	70%
Proportion of gate lounge seating @ average 1.7m^2 per pax	30%
Proportion of pax standing @ average.1.2m^2 per pax	20%
Occupancy Level	65%
Retail tenancy area	400m^2
Airline lounge area	1,000m^2 (4)
Airline lounge occupancy	250 pax (5)
Amenities	150m^2
DEPARTURES (INTERNATIONAL)	
Outwards immigration service rate	80 pax/hour/desk
No of immigration desks	2
Maximum immigration queue time	15 mins
Maximum pax in waiting lounge	209 (6)
Proportion of pax seated	80%
Proportion of food and beverage outlet seating @ average 2.1m^2 per pax (3)	0%
Proportion of gate lounge seating @ average 1.7m^2 per pax	100%
Proportion of pax standing @ average.1.2m^2 per pax	20%

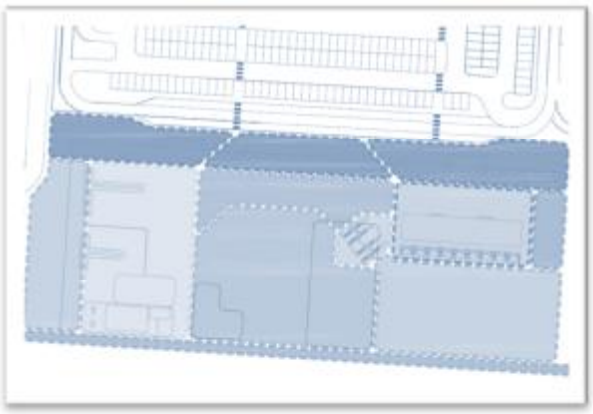
Retail tenancy area	150m² (7)
Amenities	50m²
ARRIVALS	
Number of Carousels	2
Carousel presentation length	1 x 30m + 1 x 45m
Maximum passengers at carousels	185
No of primary line desks	4
Average primary line service rate	1 pax/min/desk
Maximum primary line queue length	160 pax

Notes:

(1) The minimum desk requirement assumes common-user desks and common queuing. In order to take account of permanently allocated desks to carriers, and allow for segregation of each carrier's passengers into premium and non-premium service areas, additional desks will be required. A total of 16 desks have been allowed for.
(2) Includes an allowance for an additional 5% of well-wishers. In terms of 'busy-hour rate' analysis, this maximum occupancy is equivalent to an assumed busy-hour rate of 763 passengers per hour and an assumed average dwell time in departures of around 40 minutes prior to boarding. .
(3) Average space per passenger includes allowance for food and beverage back-of-house preparation area
(4) Based on advice from airlines of 400m² and 600m² respectively
(5) Based on an assumed 4m² per passenger in airline lounges which would be typical of capital city ports. Suggested occupancy figures provided by airlines indicate that an average space provision of 1.6 - 2.7m² per pax might be acceptable in peak periods.
(6) Based on long-term 278-seat A330-200 at 75% load factor.
(7) Allowance of 100m² for duty free and 50m² for retail/food and beverage

6.2.4 CONCEPT LAYOUT

A number of concept layout variations were developed in the course of the review. This included the testing of an option which sought to arrange the various functional elements in a manner which minimised the cost impact of relocating costly elements such as amenities and baggage handling infrastructure. Due to the scale of expansion required, it was not considered possible to achieve a workable solution in terms of operational or passenger flow arrangements, nor would it have met the Town's objective for a modern, well-serviced and efficient facility.



The concept layout which is proposed and recommended takes into account the functional area space requirements necessary to accommodate the design principles, the constraints to expansion, and parameters set out in the preceding sections. The recommended concept layout is indicated on Drawing B13341-A-004 at Appendix A.

The concept adopts a spatial configuration which is considered to be optimal in terms of the available terminal site, interactions with adjacent airport activities, and the operational requirements particular to Port Hedland, and incorporates the following elements:

- A check-in area at the eastern end of the terminal. This places the departures entry door at the start of the terminal kerbside, which is a standard arrangement at single-level airport terminals and typically understood by travellers. It also allows for interaction of airline and ground handling personnel between the check-in and baggage make-up areas, which is where the majority of operational workload takes place, with the adjacent airport operations area. The check-in area is nominally sized to accommodate 16 standard check-in/service desks or bag drop counters;
- An area for checked baggage screening and make-up of baggage loads for outbound flights, located behind check-in to minimise baggage flow paths. The area maximises the flexibility to accommodate a baggage storage and circulation carousel, and enable access and egress of baggage tugs and barrows from the eastern end of the building to minimise interaction with passenger access to and from aircraft.
- A landside concourse area, where travelling passengers can dwell to use amenities or farewell friends, family and colleagues prior to passing through to the secure departures areas. Non-travelling airport users may also use the concourse to partake in food and beverage or retail offerings, while awaiting arriving flights or visiting the airport for other purposes. This area also functions as general circulation between the check-in and arrivals spaces for passengers and operational personnel.
- A passenger security screening point, located between the check-in and concourse areas and oriented towards the check-in area, in order to offer direct access to the primary flow of departing passengers for ease of wayfinding.
- A departures lounge in which passengers dwell awaiting the departure of their domestic flight or prior to passing through further international security and immigration checks. The departures lounge is located centrally, in order to maximise allowable ceiling height within the applicable aerodrome obstacle restrictions. It provides direct connection to the apron and balances the width of apron frontage for passenger boarding gates with sufficient depth to allow comfortable circulation, provision of an appropriate level of retail and food and beverage offer, and space for airline premium lounges – all subject to relevant commercial arrangements.
- A mezzanine area to accommodate additional security screening and outward immigration processes for international departures, and a waiting lounge with apron views. The mezzanine is conceptually located to the east side of the departures area so as to minimise the impact on full-height views of the apron from within the departures lounge as well as the potential for visual connectivity through from the landside concourse area. It is anticipated that vertical transportation to the mezzanine and back to apron level would be located adjacent the eastern wall.
- A covered passenger arrivals/departures walkway allowing passenger flows across the terminal apron face while minimising interaction with vehicle operations on the apron.
- Domestic arrivals via a dedicated corridor directly to the baggage reclaim area. This minimises counter-flows and congestion which can occur if arriving passengers pass back through the departures lounge.
- International arrivals through an adjacent corridor with dedicated space for duty free collection, primary line queuing and inwards immigration processes. A swing arrangement allows baggage collection from one of the reclaim carousels. Passengers then pass through a dedicated area for secondary examination processes which

will incorporate offices and specific facilities for the use of the border protection agencies before re-entering the domestic arrivals corridor.

- A baggage breakdown area at the western end, allowing baggage tugs and barrows to enter and exit from the north-west corner of the RPT apron, minimising the conflicts with passenger movements across the face of the terminal.
- An external plaza areas to connect the terminal with the drop-off/pick up area and through to the short-term car park, rental car and shuttle bus zones and the long-term car parking beyond. It is envisaged this area will be appropriately shaded, and that the central portion in particular will be activated and connected to the internal concourse.

6.3 MATTERS FOR CONSIDERATION

Although the concept layout is considered to have comprehensively addressed the fundamental requirements of the terminal, there remain a number of matters which require more detailed consideration and resolution during the detailed design development process. Many of these relate to the architectural form of the building, engineering, provision of mechanical and electrical services, interior design of spaces and external landscaping. However, the following key operational details will need to be incorporated as the design of these aspects progresses.

- The concept layout is based on an ultimate passenger traffic level of approximately 1.35 million passengers even though the timing of this level of traffic is uncertain from the detailed passenger traffic projections which have been developed for the next 20 years. Staging of the building footprint is not recommended, however consideration should be given in the detailed design to the potential for cost-efficiencies to be introduced with respect to the initial development, whilst preserving the option to quickly and easily expand the fit-out as required. For example, areas not required for functional processing initially might be used as offices or meeting facilities until such time as demand dictates they be reallocated.
- The layout of retail and food and beverage facilities should be in accordance with specialist recommendations in relation to passenger flows and behaviour. This is especially the case within the departures lounge where these elements are likely to compete with other demands for particular elements of the space, such as airline premium lounges.
- Airline premium lounge locations need to be agreed. Airlines have expressed a preference for these to be located on the ground floor of the departures lounge, however care should be taken not to detract the functionality, comfort or experience within the public area. This includes the potential to establish visual connectivity between passengers and well-wishers in the concourse, passengers in the departures lounge, and the aircraft on the apron.
- The baggage make-up area should ideally incorporate a baggage make-up loop consisting of carousel fed from the checked baggage screening via overhead conveyor feed to allow baggage tug and barrow circulation. Provision for simultaneous make-up of up to six flights, with a further flight may be required in the long-term peak period.

- The baggage make-up area and baggage system should also allow for the circulation of baggage dollies and universal load devices (ULDs) used on wide-body aircraft. These are generally more manoeuvrable than open barrows, but are significantly higher, so ceiling heights will need to take account of this in design.
- Ground handling agents and airline representatives have indicated that compliance and training requirements have increased significantly during the past five years. Adequate floor space is required for these purposes and a number of other essential activities including space for housekeeping of proof documents. It may be necessary for some of this space to be located outside the terminal itself, for reasons of both practicality and cost.
- Connectivity for authorised personnel between the check-in area, airline and ground handling administration offices, baggage make-up area and related facilities to be located in the adjacent airport operations area will need to be properly understood and provided for to maximise operational efficiency.

7.0 GROUND TRANSPORT

7.1 PREVIOUS PROPOSALS

The Master Plan sets out a broad concept for car parking and ground transport. It placed short-term and rental parking immediately to the north of the terminal reserve, long term parking further north, and bus parking to the east of the terminal access road.

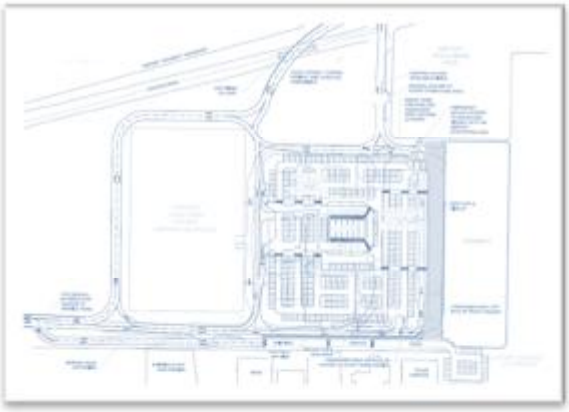
The present car park was developed in 2011 when new short and long-term car parks were constructed and paid-parking introduced. Actual development has followed a slightly different path from the original proposal as the new long-term parking was developed further to the north, in accordance with proposals developed by Opus[9]. The ultimate development of the Opus concept culminates with in-fill of the area between the short-term and long-term parking with rental car and staff car parking. This area currently accommodates some rental car parking, in a somewhat ad-hoc manner, along with car rental company facilities and existing fire service water storage tanks.

The Opus concept sets out a one-way clockwise circulatory system, with the parking separated into three distinct areas by transverse connections. Bus parking is indicated in a linear fashion adjacent the northern edge of the short-term parking in contrast to the Master Plan. The Opus concept also does not make allowance for the expansion of the terminal to the north towards the short-term parking.

The concept proposed a roundabout intersection at the northern extent of the car park area to allow access to the existing service road. It envisages that all access to the freight and logistics subdivision will be via the existing left-turn intersection to the north-east of the terminal.

7.2 RECOMMENDED CONCEPT LAYOUT

The Opus concept is generally considered to be appropriate. The concept recommended as a result of the review therefore aims to maintain and re-use existing infrastructure as far as possible, to maximise the cost-effectiveness of this element of the redevelopment program and allow expenditure to be focussed on other areas. However some adjustments are recommended to address some of the issues raised during the stakeholder workshops and to maximise the practicality of implementation.



[9] Port Hedland Airport Car Park Redevelopment Concept, Drawings PE_WAPH0012(2), June 2011

The recommended concept layout is shown on Drawing B13341-A-005 at Appendix A and the key points are outlined below.

- Relocation of the pick-up/drop off zone to the north to accommodate terminal expansion. Access is to be co-located with the entry to the short-term car park and controlled via a boom gate and terminal.
- Reconfiguration of the existing short-term car park entry and exit arrangements to provide for direct access to the short-term parking from the pick-up/drop off area for users that exceed the permitted free time allocation, or those who wish to drop off passengers prior to parking.
- Provision of dual exit gates from the short term parking to alleviate congestion and queuing during peak periods.
- Incorporation of permanent mini-bus and coach parking area in the location identified for interim facilities, to minimise the re-work required and to better address resource company requirements for transit of employees.
- Removal of the transverse circulation roadway to the north of the existing short-term car park. This removes the constraint on relocation of the short-term parking to accommodate terminal expansion and the need for pedestrians transiting to and from the rental car and bus parking areas to cross any significant roadways.
- Development of expanded short-term parking to the north of the existing, and formalisation and expansion of the rental car parking area to the south of the existing long-term parking. Whilst the full development requires relocation of the existing car rental facilities and fire water storage tanks, sub-stages of this development in accordance with the overall concept could be considered.
- The concept layout provides initially for 185 short-term public car park spaces and 265 rental car ready-bay spaces.
- The boundary between the short-term public and rental car ready bays is to be of a flexible nature, utilising relocatable bollards or other ‘soft’ barriers rather than hard form such as kerbs, so that relative number of spaces for each use may be easily adjusted in the future to suit actual demand.
- Location of access and egress to the rental car and bus/coach parking from the existing transverse road to the south of the long-term parking.
- Retention of the existing long term parking area without alteration.
- Dual, well-defined and relatively direct pedestrian access routes linking the terminal plaza with a central node surrounding the bus and coach parking and northwards to the long-term parking.
- A new seagull intersection to enable extension of the existing service road serving the northern apron hangars to be aligned more closely to and parallel with the main terminal egress. This facilitates further hangar development in this area.
- Removal of staff parking from the main paid car parking areas with provision of staff parking spaces to the south of the Polar Aviation hangar, accessed via the service road.
- Provision of a new two-way access to the freight and logistics subdivision passing to the north and east of the airport personnel houses to facilitate connectivity between the rental car ready-bays and the storage lots in the subdivision, in particular for vehicles travelling to the ready bays.

7.3 MATTERS FOR CONSIDERATION

- As a result of the terminal expansion, the existing airside access gate to the east of the terminal between the existing freight facility and the Golden Eagle hangar may need to be relocated, and access to this will need to be provided via the adjacent airport operations area.
- Landscape and street-furniture treatments for the pick-up/drop-off area, short-term parking, area around the bus/coach parking area and the pedestrian paths linking these areas will need to be determined appropriately to ensure the desired placemaking objectives are successfully achieved.

8.0 SEQUENCING AND INDICATIVE COSTS

8.1 SEQUENCING

As the redevelopment of the airport precinct will be undertaken within and around a live airport operation which must remain functional, safe and secure throughout the works, there are a number of project sequencing issues that need to be addressed. An indicative program schedule and project sequence has been developed by the Town. The key steps in the development sequence are as follows.

- Provision of services (water, wastewater, electricity) and establishment of road access to the proposed lots in the Freight/Logistics Zone.
- Construction of the Northern General Aviation Apron expansion and provision of additional hangar sites, which will enable relocation of existing general aviation tenants within the airport operations zone.
- Relocation of the existing freight operations to the new freight hub and rental car facilities to the logistics zone.
- Reconfiguration of the short-term car park to accommodate the proposed expansion of the terminal to the north.
- Demolition of the existing building to the west of the terminal.
- Construction of the proposed terminal extension in stages commencing with a new check-in hall at the eastern end.

It is recognised that there will be overlap between some of these key activities, with some stages able to commence prior to the completion of preceding steps.

8.2 INDICATIVE COSTS

Indicative costs have been developed in relation to the passenger terminal expansion and ground transport elements of the redevelopment program review. These are summarised in Table 8-1.

Table 8-1: Indicative Terminal and Car Park Redevelopment Costs

Element	Quantity	Unit	Rate	Indicative Cost
Major Road (2 lanes) pavement, kerbs, drainage and lighting	7,800	m^2	$400.00	$3.12m
Circulation Road (2 lanes) pavement, kerbs, drainage and lighting	2,100	m^2	$300.00	$0.63m
Service Road (2 lanes) pavement, kerbs, drainage and lighting	1,300	m^2	$300.00	$0.39m
Car park pavement, kerbs, drainage and lighting	18,000	m^2	$300.00	$5.40m
Drop-off/Pick-up area pavement incl kerbs, drainage and lighting	1,100	m^2	$155.00	$0.71m
Bus pedestrian waiting area	1,200	m^2	$195.00	$0.23m
External plaza	2,200	m^2	$225.00	$0.50m
Terminal – single story internal conditioned	7,000	m^2	$4,250.00	$29.75m
Terminal – mezzanine	800	m^2	$5,425.00	$4.34m
Terminal – internal unconditioned	1,800	m^2	$1,250.00	$2.25m

Element	Quantity	Unit	Rate	Indicative Cost
Terminal – external service areas	950	m^2	$400.00	$0.38m
Baggage system and specialist terminal equipment	1	Item	$850,000	$0.85m
Service relocation and protection	1	Item	$750,000	$0.75m
Contract Preliminaries	1	Item	20%	$9.86m
			Subtotal	$59.2m
Design Contingency	1	Item	15.0%	$8.88m
Escalation	1	Item	12.5%	$8.51m
			Expected Contract Value	$76.6m
Design and Project Management Fees	1	Item	7.5%	$5.75m
Construction Contingency	1	Item	10.0%	$7.66m
			TOTAL PROJECT COST ESTIMATE	$90.0m

The indicative costs are based on typical unit rates for elements of work, adjusted to suit the Pilbara market, but are necessarily based only on the available conceptual designs. Contingency allocations have been made in order to cover the high level of uncertainty with respect to the conceptual level of the design detail and existing conditions, pending proper investigation of these aspects during the design development. They are considered suitable for the establishment of project budget, however further detailed investigation and design work is required to increase the level of confidence in these cost estimates as the design and scope are defined. It is expected that opportunities will eventuate to ensure the cost-effectiveness of the overall redevelopment, without sacrificing the intent of the concepts set out in this review, through regular and appropriate evaluation of the design as it develops.

