Whitsunday Coast Airport Master Plan and Feasibility Study

Prepared for Whitsunday Regional Council

July 2015

INTRODUCTION FROM THE WHITSUNDAY REGIONAL COUNCIL

It is with great pleasure that Council presents the Whitsunday Coast Airport Master Plan, in partnership with the State Government of Queensland. The Master Plan has been compiled by The Airport Group consultancy and introduces the future Whitsunday Coast Airport International Export Hub (WCAIEH). The WCAIEH project has been developed over the past four years. However, it must be noted that the history of the Whitsunday Coast Airport commenced in 1951, when the first flights were received, introducing large scale aviation and tourism development to our region. Since this time the airport has grown and developed, as well as experiencing economic peaks and troughs, while the aviation and tourism industries grew and matured. Previous Shire and current Regional Councils have worked closely with all levels of Government to develop the facility to a standard that will deliver direct International services to the region. This document is the culmination and consolidation of all of the plans throughout the past 64 years of the airport's history.

The basis of the document has been formed through the 2011 – 2014 Strategic and Operational Plan adopted by Council in early November 2011. The key commercial deliverables of the plan were largely achieved and have placed the airport into record breaking territory by way of aircraft movements and passenger numbers. For the 2014-15FY passenger numbers reached in excess of 282 000 with further anticipated growth to deliver a low and high range forecast of between 325 000 and 390 000 passengers for the 2015-16FY. As a result of the growth occurring and future major projects planned within the region Council has taken the necessary steps to plan for future access to the region. This planning aims to take advantage of the positioning of the airport, bounded by the North Coast Railway line and the Bruce Highway, creating a true multi modal road, rail and air transport and logistics hub. The hub utilises the current airport site covering 430HA and is also planned to include land adjoining the airport creating a 1000HA site. The entire 1000HA site is under consideration for Priority Development Area declaration by the board of Economic Development Queensland. The declaration of a PDA will further enhance the Whitsunday Coast Airport Planning Code as part of the newly formed Whitsunday Regional Council Town Planning Scheme.

To develop the Master Plan extensive analysis was undertaken including a Master Plan Appraisal, Economic Base Case Development and Infrastructure Options Analysis. All three documents have now been consolidated into the proceeding document presented by The Airport Group, Whitsunday Regional Council and the State Government of Queensland.

The results of the masterplan deliver a roadmap for development of the entire site over the next 20 years; positively affecting our Tourism, Agricultural and Resources sector. While also diversifying our economy to enhance our emerging Aviation, Transport and Logistics specific industries, creating jobs and prosperity for the region.

Whitsunday Regional Council's commitment to the growth and development of the WCAIEH is demonstrated through the continual investment and vision to forward plan for our future. Coupled with the desire to provide clarity and communicate the future vision to our stakeholders via the Master Plan.

The WCAIEH Project will not only deliver catalytic growth benefits for the entire region, underpinning the future of our tourism industry, but also ensure that our Agricultural sector has access to new and emerging markets. The strategic economic importance of the project to our region, the State of Queensland and the Nation is demonstrated throughout the Master Plan.

EXECUTIVE SUMMARY

The Whitsunday Coast Region is an internationally renowned tourism destination. The region is also a critical area of natural resources for the Australian economy. The Whitsunday Regional Council (WRC) area is home to 31,426 residents (as of the 2011 Census). Tourism, agriculture, natural resources, and the local residential population are the major factors impacting the Whitsunday Coast Airport.

This Master Plan has a planning horizon of 20 years to 2035. Numerous considerations have been included in preparing this Master Plan, including:

- A review of the existing planning context, including:
  - An analysis of the current site, including existing aviation, airside, and landside context; and
  - An overview of the airport context.
- A review of the planning legislative context, including:
  - Federal, State, and Local Government policy and regulation; and
  - Environmental legislation.
- Production of passenger and aircraft growth forecasts based on:
  - Econometric Model forecasts;
  - Supply Model forecasts; and
  - Freight forecasts.
- Presentation of a planning response for:
  - Airspace planning; and
  - Airside planning.
- SWOT analysis based on review and forecasts;
- Presentation of future needs priorities;
- Final land use plan for 2035, including precinct plans for:
  - Airside;
  - Landside; and
  - Commercial Development.
- Implementation strategy for short, medium and long term planning.

Supporting Appendices are also included.

The Master Plan identifies a need for upgrades to the runway and apron infrastructure in the short-medium term (0-5-10 years). In addition, the terminal and terminal plaza area require upgrades within the short-medium term. The provision of freight facilities is considered a short-medium term requirement. Commercial development opportunities can be implemented throughout the life of this Master Plan.

The airport is a catalytic development that will drive future overall regional investment as well as growth and development in Aviation, Tourism, Export Quality Agriculture Products as well as Transport and Logistics infrastructure. As a result it is unlikely that the current accommodation infrastructure could service the projected increases to the Whitsunday region. Therefore for these passenger forecasts to be met there needs to be a concurrent increase in commercial accommodation to service the increase in travellers and workers to the region. In addition to airport usage, concurrent developments from Overseas investors will alleviate pressure on existing hotel and motel accommodation.

There is considerable growth expected in the next 20 years and the 2035 high forecast of 901,404 reflects this. The airport currently provides between four and five services daily. This is expected to increase to six by the end of 2015 and to include international services by 2018.

TAG recommends PAX figures are reviewed frequently. Given the highly fluctuating nature of drivers in the region, combined with a low starting base, it is important to review PAX figures and infrastructure capacity on a regular basis to ensure relevancy and feasibility of development.

There is ample opportunity for the airport to become an integrated transport and logistics hub incorporating Road, Rail and Air transport, to create a catalytic, job generating, economic development for the region, the State and the Nation.

CONTENTS

List of Figures

List of Tables

Reference Documents

- Whitsunday Coast Airport Planning Appraisal (Leading Edge Aviation Planning Professionals)
- Traffic Prospects for Whitsunday Coast Airport (Tourism Futures International)
- Aerodrome Manual
- Whitsunday Coast International Export Hub Master Plan and Feasibility study Stage 1 Report – Economic Base Case (TAG)
- Whitsunday Coast Airport International Export Hub Master Plan and Feasibility study Stage 1 Report – Economic Drivers, Requirements and Opportunities (AEC)
- Strategic and Operational Plan 2011 to 2014 (WRC)
- Economic and Population Study (Norling Consulting)
- The Whitsundays – Destination Tourism Strategy
- The Whitsundays – Tourism Opportunity Plan
- Airport Usage Reports
- Whitsunday Food Circle Project
- Deloitte – Media Release "Super-growth tourism sector to help build Australia's lucky country'"
- Whitsunday 2020 – Whitsunday Regional Council Corporate Plan 2014 – 2019
- Australian Government, Our North Our Future: White Paper on Developing Northern Australia
- Infrastructure Australia Northern Australia Audit: Infrastructure for a Developing North Report January 2015
- Queensland State Government, Department of State Development, Economic Directions Statement Queensland Airports 2013 - 2023
- WRC presentations to Council

Abbreviations

AAA	Australian Airports Association
AEC	AEC Group
ANEC	Australian Noise Exposure Concept
ANEF	Australian Noise Exposure Forecast
ANEI	Australian Noise Exposure Index
CASA	Civil Aviation Safety Authority
CTAF	Common Traffic Advisory Frequency
ERSA	En-Route Supplement Australia
GA	General Aviation
ILS	Instrument Landing System
LEAPP	Leading Edge Aviation Planning Professionals
MOS	Manual of Standards
MTOW	Maximum Take Off Weight
OLS	Obstacle Limitation Surface
PAL	Pilot Activated Lighting
PANS-OPS	Precision Approach Navigation Surfaces – Operations
QLD	Queensland
ROC	Remote Mine Operations Centre
RPT	Regular Passenger Transport
SPP	State Planning Policy
TFI	Tourism Futures International
TAG	The Airport Group
VFR	Visual Flight Rules
WCA	Whitsunday Coast Airport
WRC	Whitsunday Regional Council

Glossary

Aerodrome/ Airport	A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.
Airside	The movement area of an Airport, adjacent terrain and buildings or portions thereof, access to which is controlled.
Apron	The part of an Airport used for the purpose of enabling passenger to board, or disembark from aircraft; for loading cargo onto, or unloading cargo from, aircraft; and or for refuelling, parking or carrying out maintenance on aircraft.
Aviation Security	A Combination of measures and human and material resources intended to safeguard civil aviation against acts of unlawful interference.
Control Tower	A unit established to provide air traffic control service to Airport traffic
Landside	The area of an Airport and buildings to which the public normally has free access.
Manoeuvring Area	Those parts of an Airport used for the take-off landing and taxiing of aircraft, excluding aprons.
Movement Area	The part of an Airport used for the surface movement of aircraft, including manoeuvring areas and aprons.
Regular Public Transport Service	A service consisting of Regular Transport aircraft operations, as prescribed in the Civil Aviation Regulations
Runway-related Activities/ Facilities	Includes runways, taxiways, aprons, clearways, compass swing and engine run-up areas, glide path facilities, helicopter landing, parking, training and servicing, landing equipment, radar and all aircraft navigation aids.

INTRODUCTION

1 OVERVIEW

The Whitsunday Coast Airport (IATA Code PPP/ICAO Code YBPN) is located approximately 15km south west of Proserpine, in the Whitsundays Region of Queensland. The airport lies 4.5km west of the Bruce Highway and is accessed from Lascelles Avenue (Sir Reginald Ansett Drive). The airport is within the Whitsunday Regional Council area and is one of the main access points for tourism for the region.

The airport is currently served by three daily passenger flights to and from Brisbane by Virgin Australia (twice daily), and Jetstar (once daily). In addition Tiger Airways operates a service to and from Sydney four days a week and Jetstar operates a service to and from Melbourne three days a week.

1.1 Purpose

The purpose of this Master Plan is to provide a planning framework for the long-term development of the airport to accommodate future regional and international growth.

1.2 Objectives

The objectives of this Master Plan are to:

- Undertake a site analysis of key land use and facility opportunities and constraints;
- Undertake thorough review of legislative context, including planning and environmental contexts;
- Undertake forecasts for passenger, aircraft and freight up to 2035;
- Based on aviation and airside upgrades, develop up to date ANEF contours and OLS;
- Present a preferred land use and precinct plan as directed by Council;
- Identify strategies to encourage growth in passenger numbers;
- Present strategies to increase and diversify revenue for the airport;
- Develop the airport as an international gateway to the Whitsundays Region; and
- Identify strengths, weaknesses, constraints and opportunities for the airport in the short, medium, and long term.

1.3 Methodology and consultation

This Master Plan has been prepared to largely reflect the guidelines recommended by the Australian Airports Association Regional Airport Master Planning Guidelines 2014.

The Master Plan has considered several recent studies relevant to the airport as well as the region, including:

- Whitsunday Coast Airport Planning Appraisal (Leading Edge Aviation Planning Professionals);
- Traffic Prospects for Whitsunday Coast Airport (Tourism Futures International);
- Whitsunday Coast Airport International Export Hub Master Plan and Feasibility study Stage 1 Report – Economic Drivers ,Requirements and Opportunities (AEC); and
- Whitsunday Coast International Export Hub Master Plan and Feasibility study Stage 1 Report – Economic Base Case (TAG).

Other key reference documents are listed on Page viii of this document.

In addition to document review and analysis, TAG engaged with key stakeholders of the Airport, including:

- Airport Operators;
- Airport Operations Manager;
- WRC Councillors;
- WRC Mayor;
- WRC Chief Executive Officer;
- WRC planning officers;
- Real estate agents in the region; and
- Numerous experts in the field.

1.4 Airport vision

The Vision for the Whitsundays Coast Airport is to provide the residents of the Whitsunday region with a world class aviation facility focused on the future. With the key priority for long term growth of the airport into a commercial aviation precinct integrated into a road, rail and air transport and logistics hub. The Airport development will be built on the pillars of safety, sustainability and security.

1.5 Airport objectives

The objectives for the Whitsunday Coast Airport are to:

- Be an airport with the capacity for increased tourism;
- Have capacity to facilitate new routes for economic drivers of the area – tourism, natural resources, local business as well as accommodate the local regions needs for its own visitors;
- Implement international services RPT services by 2018, with the potential to accept international charters by 2016;
- Be at the forefront of future natural resources projects in the region;
- Implement new freight services to increase export of local produce internationally; and
- Establish a first class facility with a long term, sustainable future.

2 AIRPORT CONTEXT

2.1 Location

The Whitsunday Coast Airport (WCA) is located within the Whitsunday Regional Council Local Government Area (the region). The airport is located approximately 14km south of the Town of Proserpine, 30km south west of Airlie Beach and 70km south of Bowen. The region is approximately

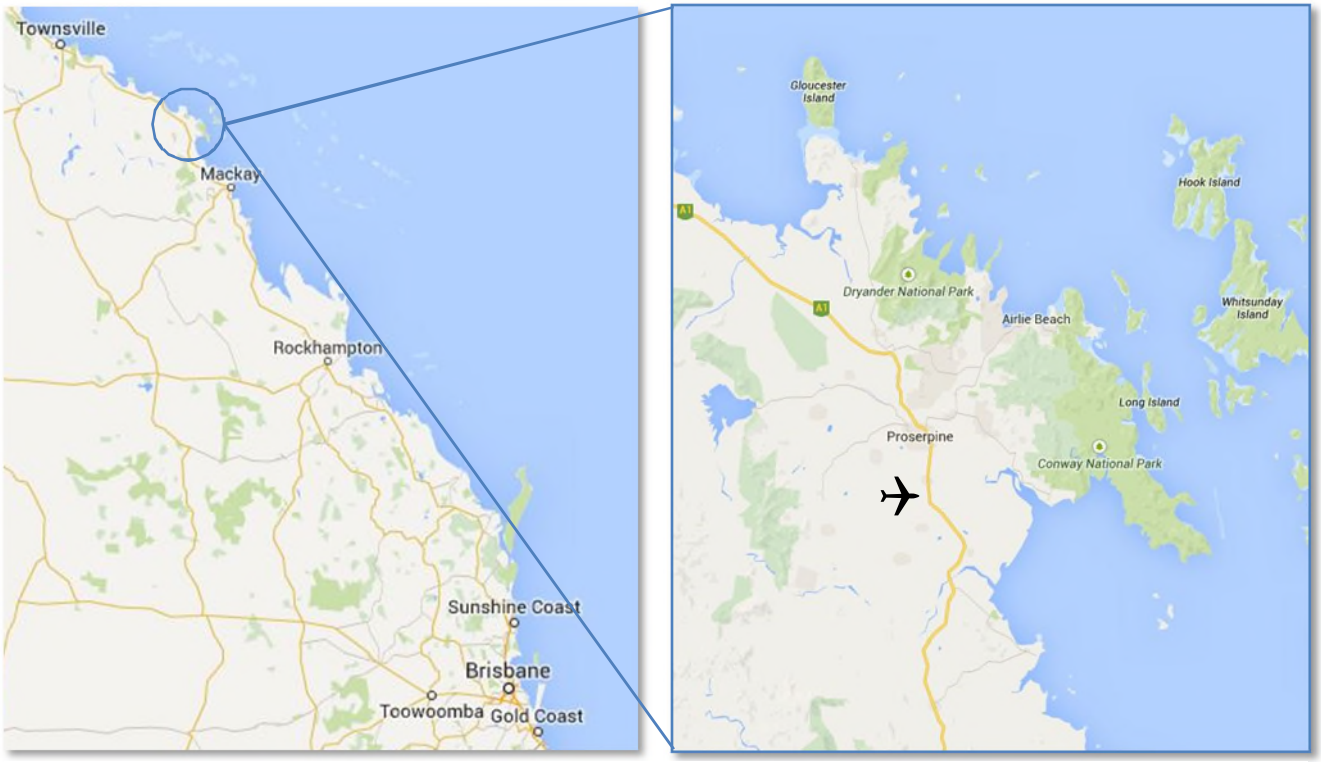

Figure 1: Location of Whitsunday Coast Airport

1,000km north of Brisbane and 600km south of Cairns.

2.2 Regional significance

The WCA is an important gateway due to its proximity to Airlie Beach and the Whitsunday Islands. Tourism is a driving factor in the regional economy and the WCA's location allows for it to be an integral part of boosting and maintaining this as a major economic driver. Additionally, the airport's ample supply of land not required for airfield operations and its positioning adjacent to the North-South Coastal Railway line and Bruce Highway. Presents an opportunity to develop an integrated transport and logistics hub that would service the region. WCA's location also provides significant opportunity to provide services for natural resource towns in the region.