Costs for the freight/logistics zone subdivision have not been re-estimated, however the proposed changes to lot and road layout should not result in significant changes from the previous detailed design elements. A major component of the cost of this element of the works relates to the servicing of the subdivision.

Given the timeframes for future apron expansion these works are not recommended immediately nor are they anticipated in the short- or medium term and therefore have not been estimated at this stage.

9.0 CONCLUSION

The Town of Port Hedland, which owns and operates the Port Hedland International Airport, has made a commitment to transform the airport precinct it into a modern and well-serviced facility that provides a welcoming gateway to the North West.

This review of the redevelopment proposals has tested the previous concepts for airside planning, land use, passenger terminal and car park/ground transport facilities. The process involved detailed desktop review and extensive consultation and engagement with a wide range of stakeholders. As a result of the review, a number of the previous concept proposals have been validated against the Town's objectives. Appropriate refinements to the other proposals have been made to ensure the redevelopment meets the key requirements.

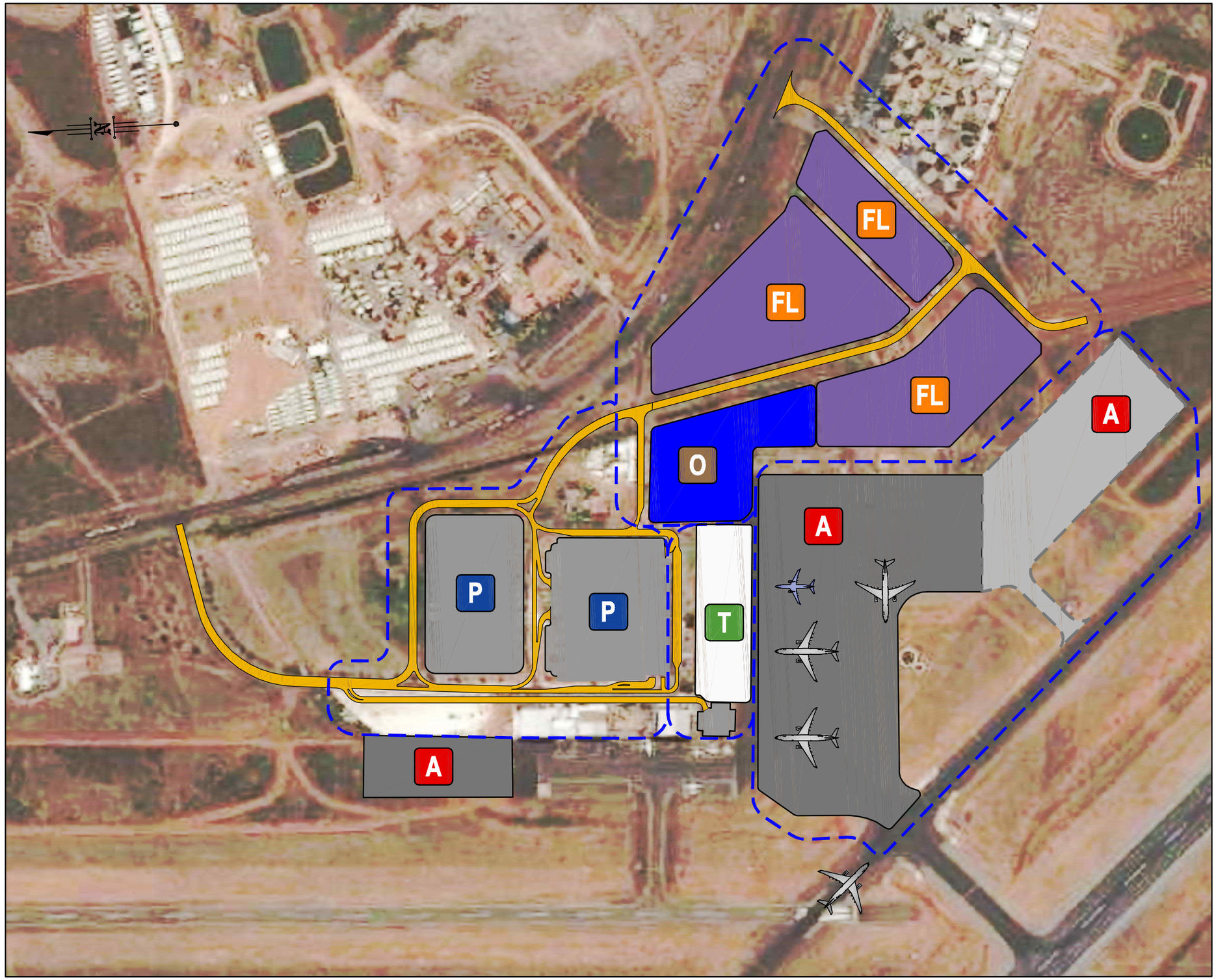
The key outcomes of the review are presented with this report which is intended to inform the subsequent detailed design process. The concepts developed as a result of this review offer a holistic solution to the Port Hedland International Airport's requirements in the medium and long-term. It is recommended that they form the basis for the preparation of detailed design documentation which will be required to procure the construction of the various elements of the redevelopment.

APPENDIX A

DRAWINGS

LEGEND

- P — CARPARK EXPANSION
- FL — FREIGHT & LOGISTICS SUBDIVISION
- T — TERMINAL EXPANSION
- A — APRON EXPANSION
- O — AIRPORT OPERATIONS



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1	10/12/13	SJ	DRAFT	BJH
0	05/12/13	MJ	DRAFT FOR COMMENT	BJH

REHBEIN Airport Consulting
The Association of Consulting Engineers Australia
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L&R (SEQ) Pty Ltd
A.C.N. 110685160
ABN. 77126939768

Project: PORT HEDLAND INTERNATIONAL AIRPORT REDEVELOPMENT PROGRAM REVIEW

Title: OVERALL CONCEPT LAYOUT

Client: *TOWN OF PORT HEDLAND*

Draftsperson: LT	Checked: BJH	Sheet Size: A3	Drawing No.: B13341-A-001
Designer: LT	Approved:		
Scale: 1:4000	Date: 02/12/13	0 / 1 / 2	

AREA RESERVED FOR AIRPORT OPERATIONS INCLUDING GSE STORAGE AND MAINTENANCE

PROPOSED PASSENGER TERMINAL EXPANSION

EXISTING RPT APRON

EXISTING FUEL FACILITY (AIR BP)

NEW LOT

PREVIOUSLY APPROVED LOTS 9 & 10 CONSOLIDATED

EXISTING SOUTHERN APRON

New Wind Sock Location

PROPOSED LOTS 9-12 AVAILABLE FOR FREIGHT HUB FACILITIES EITHER INDIVIDUALLY OR IN COMBINATION

COMBINED AREAS	
LOTS 9 + 10	8715m²
LOTS 10 + 11	10,015m²
LOTS 11 + 12	11,495m²
LOTS 9 + 10 + 11	13,795m²
LOTS 10 + 11 + 12	16,430m²

FUTURE APRON EXPANSION

LOTS 1-8 UNCHANGED FROM APPROVED DEVELOPMENT

1 4505m²

2 4500m²

3 4505m²

4 5240m²

5 7505m²

6 3570m²

7 3570m²

EXISTING TOPH DEPOT (RELOCATED TO AIRPORT OPERATIONS AREA)

GREAT NORTHERN HIGHWAY

PREVIOUSLY APPROVED LOTS 12 & 13 CONSOLIDATED

N

0 20 40 60 80m

SCALE 1 : 2000

No.	Date	By	Amendment	Checked
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1	10/12/13	SJ	DRAFT	BJH
0	27/11/13	LT	DRAFT FOR COMMENT	BJH

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A.C.N. 110685160
ABN. 77126939768

Project: PORT HEDLAND INTERNATIONAL AIRPORT REDEVELOPMENT PROGRAM REVIEW

Title: FREIGHT/LOGISTICS ZONE CONCEPT LAYOUT

Client: TOWN OF PORT HEDLAND

Draftsperson: LT
Designer: LT
Scale: 1:2000
Checked: BJH
Approved: BJH
Date: 20/10/13
Sheet Size: A3
Drawing No. B13341-A-002
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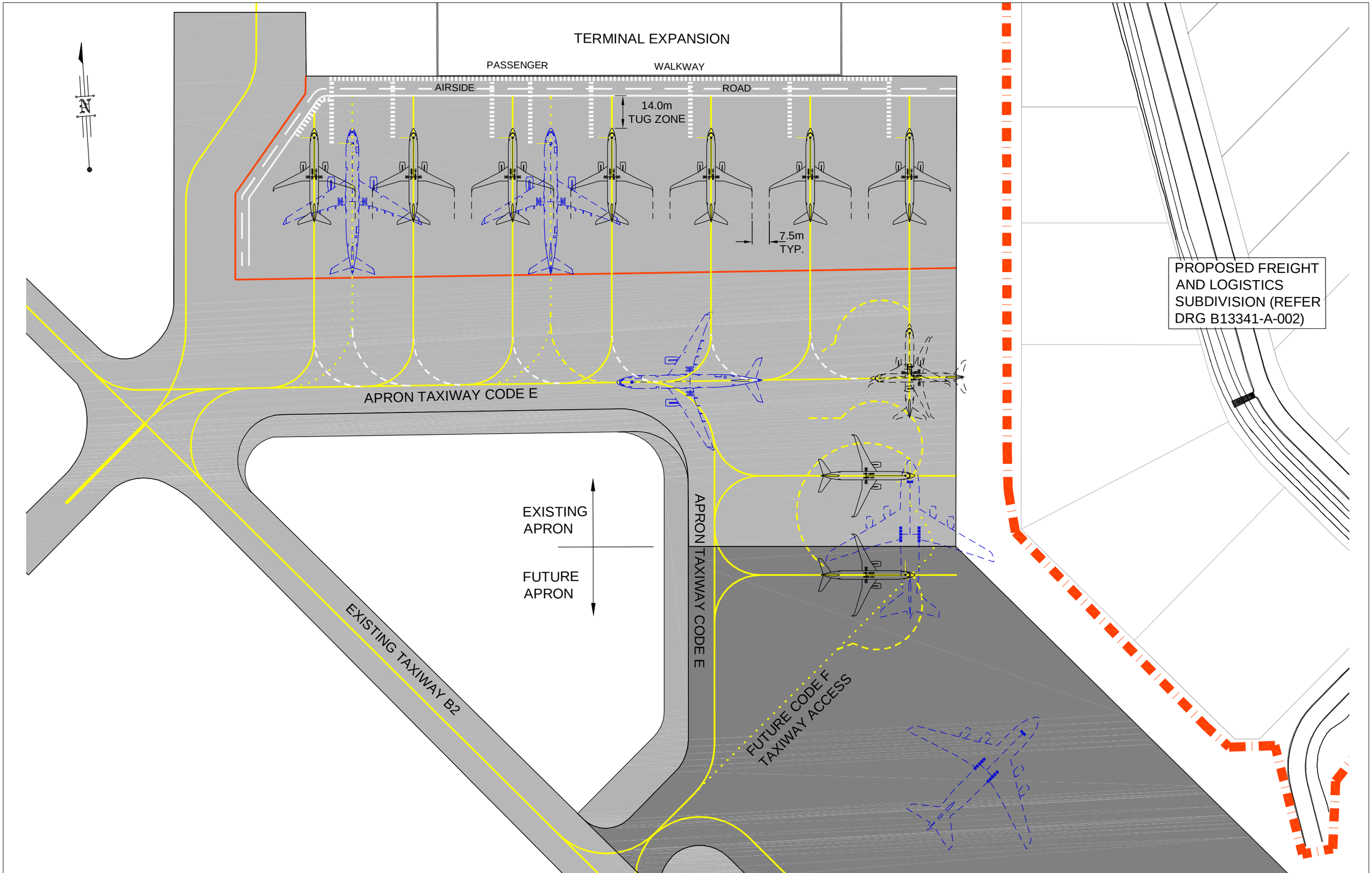

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0	06/12/13	MJ	DRAFT FOR COMMENT	BJH

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Project: PORT HEDLAND INTERNATIONAL AIRPORT
REDEVELOPMENT PROGRAM REVIEW

Title: AIRSIDE PLANNING
APRON CONCEPT LAYOUT

Client: *TOWN OF PORT HEDLAND*

Draftsperson: CF	Checked: BJH	Sheet Size: A3	Drawing No.: B13341-A-003
Designer: CF	Approved: BJH		
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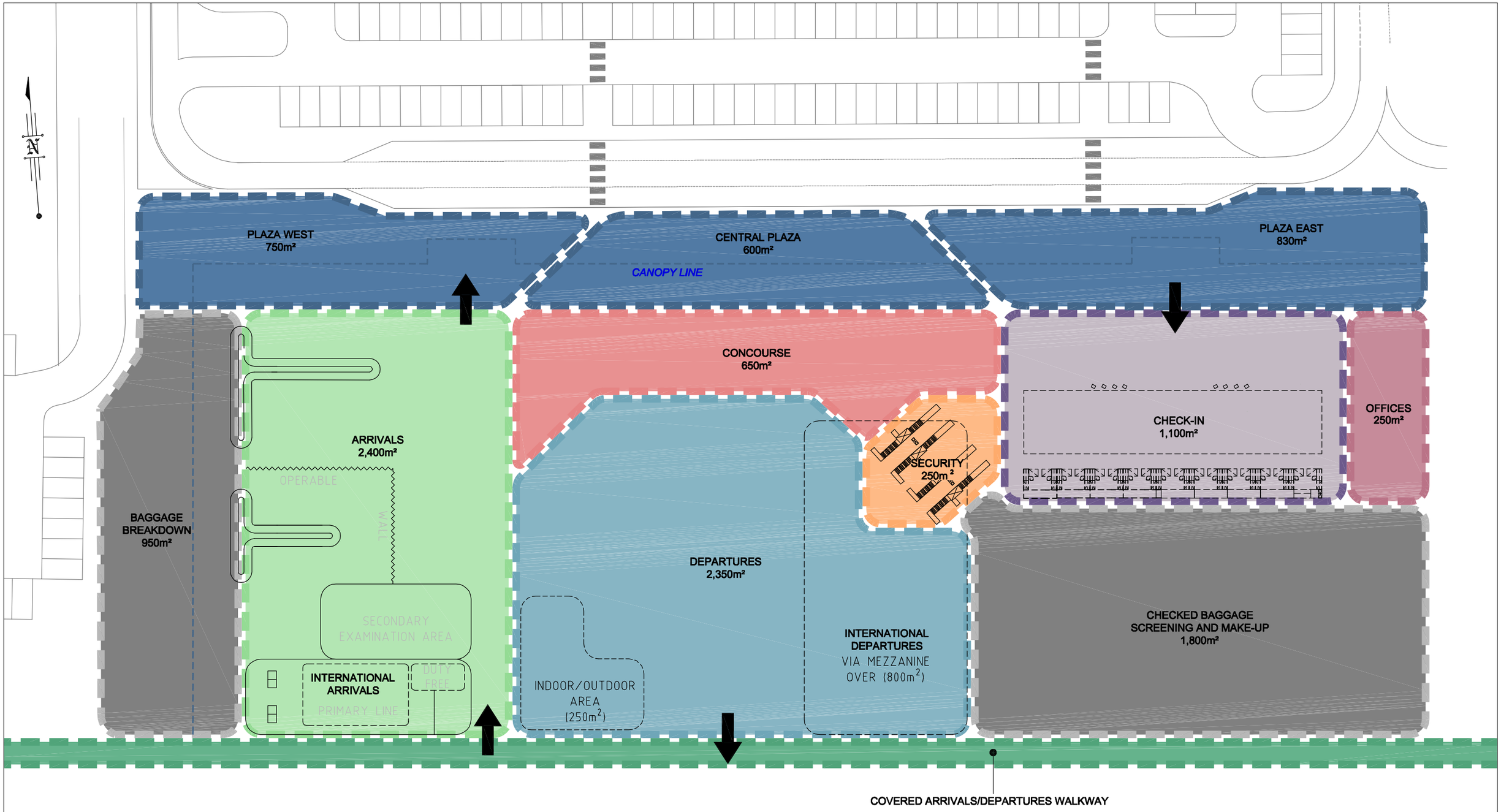

INTERNAL AREA 8,800m²
EXTERNAL AREA 3,130m²

0 5 10 15m

SCALE 1 : 500

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2	10/12/13	SJ	DRAFT	BJH
1	05/12/13	MJ	DRAFT FOR COMMENT	BJH
0	02/12/13	LT	DRAFT FOR COMMENT	BJH

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Project: PORT HEDLAND INTERNATIONAL AIRPORT REDEVELOPMENT PROGRAM REVIEW

Title: PASSENGER TERMINAL CONCEPT PLAN

Client: *TOWN OF PORT HEDLAND*

Draftsperson: LT	Checked: BJH
Designer: LT	Approved: BJH
Scale: 1:500	Date: 29/11/13

Sheet Size: A3

Drawing No.: B13341-A-004

0 1 2 3

AIRPORT PROPERTY BOUNDARY

EXISTING DRAIN

NEW PIPED CULVERT

2-WAY ACCESS TO/FROM FREIGHT AND LOGISTICS SUBDIVISION

AIRPORT OPERATIONS AREA

EXISTING ACCESS ROAD MAINTAINED

GENERAL ACCESS TO AIPORT OPERATIONS AREA

SHORT TERM CAR PARK AND PASSENGER DROP OFF/PICK UP ENTRY

EMERGENCY VEHICLE ACCESS TO RELOCATED AIRSIDE GATE VIA AIRPORT OPERATIONS AREA

RENTAL CAR PARKING (265 SPACES)

EXISTING LONG TERM PARKING (APPROX 550 SPACES)

BUS PARKING

6 COACH

9 MINI-BUS

SHORT TERM PARKING (185 SPACES)

DROP OFF & PICK UP

TERMINAL

NEW SEAGULL INTERSECTION ACCESS TO SERVICE ROAD

PASSENGER DROP OFF/ PICK UP TICKET READER

EXISTING SERVICE ROAD

FOOTPATH 1.8m WIDE

RELOCATABLE BOLLARDS

PASSENGER DROP OFF/PICK UP ACCESS TO SHORT TERM PARKING

SERVICE ROAD EXTENSION

EXISTING STAFF CAR PARKING

RFDS

POLAR AVIATION

STAFF PARKING (42 SPACES)

0 25 50m

SCALE 1 : 1250

No.	Date	By	Amendment	Checked
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1	10/12/13	SJ	DRAFT FOR COMMENT	BJH
0	02/12/13	MJ	DRAFT FOR COMMENT	BJH

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L&R (SEQ) Pty Ltd
A.C.N. 110685160
ABN. 77126939768

Project: **PORT HEDLAND INTERNATIONAL AIRPORT REDEVELOPMENT PROGRAM REVIEW**

Title: **CARPARK/GROUND TRANSPORT CONCEPT LAYOUT**

Client: *TOWN OF PORT HEDLAND*

Draftsperson: MJ	Checked: BJH
Designer: MJ	Approved: BJH
Scale: 1:1250	Date: 02/12/13

Sheet Size: A3

Drawing No.: B13341-A-005

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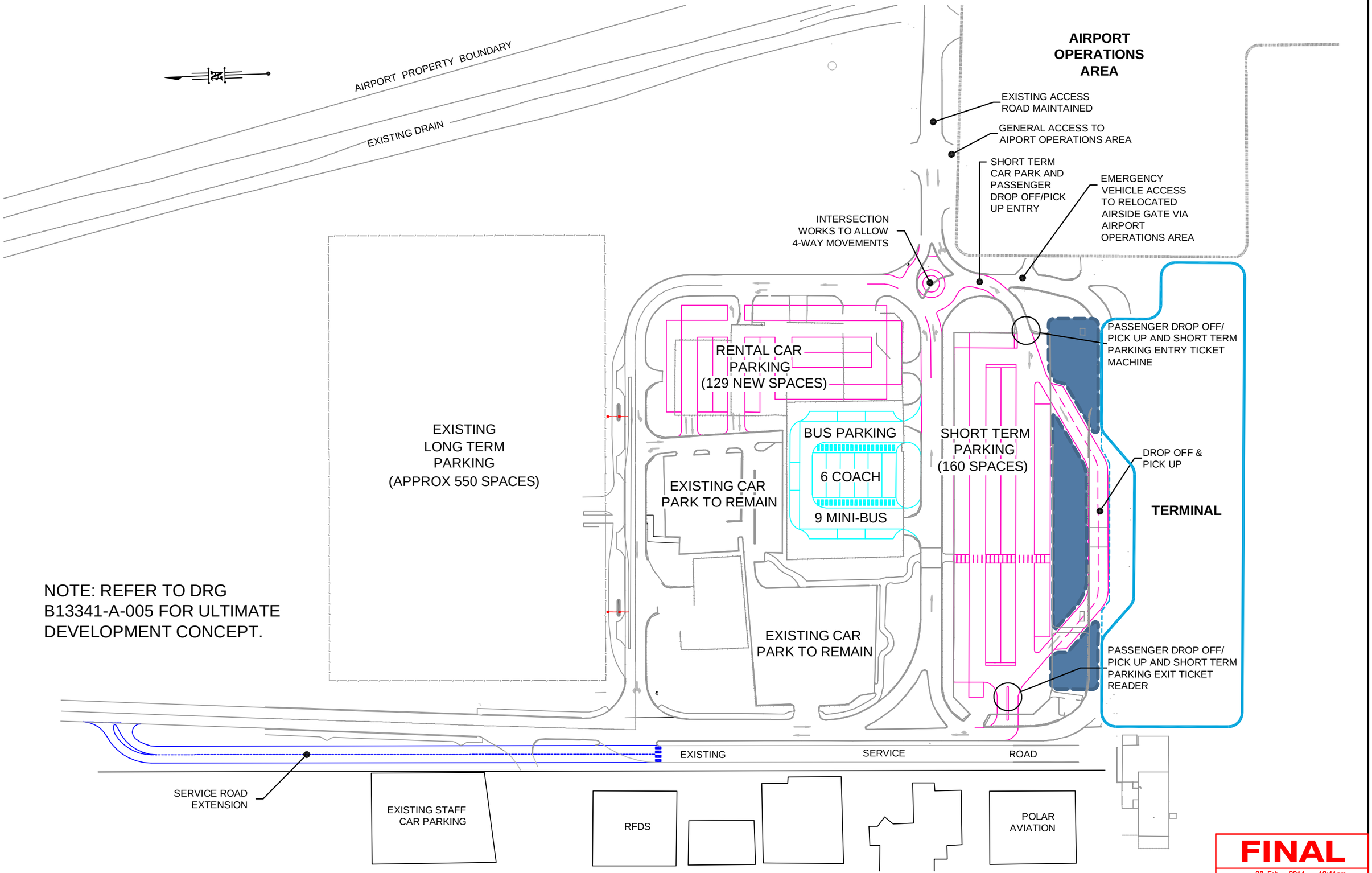
Appendix 3

Port Hedland International Airport redevelopment – staged concepts plans



NOTE: REFER TO DRG B13341-A-005 FOR ULTIMATE DEVELOPMENT CONCEPT.

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0	24/02/14	MJ	DRAFT FOR COMMENT	BJH

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ABN. 77126939768

Project: PORT HEDLAND INTERNATIONAL AIRPORT REDEVELOPMENT PROGRAM REVIEW

Title: CARPARK/GROUND TRANSPORT INTITIAL DEVELOPMENT CONCEPT LAYOUT

Client: TOWN OF PORT HEDLAND

Draftsperson: MJ	Checked: BJH	Sheet Size: A3	Drawing No.: B13341-A-007
Designer: MJ	Approved: BJH		
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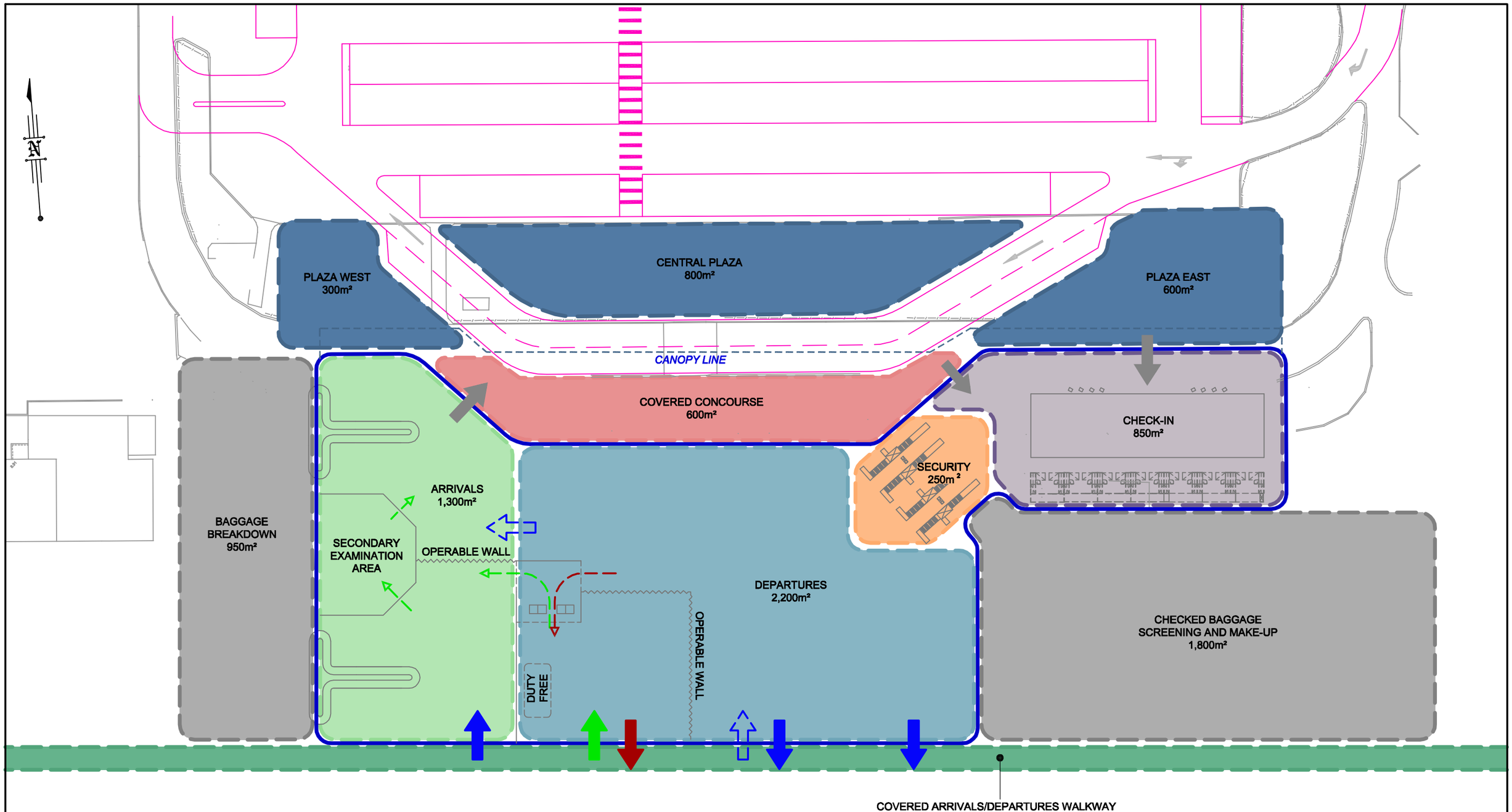

NOTE: REFER TO DRG B13341-A-005 FOR ULTIMATE DEVELOPMENT CONCEPT.

INTERNAL CONDITIONED AREA	4,600m²
COVERED UNCONDITIONED AREA	2,400m²
EXTERNAL PLAZA AREA	1,700m²
EXTERNAL SERVICE AREA	950m²

FINAL
28 Feb, 2014 – 10:20am

0 5 10 15m
SCALE 1 : 500

No.	Date	By	Amendment	Checked
1	28/02/14	MJ	FINAL	BJH
0	24/02/14	MJ	DRAFT FOR COMMENT	BJH

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ABN. 77126939768

Project: PORT HEDLAND INTERNATIONAL AIRPORT
REDEVELOPMENT PROGRAM REVIEW

Title: PASSENGER TERMINAL
INITIAL DEVELOPMENT CONCEPT PLAN

Client: *TOWN OF PORT HEDLAND*

Draftsperson: MJ	Checked: BJH	Sheet Size: A3	Drawing No.: B13341-A-006
Designer: MJ	Approved: BJH		
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Appendix 4

Port Hedland International Airport place plan – Village Well

PORT HEDLAND INTERNATIONAL AIRPORT
PLACE PLAN

PREPARED BY VILLAGE WELL
27 / 02 / 2014

Level 6, 43 Hardware Lane
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Phone: 03 9650 0080
Email: info@villagewell.org

Village Well

ACKNOWLEDGEMENT

Village Well acknowledges the generous support of the Port Hedland community, who participated in the workshops and surveys and provided valuable insights on Port Hedland and the airport experience.

In particular, Village Well would like to thank Anthropos Australis, Dalgety House Museum, FORM, Justin Smith Retail Consulting, Port Haven, Rehbein Airport Consulting, South Hedland Library, Spinifex Hill Artists and the Town of Port Hedland.

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CONTENTS

EXECUTIVE SUMMARY

Port Hedland has been an important transport hub for over 100 years, and for many thousands of years before that it was a meeting place for Indigenous people from all over the Pilbara. Today, Port Hedland is the primary shipping port in the State's booming northwest and is also playing an increasingly important role as an air transport hub for the region.

The Town of Port Hedland recognises the regional economic importance of its airport and also understands its potential symbolic and social importance for the town: as a gateway to a thriving community and the region's industrial and tourism destinations, built on pioneering aviation territory; and also potentially as a social focus for the community, being ideally located mid-way between the two parts of the divided town.

In 2012, the Town of Port Hedland commenced planning for the expansion of the Town's airport to cater for the projected substantial increase in air passenger and freight traffic as a result of growth in the region's mining sector. A key part of this planning process was the commissioning of a Place Plan, informed by key stakeholders, including the local community.

OBJECTIVES AND METHODOLOGY

Village Well was engaged by the Town Council to produce the Place Plan with the specific objectives of guiding future masterplanning and development and engaging authentically with the Port Hedland community to integrate community perspectives and aspirations and build community support for the project.

The research phase of the project involved extensive desktop research into the place and its strategic context and field studies in and around the town.

Stakeholder engagement explored aspirations for the airport and placemaking opportunities and challenges. It involved:

- A community workshop attended by 30 local residents, business people and Councillors
- A strategic stakeholder workshop including representatives of the airlines and regional development agencies; and
- A community survey conducted with 94 responses from residents, non-resident workers and visitors.

The findings from the place research and engagement informed the articulation of the Essence of Port Hedland and the Vision and Place Principles for the Airport, which are clear statements of what is special about Port Hedland and the future role and experience of the airport.

This Port Hedland International Airport Place Plan report summarises the place research and stakeholder consultation and articulates the shared vision for the new airport. The Plan provides succinct placemaking directions and recommendations in an annotated site plan.

KEY FINDINGS

Port Hedland is distinctive amongst the boom towns of Australia's West – it has a strong sense of identity and community, by virtue of its long history, its natural assets and its strategic location relative to the region and proximity to Australia's Asian neighbours, most importantly Indonesia.

There are dimensions of local culture that provide rich placemaking opportunities – thriving Indigenous culture, active arts groups, local

enterprises and community organisations. Representatives of these groups will ideally play a specific role in the creation of the place experience and related ongoing operations. The Place Plan recommends specific ideas and opportunities.

There are also challenges in respect to attracting and sustaining community activity at the airport terminal. Lack of public transport, high peaks of activity mid week and low periods of airport activity on weekends, high turnover of transient workers and lack of affordable accommodation are the main issues that will impact on the creation of a place that is connected to the Town's community. The Place Plan recommends ways to overcome some of these issues.

BENCHMARKING AIRPORTS

Traditionally, airports have been deemed to be purely functional facilities, focused on the safe, secure and efficient movement of large numbers of people. Consequently, they generally make for a liminal experience, to be endured rather than enjoyed. Airports tend to be non-places.

However, in recent years, many regional and international airports around the world have taken on a different character altogether, providing a wide range of services and experiences to travellers and even becoming shopping and leisure destinations for local communities, in preference to traditional town centres.

The Place Plan draws inspiration for Port Hedland from selected Australian and international airports including Charlotte Douglas International Airport and Darwin International Airport.

THE AIRPORT VISION

The airport vision is an aspirational statement about the future airport's role and experience, supported by key principles noted in the report:

The airport is a vibrant meeting place in the centre of Port Hedland that welcomes travellers to the friendly Port community and the treasures of the Pilbara.

Building on the endeavours of pioneering generations, the Airport provides efficient passenger and freight services to Western Australia's booming North West.

PLACEMAKING DIRECTIONS AND RECOMMENDATIONS

The Place Plan is structured around a framework of five Placemaking Directions, which the development needs to deliver to achieve a strong place identity and experience.

1. A quintessential Port Hedland experience
2. Create spacious, comfortable and flexible areas for meeting and relaxing
3. Quality food and local products available from morning until evenings
4. Connecting with Port Hedlanders with what's here and what's happening
5. Improved facilities and operations.

These directions are supported in the plan by more detailed recommendations regarding how to achieve the goals. These are noted in the final chapter of the report, accompanied by annotated plans indicating locations and relationships between activities and experiences.

The plans illustrate the primary arrival and departure journeys through the terminal; important experiences; key visual connections within and beyond the airport terminal; and recommended zones for art, interpretation and garden treatments.

APPLICATION OF THE PLACE PLAN

The Place Plan is intended to guide the Town of Port Hedland in planning and delivering the airport, particularly in the project masterplanning, architectural design, commercial leasing and operations. It is envisaged that the Place Plan will be part of suite of documents provided to teams and consultants working in these areas.

Port Hedland Town and Pier Hotel - Dalgety House Museum

1.0 INTRODUCTION

Port Hedland International Airport is undergoing a major transformation that is intended to consolidate the airport as the North West's leading passenger and freight hub.

An airport is as much an important route of transportation as it is a symbolic gateway to a place – the first site of encounter and the last impression of a place. In Port Hedland, there is significant opportunity for the airport to both impress visitors and build community through the creation of meaningful and multilayered experiences that express the enduring stories and aspirations of the town's dynamic community.

A placemaking approach establishes a compelling vision for the airport that is shared by the various stakeholders including the local community. The Town of Port Hedland recognised that placemaking would be an important part of the early planning of the airport redevelopment to ensure that Council's aspirations and those of the town's community would be effectively realised. Council engaged Village Well to work with the Township's Airport Redevelopment team and key stakeholders to develop a Place Plan that would guide the redevelopment.

The objectives of the placemaking project have been to:

- Engage authentically with the Port Hedland community to integrate community perspectives and aspirations for the airport;

- Develop a Place Plan that will guide the design and development of the Airport.

1.1 WHAT IS PLACEMAKING?

Placemaking is the art and science of making authentic, vibrant and resilient places that are valued by their communities and admired by visitors.

It is a holistic, multi-disciplinary approach to planning and developing places that involves understanding the culture and qualities of a place and the wisdom of its community. It involves collaboration between many stakeholders to articulate a vision for a place and to plan and deliver the vision.

Placemaking incorporates and influences other traditional areas of place development, including masterplanning, urban design, social and economic development, community engagement, retail planning, sustainable development and arts and culture.

Placemaking benefits the broader community as much as it benefits investors, developers and owners of places.

Placemaking builds community goodwill, gives investors and businesses confidence, enables innovative solutions and creates places that people love.

1.2 ABOUT VILLAGE WELL

Founded in 1992, Village Well is Australia's leading creative placemaking consultancy. Village Well works with a range of clients and stakeholders - including property developers and owners, government agencies, community groups and institutions to envisage, facilitate, make and manage places. Over the past two decades, Village Well has refined and developed unique processes of analysis, engagement, innovation, research and project management, tapping into community potential and to discover the DNA of a place that informs its development and use.

Village Well's team has many years of experience in urban planning, design and development and in community engagement and place management. We assist clients, partners and communities to understand the potential of places, to develop and share a vision, to plan and to deliver outcomes 'on the ground' and to celebrate success.

Village Well's robust placemaking model has been proven on many projects ranging in scale and complexity. The model includes a critical analysis of place from the five perspectives of people, physical environment, product, program and planet - the 5 Ps of placemaking. Our placemaking recommendations are presented in a series of inspirational, informative and actionable reports that enable the project owners and stakeholders to deliver great places.