The Queensland Government has identified the WCA to have strategic significance for economic growth. In particular, the functions of the WCA identified as significant are: passenger movements, tourism, significant airport expansion and SPP. In addition, the airports close proximity to major highways, railway, and large parcels of vacant land within and adjacent to the airport site provide a unique opportunity to create a Priority Development Area for the State. This would provide the land and focus for facilitating trade and investment for the broader region.

2.2.1 Tourism

Tourism is one of the most important industries in the WRC area and the region's largest employer. The Gross Value Add of the tourism sector was estimated at $105.4 million in 2012-2013 (AEC, 2014), directly representing 3.8% of the region's total Gross Value Add. In terms of employment, TRA (2013) estimated the tourism sector employed 8,807 persons (both directly and indirectly) in 2012-2013.

The tourism sector is forecast to continue to grow steadily, with a number of tourism specific infrastructure and hotel developments proposed, including the potential expansion of the WCA. The WCA is inherently related to the tourism industry. 44% of the domestic visitors and 31% of the international visitors travel to the Whitsunday Region using air transport.

Investment in tourism from Asia, specifically China, is significant in the region, with an indicated $2 billion worth of projects in various stages of application and approval. All developments require international access to be successful – an important factor for the airports future development priorities. Major projects include the redevelopment of Laguna Quays (The Heart Reef Cove), Whisper Bay Luxury Apartments, Whitsunday China Town Investments, Day Dream Island – China Capital Investment Group CCIG, Fujian E-Cheng Development, and White Horse – Lindeman Island redevelopment. The revitalised Laguna Quays Integrated Resort (The Heart Reef Cove) is hoped to once again become one of the largest in Queensland. Whilst there are no details on the expected workforce to be employed in the re-construction of Laguna Quays (The Heart Reef Cove) and further development of the resort nor the timing for a re-opening, TAG believe the accretive effects of these activities on PAX throughput at WCA are within the high PAX forecast scenario. The Whitsunday China Town Investments development is awaiting development submission to develop the subject site within the next three years. It has been indicated by the WRC that the Whitsunday China Town Investments development will employ 100 people each year, for a period of two years. China Capital Investment Group has purchased Day Dream Island for $30million, with an anticipated Stage 1 redevelopment of approximately $100million. Fujian E-Cheng mixed use development has recently received Foreign Investment Review Board approval and has an anticipated Stage 1 development of $900 million. The Federal and State Government's have recently coordinated with the White Horse – Lindeman Island which is expected to be a $600 million redevelopment. In addition, the redevelopment is expected to employ 800 people each year over four years. It should also be noted the recent $300m redevelopment of Hayman Island by Kerzner International Holdings and Mulpha Australia, continues to demonstrate the world class investment potential of the region.

In addition to major overseas investment for tourism development in the region, the Port of Airlie Development continues to deliver accommodation and housing development across the entire site. Tourism and Events Queensland (TEQ) reported the Whitsunday International visitor market to be 207,000 (YE December 2014). This was an increase of 13.2% from the previous year - with the European, Chinese and New Zealand markets being the fastest growing. On average, an international overnight traveller spends $101.44 per night and $705.17 per visit. There is an opportunity for the WCA to increase this visitation through direct access, picking up current and unmet demand to the destination. This can be achieved through developing an airport capable of international services.

2.2.2 Agriculture

The region is a significant producer of sugar cane and one of Australia's most productive horticultural regions. Due to its tropical dry climate and fertile soil, Bowen is Australia's most significant winter growing region especially for tomatoes and capsicums. The Whitsundays horticulture industry generates more than $400 million a year in production including over $122 million in tomatoes.

The WCA can support and improve the competitiveness of the agricultural industry through the development of freight networks and facilities at the airport. Freight possibilities at the airport are further detailed in Section 8.

2.2.3 Aquaculture

There are numerous small and large scale aquaculture industries operating throughout the Whitsunday, Mackay and Isaac region, including Australia's largest marine prawn farm (200 ha of pond based production) near Bowen. Current activities are located in Bowen, Whitsunday, Mackay, Sarina and Ilbilbie areas along the coast, with prawns the dominant species produced. The value of aquaculture production for the region is approximately $10 million per annum, accounting for around 15% of Queensland's total value of aquaculture products.

Two recent audits, in the Mackay Isaac and Whitsunday region and the Charters Towers region identified significant existing aquaculture industry, in addition to possible future expansion.

The Mackay Isaac and Whitsunday Agricultural land audit identified that Aquaculture currently occurs on 778 ha of land in several locations along the coastal areas of the region. The total value of the regions production in 2010-2011 was $8 million. The potential land use area for aquaculture, taking into account current production areas in addition to areas where production could potentially occur is estimated at approximately 23,931ha.

The Charters Towers Agricultural land audit identified that in 2009–2010, 3504 tonnes of aquaculture product with a farm gate value of $44 million were grown in the region. This represented 44 per cent of the total aquaculture production in Queensland. Aquaculture currently occurs on 605ha of land in several locations along the coastal areas of the region. The potential land use area for aquaculture, taking into account current production areas in addition to areas where production could potentially occur is estimated at approximately 14,696ha.

As with the agricultural industry, The WCA can support the agricultural industry of the region through development of freight networks and facilities at the airport. Freight possibilities at the airport are further detailed in Section 8.

2.2.4 Natural resources

There are a number of existing mines that have been in operation for a period of time. There are four significant coal projects scheduled to begin production by 2015, including the Drake and Jax Project and the Byerwen Project (QCoal). Once constructed, the Byerwen Mine will produce up to 10 million tonnes of hard coking coal per year which will be railed to Abbot Point Coal Terminal for export. Of particular significance, coal mining investment in the Whitsundays is being driven by plans to develop huge high quality coal deposits in Galilee Basin by two Indian based mining companies – Adani and GVK Hancock. The proposed $16.5 billion Carmichael coal mine is 40km long, and will produce 60 million tonnes of coal per year – twice the size of Australia's current largest coal mine. The Galilee Basin was declared a State Development Area in June 2014 by the Queensland (QLD) Government to support the natural resources activity in the area.

The OESR has prepared projections for the number of FIFO workers expected to work in the Whitsundays region. The impact of FIFO workers on the forecast passengers for the airport is explored in Section 7.

If the Government is successful in supporting the project then it is quite probable that positive projections will be realised but most likely the ramp up of FIFO passenger movements will be delayed a year or two. The projections (Series B) indicate an additional passenger movement's fluctuating from 14,850 in 2015, up to 30,600 in 2017, before falling back to 13,950 in 2020 once the construction phase is complete (detail of these projections can be found in the TFI report). Inherently, the WCA is significant for effective air transport for FIFO workers to and from the region if and when these major projects go ahead.

2.3 Relationship to other airports in the region

The WCA is located nearest to Hamilton Island airport. Mackay airport is located south of WCA. Cairns is the nearest international airport, located to the north. It is noted that Townsville airport will soon be re-commencing international services to and from Bali.

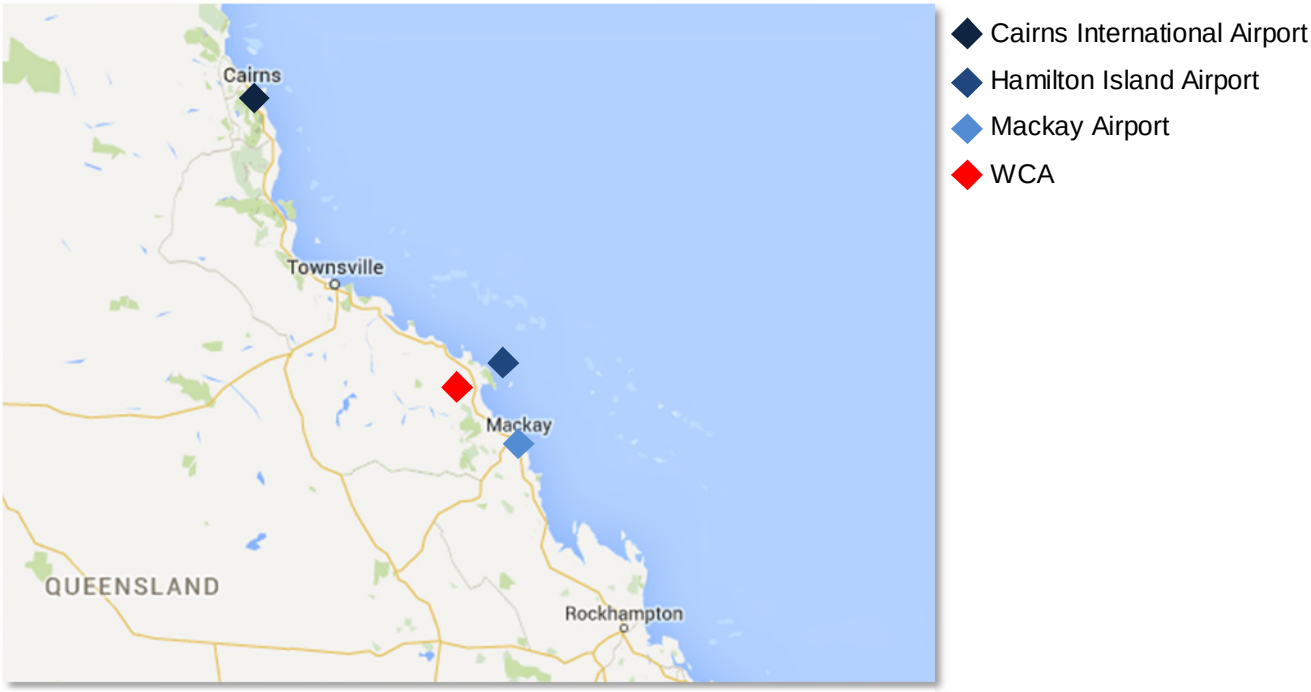

Figure 3: Relative location of other airports in the region

The central positioning of WCA between Cairns and Brisbane places the WCA in an ideal located for access due to the significance of international tourism in the region. The region is the fifth most significant region in the State for international tourism by way of spend and visitor numbers, behind Brisbane, Gold Coast, Sunshine Coast and Cairns.

2.4 Ownership and management

The WCA is wholly owned by the Whitsunday Regional Council. Additional sub-leaseholders are:

- Shell Company of Australia;
- W & P Hinton;
- Whitsunday Aero Club;
- RSE Investments; and
- Heli-Engineering Pty Ltd.

2.5 Airport stakeholders

Table 1 below, identifies relevant airport stakeholders.

Stakeholder	Internal/External	Primary/Secondary	Description/Interest
Whitsunday Regional Council	Internal	Primary	Owner/Operator
Jetstar Airways	External	Primary	Airline operator
Virgin Australia	External	Primary	Airline operator
Tigerair	External	Primary	Airline operator
Qantas Airways	External	Primary	Airline operator
Heli Engineering	External	Primary	Aviation services
Shell Company of Australia	External	Primary	Aviation fuel supplier
Airservices Australia	External	Primary	Aviation
CASA	External	Primary	Regulator
Avis, Hertz, Budget, Europcar	External	Primary	Rental car operators
Whitsunday Moto Sports Club	External	Primary	Located in land adjacent to airport
Whitsundays Dirt Riders Club	External	Primary	Located in land adjacent to airport
Queensland Government	External	Primary	PDA
General Aviation Operators	External	Primary	Sub-lease holders
Ground Transport Operators	External	Primary	Sub-lease and Permit holders
Mackay Whitsunday Taxi services	External	Primary	Provide services to and from airport
Local business	External	Secondary	Affected by growth
Queensland Rail	External	Secondary	Affected by possible freight diversion to aircraft
Local residents	External	Secondary	Affected by growth; affected by noise
Local farmers	External	Secondary	Affected by freight facilities opening

Table 1: Airport Stakeholders

3 SITE ANALYSIS

3.1 Airport site

The airport site is within the jurisdiction of the Whitsunday Regional Council (WRC). The site outlined in red in Figure 4 below, identifies the airport site boundaries.

Figure 4: Airport site
(Supplied by WRC)

Figure 5, below, identifies the airside and landside boundaries within the airport site.

Figure 5: Airport site - landside and airside
(TAG)

Site specifics are detailed in the table below.

Lot on Plan	Area (ha)	Road Details	Tenure
50 HR 808298	434.90	Lascelles Avenue	Reserve (for landing ground for aircraft)

Table 2: Site details

3.2 Existing site facilities

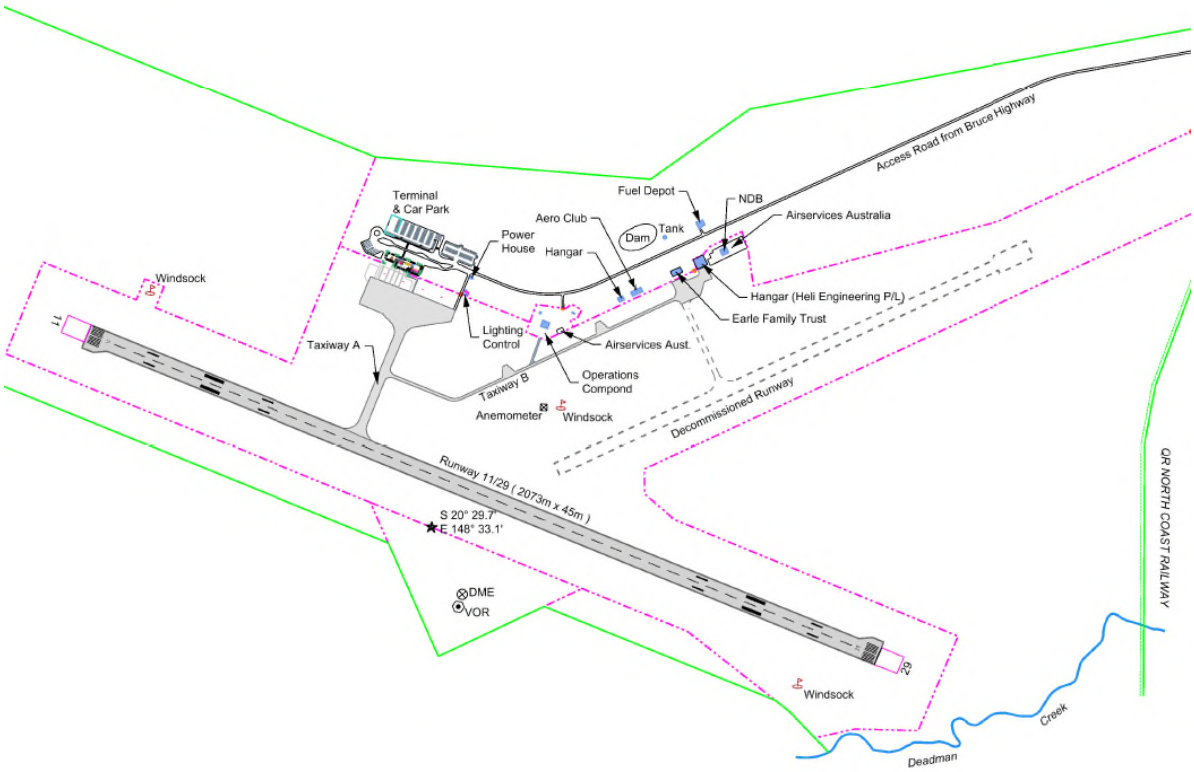

Figure 6: Existing airport site facilities
(LEAPP Planning Appraisal, 2012)

The airport site has one operating Runway (11/29) and one Decommissioned Runway. In addition, there are two Taxiways and one Apron located in front of the passenger terminal. There is a public car park located behind the passenger terminal. There are a number of hangars used for private and club use as well as facilities used by Airservices Australia for air navigation and communications, airport maintenance, utilities and aircraft fuelling facilities. The airside facilities are further detailed further in Section 3.5 and landside facilities are detailed in Section 3.8.

3.3 Surrounding land

The land surrounding the airport site is owned by a range of private and public stakeholders, including:

- Dray & others (private);
- Cox (private);
- Willmar Sugar (company);
- Queensland Rail;
- Whitsunday Regional Council; and
- Crown land.