1.3 A PLACEMAKING APPROACH FOR PORT HEDLAND INTERNATIONAL AIRPORT

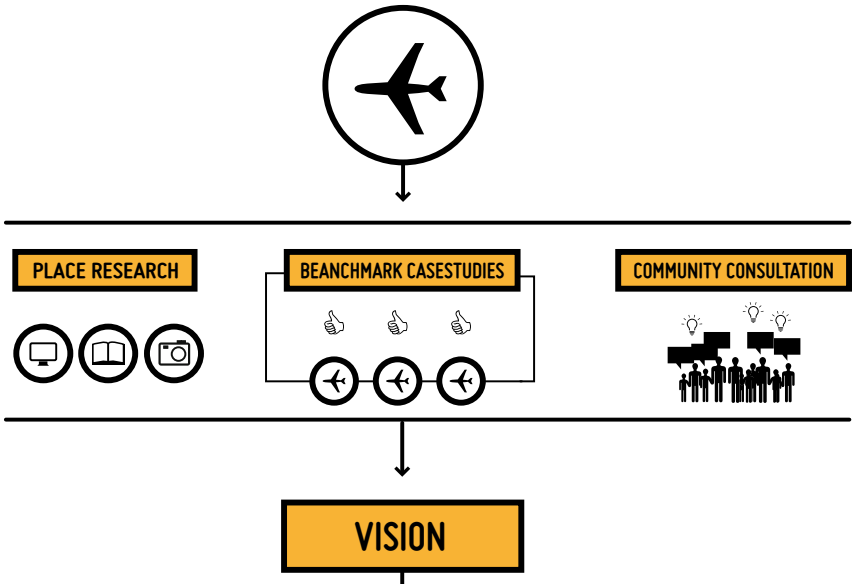
Village Well led a holistic approach to the redevelopment of Port Hedland International Airport, through 'on the ground' and background research, in order to make the airport a truly unique and memorable experience.

Initially Village Well conducted a detailed research of the context of the airport and the town, including:

- Onsite investigation of the character and culture of Port Hedland;
- A review of the existing plans and strategies of the Town of Port Hedland;
- Research of exemplar airports from the placemaking point of view.

Village Well then conducted workshops and a survey to consult widely with community stakeholders regarding issues and aspirations for the new airport.

Multidisciplinary analysis by the Village Well team informed the development of a compelling Airport Vision, Place Principles and a set of Placemaking Directions to guide future design and development.



1.4 ABOUT THIS PLACE PLAN REPORT

This Place Plan for Port Hedland Airport captures the essence of place, which is shaped by its past, present and future. It is a summary of findings from Village Well's place research and community consultation process as well as a vision and recommendations to guide the development of the Port Hedland Airport.

This Place Plan Report consists of the following sections:

Lay of the Land
A brief summary of the local context, local experiences, local history and a snapshot of Port Hedland's community.

The current airport is briefly introduced within this context, followed by benchmarking case studies of other airports that have succeeded in creating a memorable experience for passengers.

Consultation Findings
Discusses the key findings from the two workshops – a community and a stakeholder workshop – as well as from the community survey.

Essence of Port Hedland
Five themes that capture the most distinctive qualities of the place, derived from existing strategic documents, research and consultation.

Vision and Place Principles
The Vision, an aspirational statement about the future airport, is supported by Place Principles.

Opportunities and Challenges
Key opportunities, gaps and challenges are identified based on the analysis of the 'Lay of the Land', engagement findings, and the preliminary design of the Airport.

Placemaking Directions and Recommendations
Placemaking Directions articulate strategic directions that support realisation of the vision for Port Hedland Airport. Each direction is accompanied by a set of specific recommendations.

Following the recommendations, a series of plans illustrate the airport journey, experience, view lines as well as zones for art, interpretation and gardens.

2.0
LAY OF THE LAND

2.1 INTRODUCTION

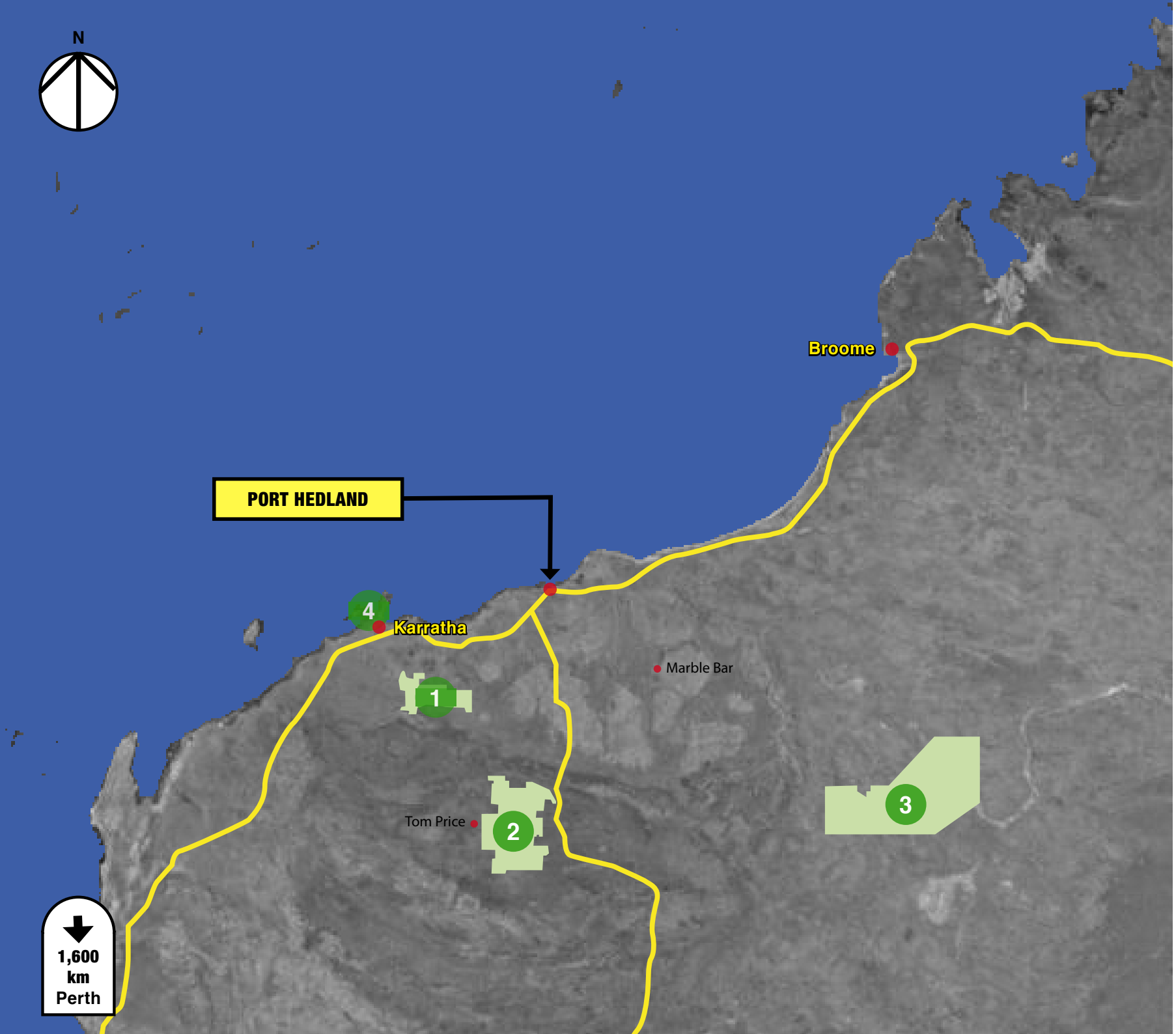
Situated in Western Australia, Port Hedland lies just over 1,600km to the north of Perth and is the gateway to the Pilbara region – a vast and arid zone, marked by the rugged beauty of an ancient landscape.

Dotted through this vast Pilbara setting are towns such as Karratha, Tom Price and Marble Bar, each with their own distinct heritage and identity. Outside of the Pilbara, 600km to the East of Port Hedland is Broome and just over 1,300km to the North West is Bali and Indonesia.

Millstream and Karijini National Parks are within easy driving distance of Port Hedland and Karlamilyi National Park lies further beyond. On the coast, off Karratha is the Dampier Archipelago, a leisure paradise offering exceptional boating, fishing and diving opportunities.

Port Hedland is known to its Indigenous Kariyarra and Nyamal people as Marapikurrinya, referring to the five finger formation of the tidal creeks feeding into the harbour. As an oasis drawing an abundance of animals, Marapikurrinya functioned as a meeting place for the Indigenous people for hundreds of years.

REGIONAL DESTINATIONS MAP



NATURE DESTINATIONS

1. Millstream-Chichester National Park
2. Karijini National Park
3. Rudall River National Park
4. Dampier Archipelago

Adelaide Steamship co postcard. Dalgety House Museum

2.2 STORY OF THE LAND

A NATURAL OASIS

Port Hedland is blessed with an abundant natural landscape. The land, sea and sky are vast in scale and vibrant in colour. It is a changing landscape, marked by a dry season which scorches its red earth and a wet season which rejuvenates the thirsty landscape, at times momentarily shutting down the township during cyclonic activity.

Water has played a key role in the settlement of the township and its identity today. Just as the Indigenous community named the area in reference to the formation of natural tidal creeks, the first European settlers to disembark were drawn in by what looked to be a calm inland lake surrounded by the green of mangrove trees.

The coastal environment of Port Hedland is a important asset for the community and a key attraction for tourists. The 7 kilometre long stretch of north-facing shore provides sweeping views of the ocean and spectacular sunrises and sunsets, typical of the Pilbara coast. The tidal movements have become an integral part of Hedlanders' rhythm of life in the town, determining daily outdoor rituals. The calm waters create a favourite spectacle – the 'staircase to the moon'.

An abundance of marine life are found in local waters. October to March is the most celebrated season when hundreds of Flatback Turtles make their way to the beach for nesting.

Looking inland, the vast landscapes show various faces of the ancient land, slowly shaped and marked over 2.5 billion years. The dominant red hue of the earth contrasts with the seemingly endless blue sky.

In such an environment, people's leisure time is enjoyed in nature. Camping and four-wheel drive adventures are popular ways to enjoy the rugged landscape, seasonal wild flowers and countless clear star-filled night sky.

Drawing on these stunning natural features and on the back of the growth of the mining industry, the Town of Port Hedland recognises the importance of developing their tourism industry[1]. This is due to its proximity to renowned national parks and a unique Indigenous cultural heritage.

THE FOUNDATIONS OF A TOWNSHIP

Port Hedland prides itself on a long and colourful history far beyond the beginning of the iron ore story.

4,000 years ago most areas of the Pilbara region were occupied or had been traversed by the Indigenous people and 28 languages would have been spoken prior to European settlement.

1. Town of Port Hedland (2012). Pilbara's Port City Growth Plan

Esplanade Hotel. Dalgety House Museum

Indigenous history and culture are strongly present in the region. Port Hedland has significant Indigenous cultural heritage sites such as Two Mile Ridge, Pretty Pool and Twelve Mile Camp. A range of engravings, Thalu, shell middens, artefact scatters, ceremonial, mythological and camp sites are found across the area. Further into the Pilbara, over 700 Indigenous archaeological sites and 10,000 spectacular rock engravings provide a glimpse into how Indigenous people lived and related to the land and the sea.

Europeans first settled in Port Hedland during the second half of the 1800's, and the town was named after Captain Peter Hedland, the first European to set anchor in 1863.

The region was particularly blessed with the ocean's offering – pearls. By the late 1860's the region was one of the richest pearl fields in the world, drawing pearlers from as far as Japan.

Transportation became key to creating a linkage between surrounding townships and the world beyond. The first Port Hedland jetty was constructed in 1896 to serve the pastoral industry. The completion of the jetty was integral to the influx of machinery, building materials and food that enabled construction and settlement of the town.

Passenger ships also frequented Port Hedland's growing port, since travel by land was almost impossible. The Adelaide Steamship Company provided luxury steamship travel for Port Hedland's residents, notably the SS Koombana, connecting the Township with the rest of Australia.

With the discovery of gold in the Marble Bar area, the first railway in the Pilbara was opened between Port Hedland and Marble Bar in 1911, connecting with the jetty. In addition to the sea and land transport, the first airfield was established in 1921 and provided essential services such as postal deliveries and later the Royal Flying Doctor Service.

The pastoral industry almost collapsed after a severe drought between the mid 1930s and early 1940s and the economic focus of the region shifted towards the mining of gold, tin and copper as well as the pearling industry. From here, Port Hedland's diverse and multicultural community grew from strength to strength, with migrants from China, Japan, Timor, Malaysia and the Torres Strait attracted to the wealth of its shores.

However, it was the discovery of vast deposits of iron ore that catalysed a new period of economic development, never before seen in Port Hedland. In 1965, a significant scaling of in mining activities saw this small town of 1,200 people grew exponentially, turning the area into a thriving centre of activity in Australia's north-west.


Photographer: Samantha Bell


Photo: Care for Hedland Environmental Association


Photographer: Samantha Bell

THE COMMUNITY

Today Port Hedland is home to a dynamic community of 20,000 people with a rapid growth rate of 5.5% (almost double the WA average of 2.8%)[2]. Consistent with other mining towns, it has a relatively young population, with an average age of 31.2 years and a high proportion of children. The demographic consists of approximately 2,200 Aboriginal and Torres Strait Islanders with the remaining residents having primarily British and European ancestries. Two or more languages are spoken in approximately 15% of the homes of Port Hedlanders, with the most widely spoken languages other than English being Malay, Afrikaans and Tagalog[3].

More than 3,000 temporary residents working in mining related businesses are in Port Hedland at any one time. That number is expected to grow significantly in the immediate future[4]. Port Hedland also attracts other seasonal workers, such as backpackers, due to high wages and the uniqueness of the region.

Beneath the scale of big industry is a town home to an eclectic community of people who share and celebrate their diverse values and traditions. Thriving cultural and community initiatives and small-scale businesses are testament to the community's strength.

The Courthouse Gallery is at the heart of the historical West End, and acts as a key cultural destination for the community and tourists. The gallery actively showcases local artists' artworks, organises public programmes and sells local arts and craft in its gallery shop. The West End Market, regularly held in the Courthouse Gallery Gardens, is also a place where local talent of all sorts are on show – from fine arts, crafts, culinary arts to music.

The Spinifex Hill Artists, an Indigenous art collective founded in 2008, has been very successful in promoting the Indigenous art of the region through exhibitions, winning awards and contributing to public art and design projects.

Established in 1994, HARTZ (Hedland Arts Council) is the longest running arts group in Port Hedland. It actively engages with the Port Hedland and the regional communities through various community art events and workshops.

Wangka Maya Pilbara Aboriginal Language Centre is an organisation dedicated to the preservation and promotion of Aboriginal languages and culture. It works closely with Aboriginal elders to record and foster Aboriginal languages, culture and history, ensuring that the knowledge and tradition is passed down to the next generations and shared with the broader community.

Various community groups cultivate the community spirit and care for the land and people of Port Hedland. Among them the Care for Hedland Environmental Association, an independent community

3. Australian Bureau of Statistics (2011) Census Data.
4. Town of Port Hedland Draft FIFO and TWA Strategy 2012.


Photo: Town of Port Hedland


Photo: Town of Port Hedland

group, provides a diverse range of conservation-based volunteer programs and activities for the Hedland community. Activities include turtle monitoring, a garden club, waste management and education.

The Hedland Well Women Centre, a government funded service operating for over 20 years, offers a variety of free services and programs to promote health and wellbeing of women. The service engages over 12,000 women, children and visitors each year. Programs such as Cooking Up A Storm and The Hedland Patchworkers and Quilters are invaluable social opportunities for women and a great platform for creative engagement.

Bloodwood Tree Association and Youth Involvement Council are organisations that provide vital support for those at risk. Bloodwood Tree Association, an incorporated Aboriginal organisation, supports those who are homeless or alcohol affected through accommodation and training, and a Youth Involvement Council which engages the youth through various after school programs and awareness campaigns.

In addition, various sporting groups, community events and cultural and recreational facilities support the active and healthy lifestyles of Port Hedlanders.

BOOM AND BEYOND: LOCAL AND GLOBAL INDUSTRIES

Port Hedland is primarily a port town, functioning as a crucial hub for the Pilbara – the 'engine room of the Australian economy'. 90% of the economy is attributed to mining and port related activities[5]. The port's significance continues to grow and it currently processes the highest tonnage of cargo in Australia and is one of the largest iron ore loading ports in the world[6]. In addition to iron ore, major resource activities in the area include natural gas, salt and manganese.

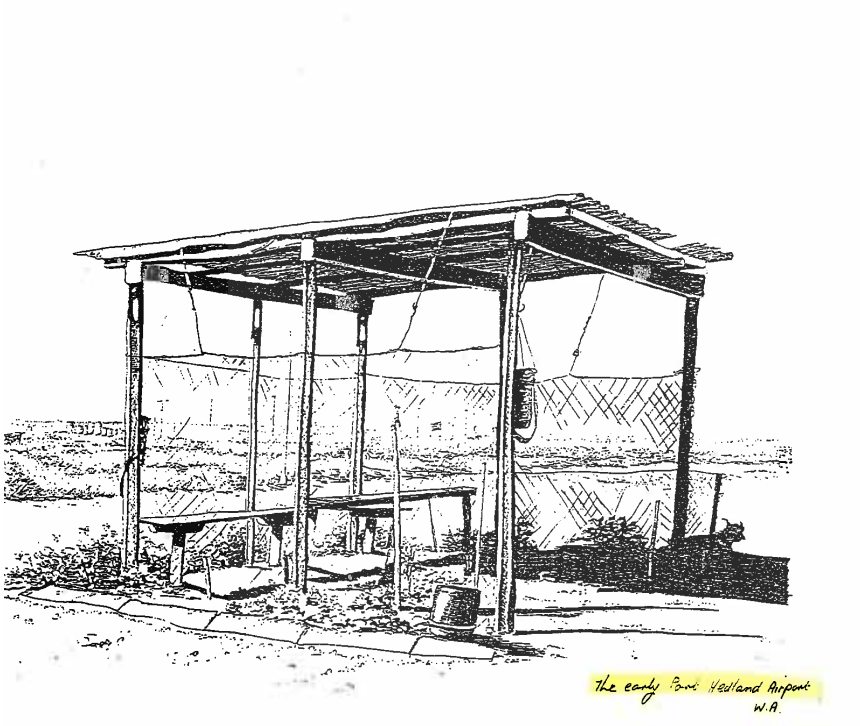
The larger-than-life scale of mining and port activities have a strong impact on the landscape around the town and the way of life of Port Hedlanders. Huge mining machinery, salt mounds and cargo trains are part of the constant scenery and 24 hour dynamic around the town.