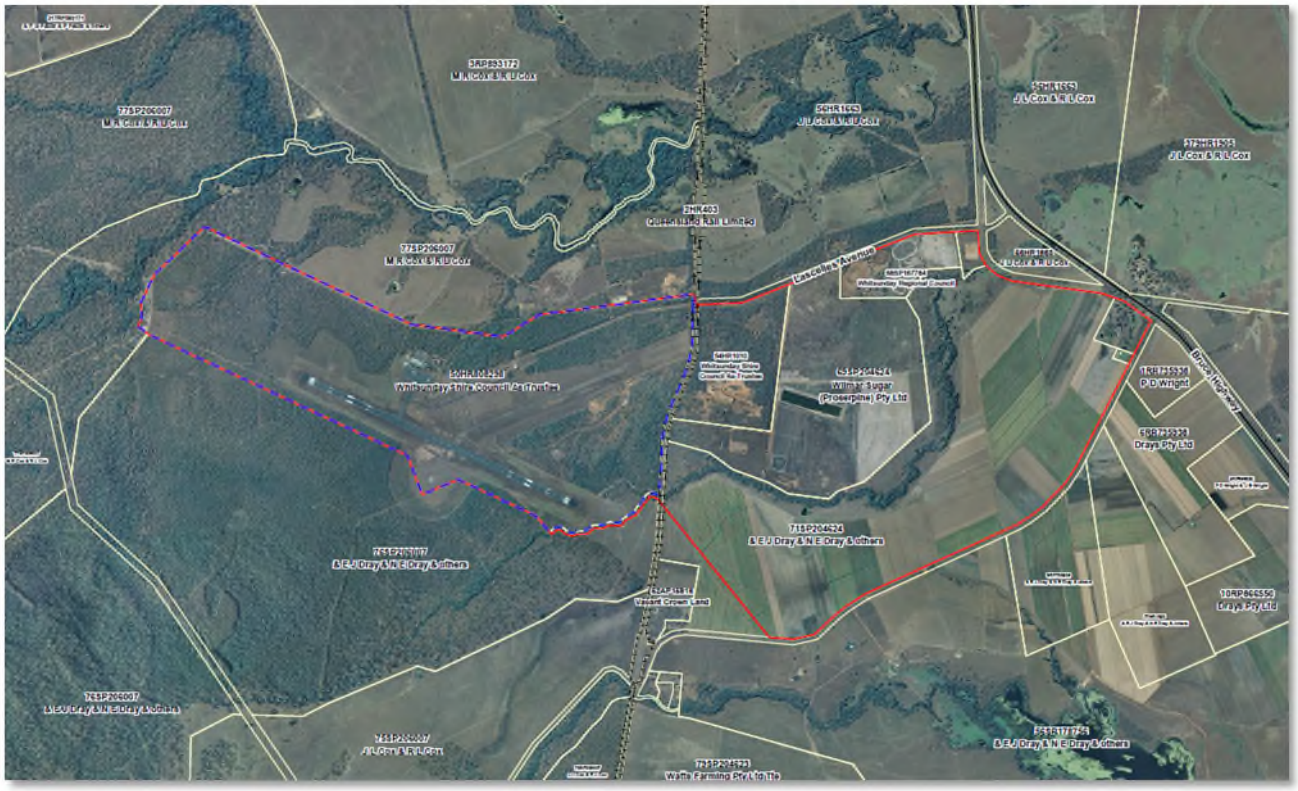

Figure 7: Airport site and surrounding land ownership
(supplied by WRC)

The location of the airport provides an ideal situation for possible future development. The site is surrounded by rural land which is undeveloped. The Bruce Highway and existing railway line located on the airport boundary provide excellent connectivity possibilities.

The land on the eastern side of the airport between the airport and Bruce Highway is currently used by the Whitsunday Moto Sports Club at the Whitsunday Raceway and the Whitsunday Dirt Riders Club operating Motocross racing from Dray's Park Racetrack.

3.3.1 Tenure

The WCA surrounds are within a range of tenures. Figure 8 below represents these.

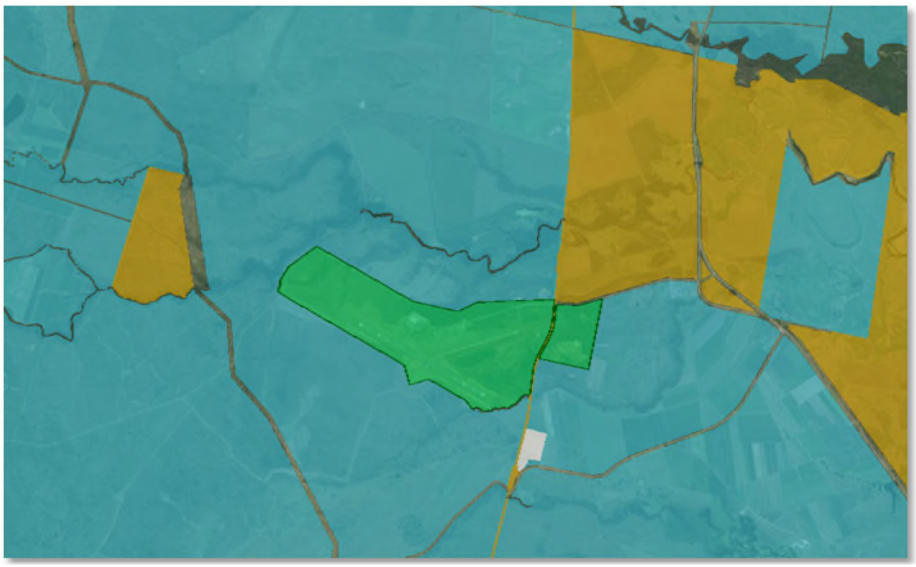

Figure 8: Land tenure
(Queensland Government)

The airport site itself and a small parcel on the east of the site is a 'reserve' tenure (green). Land to the north east and some land to the west is 'Lands lease' (orange). There is a small parcel of land which is State Government owned (white), and the predominant tenure surrounding the airport is 'freehold' (blue).

3.4 Contours and topography

The airport site is generally very flat, grading down gently towards a creek along the southeast property boundary (Deadman Creek) and another small creek crossing the airport property beyond the north end of the runway. Contours of the site can be seen in Figure 8.

Figure 9: Site contours
(Queensland Government)

A topographic map and contours of the area be found in **Appendix A**.

3.5 Existing airside infrastructure and facilities

3.5.1 Runways

The airport's asphalt-paved runway is 2073m in length and 45m wide with turning bays at each end. Based on the International Civil Aviation Organisation (ICAO) classification system the main runway can be classified as code 4. It is located in the south-western part of the airport property. It is oriented in a northwest-southeast direction with a magnetic designation of RWY 11/29. The runway is in a reasonable condition and carries a PCN 53 rating.

Runway	Length	Runway Width
11/29	2,073m	45m

Table 3: Existing runway infrastructure

Pavements are classified in relation to the Aircraft Classification Number (ACN) to PCN ration. The ACN expresses the effect of a specific aircraft on a nominated pavement for a specified standard sub grade strength. The pavement Classification number expresses the bearing strength of a pavement for unrestricted movements and is determined for 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 airport. The airport may also issue a concession for tyre pressure.

The 2012 Planning Appraisal identified that the surface is at the end of its useful life and an asphalt overlay is required. As a result in 2013 a partial overlay of the Western half of the runway was undertaken, this has resulted in a significant improvement, however a full overlay is still required.

RWY 11/29 has sufficient land beyond its ends to provide for a full Code 4 strip and runway end safety areas (RESAs). Land exists within the airport property at the north western end of the runway that would enable the runway to be extended considerably in the future (by up to 1000m).

The existing runway has the capability to accommodate all medium passenger jet aircraft (B737 and A320) as well as wide body aircraft, subject to range limitations. It is also capable of accommodating A330 aircraft types and aircraft up to B767-300 ER Standard, code 4D and code 4E under concession.

A detailed engineering analysis was undertaken by AECOM in June 2013. This analysis was in response to pavement failure, rutting and cracking that have appeared in recent years. These failures have occurred in particular along wheel paths and temporary repairs have been affected by WRC. AECOM were commissioned to investigate the reason for these failures as well as advise and design a permanent solution. AECOM recommended the reconstruction or rehabilitation of the pavements. AECOM also noted the causal effect of ground water and water ingress and the requirements for upgrades to the current runway drainage including improved subsoil drainage, grading of existing table drains, and addition of concrete inverts to improve flow.

In the eastern part of the airport site the remains of the pavement of a general aviation runway still exist. This was once operational at a length of 1264m; however the runway is now closed and decommissioned. The pavement has deteriorated to the extent that it would be very costly to rehabilitate. The Planning Appraisal undertaken by LEAPP in 2012 identified that the level of general aviation activity at the airport is relatively low and a second runway dedicated to general aviation was not justifiable. TAG supports this advice.

3.5.2 Taxiways

RWY 11/29 is connected by a 22.4m wide taxiway (Taxiway A) to an aircraft parking apron of 14,608m² located in front of the Passenger Terminal Building. This provides three parking positions for RPT aircraft, and one for itinerant general aviation aircraft.

A second narrow taxiway (Taxiway B) leads from Taxiway A towards the northeast to serve general aviation hangars and the Aero Club. Taxiway B has was upgraded in FY 2014 and is now compliant to Code 3C. Weight is limited to aircraft below 5700kg gross weight.

3.5.3 Manoeuvring and Parking

In accordance with the Aerodrome Manual, Bays 1, 2, 3 and 4 are marked for the manoeuvring and parking of B737-800 and F100/F70 aircraft with Bay 3 and 4 having additional markings to accommodate A320 aircraft.

Parking on the RPT Main Apron is restricted to RPT aircraft only, or those aircraft that are too heavy to park elsewhere. Dispensation is given to Local Commuter Aircraft to park on Bay 1 during RPT Operations provided Bay 1 is not required for RPT Operations.

Unsealed and Sealed apron areas are available for parking of aircraft below 5,700 kg and are identified in ERSA.

Itinerant aircraft will be permitted to park on the RPT apron only with prior approval of the Operations Manager or Aerodrome Reporting Officer. Aircraft below 5700 kg will be required to park in the Light Aircraft parking area as identified in ERSA.

3.5.4 Aprons

Figure 10, below, shows the layout of the airport apron and terminal, with the designated taxiways and parking bays. Figure 11 depicts the set out of line marking on the apron.

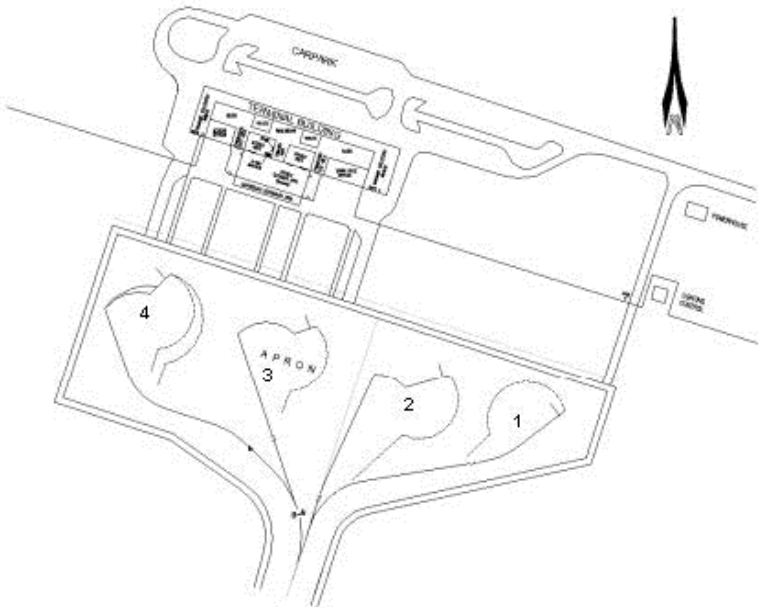

Figure 10: Apron parking layout
(WCA Aerodrome Manual)

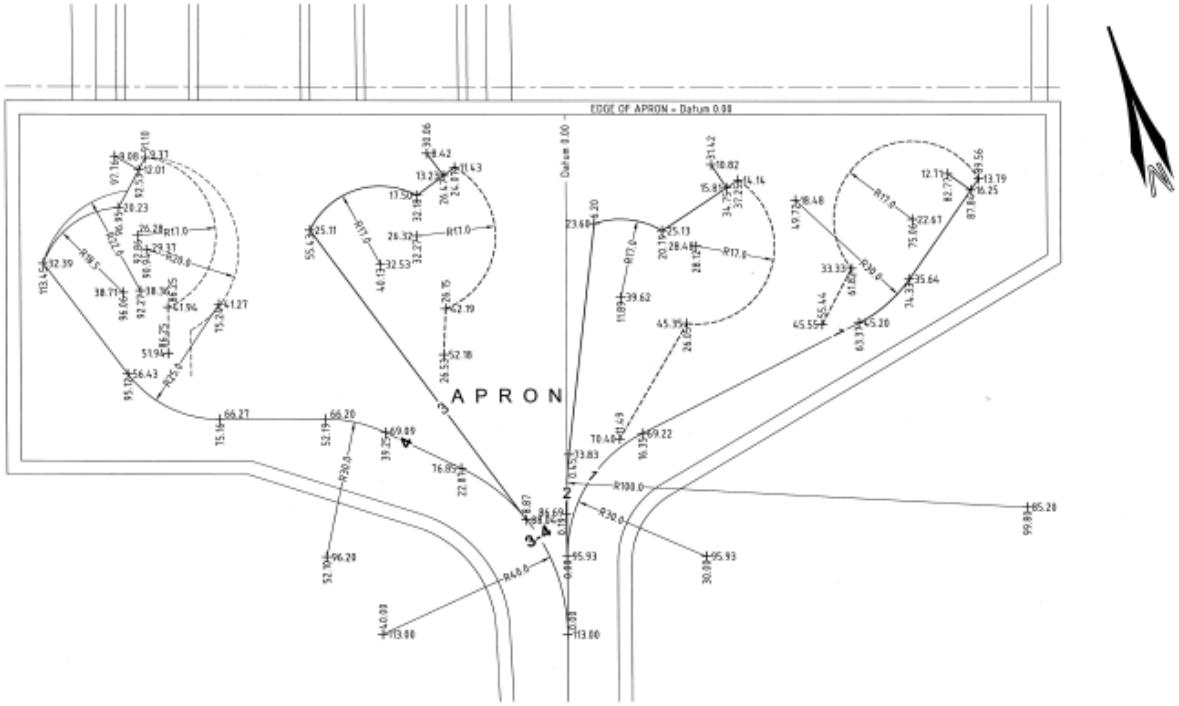

Figure 11: Apron general arrangement
(WCA Aerodrome Manual)

Table 4 depicts the parking availability and limitations of specific bays, depending on the type of aircraft.

Code	Aircraft	Bay 1	Bay 2	Bay 3	Bay 4
4C	A320	Refer Notes 1 & 2	Refer Notes 1, 2 & 3	Refer Notes 2, 3 & 4	Refer Notes 3 & 4
	B717-200	✓	✓	✓	✓
	B737-300	✓	✓	✓	✓
	B737-400	✓	✓	✓	✓
	B737-700	Refer Note 1	Refer Note 1	✓	✓
	B737-800	Refer Note 1	Refer Note 1	✓	✓
2C	Dash 8-100	✓	Refer Note 1	✓	✓
	Dash 8-300	✓	Refer Note 1	✓	✓

Table 4: Parking availability and limitations (WCA Aerodrome Manual)

Notes:
1. An A320, B737-700, B737-800, Dash8, or B717-200 must not be parked in Bay 2 during departure of A320, B737-700, or B737-800 from Bay 1.
2. Bay 2. During A320 departure, maximum size aircraft on Bays 3 and 1 is A320.
3. Bay 3. During A320 departure, maximum size aircraft on Bays 2 and 4 is A320.
4. Bay 4. During A320 departure, maximum size aircraft on Bay 3 is A320.
5. Marshalling is required on all aircraft arrivals and departures.
6. Tanker refuelling is required for all Bays.

Table 5 provides a summary of the limitations of the existing parking infrastructure, based on A320 aircraft or smaller.

Bay 1, 2, 3, and 4 (A320 aircraft or smaller)	
Limitation (all options)	Bay 1 – Bay 2 must not have A320, B737-700, B737-800, B717-200 or Dash 8 parked during A320, B737-700, or B737-800 departure
Inbound (all options)	Aircraft are marshalled into stop with nose wheel on the common stop bar
Outbound (all options)	Aircraft are to roll forward 3 metres, then turn to follow the dashed exit line Marshalling required Tanker refuelling

Table 5: Parking limitations of existing infrastructure

3.5.5 Airfield lighting

Runway lighting
The runway is lighted with low intensity runway edge lights spaced at a compliant 60m, PAPI lights set for a 3 degree approach path are also provided for approach guidance.

A single sided Precision Approach Path Indicator System is provided for both directions on RWY 11/29.