The impact of these industries is also visible in the formation of the town. South Hedland, first developed in the 1970s in response to the mining boom, is separated from Port Hedland by a large expanse of port and mining areas in between.

5. Town of Port Hedland (2013) Port Hedland International Airport Redevelopment Strategy Overview
6. Port Hedland Port Authority

Jimmy Woods' car and biplanes at the airport hangar, 1929.

The Bomb Disposal Unit on the runway at Port Hedland in August 1942



Early Port Hedland Airport
Photo: Town of Port Hedland

2.4 PORT HEDLAND AIRPORT

In the remoteness and vastness of the north-western Australia, Port Hedland Airport has played a vital role in ensuring a connectedness to Perth and beyond.

In 1921 the first airfield was developed at the site of the racetrack with a spinifex hut constructed next to a runway. The first regular service linked Port Hedland to Perth through Western Australian Airlines – a two day trip at the time. These early flights also offered an airmail service, which connected remote Pilbara townships with the outside world.

Among the first pilots assigned to the new route between Port Hedland and Perth was a young Charles Kingsford Smith[7]. He would later become a renowned figure in Australia's aviation history and was the first pilot to complete the trans-Pacific crossing between Australia and the United States and the trans-Tasman crossing between Australia and New Zealand. Kingsford-Smith's famed Southern Cross aircraft often graced Port Hedland's runway and is remembered as an iconic symbol in Australia's aviation history.

The Royal Flying Doctor Services' first main base in Western Australia was founded in Port Hedland in October 1935, to provide emergency and primary health care services to remote Pilbara communities[8]. The Flying Doctor Service was a lifeline for the Port Hedland community, which now

7. Bloemen A., Parker T. (1997) Hedland Voices, Port Hedland Historical Society, B&S Printing Company.
8. Persson S. (2007) The Royal Flying Doctor Service of Australia, Wollombi NSW, Exisle Publishing.

RMA Swann at Port Hedland, 1959

Royal Flying Doctor operation, 1970

Port Hedland Airport, 1970

Port Hedland Airport terminal, 1971

has a hospital, and it remains a vital service for outlying communities today.

When Japanese air-bombers began their aerial assault of the northern Australian mainland during World War II, Port Hedland's strategic infrastructure was among its targets, together with targets at Broome and Darwin. On three separate occasions during 1942 and 1943, up to 70 bombs were dropped on the Port Hedland airfield. A young soldier, Private Adams who had been stationed at an Australian Army base at Port Hedland was killed. The raids severely damaged all runways and surrounding buildings and no doubt traumatised the Port Hedland community[9].

Since the growth of the mining industry in the 1960s, air passenger numbers have been on a steady increase with particularly sustained growth occurring since the 1970s. In 1956 a fibro-cement terminal building was built to replace the original hut. By 1971 the terminal building was again rebuilt to cope with renewed demands from the mining sector and is the same building which stands today[10].

In recent years, passenger growth has been particularly strong. This is attributed directly to the strong fly-in, fly-out nature of the mining industry. The airport is said to currently accommodate over 500,000 passengers across 70 weekly flights[11]. The majority of services operate to and from Perth with Qantas and Virgin airlines. International flights to Bali have been operating since 1982. The fly-in, fly-out schedule of the mining workers creates peaks on Tuesdays, Wednesdays and Thursdays, leaving other days relatively quiet. The significant growth in passenger numbers has lead to a new era of expansion and a revisioning for the airport.

9. Massey, A. (2012), When Hedland woke to Japanese bombs, The West Australian.
10. Matheson, J. (2011) History Since 1896, Port Hedland NOW!, www.porthedlandnow.com.au/history.
11. Town of Port Hedland (2013) Port Hedland International Airport Redevelopment Strategy Overview.

2.5 AIRPORT PLACEMAKING CASE STUDIES

Airports have traditionally been regarded as non-places[12], a typical place of transience that is ambivalent in nature without any attributes that render them 'places'.

However there are many airports that resist being 'non-place' through placemaking measures that provide distinctive and enjoyable experiences for passengers and for neighbouring communities.

The following case studies illustrate airports which have successfully improved passenger comfort and convenience and have created memorable airport experiences. Leading airports today are being transformed into third places[13] for social, informal and leisure activities.

KEY LEARNINGS FOR PORT HEDLAND AIRPORT

- A sense of place can be created through vernacular place names, local materials and vegetation.
- Artworks can create a strong place identity and tell stories of a place and people.
- Food is a powerful way of conveying regional character and culture, and therefore becomes a point of difference for airports.
- Playfulness, such as a musical instrument or toys and play furniture, facilitates an enjoyable wait.
- Initiatives that involve local manufacturers and community members can instill a strong sense of community.
- Placemaking measures do not have to be expensive – small installations can have a great impact on experience.
- 'Pop-up' retail can showcase local produce and products with low commercial risk.

12. Auge, M. (2009) Non-Places: An Introduction to Supermodernity.
13. Coined by sociologist Ray Oldenburg, a third place is one of the three social places necessary for people apart from home and work. A third space is a place where people can be interactive, creative, socialise, observe others or just relax and breathe.

CHARLOTTE DOUGLAS INTERNATIONAL AIRPORT
NORTH CAROLINA

North Carolina's Charlotte Douglas International Airport has successfully created a third place that celebrates its Southern identity. A 'front porch' experience, typical of the regional vernacular, was recreated through an internal arrangement of signature wooden rocking chairs and potted trees. These hand-crafted white wooden rockers are made by a local chair company operating since 1924, and were installed as part of a temporary exhibition in 1997. Due to their popularity they have since become a permanent feature.

A baby grand piano positioned in the same area as the rocking chairs is available for anyone to play. This spontaneous and entertaining activity creates a fun and sociable atmosphere.

In addition, the airport is committed to sustainability, and operates a worm farm that processes up to a tonne of travellers' food waste a day.

CHICAGO O'HARE INTERNATIONAL AIRPORT
ILLINOIS

Chicago's O'Hare Airport has a number of initiatives that make it unique.

A range of public art and exhibitions celebrate the history and culture of Chicago, including a mural that depicts the story of Jazz and a series of stained glass windows. The murals and several other works were created by local apprentice artists as part of a job training program for city youth. The artworks are not only strikingly beautiful but also capture the inclusive attitude of the city towards less advantaged parts of the community.

More recently an aquaponic urban garden was installed, featuring 26 aeroponic towers in a 928-square-foot garden. This reflects the more contemporary identity of Chicago as a leader in urban farming and its commitment to sustainability. The garden features various edible herbs and vegetables and provides vertical green gardens that calm travellers' tired eyes. The organic produce, as well as the honey collected from the airport beehives, is sold at a farmers market located in the airport and can also be tasted in the airport's restaurants.

CHANGI INTERNATIONAL AIRPORT
SINGAPORE

Singapore's Changi Airport was voted the World's Best Airport at the 2013 World Airport Awards.

Clean and well-serviced amenities and high quality resting lounges, complimented by free WiFi, are the foundation of a well-rounded customer experience.

In addition, Changi creates a point of difference with refreshing outdoor spaces. Six gardens representing different ecosystems provide opportunities for passengers to relax. Among them the orchid garden showcases Singapore's national flower.

Changi Airport surprises travellers with its substantial food offering, showcasing Singapore's cultural diversity through various traditional dishes at reasonable prices.

Combining the best of service, efficiency, amenities and entertainment, Changi Airport is a destination in itself and is a very popular destination for dining and shopping for Singaporeans.

ADELAIDE AIRPORT
SOUTH AUSTRALIA

Adelaide Airport is recognised particularly for its new plaza that connects the terminal and the multi-level car park.

The plaza not only provides enhanced pedestrian connectivity but also creates a memorable arrival experience and an open gathering area for general enjoyment. The design of the distinct pattern takes cues from South Australia's landscape.

The children's play area provides another memorable experience. This indoor play space is popular with young children and ensures a moment of relaxation for parents, complimented by coffee and comfortable nearby seating.

DARWIN INTERNATIONAL AIRPORT
NORTHERN TERRITORY


Photographer: Steve Passlow

Together with Alice Springs and Broome, Darwin Airport is as an airport that successfully captures a sense of place.

The airport's airy architecture with carpet artwork reminiscent of water, animals and birds of the territory, immediately immerses travellers in the tropics of Darwin.

Stepping outside, the extensive Indigenous artworks on corrugated iron canopies, public art and the native gardens showcase the natural and cultural icons of the Northern Territory.

In addition, the airport's F&B operator teamed up with local legendary restaurateur Jimmy Shu and opened a South East Asian restaurant offering a mix of made to order and takeaway. The restaurant is a celebration of local food culture, intermixed with South East Asian inspiration, and its contemporary Asian décor with natural timber supports convivial dining.

3.0
CONSULTATION FINDINGS

3.1 PURPOSE AND PROCESS

As part of the visioning process for the Place Plan, Village Well facilitated two workshops with stakeholders in Port Hedland in October 2013 and undertook similar consultation with the broader Port Hedland community via a survey.

The overall objective of this consultation process was to inform a vision and Place Plan for the airport to guide its design and development.

The consultation explored aspirations, challenges and opportunities for Port Hedland Airport including:

- What makes Port Hedland special
- Favourite airports and reasons why
- Liked and disliked airport experiences
- Ideas and challenges for the redevelopment.

3.2 PARTICIPATION

The first workshop was aimed at the broader Town community and was attended by residents and representatives of local businesses and community organisations. The second workshop was attended by specific airport stakeholders, including representatives of regional development and airport operations. Lastly, Council distributed surveys to the resident and non-resident community via its website and direct invitation.

Overall there were many similarities between the two workshops and survey responses. Workshop participants and survey respondents identified similar challenges regarding the current airport and all groups aspired to an airport that was comfortable, efficient and that reflected the essence of Port Hedland and the Pilbara.

However there were slight differences in the focus of discussion. The community workshop participants expressed a strong desire to showcase local history, culture and to build community, while the stakeholder group delved into more technical and practical matters such as operational efficiencies and the working environment for the airport staff. The survey results highlighted specific issues from perspectives of regular airport customers, in particular the negative impact of smoking and drinking in shared spaces at peak times.

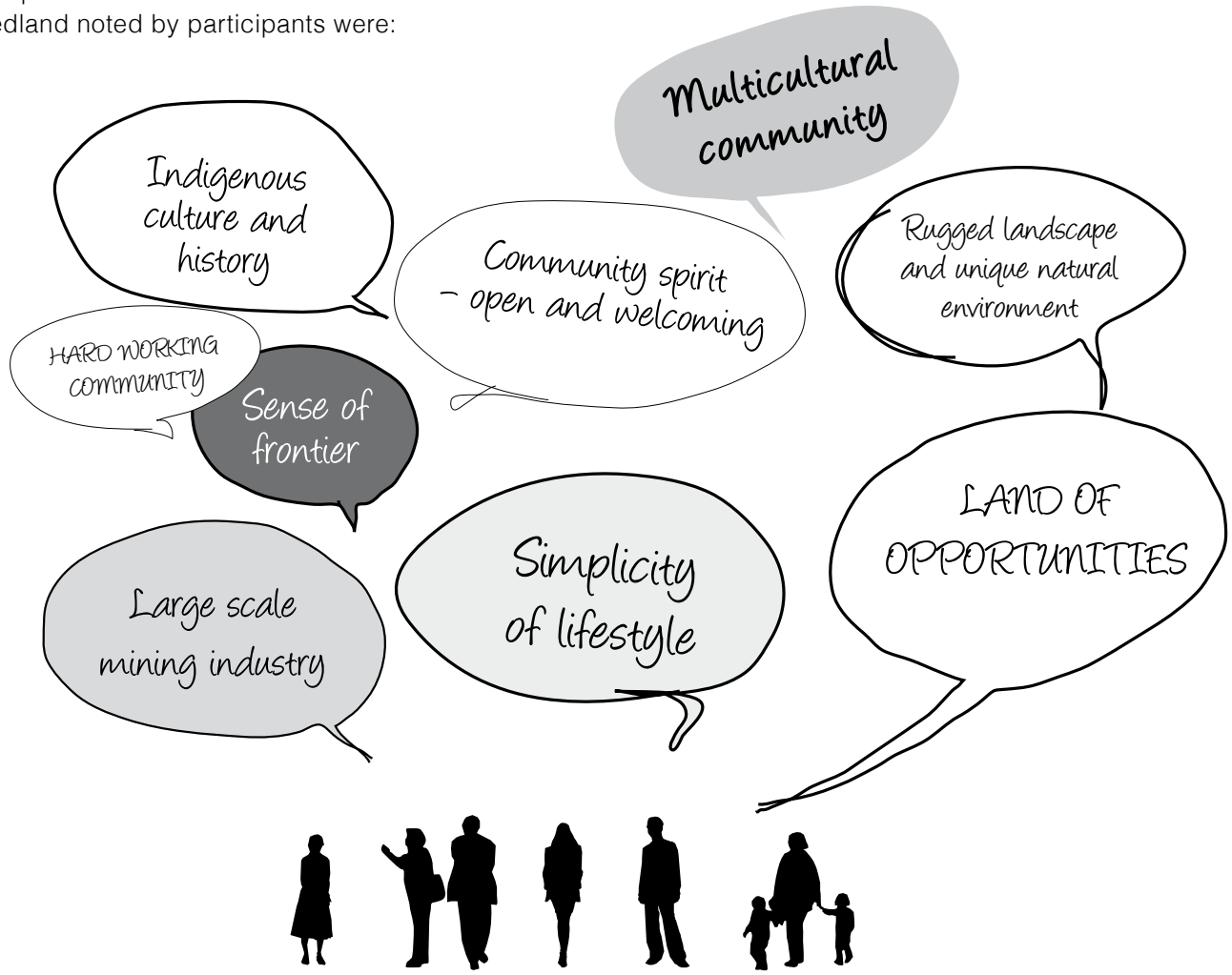
Key findings from the two workshops and the surveys have been summarised based on Village Well's qualitative analysis of the outcomes and results.

'THE COMMUNITY WORKSHOP PARTICIPANTS EXPRESSED A STRONG DESIRE TO SHOWCASE LOCAL HISTORY, CULTURE AND HIDDEN TALENT'

3.3 CONSULTATION FINDINGS

WHAT MAKES PORT HEDLAND SPECIAL?

The predominant attributes of Port Hedland noted by participants were:



THE AIRPORT EXPERIENCE: WHAT MAKES A GREAT AIRPORT?

Reflecting on their favourite airport experiences, participants favoured the following airports for the reasons noted, in order of priority.

Changi Airport, Singapore

Singapore's praised international hub was commended for:

- Attention to cleanliness
- Good design aesthetic
- Diversity of amenities and F&B operators
- Entertaining and interactive.

O'Hare International Airport, Illinois

Chicago's O'Hare International Airport was favoured by many for its celebration of the city's culture, for example:

- Stories of Jazz created by school children
- Large stained glass windows showcasing the city's heritage
- Community art program.

Melbourne and Sydney Airports

Melbourne and Sydney Airports were recognised for embracing activated shared spaces including:

- Variety of shops and food outlets
- Easy navigation
- Feeling of spaciousness with comfortable seating
- Large departure lounges with glass for viewing passing planes.

Adelaide Airport

Adelaide airport was mentioned by a number of people, particularly for the activated shared spaces. The key elements included:

- Roof top garden
- Child friendly play space
- Plaza.

Darwin and Alice Springs Airports

Passengers in Darwin are given a real sense of the tropics, while Alice Springs passengers are led to embrace the 'red centre' and celebrate this with Indigenous art. The main elements of both airports include:

- Sense of place expressed through colours and textures of the landscapes in the design
- Welcoming atmosphere
- Celebrating local art and culture.

WHAT DO YOU LIKE AND DISLIKE ABOUT AIRPORT?

Workshop participants reflected on what they liked and disliked in airports generally while survey respondents reflected on what they liked/disliked about Port Hedland airport specifically. Preferences in relation to Port Hedland Airport's current performance revealed significant points of difference between residents and non-resident workers, particularly with regards to their 'dislikes'.

Non-resident workers commented negatively about the capacity of the airport during peak times. This issue of capacity was attributed to queues at security and check in, limited space in the Qantas lounge and lack of seating and space in the departure area. Conversely, many residents were concerned about the negative impact of drinking and smoking passengers in the bar and outdoor areas. This was seen to be particularly problematic for respondents with children.

The following tables list participants' responses in order of priority.

LIKES (GENERAL)	LIKES (PORT HEDLAND AIRPORT)
• Friendly and helpful staff • Clean toilets and shower facilities • Local art and cultural experiences • Quality and variety of choice in F&B • Diverse retail offering with local goods • Open and bright atmosphere • Iconic architecture • Gardens and greenery • Comfortable spaces for relaxing • Access to fresh air	• Friendly and helpful staff • Adequate toilets facilities • Public art and pictures of the Pilbara • Good upgraded café • Access to bar • Outdoor courtyard area • Small and intimate scale

DISLIKES (GENERAL)	DISLIKES (PORT HEDLAND AIRPORT)
• Crowded spaces and endless queues • Inadequate toilet facilities • Limited seating • Poor quality and variety of F&B • Expensive F&B options • Limited retail offering • Inadequate wayfinding signage • Poor customer service	• Reduced capacity at peak times • Inadequate toilet facilities • Limited and uncomfortable seating • Bar not separate from food area • Smoking areas next to entrances • Bland and boring spaces • Not child friendly

KEEP, STOP, START

The stakeholder workshop participants and the survey respondents each discussed what they would like to see change in relation to Port Hedland Airport in the future, through a 'keep, stop, start' framework. It was revealed that people are predominantly seeking a place to unwind, rest or distract themselves while they wait for their plane to depart.