Taxiway lighting
The taxiway to the apron is installed with green flush mounted centreline lights. The exit taxiway is installed with green/yellow flush mounted centreline lights.

The holding point is indicated with 3 yellow inset lights.

Apron lighting
Floodlighting is provided on the RPT apron. Apron floodlighting is connected to PAL. Manual switching for Apron Lighting is provided in the lighting cubicle.

All lighting systems have a backup power system with a 15 second switchover timing.

3.5.6 Navigation systems

Navigational aids are supplied and maintained by Airservices Australia under the Airservices Australia Act.
The WCA has three pilot monitored navigation aids. A VHF Omni-directional Range (VOR), Distance Measuring Equipment (DME), and a Non-Directional Beacon (NDB).

The VOR operates on VHF frequency 113.7 and is positioned on S 20 29.8 (Lat) E 148 33.2 (Long). There are two existing published non-precision instrument procedures for the VOR, one over each respective ends on the runway, with holding over the aerodrome.

The NDB has a range of 40 nautical miles day and night, operates on the frequency 245, and is positioned at S 20 29.4 (Lat) E 148 33.6 (Long). There is a published non-precision instrument approach for the NDB with holding over the aerodrome. Buffers are required to this infrastructure in the way of restrictions on the height of structures within the buffer area to protect radio receipt and transmission. These buffers extend 500 metres from the NDB at an angle of 3 degrees vertical from the NDB antenna array. To ensure that any height restrictions are captured and accounted for, it is recommended that height limits are encapsulated in the WRC local plan.

The DME operates on 113.5/84X and is co-located with the VOR. There is a published DME arrival divided into four sectors, providing guidance to on coming aircraft.

There are two published Global Navigation Satellite System (GNSS) approaches, one for each runway.

3.5.7 Airfield markings

The airport runway edge lights spaced at 60 meters, with green flush mounted centreline and blue taxiway edge lights. It also has Pilot Activated Lighting (PAL), controlled by radio on the airport Common Traffic aerodrome frequency.

3.6 Existing aviation services and facilities

3.6.1 Aircraft movement

The airport currently has daily RPT flights daily servicing connections to Brisbane, Sydney, and Melbourne. Aircraft movements were 1,996 in the year ending June 2014.

In 2011, 45% of aircraft movements at WCA are movements operated by helicopters, due to the on-site helicopter maintenance, training and charter business. RPT commercial aircraft movements account for 35% of all movements with 19% of aircraft activity comprising general aviation traffic, including aircraft activity by the Royal Flying Doctor Service, the Aero Club, and private aircraft owners. Only 1% of movements at the airport are by visiting military aircraft.

The Aero Club are located to the east of the passenger terminal, as well as additional private hangars and a hangar used by Heli Engineering. These hangars utilise Taxiway B to access the Runway.

Forecasts for aircraft movements are provided in Section 7.

3.6.2 Passenger movements

The Department of Infrastructure and Regional Development reported the PAX of the WCA to be 264,338 in the 2014 calendar year. WRC reported PAX in FY 2015 of 282,500. Forecasts for passenger movements are provided in Section 7.

3.6.3 Airline operations

The table below represents the current airline flight schedule in and out of the airport (July 2015).

		Virgin	Jetstar	Tigerair
Mon	**A**	**BNE** 0630 - **PPP** 0810 **BNE** 1340 - **PPP** 1520	**BNE** 0845 - **PPP** 1025 **MEL** 0735 - **PPP** 1030	SYD 1510 – PPP 1750
	D	**PPP** 0840 - **BNE** 1010 **PPP** 1550 **- BNE** 1725	**PPP** 1105 - **BNE** 1245 **PPP** 1100 - **MEL** 1400	PPP 1820 – SYD 2040
Tues	**A**	**BNE** 0630 - **PPP** 0810 **BNE** 1340 - **PPP** 1520	**BNE** 0845 - **PPP** 1025	**SYD** 0815 - **PPP** 0945
	D	**PPP** 0840 - **BNE** 1010 **PPP** 1550 **- BNE** 1725	**PPP** 1105 - **BNE** 1245	**PPP** 1015 - **SYD** 1330
Wed	**A**	**BNE** 0630 - **PPP** 0810 **BNE** 1340 - **PPP** 1520	**BNE** 0845 - **PPP** 1025	
	D	**PPP** 0840 - **BNE** 1010 **PPP** 1550 **- BNE** 1725	**PPP** 1105 - **BNE** 1245	
Thurs	**A**	**BNE** 0630 - **PPP** 0810 **BNE** 1340 - **PPP** 1520	**BNE** 0845 - **PPP** 1025 **MEL** 0735 - **PPP** 1030	**SYD** 0815 - **PPP** 0945
	D	**PPP** 0840 - **BNE** 1010 **PPP** 1550 **- BNE** 1725	**PPP** 1105 - **BNE** 1245 **PPP** 1100 - **MEL** 1400	**PPP** 1015 - **SYD** 1330
Fri	**A**	**BNE** 0630 - **PPP** 0810 **BNE** 1340 - **PPP** 1520	**BNE** 0845 - **PPP** 1025	
	D	**PPP** 0840 - **BNE** 1010 **PPP** 1550 **- BNE** 1725	**PPP** 1105 - **BNE** 1245	
Sat	**A**	**BNE** 1340 - **PPP** 1520	**BNE** 0845 - **PPP** 1025 **MEL** 0735 - **PPP** 1030	**SYD** 0815 - **PPP** 0945
	D	**PPP** 1550 - **BNE** 1725	**PPP** 1105 - **BNE** 1245 **PPP** 1100 - **MEL** 1400	**PPP** 1015 - **SYD** 1330
Sun	**A**	**BNE** 1340 - **PPP** 1520	**BNE** 0845 - **PPP** 1025	
	D	**PPP** 1550 - **BNE** 1725	**PPP** 1105 - **BNE** 1245	

Figure 12: Airline flight schedule (as at July 2015)

Forecasts including anticipated future airline operations are provided in Section 7.

3.7 Aviation support facilities

3.7.1 Fuelling Facilities

On the north side of the access road, on landside, are located the Shell aviation fuel storage facilities, and a parking area for a 27,000 litre mobile refueller truck. This provides an on-site storage capacity of 85,000 litres of Jet-A1 aviation turbine fuel, which together with the refueller capacity is capable of providing adequate refuelling service to RPT and GA users.

3.7.2 Weather Information System

Three Illuminated Wind Indicators are provided. The primary indicator is located north west and adjacent to the centre of RWY 11/29. The two supplementary illuminated wind indicators are located on the left hand side of RWY 11 and RWY 29 landing thresholds.

Aerodrome Weather Information Service (AWIS) is operational at the airport. It provides a Terminal Area Forecast (TAF) Category B, METAR and SPECI observations.

3.7.3 Ground Service Equipment

Currently Ground Service Equipment (GSE) is stored in the area between the terminal face and the apron. Ground service support is currently provided by SkyStar and Aerocare, who both have offices at the airport.

3.8 Existing landside infrastructure and facilities

3.8.1 Car hire facilities

There are a number of car hire services offered at the airport. Hertz, Budget, Europcar and Avis have desks located in the terminal. There is a rental car park located to the adjacent to the public car park.

3.8.2 Café

There is a café/bar located within the passenger terminal past security screening.

3.8.3 Terminal building facilities

The WCA terminal area accommodates a Passenger Terminal Building, ancillary GSE accommodation for service vehicles, the Passenger Terminal frontage roads, a public car park, and the airport utility services. The Building accommodates departing and arriving passenger processing functions, including passenger check-in, security screening, passenger departure waiting lounge, arriving passenger bag claim, and supporting facilities such as car rentals and passenger amenities. The Figure below depicts the current terminal layout.

Figure 13: Existing Domestic Terminal Layout

The Passenger Terminal Building was expanded in 2011 and has been sized on the basis of accommodating one medium jet passenger aircraft on the ground at any one time with passengers from a single flight being processed in each direction at any one time. The following table presents the spaces currently provided within the Terminal Building.

Function	Area Provided
Check-in desks	8 desks
Check-in queue area	246m^2
Security screening	1 X-Ray and metal detector provided / 15m^2 queue space available
Departure lounge	239m^2
Baggage claim area	308m^2
TOTAL TERMINAL AREA	**1,900m^2**

Table 6: Terminal facilities
(LEAPP Planning Appraisal)

The following Figure depicts the capacity of the current terminal to process international services on a charter basis.

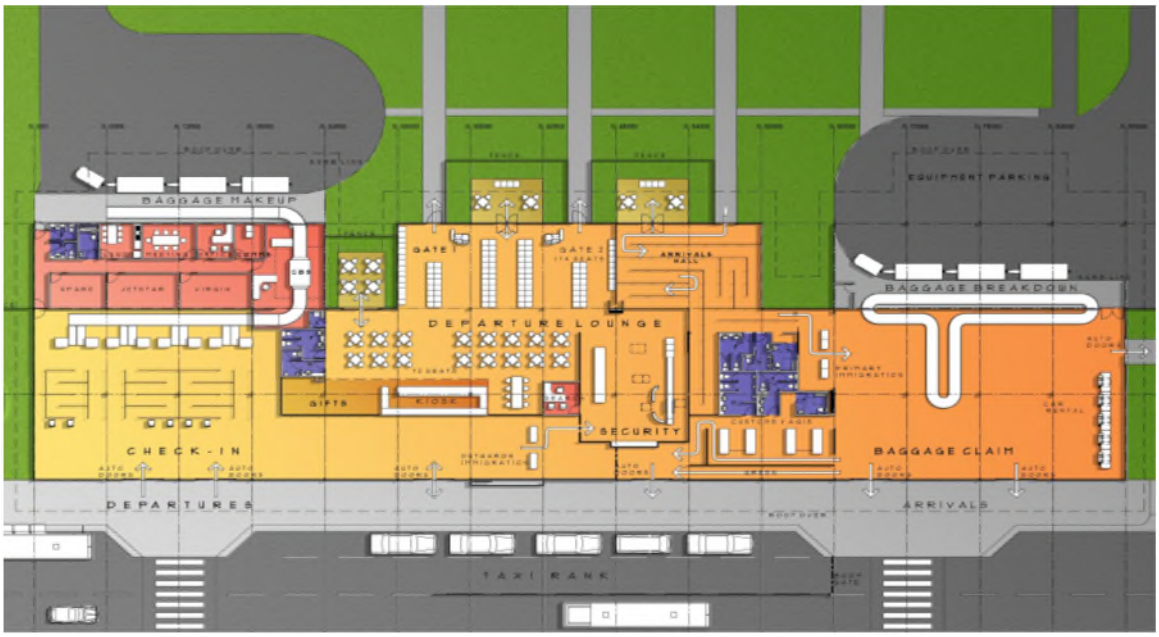

Figure 14: International configuration of existing terminal

3.8.4 Hangar/s

There are three GA hangars and an Aero Club building/hangar located on the airport site. These hangars access the Runway via Taxiway B.

3.8.5 Ground transport facilities

The airport site is accessed by one road only (Lascelles Ave). The Bruce Highway, 7km east of the airport site, connects Lascelles Ave. The eastern boundary of the airport site is determined by the railway. Lascelles Avenue crosses the railway and the crossing is controlled by railway activated warning lights.

There are extensive pick-up/drop-off roads, an area for bus parking, and car parks for public car parking and rental cars. For public car parking, the dedicated parking area is 4500m² in size and currently offers a total of 242 parking spaces. To the east of the public car park, a dedicated parking area of 2800m² is provided for rental cars, with spaces for 99 rental cars being available (see Figure 15). Car park usage is high and increasing, largely due to mine workers parking at the airport for extended periods of time during shift breaks. Weekend usage of the car park is especially heavy.

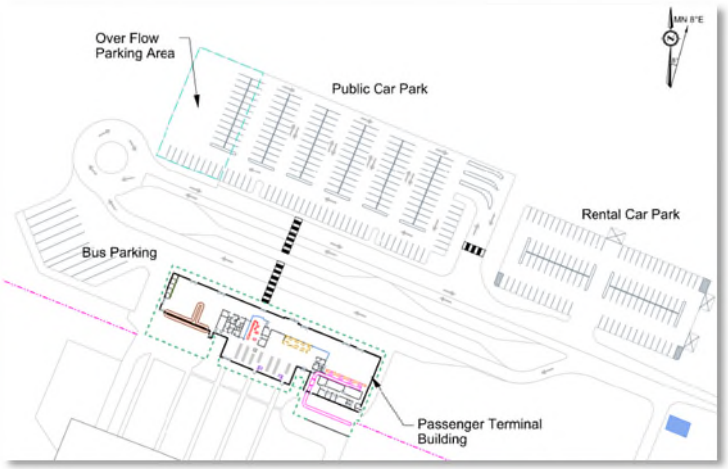

Figure 15: Existing parking areas
(LEAPP Planning Appraisal)

LEGISLATIVE CONTEXT

4 PLANNING FRAMEWORK

The development of Whitsunday Coast Airport has been considered relative to Commonwealth, State and Local Government planning regimes.

There is minimal development surrounding the Airport but for future development compatible planning is recommended as being required by State and Local Government planning authorities to protect the operation of the Airport.

This Master Plan is to be viewed as complementing State and Local Government land use planning while ensuring the operational integrity and continued viability of the Airport.

The Airport site is assessable in accordance with Federal, State and Local Planning policies. Major Commonwealth agencies and legislation that control, support or have influence on the Airport's activities are:

- Civil Aviation Safety Authority (CASA);
- Regulations administered by the DoIT;
- Australian Federal Police;
- Air Navigation Act 1920;
- Air Services Act 1995;
- Aviation Transport Security Act 2004;
- Environmental Protection and Biodiversity Conservation Act 1999;
- Endangered Species Protection Act 1992;
- Aboriginal and Torres Strait Islander Heritage Protection Act 1982; and
- Australian Heritage Commission Act 1975.

There are a number of strategic and statutory documents at both the State and Local Government level, offering a planning perspective on WCA, that have been considered in this Master Plan.

A review of the State and Local Government Planning Policies as they relate to Airports reveals the importance of Airports to Queensland in terms of economic and commercial development.

Discussion on the key documents follows.

4.1 Federal planning policy

Significant Federal environmental and aviation legislation is listed above. There is no federal legislative planning policy directly pertaining to the WCA. All federal legislation is presumed to be integrated into State, Regional, and Local policy as per requirements.

The Airports Act (applicable only to federally leased airports) has been considered in developing the structure and content of this Master Plan.

4.2 State planning policy

The Queensland Plan 2014
The Queensland Plan was developed after extensive community engagement by the Queensland Government, resulting in over 80,000 contributions. It is a plan that provides a vision for the future of Queensland. It does not provide specific regulation regarding airport development but does require the overall vision to be implemented into Local Government strategic planning. Using it to inform their operations, councils will make a significant contribution to achieving their community's goals. All local governments will be encouraged to respond to The Queensland Plan and identify how they will contribute to implementation.

State Planning Policy July 2014
The Queensland Government State Planning Policy (SPP) released in July 2014 replaced previously separate SPPs. Of the new SPP, Part D and specifically "Planning for Infrastructure" relates to airports. Within Part D, section "Strategic airports and aviation facilities" identifies 26 strategic airports, including Whitsunday Coast Airport. The purpose of this component of the SPP is to direct Local Governments when making or amending their planning scheme. Specifically through the integration of regulations that will protect the strategic airports and facilitates development surrounding strategic airports as well as protecting aviation uses through correct OLS mapping.

In conjunction with the SPP there are Codes. For the airport, "SPP Code: Strategic airports and aviation facilities" is relevant. The purpose of the SPP code: Strategic airports and aviation facilities is to protect the safety, efficiency and operational integrity of strategic airports and aviation facilities. The code applies to the WCA as it has been identified to have strategic significance. The code applies to development applications for:

1. A material change of use of premises that will result in work encroaching into the operational airspace of a strategic airport and is at least 12 metres high;
2. Building work not associated with a material change of use mentioned in paragraph (1) that will result in work encroaching into the operational airspace of a strategic airports and is at least 12 metres;
3. A material change of use of premises or reconfiguring a lot where any part of the land is within the 20 ANEF contour for a strategic airport;
4. A material change of use of premises or reconfiguring a lot where any part of the land is within the public safety areas of a strategic airport;
5. A material change of use of premises where any part of the land is within the lighting area buffer zone of a strategic airport;
6. A material change of use of premises where any part of the land is within the wildlife hazard buffer zone of a strategic airport;
7. A material change of use of premises that will result in work encroaching into the building restricted area of an aviation facility; and
8. Building work not associated with a material change of use mentioned in paragraph (7) that will result in work encroaching into the building restricted area of an aviation facility.