For example:

KEEP

- Automated kiosk
- Mural and local historical content
- Outdoor courtyard area

STOP

- Queues
- Low ceiling
- Smoking at entrances

START

- Variety of food and local produce
- Local essence/stories
- More seating
- Children's play area
- Outside shaded areas

IDEAS FOR THE FUTURE AIRPORT

Participants in both workshops were asked to share what they would like to see in the future Port Hedland Airport if 'anything was possible'. The following sum up the ideas shared in the workshops.

- Large veranda (NW style)
- Iconic, contemporary building
- Spectacular floor design representing nature
- Open lounge with lots of seating
- Conference and meeting areas
- Indoor/outdoor spaces
- Great food
- Childrens playground
- Aquarium
- Different experiences at different times
- Plane watching
- Showcase small businesses
- Market stalls with local offering
- Bringing in nature – sky & sunsets
- Beautiful art which tells a story
- Community billboard
- Visitor centre
- Change rooms
- Coolest toilet
- Next generation check-in
- Free WiFi
- Changing art installations
- Spectacular art by Indigenous artists

CHALLENGES

Stakeholder workshop participants were asked to articulate the main challenges that the project may face in being fully realised. Only stakeholder participants were engaged on this point, since they could draw on their expertise and technical knowledge.

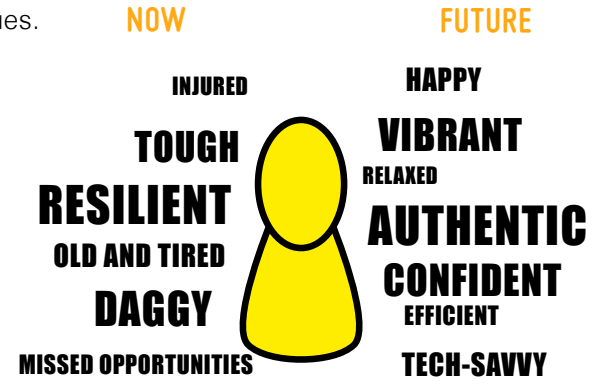
The following key items were identified:

- Cost
- Lack of space
- Lack of constant passenger numbers
- Not knowing what's possible
- Not having a shared vision
- Staging of redevelopment
- Staffing, labour and associated issues
- Lack of buy-in
- Balancing different priorities
- Not addressing operational issues.

PERSONALITY EXERCISE

Describing the current and future personality of a place is a way of exploring its intrinsic characteristics and future vision.

In both the workshops and surveys, participants envisaged Port Hedland Airport as moving from being tired and disinterested to a friendly, welcoming environment. The differences between the current and future airport is summarised as follows:



This airport has its own craft brewery, I will bring a six pack home!! hiccup!!

Village Well

A great way to wash away the dust.

To:

From:

Email address
(for future updates)

How many years h
lived in Port Hedla
0-5
5+
None – I'm a vi
None – I'm a F

4.0 ESSENCE OF PORT HEDLAND

The Town of Port Hedland has been planning for the future growth of the township and as part of this process has consulted extensively with the local community. The Strategic Community Plan 2012 – 2020 and Port Hedland: Shaping a Cosmopolitan Port City have both been informed by extensive community consultation exploring the community's vision of itself in the next decades.

These key strategic documents, together with the Pilbara's Port City Growth Plan and Village Well's research and consultation for the airport redevelopment have together informed 'the Essence of Port Hedland' – five themes that capture the most distinctive qualities of the place and its community's aspirations.

A coastal oasis of abundant sea life, red raw earth, and endless Pilbara sky

Many stories and proud traditions of Indigenous culture, pearling, shipping, aviation and mining

A welcoming, friendly and diverse community with active lifestyles

A hidden treasure trove of local enterprises, celebrating the convergence of different traditions and passions

Building new industries for the township as a lasting legacy of the mining boom


Photographer: Samantha Bell


Welcome to Port Hedland


ESPLANADE HOTEL


SILVER STAR


Photo: Town of Port Hedland


Opportunity Way


Watercolour artist Louise Joesbury (left) with Valda Secar (seated) and Winnie Sampi (photo by Karina Semmler)


Photographer: outbackjoe.com


Photo: Port Hedland

5.0 VISION FOR PORT HEDLAND AIRPORT

THE AIRPORT IS A VIBRANT MEETING PLACE IN THE CENTRE OF PORT HEDLAND THAT WELCOMES TRAVELLERS TO THE FRIENDLY PORT COMMUNITY AND THE TREASURES OF THE PILBARA.

BUILDING ON THE ENDEAVOURS OF PIONEERING GENERATIONS, THE AIRPORT PROVIDES EFFICIENT PASSENGER AND FREIGHT SERVICES TO WESTERN AUSTRALIA'S BOOMING NORTH WEST.

PLACE PRINCIPLES

PROUDLY SHARING THE STORIES AND TREASURES OF PORT HEDLAND AND THE PILBARA

Port Hedland Airport immerses visitors in the colours, shades and flavours of the frontier township, its ancient culture and stunning landscape. In the terminal, the architecture and art collection combine to capture the spirit and vision of the community. Locally produced food and gifts of exceptional quality are on offer at the airport lounge.

A VIBRANT MEETING PLACE

The airport is not just a gateway but a destination and meeting place for the local community, including non-resident workers and business people from the region. Conveniently located between the Port and South Hedland it is a place where people choose to gather for welcome parties and farewells or to meet for business.

The terminal is active day and night, and at low traffic times the carpark is a venue for community pop-up markets and events.

CONNECTING THE PORT HEDLAND COMMUNITY

The airport provides an immediate connection with the local community. Upon arrival visitors are met with friendly service and have instant access to community information about what's happening and what's worth a visit in town and beyond.

ENJOYING THE WAIT

At Port Hedland Airport waiting is a pleasurable experience thanks to comfortable indoor and outdoor lounge areas, convenient services and a choice of quality food and beverage. Children can play and watch planes while departing passengers can enjoy a quiet moment before the flight.

Airport operations are quiet and efficient – almost invisible. With smart technology and efficient design the airport services are hassle-free from check-in to boarding, leaving a plenty of time for relaxation. A long, uncomfortable wait is a thing of the past.

ULURU KATA-TJUTA CULTURAL CENTRE
Architect: Gregory Burgess Architects
Photographer: Craig Lamotte

Sonya Edney with her work in the 2013 Hedland Art Awards
Photographer: Samantha Bell

Photographer: Samantha Bell

Photographer: Steve Passlow

Photographer: Cheryl Smith

6.0
OPPORTUNITIES AND CHALLENGES

Village Well has identified a number of key placemaking opportunities and challenges for Port Hedland Airport, based on the analysis of the Lay of the Land, consultation findings and the airport's preliminary design. Opportunities are summarised in the following pages using the Village Well 5 P's of placemaking framework (people, physical environment, planet, product and program).

6.1 OPPORTUNITIES

People

• The rich and diverse history of Port Hedland and the Pilbara are unique stories that can be told through the airport experience.
• The Town's community and entrepreneurial spirit can be celebrated through the provision of products and services at the airport.
• The warm, welcoming attitude of Hedlanders can be expressed through the informal tone of interior architecture, furniture and fitout.
• The Town of Port Hedland's ownership of the airport can provide consistent leadership throughout the development process, enabling high quality design and aiport services.

Physical Environment

• The location, mid-way between Port and South Hedland and close to non-resident accommodation, provides an opportunity to connect a geographically divided community.
• The compactness of the airport facilitates enables the spatial concentration of social activities.
• The warm climate provides opportunities for outdoor experiences at the plaza and covered garden.

Planet

• The beautiful natural environment of the Pilbara is a powerful drawcard for tourists and visitors.
• There are organisations such as Care for Hedland Environmental Association actively looking after and managing the Town's environment, which may potentially contribute to the care of the airport environment.
• The climate is ideal for solar energy generation.
• The airport has the opportunity to show leadership in environmental sustainability.

Product

• Local creative groups could contribute to the look and feel of the airport by participating in the design and delivery of specific features including bespoke furniture, fittings and play objects.
• The Town is home to many enterprises which could trade at the airport.
• Pop-up and food trucks provide an opportunity for an affordable and flexible food offering with low commercial risk to the airport.

Program

• As a gateway to the Town, the airport provides an ideal site for the promotion of information about Port Hedland and nearby destinations.
• There are a number of activities and events occurring in Port Hedland, which could be promoted at the airport to visitors and non-resident workers.
• Located midway between the Port and South Hedland, the airport is ideally sited to accommodate community activities and events during non-peak times (i.e. evenings and weekends).
• The scale of the carpark provides an ideal platform for outdoor markets and entertainment.

6.2 CHALLENGES

People

• During some peak travel periods, the experience of resident passengers and visitors tends to be negatively impacted by large groups of people smoking and drinking.
• High accommodation and high living costs negatively impacts on the local hospitality and retail industry, which in turn impacts on quality services in the sector.

Physical Environment

• Overall the terminal floor area is limited and can accommodate only a limited number of functions.

Planet

• The Airport is only accessible via private cars, chartered buses and taxis.
• Port Hedland International Airport Master Plan March 2012 does not include any targets on environmental sustainability.

Product

• It is financially challenging for small local businesses to operate in conditions of fluctuating passenger numbers during the peak and nonpeak days.

Program

• The schedule of the mining industry creates traffic peaks mid week, leaving gaps with low levels of activity at the airport.

• The airport is in an isolated location, and therefore it would be a challenge to attract people for non-passenger activities.


3
3
-15 minutes
Arrivals Gate G7
Baggage storage
Rental Cars
Transport
Way out

7.0
PLACEMAKING DIRECTIONS AND RECOMMENDATIONS

The Port Hedland community's voice together with the Township's more recent strategic investigations and Village Well's place research have all informed the development of five key Placemaking Directions for the Port Hedland Airport.

These directions address both the hardware (infrastructure, architecture and fit-out) as well as the software (retail mix, programming and operations) of the new Port Hedland Airport.

Each direction is supported by specific placemaking recommendations to Council for adoption and implementation. These recommendations are also referenced in a layered plan of the terminal, indicating the intended experience of the place.

PLACEMAKING DIRECTIONS

1. **A QUINTESSENTIAL PORT HEDLAND EXPERIENCE**
2. **CREATE SPACIOUS, COMFORTABLE AND FLEXIBLE AREAS FOR MEETING AND RELAXING**
3. **QUALITY FOOD AND LOCAL PRODUCTS ARE CONSISTENTLY AVAILABLE**
4. **CONNECTING WITH PORT HEDLANDERS, WITH WHAT'S HERE AND WHAT'S HAPPENING**
5. **IMPROVED FACILITIES AND OPERATIONS**

PLACEMAKING DIRECTION 1.

A QUINTESSENTIAL PORT HEDLAND EXPERIENCE

The first impressions of Port Hedland and the broader region are made when visitors step off the plane and walk through the airport. Port Hedland has unique and diverse assets and the airport presents an ideal opportunity to showcase what Port Hedland has to offer.

For tourists the quintessential Port Hedland experience will heighten the excitement and expectation of the journey ahead. For non-residents and business visitors it will facilitate appreciation of the place and encourage them to further connect with Port Hedland. For residents, a recognisable, authentic experience will be a source of pride.

The nature, culture and stories of Port Hedland will be expressed through various means throughout the airport, so that the multifaceted essence of Port Hedland can be experienced as a whole, and new discoveries can be made at each visit.

RECOMMENDATIONS

ULURU KATA-TJUTA CULTURAL CENTRE
Architect: Gregory Burgess Architects
Photographer: Craig Lamotte

1.1 Engage an innovative architectural team to develop a design in response to the Place Plan and related functional design brief.

Photographer: Steve Passlow

1.2 Reference the Pilbara's magnificent landscapes through form, materials, texture and colours of architecture. For example:

- using rocks, soils and plants in landscape treatments;

- incorporating patterns and motifs into wall and pavement treatments;

- placing windows to capture the sky and sunsets;

- colour schemes that represent the distinctive colours of the landscape.

1.3 Provide a generous verandah on the landside of the terminal shielding the sun and expressing North West's building vernacular and appreciation of outdoor leisure.

1.4 Integrate heritage interpretation, storytelling and memorial into landscape and architecture of terminal, including:

- Interpretation of important chapters in local aviation history through large format photographs and potentially artefacts (see plan in Section 7.5);

- Curate and nurture Indigenous gardens with interpretation (see plan in Section 7.5);

- Partner with RSL to create an appropriate memorial to the bombing of the airport in World War II at an appropriate outdoor location;

- Commission local artisans to make children's toys for the play areas on the theme of turtles and mining (e.g. hand-carved wooden mining machines, turtle shaped soft furniture);

- Name the airport and tenancies with historical local references (e.g. Charlie's bar);

- Investigate opportunities to present stories from the Report of the South Hedland Kariyarra Cultural Interpretive Signage Project by Anthoropos Australis and Hedland Voice by the Port Hedland Historical Society and the Town of Hedland.

1.5 Commission Indigenous and non-Indigenous artists with links to the region to produce artworks for Airport arrival and lounge areas.

Artworks by Indigenous artists should be a prominent feature of the airport.

Recommended opportunities include:

- Suspended artworks in the domestic and international arrivals

- Artwork on the walls in the Arrival area

- The external garden in the plaza

- Decorative glass wall between the concourse and departure lounge

1.6 Retain the existing artwork (at the baggage collection area) and relocate to an appropriate site in the terminal, potentially behind the new baggage turnstiles.

1.7 Provide exhibition space for changing community exhibitions in an accessible location.

The exhibition space should be incorporated into wall space in the concourse area without any enclosure, so that it can be viewed easily.

Historical exhibitions should be managed by Council's local history librarian presenting images, artefacts and information related to the airport, Port Hedland and the Pilbara.

Artwork from Port Hednland Airport's *Airport Art and Story* Competition

1.8 Partner with local primary schools to involve school children in the development of an illustrated portrait of Port Hedland. The artwork could be exhibited in the exhibition space, and/or showcased in a unique and fun way such as on security check trays.

1.9 Provide indoor and outdoor native gardens to evoke a sense of the Pilbara landscape to create visual connections between inside and outside, and to soften the interior spaces.

1.10 Reintroduce the popular blue tongue lizard as a mascot of the airport, by incorporating a new enclosure and sponsoring airport staff or community volunteers to care for it.

1.11 Partner with mining companies to commission local artisans to produce playful objects and games. For example:
- A giant egg timer (referencing the salt mound) in the departure lounge that can be turned over to time a particular game or challenge.
- Placing a dummy iron ore pile on the baggage carousel (mimicking iron ore conveyers).

PLACEMAKING DIRECTION 2.

CREATE SPACIOUS, COMFORTABLE AND FLEXIBLE AREAS FOR MEETING AND RELAXING

As most time at the airport is spent waiting, sufficient and comfortable seating is of paramount importance.

A welcoming and generous space with distinctive offerings will invite not only travellers but also residents to make the airport their regular destination for meeting, socialising and even for education and entertainment.

RECOMMENDATIONS

2.1 Provide a generous common space in the pre-security area for families and friends to mingle with passengers before departure. The common area should be edged with F&B retail, exhibitions and community information and have toilets and amenities nearby.

2.2 Incorporate large windows and high ceilings to create a sense of space and light, and to create a visual connection with the outside landscape. A generous, welcoming space reflects the open attitude of Hedlanders.

Provide large windows in the south façade and centre of the airside wall to enable plane watching from the departure lounge, as well as glimpses from the concourse areas.

2.3 Provide clusters of comfortable seating in a variety of styles in the departure lounge to enable quiet reading as well as group gatherings.

2.4 Provide a semi-enclosed space, with bench, tables and chairs, for meetings of up to 8 people in the departure lounge / concourse area.

2.5 Provide a shaded outdoor verandah along the full extent of the north façade with plants and seating in three distinct areas: the central plaza (for dining and gathering), the eastern and western ends (for smokers).

The shaded outdoor space would be a place both passengers and non-passengers can enjoy, befitting the Hedlanders' outdoor-loving lifestyle.

2.6 Provide an indoor-outdoor garden in the departure lounge.

The garden should be lush with vegetation with heritage interpretation as well as have comfortable seating and potentially a water feature.

2.7 Provide areas for children's play in the central concourse area and the departure lounge.

Designate play spaces (preferably two, approximately 10m^2) and provide bespoke toys and furniture (see recommendation number 1.4 and plan in Section 7.5). These could potentially be combined with exhibition and pop-up space.

2.8 Provide an outdoor bus lounge in the carpark with covered pedestrian links to improve passenger comfort and soften the first impression of a hot landscape.

2.9 Provide a games corner by installing a jukebox, foosball and pinball machine, for low cost entertainment of travellers.

2.10 Establish a small book exchange of pre-loved books (second hand), in consultation with Port Hedland library, to compliment the adjacent retail.

2.11 Provide a discreet smoking area outside at the eastern and western ends of the plaza.

2.12 Provide two separate spaces for food and beverage consumption, to enable choice of social options.

PLACEMAKING DIRECTION 3.

QUALITY FOOD AND LOCAL PRODUCTS ARE CONSISTENTLY AVAILABLE

Distinctive quality food and retail experiences can make the airport and the whole trip memorable by showcasing what Port Hedland and the Pilbara have to offer.

RECOMMENDATIONS


Photographer: Samantha Bell

3.1 Ensure that retail operators in the terminal stock and promote quality, locally made gifts and produce.

3.2 Create affordable opportunities to showcase local products and produce by initiating and managing a revolving program of pop-up shops.

3.3 Ensure that at least one operator stocks convenience items for passengers.

3.4 License a mobile food truck to operate in the carpark during peak periods.

3.5 License a coffee cart to operate in the departure lounge during peak periods, preferably managed by a local operator who has a business or café in town.

PLACEMAKING DIRECTION 4.

CONNECTING WITH PORT HEDLANDERS, WITH WHAT'S HERE AND WHAT'S HAPPENING

As a gateway, the airport needs to provide basic information about Port Hedland that is both practical and inspirational.

RECOMMENDATIONS

4.1 Provide tourist information in a prominent location in the arrival area, including:

- A large scale map of Port Hedland and the surrounds with key destinations

- Tourist maps and takeaway tourist pamphlets, with information about local history and key destinations in and around Port Hedland.