The Code further prescribes Performance Outcomes and Acceptable Outcomes for development considering Emissions, Wildlife Hazards, Protection of Aviation Facilities, Public Safety Areas, and Aircraft Noise. In addition, the Code identifies High and Moderate Risk development types with regard to Wildlife Hazards. Furthermore, development compatible within ANEF contours within the site is prescribed, with varying levels of ANEF contours. Lastly, desirable indoor sound levels for sensitive land uses are listed.

State Planning Policy Mapping
The mapping tool operating in conjunction with the SPP provides broad classifications and considerations of the region in general. Notably, the area surrounding and including the WCA site is categorised as "important

agricultural areas" (see **Appendix B**). In addition, there are areas within the site, and nearby, that are designated as environmental biodiversity areas. Furthermore, flood and bushfire risk are identified within and near the site. These environmental matters are further detailed in Section 6.1. Specifically for the airport, the SPP Mapping tool identifies OLS, restriction zones, and buffer zones.

Integrated Planning Act 1997
The Integrated Planning Act (IPA) provided the framework for Queensland's planning and development assessment system by balancing community well-being, economic development, and protection of the natural environment. One of the main elements of IPA framework was the Integrated Development Assessment System (IDAS) – one system for all development related assessments by local and state governments.

The IPA was replaced by the Sustainable Planning Act 2009 (SPA) as a result of extensive consultation and planning reform. Notably, the current Whitsunday Shire Planning Scheme was adopted under IPA.

Sustainable Planning Act (2009)
The SPA is the overriding planning policy as dictated by the Queensland Government. The purpose of the SPA is to seek to achieve ecological sustainability by:

- Managing the process by which development takes place, including ensuring the process is accountable, effective and efficient and delivers sustainable outcomes;
- Managing the effects of development on the environment, including managing the use of premises; and
- Continuing the coordination and integration of planning at the local, regional and State levels.

All local government planning regulations produced after 2009 are derived from SPA.

4.3 Regional planning policy

Mackay, Isaac and Whitsunday Regional Plan
The Mackay, Isaac and Whitsunday (MIW) Regional Plan is currently being revised by the Queensland Government. The previous regional plan was adopted in 2012 and still applies in the interim. There is inconsistency between operating SPPs and the 2012 regional plan and as such most references to the WCA are not deemed particularly significant. When WCA is discussed, the 2012 refers to previous SPP that are no longer relevant.

4.4 Whitsunday Regional Council

The Whitsunday Shire Planning Scheme 2009 was first adopted in 2008, under the previous State Planning instrument, the Integrated Planning Act 1997. The latest amendment was made in September 2012. Within the Planning Scheme, Desired Environmental Outcomes outline the broad outcomes and development intent for the WRC. In addition, they provide the basis for the assessment of Impact Assessable developments under the Planning Scheme. Zones establish the level of assessment that is required for development for each zone and applicable Codes. Within the WRC planning scheme, the WCA is zoned as 'Special Uses' (yellow). All adjacent land is zoned 'Rural' (beige) (see Figure 16).

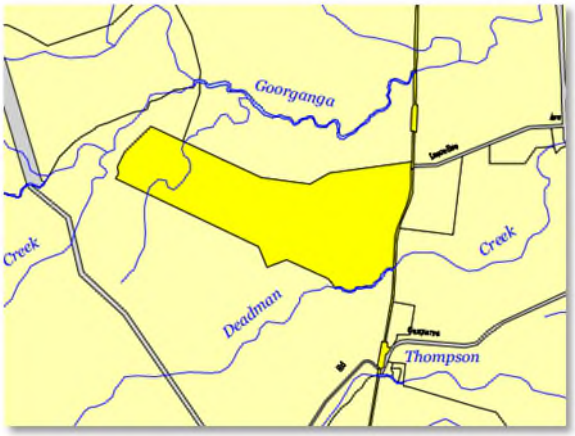

Figure 16: Airport site zoning
(Whitsunday Shire Planning Scheme)

Division 17 – Special Uses Zone of the Planning Scheme defines the assessment categories and criteria for any development and material change of use within the Zone. In addition relevant Codes are identified depending on the relevant level of assessment.

Overall, the intention of the Special Uses Zone is to ensure that the function and operation of established community uses and infrastructure is not compromised. The Special Use Zone may include existing community uses and infrastructure in the Shire. These uses include the school, the hospital, Council's offices and depot, recreational facilities, churches and the like.

Division 18 – Special Uses Zone Code defines the overall outcomes preferred for the Zone. In addition, Specific Outcomes for Code and Impact Assessable development are presented in conjunction with Probable Solutions for Impact Assessable and Acceptable solutions for Code assessable.

Any development proposed within the airport site must adhere to this Planning Scheme, and in particular Division 17 and Division 18. Further Codes may be relevant for consideration depending on the type of development. This can be identified in Division 17. (Note – the General Development Code (Division 4, Section 6.4.1 will likely be applicable).

In addition to zoning, Overlay mapping identifies specific issues to be considered. The Overlays in place within the Planning Scheme are:

- Conservation Areas Overlay;
- Economic Resources Overlay; and
- Natural Hazards Overlay.

Part 5 – Overlays of the Planning Scheme identifies the assessment categories and criteria for any development and material change of use within the Overlays. In addition relevant Codes are identified depending on the relevant level of assessment.

The WCA is impacted by all three overlays. These are considered environmental considerations and are further detailed in Section 6.1.

4.5 Development Application Process

Development applications (DA) in Queensland lodged on or after 18 December 2009 are assessed under the SPA through the IDAS system. The Queensland Government recommends that for complex applications or applications in environmentally sensitive areas, it is recommended that professional advice be obtained.

If the development is considered an assessable development under both SPA and the Planning Scheme, a DA is required. The application must identify the level of assessment required and any applicable codes or overlays. MyDAS is the online preparation and lodgement system for development in Queensland. **Appendix C** represents a Flow Chart for an application involving public notification, information request, and IDAS referral agencies (as an example).

Specific and relevant application material is required for every application and must be considered carefully when submitting a DA. A thorough assessment of all relevant planning instruments and constraints on development should be investigated prior to DA submission.

4.6 Draft new Whitsunday Regional Council Planning Scheme

In April 2013 Council commenced preparation of the draft new Whitsunday Regional Council Planning Scheme. The new Planning Scheme is intended to replace the existing Planning Schemes that apply to the former Bowen and Whitsunday Shires.

Council is developing the new Planning Scheme in order to move towards a more consistent approach to undertaking and regulating development within the region. It has been prepared to support the unique opportunity for growth and economic progress in balance with the vibrant and extraordinary environment of the region. Key factors the draft planning scheme takes are:

- Increases in population;
- Growth in the tourism and agricultural industry;

- The proposed Port of Abbot Point expansion; and
- Development of the Whitsunday Coast Airport to international status.

Of particular relevance to this master plan, some key strategies of the Draft New Planning Scheme are:

- Major industrial expansion is appropriately accommodated where the scale, intensity and nature of the Industry activity can be adequately supported. New expansion will predominantly occur within the Abbot Point State Development Area, between Collinsville and the mines to the south, east of Proserpine and within the vicinity of the Whitsunday Coast Airport.

- An international airport (runway and terminal), remote mine operations centre, air freight and supporting education and Industry activities are located within the vicinity of the Whitsunday Coast Airport, with a secondary regional airport (runway and terminal) at Hamilton Island. Smaller scale and supplementary facilities are provided at Bowen, Collinsville, Flametree and Mount Coolon Airports.

- The core landscape values within the Whitsundays are protected, and if practicable enhanced. The core landscape values include the urban gateways to Airlie, Bowen, Collinsville, Proserpine and the Whitsunday Coast Airport, as well as the significant visual backdrops as viewed from major scenic routes of the Bowen Development Road, Bruce Highway, Lascelles Avenue, Shute Harbour Road and the boating routes along the coastline and through the Whitsunday Islands.

4.7 Other relevant planning considerations

Australian Airports Association

The Australian Airports Association (AAA) is the national voice for Australian airports and represents the interests of over 260 airports and aerodromes across Australia. In 2013, the AAA commissioned the Regional Airport Master Planning Guideline to assist regional airport operators who often do not have the planning knowledge or resources typically available to the larger airports. This Master Plan largely reflects these guidelines.

5 ECONOMIC FRAMEWORK

5.1 Federal economic plans

In January 2015, Infrastructure Australia was requested to conduct a Northern Australia infrastructure audit, aimed at informing a white paper on Northern Australia development currently being prepared by the Australian Government. The White Paper will set out a clear, well defined and timely policy platform for realising the potential of Northern Australia. It will define policies for developing the north to 2030, capitalising on the region's strengths, removing barriers to investment and bringing Australia's broader strengths to Northern Australia.

Northern Australia is an integral and growing part of the Australian economy and it offers major development and employment opportunities for the nation. Infrastructure must be a key element in realising this potential, particularly where a sparse population base tends to rely on transport, energy, water and communications to an even greater extent than those in the more populated south of the country. WCA was identified by the audit as being significant to the audit and the Region's economic growth.

5.2 State economic plans

Governing for Growth: Economic Strategy and Action Plan 2014

The Governing for Growth Plan provides thee Queensland Government's economic roadmap for the next 10 years. The Plan was developed concurrently with the Queensland Plan. Specifically for airports, the Plan refers to the Economic Directions Statement: Queensland Airports as an outcome of the Plan.

Economic Directions Statement: Queensland Airports 2013 – 2033

The Queensland Government produced the Economic Directions Statement and identified the critical role of airports in supporting Queensland's economic growth. In particular, of the 191 airports operating in Queensland, 40 were identified as to have 'strategic significance' for economic growth. The WCA was identified to have strategic significance. In particular, the functions of the WCA identified as significant are: passenger movements, tourism, significant airport expansion, and SPP.

Priority Development Area (Future)
In 2013 WRC resolved to commence the process of obtaining a Priority Development Area (PDA) designation of the subject site and land directly to the east toward the Bruce Highway. A PDA is designated under the Economic Development Act 2012 and provides the opportunity to plan and develop key areas of land identified as necessary to respond to market gaps or facilitate development on large complex site. The declaration of a PDA is typically undertaken for precincts or parcels of land where specific economic development outcomes are being sought and there is an identified need for State and Local Government to work together to facilitate development outcomes.

5.3 Whitsunday Regional Council

Whitsunday 2020 - Corporate Plan 2014-2019

Whitsunday 2020 is a five year corporate vision spanning from 2014-2019 which informs Council's directions and priorities, it is also a way of measuring Council's progress in achieving key strategies. Throughout the development of this plan Council conducted extensive community consultation to identify what the community believes the important areas of focus are for the WRC.

With a strong focus on economic development the seven strategic priorities identified in the plan are:

1. **Advocate for implementation of the Bruce Highway Action Plan;**

2. **Develop the Whitsunday Coast International Export Hub as a significant transport and exports hub and regional economic driver;**

3. Advocate for the construction of the Urannah Dam and improvements to the Burdekin Falls Dam;

4. Advocate for the establishment of a base load power station at Collinsville and alternative energy sources;

5. **Advocate for the continued development of the Port of Abbot Point and the Abbot Point State Development Area;**

6. **Advocate for the establishment of an integrated resort and casino development within the Whitsunday region; and**

7. **Advocate for the growth of the agriculture, horticulture and seafood sectors for expanding exportopportunities.**

The Whitsunday 2020 – Corporate Plan of Whitsunday Council has the development of the Whitsunday Coast Airport International Export Hub as a strategic priority. Further strategic priorities focusing upon the Bruce Highway, the Port of Abbot Point and associated Rail infrastructure, Integrated Resort Development and growth in Agriculture will support the airport and vice versa.

ENVIRONMENTAL FRAMEWORK

6 LEGISLATIVE FRAMEWORK

Environmental Protection and Biodiversity Conservations Act 1999
The Environmental Protection and Biodiversity Conservations Act (EPBCA) 1999 is the Australian Government's key piece of environmental legislation which commenced 16 July 2000. The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places defined in the Act as matters of national environmental significance. It is not likely the development at WCA will have national environmental significance but it is important to acknowledge the EPBCA nonetheless.

State Planning Policy July 2014
Within the SPP (detailed in Section 5.2), Part D, and specifically "Planning for the environment and heritage" must be of consideration when developing the WCA.

State Planning Policy Mapping
The SPP Mapping tool presents numerous environmental considerations within and near the WCA site. These are specific in the relevant sections below. In addition, the land within the airport site is considered to be good quality agricultural land as identified by the SPP Mapping (**Appendix B**). Given the SPP statutory power, it is mandatory these be considered when developing at the WCA.

Mackay Whitsunday Isaac Natural Resource Management Plan 2014-2024
The WCA is within the Reef Catchments Natural Resource Management (NRM) area (see **Appendix D** for map). The NRM Plan takes a strategic approach that considers what natural assets we have collectively as a region, and where in the landscape these assets might be maintained, restored or enhanced. The NRM Plan contains agreed outcomes and management actions for protecting and restoring our natural assets. It is a non-statutory plan and provides a framework for a partnership approach to guide the strategic and efficient use of resources and funding. The NRM Plan is fundamentally a community plan that is guided, endorsed and owned by the day-to-day stewards of the land—the Mackay, Whitsunday and Isaac community. As the NRM plan is a non-statutory document there is no compulsory requirement to abide by it.

Nonetheless, the NRM Plan provides relevant and valuable guidance that should be considered in the development of the WCA where applicable.

Whitsunday Shire Planning Scheme 2009
Section 5.4 details the significance of the Whitsunday Shire Planning Scheme. Specifically for environmental consideration, the three overlays (Conservation Areas Overlay; Economic Resources Overlay; and Natural Hazards Overlay) all impact the airport site. *Division 5 – Overlays* of the Planning Scheme prescribes how developments in these areas are to be assessed. The relevant components of each Overlay are detailed in the following sections. The Economic Resources Overlay Map also identifies the land in and around the airport as good quality agricultural land (**Appendix E**).

6.1 Environmental Considerations

6.1.1 Flood

The WCA site and adjacent land has been identified to have a level of flood risk, within the SPP Mapping (see **Appendix G**), the NRM Plan, and the Planning Scheme (**Appendix H**). The Queensland floodplain overlay covers areas in the south of the site. In addition nearby areas to the east are identified to be within Medium and High Risk storm tide inundation risk. The Natural Hazards Overlay Map identifies areas

Further investigation will be required when considering development options at the airport site with regard to the effect the floodplain risk might have. In particular, the Natural Hazards Overlay Code must be considered.

6.1.2 Flora and fauna

Regulated vegetation has been identified within and adjacent to the airport site by the SPP Mapping tool (see **Appendix H** and the Department of Natural Resource and Mines Remnant Vegetation Map. Further investigation will be required when considering development options at the airport site with regard to specific species and protection laws.

The Conservation Areas Overlay as prescribed in the Planning Scheme identifies a small portion in the north of the airport site is “Essential habitat for Endangered, Vulnerable and Rare species (including Proserpine Rock Wallaby habitat)” (**Appendix I**). Further investigation will be required and consideration of the Conservation Areas Code within the Planning Scheme must be considered.

6.1.3 Bushfire risk

The site is at risk of bushfire hazards. The SPP Mapping tool identifies high and medium bushfire hazard and impact areas within a significant amount of the site (see **Appendix J**). In addition, surrounding land is also identified to be within a high bushfire risk area. In addition, the Natural Hazards Overlay Map identifies the site to be a low bushfire risk (**Appendix K**).

Further investigation will be required when considering development options at the airport site with regard to the effects the bushfire risk might have, both from a SPP perspective and the Planning Scheme. In particular, the Natural Hazards Overlay Code must be considered.

6.1.4 Hazardous substances

Fuel storage facilities on the north side of the access road (on landside) are considered a hazardous substance and must be treated as such when considering development.

6.1.5 Soil

Based on mapping by the Queensland Government, the soil orders dominant within the airport site and surrounds are Sodosols and Ferrosols (see **Appendix L** for map).

Sodosols are texture-contrast soils with impermeable subsoils due to the concentration of sodium. These soils occupy a large area of inland Queensland. Generally Sodosols have a low-nutrient status and are very vulnerable to erosion and dryland salinity when vegetation is removed.

Ferrosols are well-drained soils with red or yellow-brown colour and have clay-loam to clay textures. These soils are almost entirely formed on either basic or ultrabasic igneous rocks, their metamorphic equivalents, or alluvium derived therefrom. Although these soils do not occupy large areas in Australia, they are widely recognised and often intensively used because of their favourable physical properties. This soil type is usually associated with previous volcanic activity in areas used for intensive crop production.