4.2 Provide up-to-date information about the town including:

- A community billboard with information about what's happening in town. The billboard could be both physical and digital to cater for various audiences.

- An online bulletin or facebook page to promote various airport offerings as well as activities in the town and region.

- Regular briefings to airport customer service staff, car rental and taxi companies about what's on in town.

4.3 Initiate and manage a programme of pop-up shops and displays to bring in changing experiences and promote small businesses in Port Hedland and the region.

Make available a small space with services in the concourse or the departure lounge to host these pop-up shops. The space could be used not only for small retail but also for community events and promotions related to the Pilbara calendar of events.

4.4 Support a program of community events and activities in the carpark on weekends. For example events such as Suitcase rummage markets / car boot markets, pop-up drive-in cinema, produce markets, jazz under the stars and band rehearsals / concerts would be particularly suitable for this location and car park setting.

PLACEMAKING DIRECTION 5.

IMPROVED FACILITIES AND OPERATIONS

A clean, efficient and hussle-free experience is fundamental to passenger satisfaction. Investing in small improvements can have a significant effect on passenger experience.

RECOMMENDATIONS

5.1 Provide shower and change room facilities for non-resident workers.

5.2 Provide a baby change area in toilets.

5.3 Provide free WiFi and several power points for passengers use in departure lounges.

5.4 Provide next-generation check in systems and roaming customer service.

5.5 Provide baggage trolleys and racks in the carpark.

5.6 Operate a regular shuttle bus service into the Port and South Hedland.

5.7 Include solar power generation as a power source for the terminal.

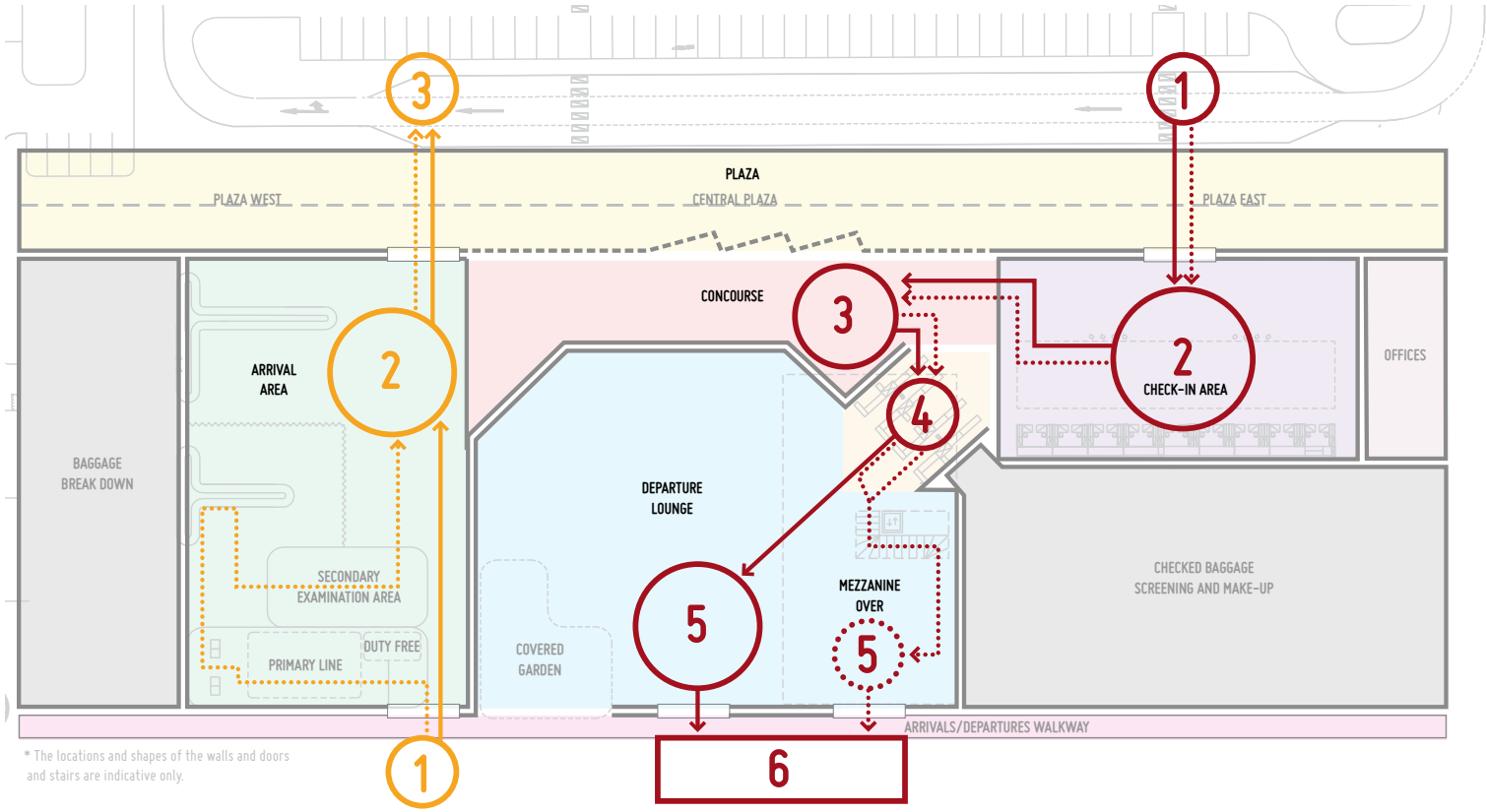
5.8 Collect rainwater from the terminal roof and store for use on gardens.

5.9 Collaborate with organisations such as The Care for Hedland Environmental Association to implement recycling programs.


Photographer: Kessner Photography

7.2 AIRPORT JOURNEY

The following plan illustrates three fictional journeys through the redeveloped Port Hedland Airport. The journeys are from the perspectives of a visitor to Port Hedland arriving at the airport, a Port Hedland resident departing from the airport, and a nonresident worker departing from the airport.



ARRIVAL

ARRIVAL INTERNATIONAL
ARRIVAL DOMESTIC

1. ARRIVE AT AIRPORT
2. COLLECT BAGGAGE
3. LEAVE TERMINAL

DEPARTURE

DEPARTURE INTERNATIONAL
DEPARTURE DOMESTIC

1. ARRIVE AT THE AIRPORT
2. CHECK-IN AND BAGGAGE DROP OFF
3. LOUNGE IN THE CONCOURSE
4. SECURITY SCREENING
5. RELAX IN THE DEPARTURE LOUNGE
6. DEPARTURE

AIRPORT JOURNEY

ARRIVAL

1. Arrival at the airport

Smooth landing and walk onto the tarmac. The Pilbara's sun is strong but the luckily the shade is not far away. Beautiful artworks along the corridor and arrival hall make me feel welcomed and excited about the trip ahead.

2. Collect baggage

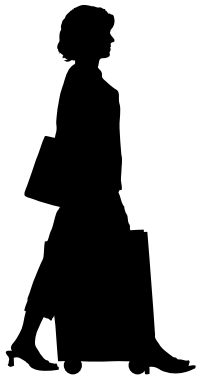
While waiting for the baggage I look at the map on the wall, pick up some tour brochures and check out the community billboard to find what's happening in town this week — the market is on tomorrow!

3. Leave terminal

I find my friends waiting with cool drinks at the plaza. We haven't seen each other for a long time!

The plaza is convivial with people enjoying their early evening drinks and children are happy playing nearby.

After an easy walk to the car, we drive off to see the turtles on the beach before dinner.



A traveller visiting a friend

AIRPORT JOURNEY

DEPARTURE 1

Port Hedland family

1. Arrival at the airport

I find a car parking spot under a tree canopy and enjoy a comfortable stroll to the departure hall. The iconic architecture welcomes us in.

2. Check-in and baggage drop

The flight information is visible as soon as I enter the door. Easy self check in and baggage drop-off. Friendly staff assists me with the oversize bag. Children are sitting on the nearby bench while they wait.

3. Lounge in the concourse

We enjoy coffee and snacks and conversation with family members who came to see us off. We sit outside to take in Port Hedland's warm air. Children are happy playing with diggers and lizards.

On the way to the security, I pick up some locally made jam as a souvenir and have a peek at this month's exhibition: amazing photography from the Pilbara's national parks.

4. Security

The security is smooth with no queue. Children's drawings on the security trays make me smile.

5. Relax in the departure lounge

The departure lounge is spacious and bright. We find comfortable seats and make it our base. Children enjoy exploring the garden space and I pick up some books for the flight in the book exchange library.

6. Departure

Boarding on time. As we line up for the queue we look back towards the concourse and wave to our family on the other side the glass wall. See you in two weeks!

AIRPORT JORNEY

DEPARTURE 2

Non-resident worker

1. Arrival at the airport

I get dropped off from the bus at the bus parking. The flight is an hour away, so I linger at the bus stop and enjoy a cigarette and chat. The landscape and seating make this place a great gathering spot.

2. Check-in and baggage drop

Check-in was done on mobile so I can drop off my baggage straight away.

3. Freshen up and shop

Quick shower to wash red dirt off and feel refreshed before the flight. I wind down from the day with a beer and a bite.

On the way to the security, I pick up locally made beef jerky for the kids at home.

4. Security

Smooth security even at the peak hour.

5. Relax in the departure lounge

The departure lounge is busy but there are still enough seats to choose from.

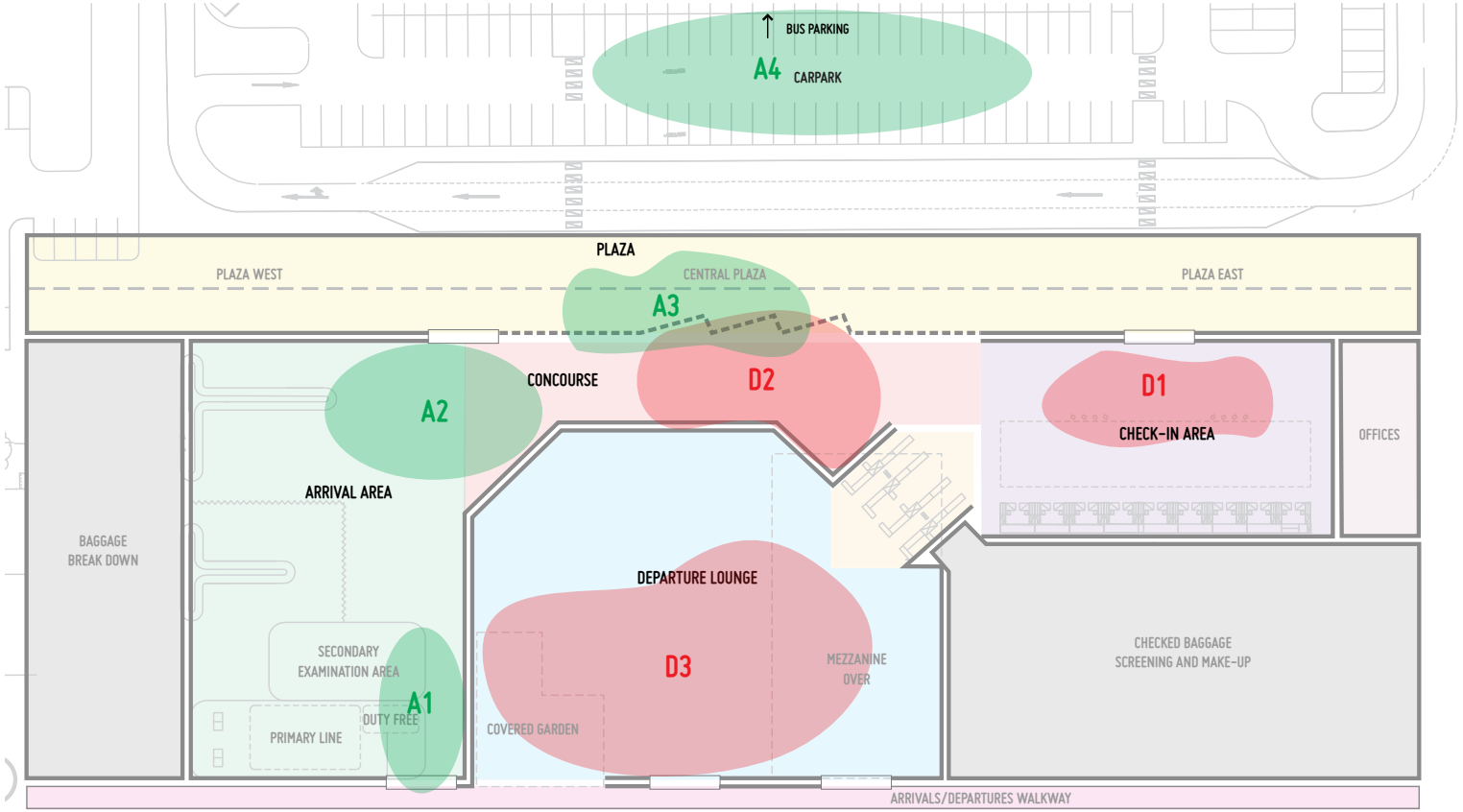
My colleagues are in the Qantas lounge but today I just sit in the departure lounge to spend some quiet time, reading and checking emails.

6. Departure

Boarding on time.
Sit back and relax.

7.3 AIRPORT EXPERIENCE

The following annotated plan describes the experience at different area within the terminal, including specific potential activities.



* The locations and shapes of the walls and doors are indicative only.

D1. CHECK-IN

The check-in area welcomes passengers with open and legible layout.

Check-in is effortless, assisted by well-located flight information, self check-in counters and friendly customer service staff. There are plenty of comfortable seats available for resting and last-minute reorganisation of baggage.

The toilets are placed in a discreet location away from the social activities, and are equipped with baby change rooms for travellers with children and showers for non-resident workers.

Toilets are also accessible from outside the building.

D2. CONCOURSE

This central communal area is spacious and light, and bleeds out to the outdoor plaza. It also enjoys views to through the departure lounge to the airside windows.

The space is packed with a variety of activities, including a café, shop and play space. Curated exhibitions and pop-up shops reflect the abundance of local talent, and add variety over the course of the year.

Sonya Edney with her work in the 2013 Hedland Art Awards. Photographer: Samantha Bell

1. A QUICK BITE

The airport cafe offers fresh food with a local favourites including the steak sandwich a la Esplanade.

The café opens out onto the landscaped plaza, enabling WA style outdoor dining experience.

2. PLAY

Located adjacent to the concourse café, the play area is a favourite place for families travelling with children as well as occasional mothers groups who use the airport as a meeting place.

There is no fencing necessary due to the visual proximity to the lounge area where parents relax in comfort.

Turtle themed soft furniture provides an opportunity for children to engage in imaginative play.

3. LIZARD LOUNGE

The lizard lounge is literally a lounge with a lizard. The old favourite resident of the Port Hedland airport is back and welcomes visitors to the airport.

4. CONVENIENCE AND SOUVENIR SHOPPING

The shop is conveniently located near the security for last minute convenience and souvenir shopping. In addition to magazines and travel products a selection of locally made products is on offer for unique gifts and souvenirs.

Photographer: Samantha Bell

5. SHOWCASE CORNER

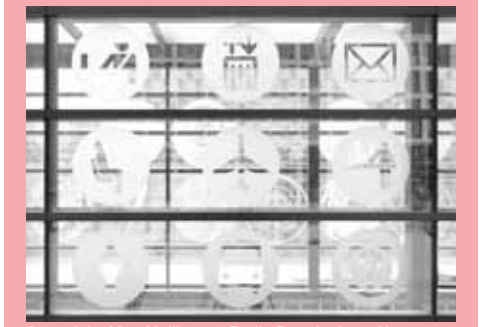
A small corner is dedicated to showcasing the history and creative talents of the Port Hedland and Pilbara communities.

The flexible space is also used to house exhibitions and pop-up shops.

6. VIEWING THROUGH THE GLASS WALL

The large glass wall between the concourse and departure lounge enables passengers and their friends and families to maintain visual contact through the final stages of departure.

The decorative glass wall is designed by artists from the region.



Artwork by Matt Mullican at Berlin Brandenburg Airport
Photographer: Alexander Obst/Marion Schmieding

D3. DEPARTURE

The departure lounge is spacious with high ceiling and large windows, and alive with colours of the Pilbara. Heritage interpretation integrated into the wall design provides further appreciation of Port Hedland.

The space feels more like a lounge than an 'airport lounge' with various comfortable seating options and a semi-outdoor space. Passengers spend their waiting time as they like – enjoying a drink and a chat, catching up on business on live, quietly reading or watching the planes take off.

1. AN OASIS OF BEAUTIFUL GARDENS

The cool green of the indoor / outdoor gardens have interpreted Indigenous plants and plenty of seating.

At the other corner, play opportunities such as foosball or jukebox allow passengers to make some noise and have fun.

2. PLAY AND READ

A small section of the lounge provides diversions to waiting passengers.

The play experience is uniquely Port Hedland style, with mini mining machinery handcrafted in timber and animal inspired soft furniture.

The small bookshelf houses pre-loved books of other travellers. Books can be taken away on the plane and returned or swapped.

A1. ARRIVAL

Arrival provides memorable first impressions of Port Hedland. Arriving passengers are welcomed with striking impressions of landscapes and images of Port Hedland.

Beyond the custom and baggage collection, the space opens up to create a sense of shared third space, owned by the community.

1. ENTRY

Walking through the arrival corridor passengers encounter magnificent artworks by Indigenous artists welcoming visitors to country.

International travellers can enjoy the duty free on the way out.

Artwork at Narita International Airport Arrival Concourse
Photographer: Forward Stroke

A2. FINDING INFORMATION

Near the baggage collection carousels, a wall presenting a large map of the township indicates key destinations and landmarks. Various maps and tourist information are available and a community billboard is packed with information on what's happening in town.

A3. PLAZA

The Plaza is a well-shaded outdoor space that accommodates various activities, including circulation, taxi pickup and drop-off, resting and dining.

Seated smoking areas at the end of the plaza east and west ensure separation of dining and smoking.

1. RELAX AT CENTRAL PLAZA

The central section of the plaza is an active gathering area, with service from the cafe and ample seating The shade, landscape and public art evoke the natural beauty of the area.

A4. CAR PARK

The car park is logically arranged, and the pedestrian paths well marked and shaded. Trees provide generous shade over parked cars.

1. BUS PARKING

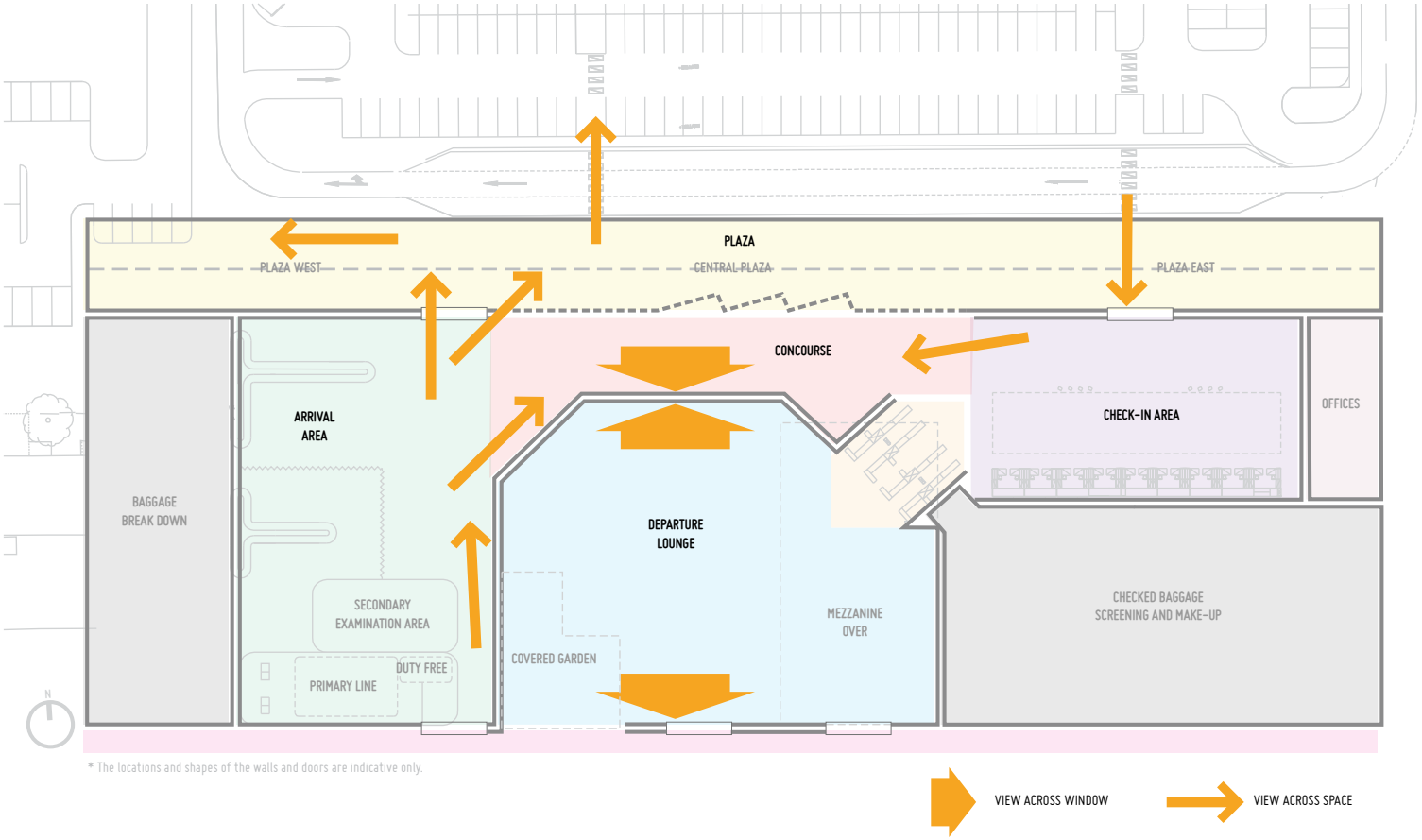
The bus parking zone in the middle of the carpark has comfortable seating, shading and landscaping. Green climbing vines soften the harshness of the car park.

2. ALTERNATIVE USES

In quiet, low traffic periods (weekends) the space regularly becomes a place of gathering with markets, pop-up drive-in cinema and live music events. People from town come not to fly out but to enjoy the open air and convenience of a central location midway between Port and South Hedland.

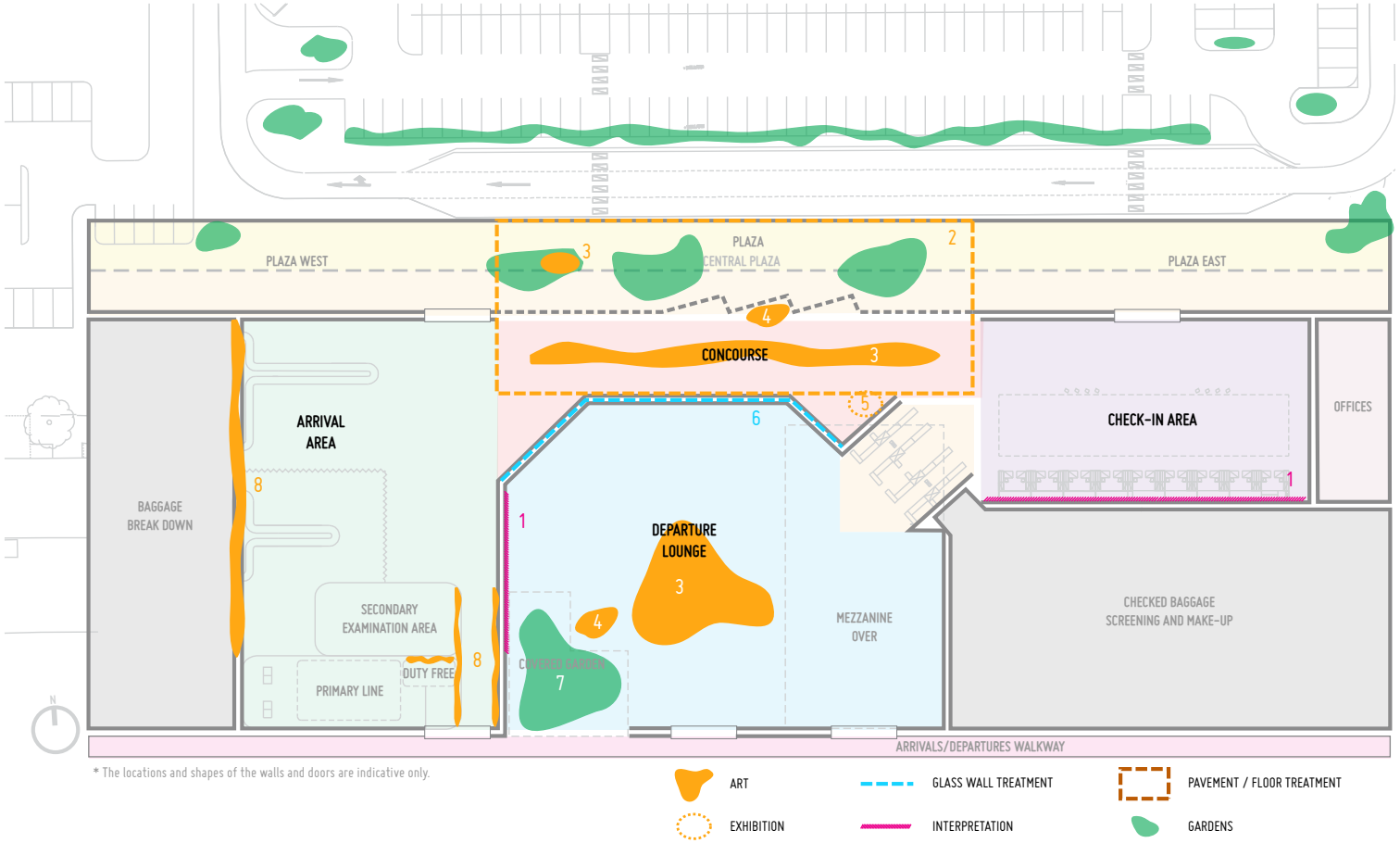
7.4 VIEW LINES

The following plan shows the important visual connections that need to be retained.



7.5 ART, GARDENS AND INTERPRETATION

The following plan indicates approximate location zones for art, gardens and interpretation.



Pearl Necklace artwork by Olaf Nicolai
Photographer: Alexander Obst/Marion / Schmieding Berlin
Brandenburg Airport

1. INTERPRETATION

The aviation history of Port Hedland is presented in large format photographs and text.

2. PAVEMENT / FLOOR TREATMENT

The central plaza and the concourse are connected through the same pavement / floor treatment, featuring the landscape and water of the Pilbara in subtle patterns and motifs.

3. ART

Commissioned artworks explores themes of oases, flight, energy and community, appearing within the gardens in the Plaza and suspended from the high ceilings of the concourse and departure areas.

4. PLAYFUL FURNITURE

The play area features turtle shaped soft furniture designed by an artist.

The handcrafted mining machinery is another popular play element for children.

6. EXHIBITION

A changing program of exhibitions are curated by the Town's library and captures the interest of travellers as well as residents.

6. GLASS WALL TREATMENT

The large expanse of glass wall between the concourse and the departure lounge is a carefully articulated structure with finely crafted detail by local artists

7. COVERED GARDEN

Indigenous plants in the covered garden introduce the culinary tradition of the Pilbara's Indigenous people.

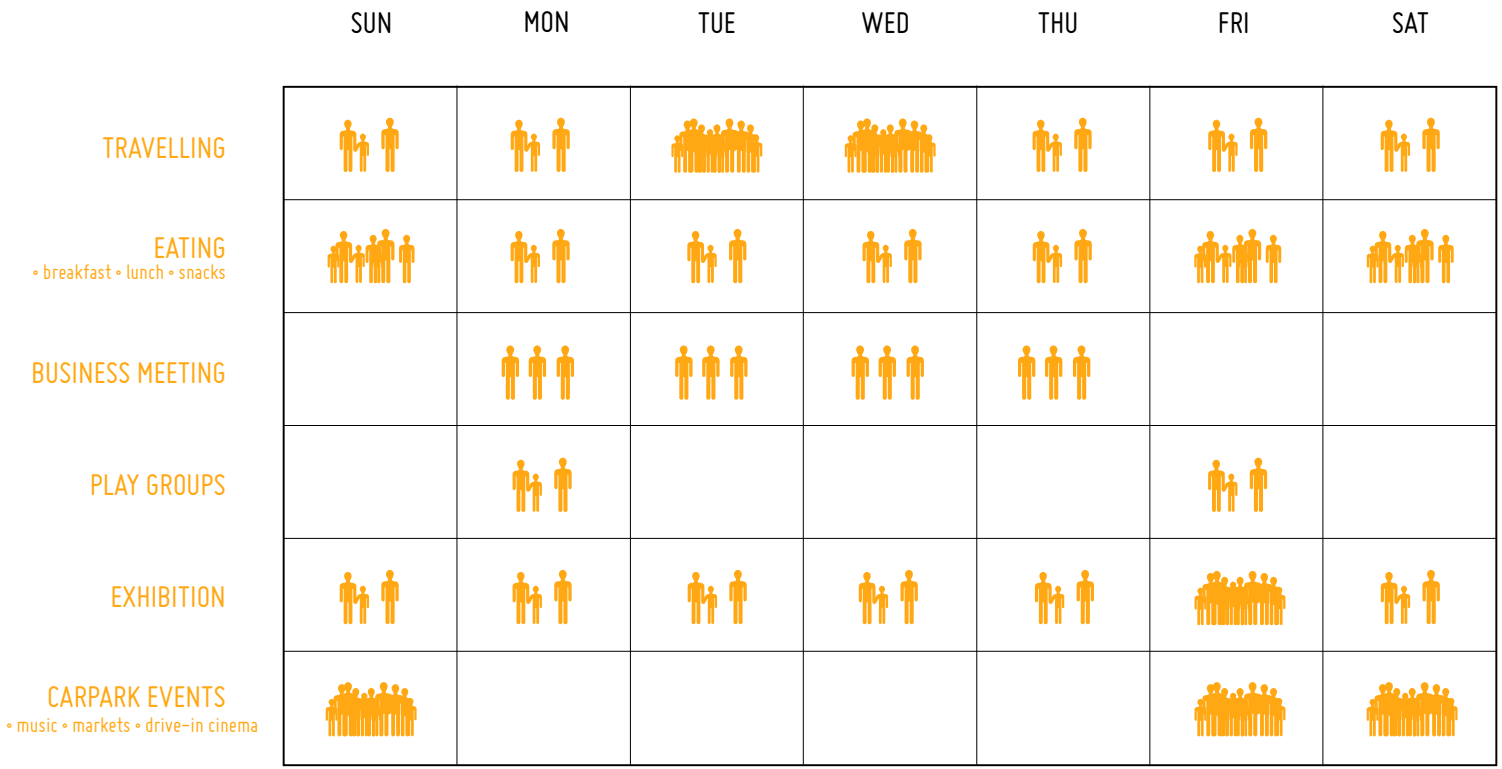
8. ART AT ARRIVAL

A stunning artworks by Indigenous artists welcome the visitors into the terminal.

7.6 WEEKLY CALENDAR

The indicative weekly calendar shows the daily rhythm of activity at the airport terminal - different activities on each day.

The icons indicate how busy the activity might be on a specific day.



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Level 6, 43 Hardware Lane
Melbourne Victoria 3000
Phone: 03 9650 0080
Email: info@villagewell.org

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Appendix 5

Port Hedland International Airport redevelopment program cash flow

TOWN OF PORT HEDLAND AIRPORT REDEVELOPMENT PROGRAM & ASSOCIATED FUNDING

5 YEAR BUDGET FORECAST, FROM YEAR ENDED 30 JUNE 2013 TO YEAR END 30 JUNE 2018

(deferred capex and spoilbank transfer+KBP revenue)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	TOTAL
EXPENDITURE							
Infrastructure - apron extension	4,734,464	5,000,000					**9,734,464**
Infrastructure - Main Apron Strenghening		1,300,000					**1,300,000**
Infrastruture - Building upgrades	365,000						**365,000**
Infrastructure - runway 18/36 rebuild				1,500,000			**1,500,000**
infrastructure - pavement repairs		300,000					**300,000**
Infrastructure - runway resheet			4,000,000				**4,000,000**
Operations - CCTV network Airport	206,445	150,000					**356,445**
Operations - quarantine facility resite		600,000					**600,000**
Operations - screening authority transition		500,000					**500,000**
Operations - security fencing (Stage 2)	1,500,000						**1,500,000**
Operations - Plant & Equipment - power-in/pushback		765,000					**765,000**
Operations - security upgrades - CTO		500,000					**500,000**
Operations - Stormwater Drainage	350,000						**350,000**
Redevelopment - aircraft service hangar construction			2,500,000				**2,500,000**
Redevelopment - carpark/ground transport reconfiguration	160,000	1,000,000	1,000,000	2,000,000			**4,160,000**
Redevelopment - freight and logistics zone	150,000	8,360,000					**8,510,000**
Redevelopment - interim bus parking	300,000						**300,000**
Redevelopment - Interim freight hub/relocation existing freight ops			1,200,000	1,000,000			**2,200,000**
Redevelopment - interim Improvement program [security/amenity/landscaping]	600,000	1,000,000					**1,600,000**
Redevelopment - terminal	310,000			4,000,000	20,000,000	20,000,000	**44,310,000**
Relocation - airport operations building			500,000				**500,000**
Relocation - records shed			2,000,000				**2,000,000**
Services - electrical lighting upgrades		1,300,000	1,632,664				**2,932,664**
Services - electrical ringmain upgrade	2,461,211	2,538,789	3,000,000				**8,000,000**
Services - water/wastewater	500,000	4,900,000	8,900,000				**14,300,000**
TOTAL	**11,637,120**	**28,213,789**	**24,732,664**	**8,500,000**	**20,000,000**	**20,000,000**	**113,083,573**
SOURCES OF FUNDING							
Council Reserve Funding							**0**
Kingsford Precinct Lots 401 to 439							
Bunnings Land Sale Lot 412		2,695,000					**2,695,000**
Sales - Lots 401 to 409		3,922,500	1,500,000	750,000			**6,172,500**
Rented - Lots 410 & 411			112,500	115,875	119,351	122,932	**470,658**
Sales - Lots 413 to 417				1,400,000	1,400,000	1,400,000	**4,200,000**
Rented - Lots 421 to 424				526,726	542,528	558,804	**1,628,057**
Rented - Lots 425 to 428					838,360	863,511	**1,701,871**
Rented - Lots 429 to 431							**0**
Rented - Lots 432 to 433							**0**
Rented - Lot 436-439		2,628,500	2,707,355	2,788,576	2,872,233	2,958,400	**13,955,063**
Airport Operating Budget							
Revenue	17,389,413	18,258,884	19,171,828	20,130,420	21,136,940	22,193,788	**118,281,273**
Expenditure	-11,030,644	-11,416,717	-11,816,302	-12,229,872	-12,657,918	-13,100,945	**-72,252,397**
New - terminal retail/commercial revenues					358,313	376,228	**734,541**
New - air freight facilities				625,800	657,090	689,945	**1,972,835**
New - GA hangars		20,000	42,000	63,000	84,000	88,200	**297,200**
New - hire car revenue uplift		510,000	535,500	562,275	590,389	619,908	**2,818,072**
New - power in push back equipment revenue		160,000	168,000	176,400	185,220	194,481	**884,101**
Loan Funds			8,000,000		5,500,000		**13,500,000**
Costs Associated with Loan Funds							
Interest Repayments (& Guarantee Fee)		0	0	-560,000	-543,200	-911,904	**-2,015,104**
Principal Repayments		0	0	-800,000	-776,000	-1,302,720	**-2,878,720**
Airport Capital Reserve							
Transfer from Muni for Records Shed			2,000,000	0	0		**2,000,000**
Airport Reserve transfers/blances	19,060,000	13,781,649	2,346,027	34,245	5,083,444	5,390,750	**141,376**
TOTAL	**25,418,769**	**30,559,816**	**24,766,909**	**13,583,444**	**25,390,750**	**20,141,376**	**113,083,573**
Capex to Funding shortfall/surplus	13,781,649	2,346,027	34,245	5,083,444	5,390,750	141,376	