A more specific consideration is the presence of acid sulphate soil. The Natural Hazards Overlay Map identifies significant levels of acid sulphate soils within the WCA site (**Appendix M**). Further investigation will be required when considering development options at the airport site with regard to the effects this might have. In particular, the Natural Hazards Overlay Code must be considered. (Notably, the Queensland Government does not identify acid sulphate soils in their Queensland Globe data).

6.1.6 Air quality

There are no known air quality issues with the exception of occasional dust generation.

6.1.7 Archaeology and heritage

There are no Queensland Heritage sites registered within or adjacent to the airport site by the Department of Environment and Heritage Protection. This includes the three categories of: State Heritage Place, Archaeological Place, and Protected Areas. The nearest registered heritage properties are within the Town of Proserpine: the Proserpine Hospital and St Paul's Anglican Church. In addition to the State Registry, the WRC has developed a Local Heritage Register. Heritage places on this registry are not located near or in the airport site.

Neither the State of Local Heritage registries illustrate significant heritage or archaeological considerations for the airport site when considering development.

6.2 Planning for Noise

6.2.1 Legislative Framework

National Airports Safeguarding Framework
The National Airports Safeguarding Framework provides guidance on planning requirements for development that affects aviation operations. This includes building activity around airports that might penetrate operational airspace and/or affect navigational procedures for aircraft.

The Framework was developed by the National Airports Safeguarding Advisory Group, which includes representatives from Commonwealth Infrastructure and Defence departments and aviation agencies; state and territory planning and transport departments, and the Australian Local Government Association. The Framework applies at all airports in Australia and affects planning and development around airports, including development activity that might penetrate operational airspace and/or affect navigational procedures for aircraft.

The Australian Government recognises that responsibility for land use planning rests primarily with state, territory and local governments, but that a national approach can assist in improving planning outcomes on and near airports and under flight paths.

The aim of the Framework is to:

- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions;
- Improve community amenity by minimising noise sensitive developments near airports, including through the use of additional noise metrics; and
- Improve aircraft noise-disclosure mechanisms.

The Framework is intended to provide guidance to state, local and territory governments which can in turn be used to guide assessment and approvals for land use and development on and around identified airports.

The Framework consists of:

- Principles for National Airports Safeguarding Framework;
- Guideline A: Managing Aircraft Noise;
- Guideline B: Managing Building-Generated Windshear;
- Guideline C: Managing Wildlife Strike Risk;
- Guideline D: Managing Wind Turbine Risk to Aircraft;
- Guideline E: Managing Pilot Lighting Distraction; and
- Guideline F: Managing Protected Airspace Intrusion.

Airports (Protection of Airspace) Regulations 1996
The Federal Minister for Transport can protect the airspace surrounding an Airport in accordance with the directions provided in the *Airports (Protection of Airspace) Regulations 1996*. The object of these Regulations is to establish a system for the protection of airspace at, and around, airports in the interests of the safety, efficiency or regularity of existing or future air transport operations into or out of airports.

Airservices Australia
Airservices Australia (AA) is responsible for the airspace surrounding WCA. Within this airspace it provides aerodrome and approach control services to arriving and departing aircraft. AA also provides services to aircraft transiting the designated control zone in which WCA is situated. These operations are conducted in accordance with published procedures, requirements and air traffic control clearances and instructions.

6.2.2 Australian Noise Exposure Forecast

An Australian Noise Exposure Forecast (ANEF) is a contour map showing the forecast of aircraft noise levels that are expected to exist around an airport in the future. The ANEF computation is based on forecasts of traffic movements on an average day. Allocations of the forecast movements to runways and flight paths are on an average basis and take into account the existing and forecast air traffic control procedures at the Airport which nominate preferred runways and preferred flight paths for noise abatement purposes.

The following factors of aircraft noise are taken into account in calculating the ANEF:

- The intensity, duration, tonal content and spectrum of audible frequencies of the noise of aircraft takeoffs, landings and reverse thrust after landing (the noise generated on the Airport from ground running of aircraft engines or taxiing movements is not included for practical reasons);
- The forecast frequency of aircraft types and movements on the various flight paths;
- The average daily distribution of aircraft takeoffs and landing movements in both daytime (7am to 7pm) and night time (7pm to 7am) hours; and
- The topography of the area surrounding the Airport.

6.2.3 Calculation of the ANEF

The ANEF system combines noise level and frequency of operations to calculate the average noise level at any point along and to the side of the flight path using the following reasonably simple mathematical procedure.

Partial ANEFs are calculated for the frequency of number of night-time and day-time operations of each aircraft type and flight path. These calculations use a value of Effective Perceived Noise Level (EPNL) for each aircraft and takes into account all known annoying aspects in the temporal, frequency spectrum and spatial domain. The EPNL level is obtained by the algebraic addition of the maximum perceived noise level at any instant corrected by noise tonal and duration factors.

The EPNL unit is also used for the international certification of new aircraft. These Partial ANEF values are computed for each significant type of noise intrusion. The total ANEF at any point on the ground around the Airport is composed of all individual noise exposures (summed logarithmically) produced by each aircraft type operating on each path over the period of one day.

These calculated values do not take account of any background noise levels from road or rail activities.

6.2.4 Noise threshold levels

The effects of noise can range from minor to very serious depending on the noise level, its duration and the subject's sensitivity. Noise, by definition being unwanted sound, elicits a wide range of individual responses in the vicinity of Airports and the reasons for the differences between individuals are largely socially-based and complex to quantify. Research has indicated however, that, unlike an individual's reaction, community response to noise impact issues is more predictable.

In the area outside the 20 ANEF contour it is generally accepted that noise exposure is not of significant concern, although there will be some individual exceptions. Within the area between the 20 to 25 ANEF contour, levels of noise are generally accepted to emerge as an environmental problem, and within the 25 ANEF contour the noise exposure becomes progressively more severe. Table 11.1 compares land use to acceptable ANEF contour levels.

It should be noted that the actual location of the 20 ANEF contour is difficult to accurately define. This is because variations in actual flight paths, pilot's operating techniques, meteorological conditions and topography, all have a largely unpredictable effect on the position of the 20 ANEF contour for any given day.

Recommendations relating to land use within the ANEF contours are contained in Australian Standard AS2021-2000 "Acoustics – Aircraft Noise Intrusion – Building Siting and Construction". These recommendations are summarised in Table 7 below. This is a summary only; airport operators should consult the Australian Standard for full details of the land use recommendations, and associated notes and conditions. It should also be noted that in August 2014 Standards Australia released a draft version of AS2021:2014 for public comment. The draft revision includes updated aircraft tables and advice about the development and endorsement processes for ANEF. It is likely that a revised standard will be released in due course.

Building type	ANEF Zone of Site		
	Acceptable	**Conditionally Acceptable**	**Unacceptable**
House, home unit, flat, caravan park	Less than 20 ANEF1	20 to 25 ANEF2	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25-30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF1	20 to 25 ANEF2	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF1	20-35 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF1	20-30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25-35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30-40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF Zones		

Table 7: Building Site Acceptability based on ANEF Zones

Notes:

1. The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variation in aircraft flight paths. Because of this, the procedure of Clause 2.3.2 in AS2021 –2000 may be followed for building sites outside but near to the 20 ANEF contour.

2. Within 20 ANEF to 25 ANEF, some people may find that the land is not compatible with residential or educational uses. Land use authorities may consider that the incorporation of noise control features in the construction of residences or schools is appropriate.

There will be cases where a building of a particular type will contain spaces used for activities which would generally be found in a different type of building (e.g. an office in an industrial building). In these cases Table 7 should be used to determine site acceptability, but internal design noise levels within the specific spaces should be determined by Table 3.3 in AS2021 –2000.

This Standard does not recommend development in unacceptable areas. However, where the relevant planning authority determines that any development may be necessary within existing built-up areas

designated as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2 in AS2021 –2000. For residences, schools etc., the effect of aircraft noise on outdoor areas associated with the building should be considered.

In no case should new development take place in greenfield sites deemed unacceptable because such development may impact Airport operations.

GROWTH FORECASTS

7 PASSENGER AND AIRCRAFT FORECASTS

Forecasting annual passenger and aircraft movements for regional airports can be challenging compared to major metropolitan airports. For example at Whitsunday Coast airport the addition of three additional services per week can increase seat capacity on the route by over 15%.

Therefore we believe a more prudent approach is to adopt a scenario based forecast using two methodologies: an econometric model that predicts demand and a supply based model. This approach provides a range of scenarios that may eventuate based on future possibilities. Importantly the forecasting identifies the airport infrastructure that will be needed to accommodate the future activity. From a planning sense we are interested to understand the impact of the high growth scenario on the airport infrastructure and any additional requirements needed over and above the mid growth or even low growth scenarios.

Econometric Demand Model
This is the preferred methodology for forecasting major airports where a number of variables influence travellers decisions and a large dataset of time series data is available for analysis. A fundamental assumption is that supply is relatively unconstrained and will meet demand. Historically, PAX growth at WCA has responded to supply. The model predicts demand based on a range of variables such as Australian dollar exchange rate, GDP, airfares, travel index, airline capacity. Further detail and forecasts based on this model are detailed in the following sections.

Supply Model
This model was developed in consultation with WRC by adopting the WRC 2015FY PAX forecast and adding additional seat capacity that has been indicated by WRC to commence in the second quarter of 2015; additional similar capacity expected to be added in subsequent years; and/or discrete future events occurring such as the commencement of construction of Abbott Point Port. The model also assumes the introduction of international charter flights during the forecasting period. Further detail and forecasts based on this model are detailed in the following sections.

Summary
The supply modelling provides what TAG believes is an upper limit to the PAX forecast assuming all events occur during the forecast period. The Econometric model provides a central forecast and a low forecast. Given the binary nature of the influencing events and the extreme sensitivity of the forecast numbers to those events, **TAG recommends the master planning adopts the supply model forecast for planning purposes**. Intuitively we believe that for WCA development purposes, the infrastructure capacity can be provided in response to demand phases.

7.1 Econometric Demand Model

TFI produced forecasts based on the econometric model. During the preparation of forecasts TFI consulted with representatives of Jetstar and Virgin Australia as well as with Whitsundays Marketing and Development.
TFI has taken two broad approaches to the development of the WCA forecasts:

- The first approach builds passenger demand based on known or anticipated seat capacity additions and specific local drivers such as natural resource developments; and
- A second approach links selected drivers to passenger demand using regression analysis. This is a challenge for an airport such as WCA with its fluctuating growth trends.

7.1.1 High Growth Scenario

The first approach develops what might be thought of as potential demand and forms the High scenario. For this approach a number different aviation-related factors were considered:

- Increases in airline capacity based on announcements and/or expected capacity announcements;
- Increases based on expected additions to the airlines' fleets. TFI notes that both Qantas and Virgin Airline Groups made adjustments to fleet plans following sluggish domestic market performance and announced losses earlier this year. TFI expects deliveries of new aircraft to increase into 2016 and 2017;
- Increases as a result of various local projects. These projects grow the local economy and directly add to passenger demand due to the construction workforce that FIFO. Projects include:
  - Expansion of the port of Abbot Point. As discussed, this activity could add up to 25,000 additional passenger movements per year in the peak construction periods and lead to an extra daily WCA-Brisbane service;
  - Construction of the Adani rail project to transport coal from the Galilee Basin to the Port of Abbot Point via a multi-user standard gauge rail line. The construction and associated worker influx is expected to start from March 15 for five years; and
  - Other developments include the $2bn proposed overseas investment projects.

In the development of this scenario TFI assumes that there will be a sustained competitive supply of airline seats on the Brisbane market and also on the Sydney and Melbourne markets. Major capacity additions for WCA are assumed:

- A daily service from March 2015;
- A daily addition from July 2016 (assumed initially as WCA-Brisbane covering construction FIFO and thereafter Sydney or Melbourne); and
- A daily addition from January 2017.

Although this is a substantial addition to capacity over a relatively short time period, it is assumed that this period includes strong construction activity.

7.1.2 Organic Growth Scenario

The second approach adopts a more traditional modelling approach to forecasting. It involved:

- A review of the traffic history available for WCA and other airports serving the Whitsunday region (including Hamilton Island and Mackay) and an assessment of statistical trends;
- Segmentation of WCA's passenger market to assess the significance of traffic drivers;
- A review and analysis of the general aviation and business environment and current airline schedules; and
- Development of models linking drivers and traffic.

This approach poses a challenge for an airport such as WCA given the change in service provision and passenger growth experienced in WCA's history. For this reason TFI reviewed passenger performance

against a range of drivers for WCA, as well as for a number of Queensland airports including Cairns, Hamilton Island and Mackay, and for Australia.

In the process of model development TFI tested a number of variables to assist in explaining traffic behaviour at WCA. These are listed in Table 8 below

Variable	Description
GDP	Australian real GDP which represents the effect of tourist income and population
Fare	Full economy fare in real terms
Best Fare	Best Discount fare in real terms
Cost	Domestic travel and holiday accommodation cost index
Ansett Collapse	Dummy variable for Ansett demise, which has value of 1 for 2002 and zero elsewhere
USD	Australian and US exchange rate
ASKs	Airline capacity in seat, kms, and no. of seats respectively

Table 8: Factors and effects on WCA demand
(TAG, TFI, 2015)

TFI found that:

- GDP is a major driver (Queensland GSP was also tested. GRP was not included in the modelling because it was not available for a long enough period and most passengers to WCA are visitors from outside the Whitsunday region);
- Demand for domestic air travel is highly sensitive to domestic travel and holiday accommodation costs; and
- The best discount airfare is also a driver.

Movements in these three factors were found to influence passenger demand at WCA and were used to drive the Organic Growth Scenario. Assumptions for these three drivers are provided in the next section. A Low scenario was constructed based around varied forecasts for these drivers.

7.1.3 Econometric Model Forecast

The High, Organic Growth and Low passenger scenarios are summarised graphically in Figure 17 and provided in Table 9.

Note that for the Low Scenario it is assumed that GDP grows at 0.25 percentage points below the level assumed for the Organic Growth Scenario throughout the forecast period. Further it is assumed that fares/costs are 0.5 percentage points higher than for the Organic Growth scenario through to 2024/2025.

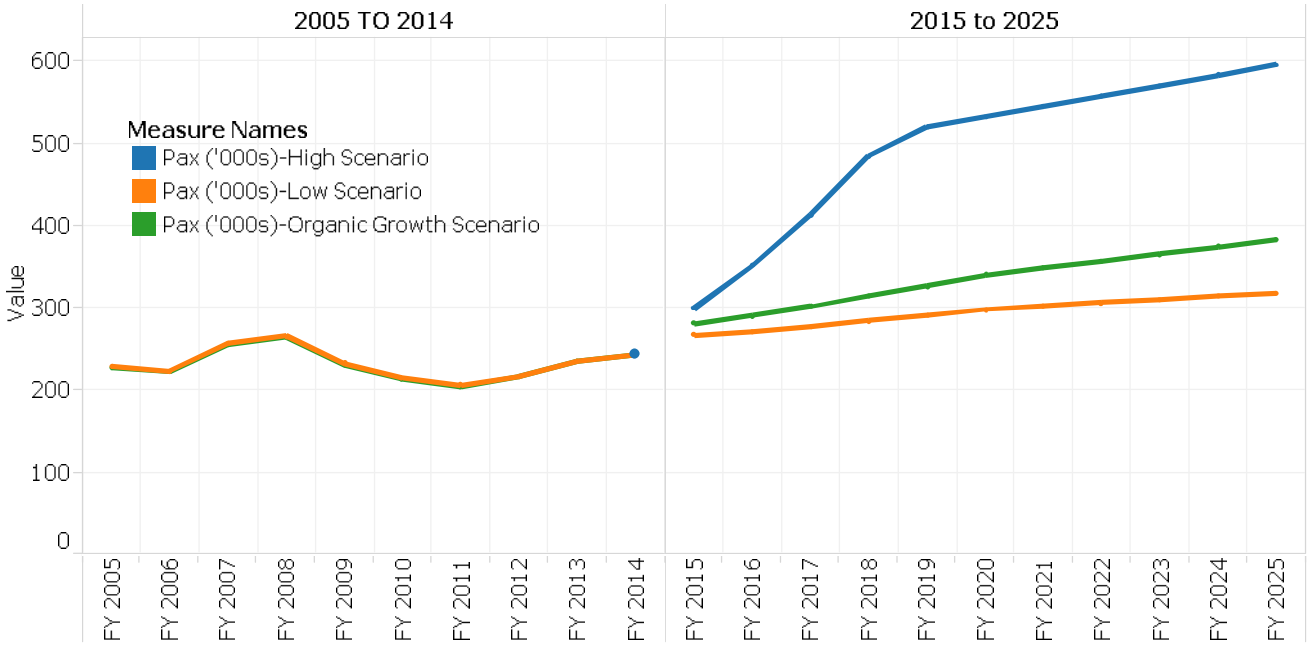

Figure 17: Passenger forecast scenarios based on econometric model (TFI)

Years end 30 June	Passengers ('000s)			Aircraft Movements ('000s)		
	High Scenario	Organic Growth Scenario	Low Scenario	High Scenario	Organic Growth Scenario	Low Scenario
2009	229			1.5		
2014	242			2.0		
2020	532	339	298	4.1	2.6	2.3
2025	596	383	318	4.3	2.7	2.3
2030	676	428	351	4.5	3.0	2.4
2035	761	476	386	5.1	3.3	2.7
CAGR						
2009 to 2014	1.1%			6.0%		
2014 to 2020	14.0%	5.8%	3.5%	12.6%	4.5%	2.2%
2020 to 2035	2.4%	2.3%	1.7%	1.5%	1.6%	1.1%

Table 9: RPT forecast figures based on econometric model (TFI)

7.2 Supply Model

In consultation with WRC, TAG has been advised of the intention by some of the airlines to add additional services to Whitsunday Coast Airport. We believe these are in response to a range of factors including:

- The recent movement in the Australian dollar exchange rate and the stimulatory effect this has on inbound international travel;
- The proposed resource related construction projects including, the Abbot Point terminal expansion; and

- The slowing of the mining boom leading to a reorganisation and optimisation of airline fleets throughout Australia away from destinations with high numbers of FIFO workers to tourist destinations.

Accordingly, we have allowed for the following additional international and domestic flights in this scenario:

- Jetstar Airways Melbourne to WCA commenced from June 2015;
- Additional Sydney to WCA from March 2016;
- Additional Brisbane to WCA daily from March 2018;
- International services beginning 2018;
- Using the TRA research as a guide we have assumed that for every 100 seats of increased capacity passenger numbers increase by 80; and
- Passenger growth for the period 2019 to 2025 is assumed to be 2.3% which is consistent with the TFI traffic report.

TAG recommends PAX figures are reviewed frequently. Given the highly fluctuating nature of drivers in the region, combined with a low starting base, it is important to review PAX figures and infrastructure capacity on a regular basis to ensure relevancy and feasibility of development.

7.2.1 International Scenario

In consultation with WRC, TAG has developed an International scenario in the forecasts. This scenario is considered a possibility during the forecasting period. In developing this scenario we have considered the following:

- The iconic natural beauty of the Whitsunday region and its status as an internationally recognised destination for tourism. The Whitsundays position as part of the Great Barrier Reef a word heritage site, consistently recognised as one of Australia's top ten attractions, and nominated by CNN as one of the seven naturals wonders of the world;
- The devaluation of the Australian dollar against the US and Chinese currencies and the stimulatory effect this has for inbound international travel;
- The growth of the middle class in Asia and its demand for international travel. By 2030 it is forecast that two thirds of the world's middle class will reside in the Asia Pacific region (Deloitte);
- A tripling of visitors from China, India and Indonesia during this period (Deloitte); and
- The strong links the region has with the Indian community primarily through the investment in the region by Adani Coal and GVK Hancock.

For a regional port such as WCA to attract international direct flights will take time to establish and most likely commence through a charter service building over time into a RPT service. We believe the potential for successfully establishing an international charter service and growing to a RPT service to WCA is high.

7.2.2 Supply Model Forecast

The forecasts presented here highlight the incremental benefits of establishing new services to the total passenger numbers processed by the airport.

Assuming steady average of supply of around 20% p.a. for the next five years, and then around 2.3% in the long term, WCA could process around 751,000 passengers a year by 2025.

Progressively adding three new daily domestic services and one international service over the next four years, is forecast to increase passenger numbers by around 475,000 by 2025.

If all envisaged domestic and international services commenced, the total passengers using WCA is forecast to increase from 306,785 in 2015, to 751,000 in 2025, realising 901,404 by 2035.

It is unlikely that the current accommodation infrastructure could service such an increase in tourists and/or FIFO workers to the Whitsundays region. Therefore for these passenger forecasts to be met there needs to be a concurrent increase in commercial accommodation to service the increase overnight travellers and workers to the region.

Years end 30 June	Passengers ('000s)	Aircraft Movements ('000s)
2015	282,500	2,301
2020	640,892	4,903
2025	718,064	5,161
2030	804,528	5,402
2035	901,404	6,053

Table 10: RPT Forecasts based on supply model

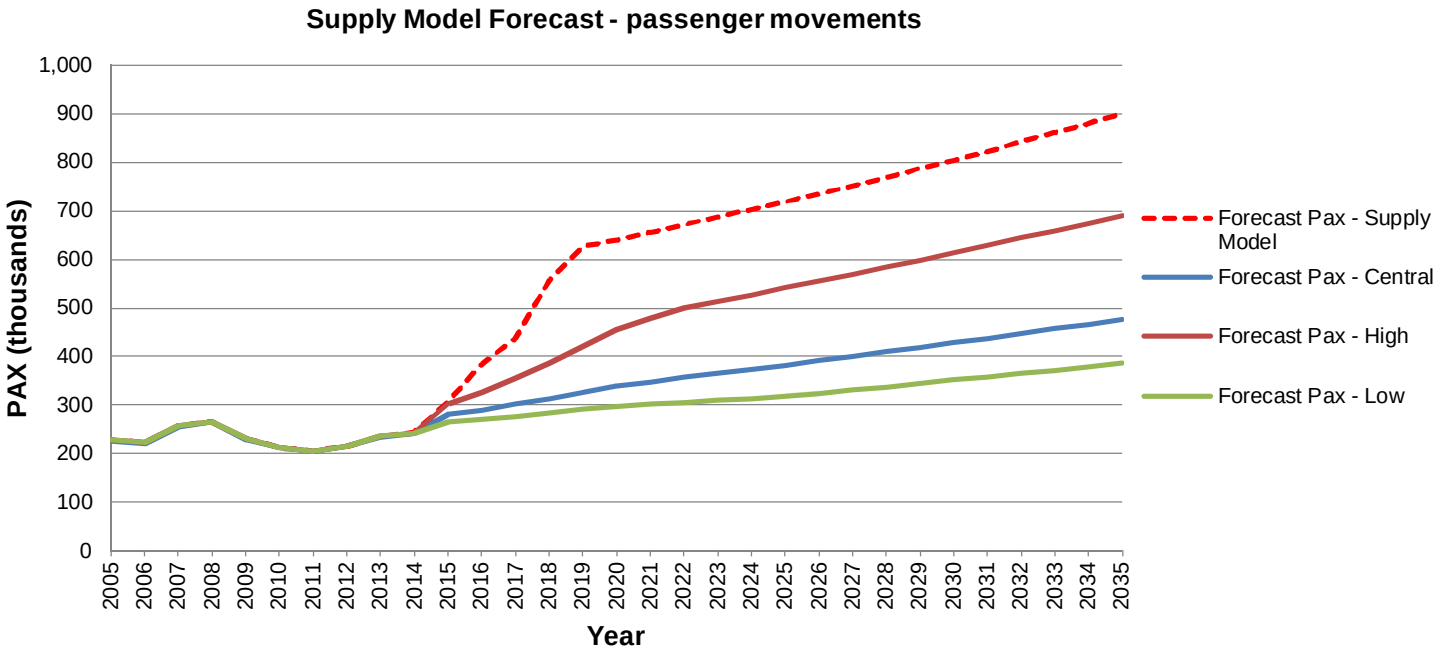

Figure 19: WCA PAX forecast scenarios based on the supply model

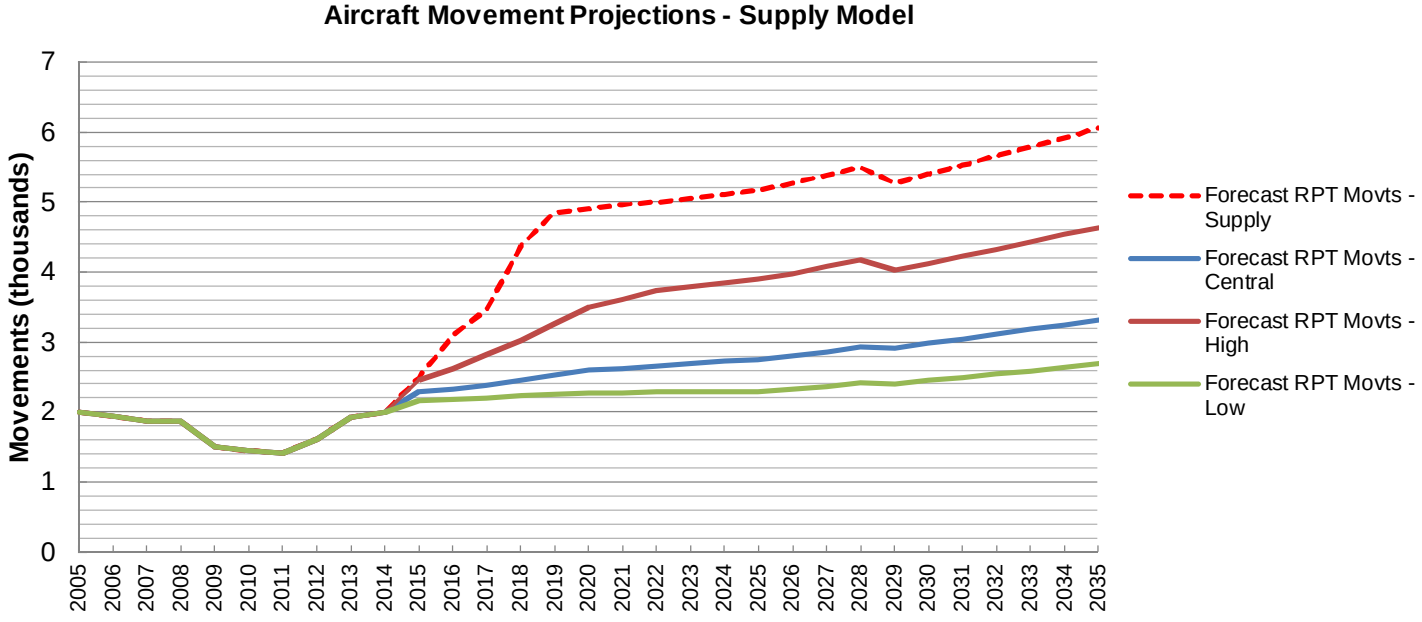

Figure 18: WCA aircraft movement forecasts scenarios based on the supply model

Fleet capacity projections

Based on discussions with the WRC, some projections of aircraft capacity are presented here. These are only intended as an example of the type of routes and aircraft that could be implemented in order to reach the forecast PAX. The following assumptions have been made when compiling these projections:

- Domestic aircraft design is based on current airline aircraft design;
- International aircraft design is based on an A330-300;
- Aircraft are represented at 100% loading capacity;
- Services on the same routes increase over time; and
- Adoption of international services to New Zealand initially, followed by services to Asia.

The following graphs represent the accumulative totals of fleet capacity for both domestic and international services (Figure 17 and 18). The supply model PAX forecast is also represented in Figure 19. It is important to note that the PAX forecasts are based on 80% loading factor, while the fleet capacity projections are based on 100% loading factor. This graph is indicative of the type of services that would need to be implemented in order to reach forecast PAX figures.

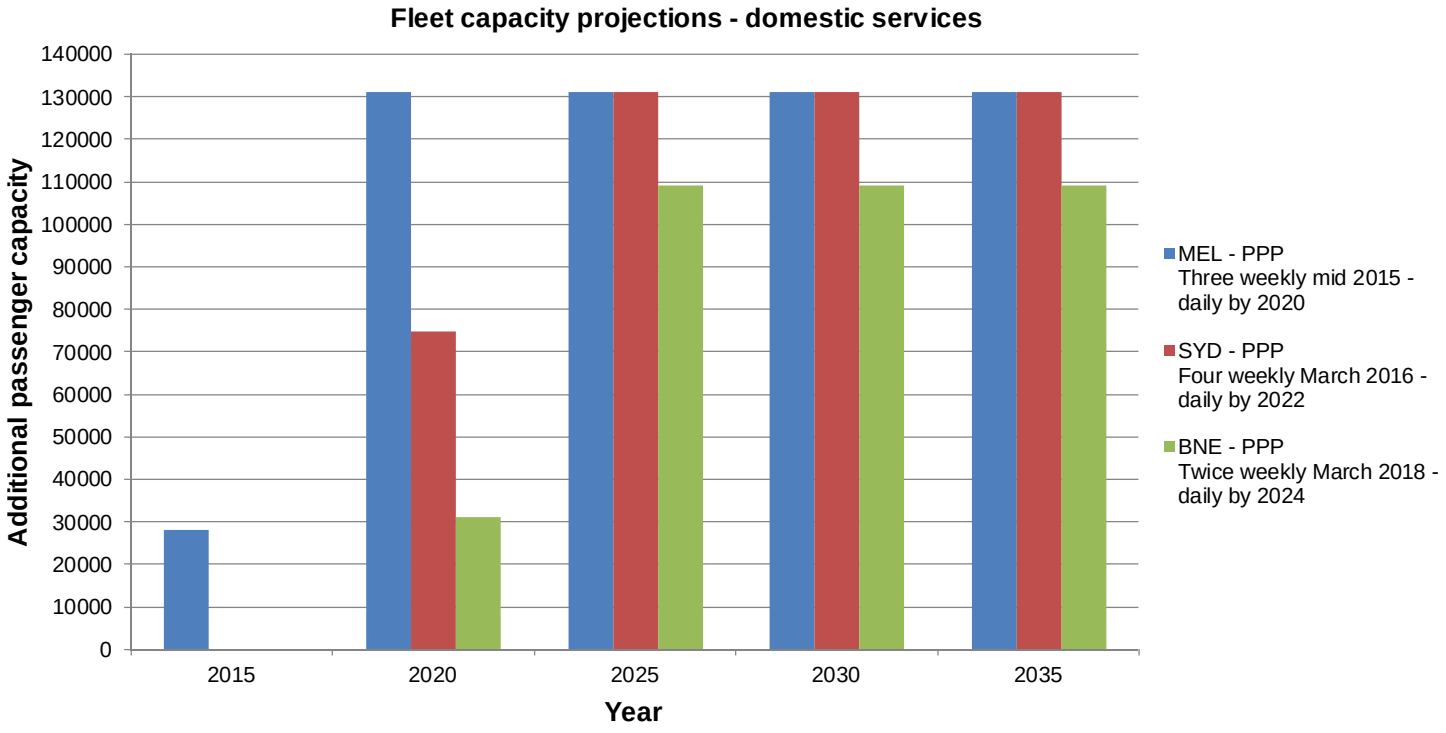

Figure 20: Fleet capacity projection – Domestic services

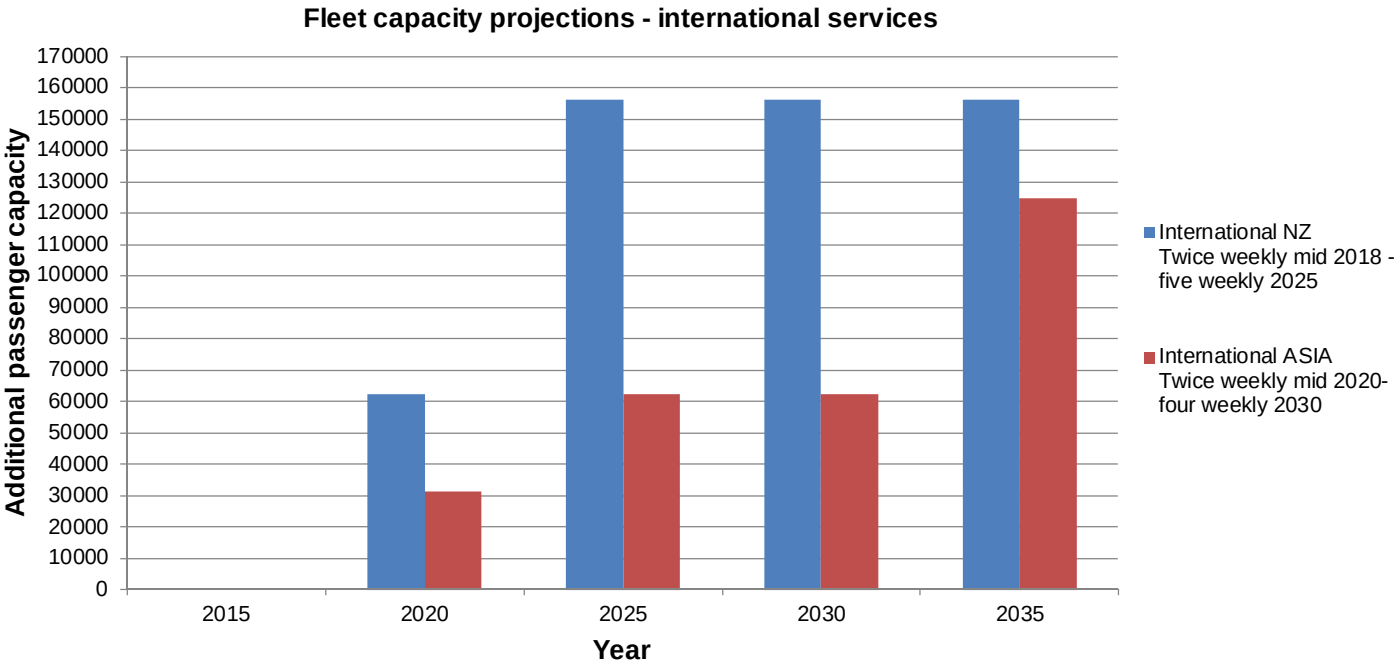

Figure 21: Fleet capacity projection – International services

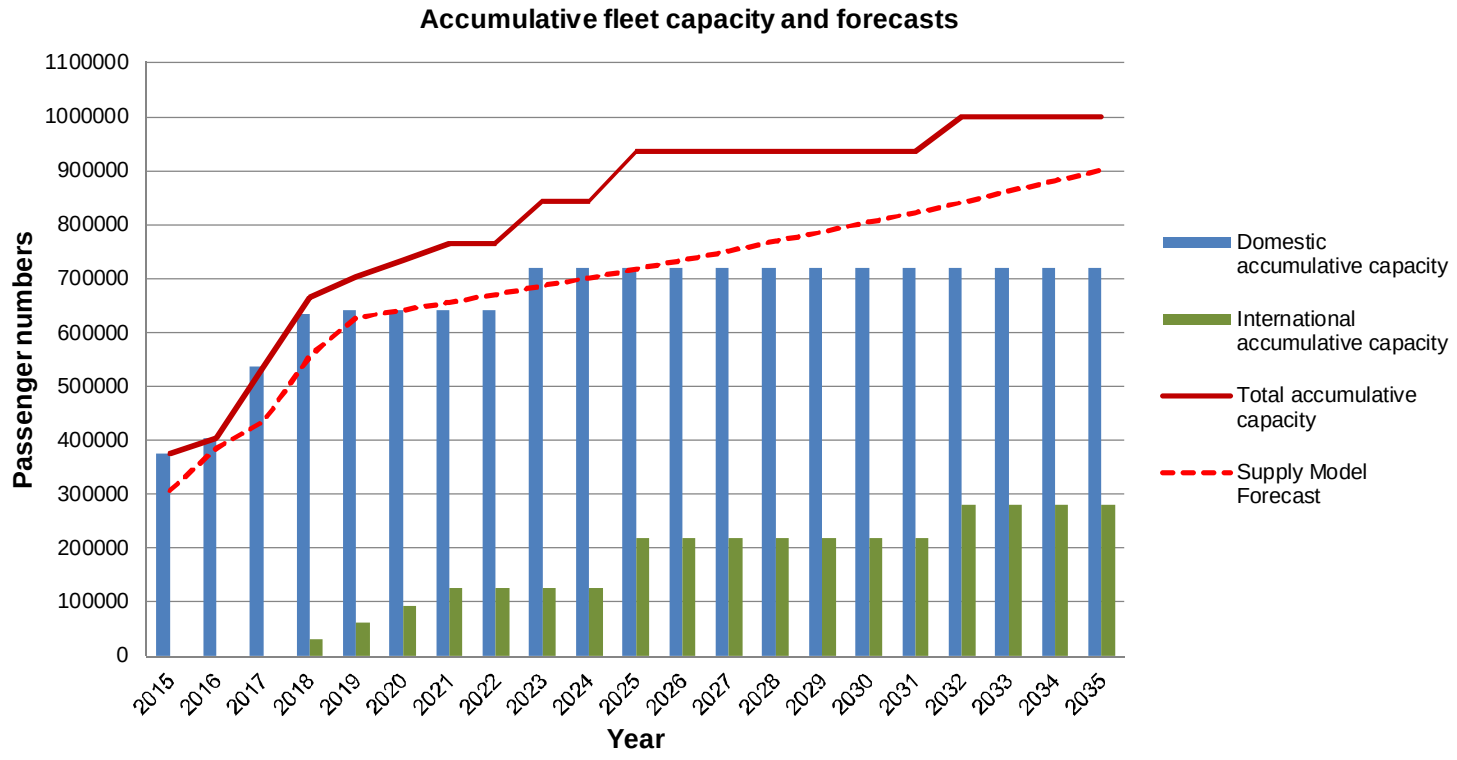

Figure 22: Accumulative fleet capacity and supply forecast

7.3 Airline operations

7.3.1 RPT

There are three airlines currently operating at WCA, providing services daily (schedule detailed in Section 3.6.3).

Design aircraft
The aircraft currently operating from WCA are:

- A320 (Jetstar and Tigerair);
- 737-800 (Virgin);
- 737-700 (Virgin); and
- Embraer E190 (Virgin).

The design aircraft is the synthesis of the key aircraft for which the airport is being designed to serve.

In this regard, it is also necessary to consider the likely future aircraft types that may be introduced within the foreseeable future. At this stage, the design aircraft are expected to largely remain the same. The implementation of international services will likely require larger aircraft such as A330-300. This is expected to be the largest design aircraft required in the span of this master plan and has been adopted in forecast scenarios for international services.

7.3.2 General Aviation

GA operations have existing access to the Runway 11/29 via Taxiway B. It is not expected that GA airline operations will increase significantly enough to warrant increased airside infrastructure in the span of this master plan.

Although there is no expected requirement for airside infrastructure upgrades, the existing GA area and surrounding land provides opportunity for any range of developments. For example, the construction of a heliport, fixed wing engineering facility, and VIP aircraft receiving facilities are entirely feasible. This may result in a significant increase in GA movements which should be reviewed periodically to ensure suitability of infrastructure at all times.

8 FREIGHT MOVEMENTS AND FORECASTS

Within Australia, airfreight is less than 0.1% of volume but 21% of value. Within Australia, Sydney is Australia's largest import/export airport for freight as shown on Figure 23 below. Airfreight to and from Australia is predominately carried in regular passenger aircraft.

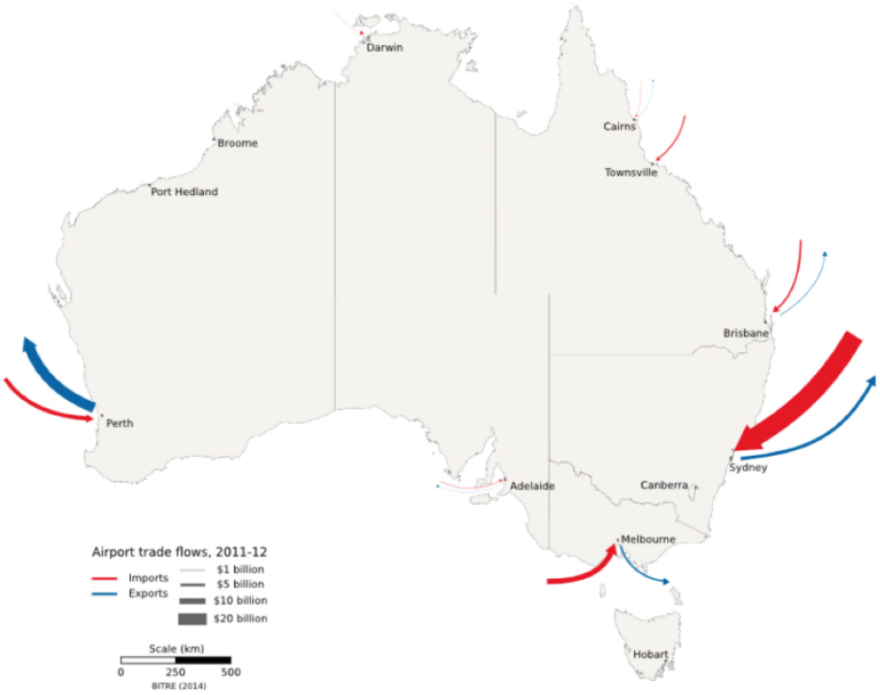

Figure 23: Existing freight hubs in Australia

The predominate aircraft servicing Whitsunday coast airport the B737 and the A320 have capacity for approximately 2,897kg and 1,000kg respectively for carrying airfreight, in addition to a full passenger loads (Figure 25, Figure 24). Adopting a 50/50 split of aircraft type, this means that based on the aircraft movements for YE 2015 there was capacity for approximately 4,483 tonnes of airfreight from WCA.

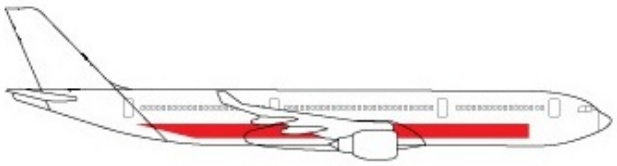

Figure 25: A320 - Maximum weight available 1,000kg

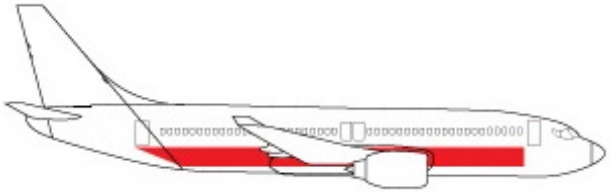

Figure 24: B737 - Maximum weight available 2,897kg

8.1 Full freighter service

There are minimal scheduled full freighter services into Australia. For example Brisbane airport has no scheduled full freighter services and Sydney airport has approximately 8,700 movements. The reason is the volume of regular passenger aircraft movements, the cost of airfreight and the competitive price and technology of sea freight. Scheduled full freighter services tend to operate between cities where there is a consistent transfer of high value goods between two destinations. Non scheduled full freighter services are used for the transport of goods of high value or delivery is time critical such as moving formula one cars, livestock, etc.

8.2 Capacity

There is not enough capacity to carry the entire region's annual production of tomatoes and melons as depicted in Figure 26 below, without freighter services. We understand that current capacity is not being utilised and in fact all agricultural production that is exported from the region is transported by road freight. The reason for this is due to a number of factors. Namely:

- Road freight is cheaper than air freight for accessing domestic markets; and
- The key to maintaining high quality produce and maximum price for producers is to ensure produce is transferred to a controlled climate as close to the farm gate as possible, with minimal transportation mode changes, handling etc prior to the goods arriving at the market.

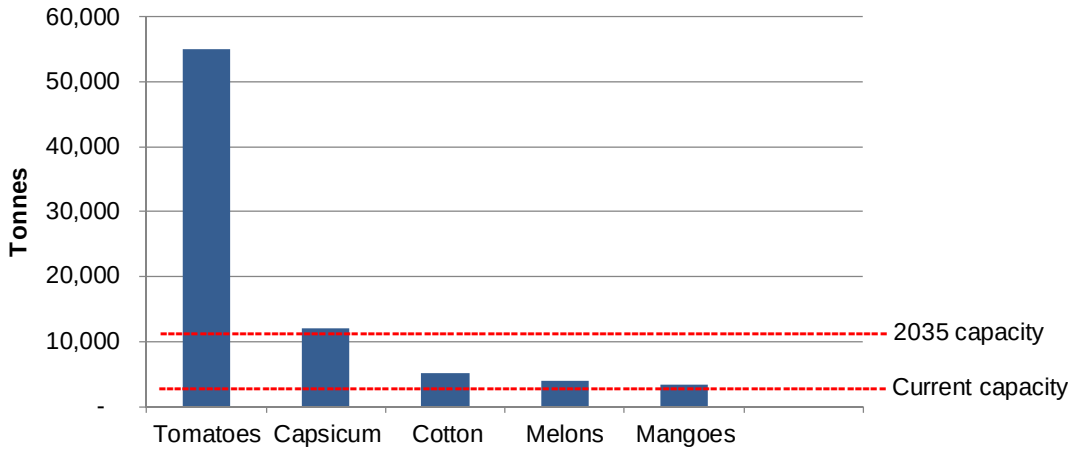

Figure 26: The region's production vs. existing freight capacity (ABC, 2014; AEC Group)

The most cost efficient and effective method for accessing domestic markets is achieved by road transport. Modern road freight with high technology cold storage trailers collecting at the farm gate and delivering directly to capital city produce markets is cheaper than air freight with far better quality control. Similarly, for accessing international markets it is more efficient and cheaper to move freight by road to a capital city airport such as Brisbane and Sydney and then use those airport's extensive international connections, assuming air freight is the most viable mode of transport. However, should regional growers capitalise on emerging Asian markets stimulated via free trade agreements then the WCAIEH has the capacity grow and meet demand.

	Proserpine	Brisbane	Sydney
Pax (total) ***Forecast***	260,000 *901,404*	17,000,000 (D) *4,500,000 (I)*	26,000,000 (D) *13,000,000 (I)*
Runway (l)	2,073m	3,500m	3,962
Runway (w)	45m	45m	45m
Freighter movements	0	no scheduled	8,500 p.a.
Freight Throughput	0	160,000 tonnes	700,000 tonnes (approx).

Table 11: Freight airport benchmarking (WCA, BAC, SAA)

8.3 Airport freight requirements

Freight handling at an airport usually dictates the following facilities: freight terminal (fronting airside), freight forwarding facilities, and warehouse and distribution facilities.

There is relationship between building area required to process freight at each point, which can be transposed into land demand. From a Master Planning perspective, we have adopted the upper end of the PAX forecast to determine the maximum freight capacity at WCA during the planning period. Assuming 100% capacity utilisation at the airport via freight throughput we have estimated the relative building area required and consequential land area demand.

8.4 Freight Forecast

	PAX	Movements	Air Freight capacity (T)
2015	282,500	2,301	4,483
2020	640,892	4,903	9,553
2025	718,064	5,161	10,056
2030	804,528	5,402	10,526
2035	901,404	6,053	11,794

Table 12: Freight Forecasts (TAG)

8.4.1 Landside requirements

To determine the land area required we have assumed the respective buildings have a plot ratio of approx. 40%. Balance land is used for car parking and truck turning areas and loading docks.

Freight terminal
The freight terminals vary from a fully mechanised freight handling system to a manual freight handling system. The type of system used effects the size of building. For this analysis we have assumed a manual system based on the forecast tonnage.

Freight forwarding buildings
We have assumed industry standard ratios for freight forwarding building.

Warehouse and distribution
We have assumed industry standard ratio for warehouse and distribution.

		Freight Terminal	Freight Forwarded	Warehouse and Distribution
2020	**Building area**	1,910m^2	1,910^2	955m^2
	Land Area	4,775m^2	4,775m^2	2,387m^2
2025	**Building area**	2,011m^2	2,011m^2	1,005m^2
	Land Area	5,027m^2	5,027m^2	2,512m^2
2030	**Building area**	2,105m^2	2,105m^2	1,052m^2
	Land Area	5,262m^2	5,262m^2	2,630m^2
2035	**Building area**	2,359m^2	2,359m^2	1,179m^2
	Land Area	5,897m^2	5,897m^2	2,947m^2

Table 13: Air Freight land area forecasts 2035 (TAG)

**Net Lot Areas - excluding roads, footpaths, services etc.*

10 AIRSPACE PLANNING

10.1 Obstacle Limitation Surface (OLS)

OLS are a number of reference surfaces in airspace which determine when an object may become an obstacle to aircraft manoeuvring in the vicinity of an Airport during approach or departure. They define protection requirements for the initial and final stages of a flight. During these manoeuvres visibility must be good enough for the pilot to see and maintain visual reference to the Airport and take responsibility for obstacle avoidance and separation from other aircraft.

The objective of OLS is to define a volume of airspace in proximity to an Airport which should ideally be kept free of obstacles that may endanger aircraft in visual operations or during the visual stages of an instrument flight. Even so, the intention is not to restrict or prohibit all obstacles but to ensure that either existing or potential obstacles are examined for their effect on aircraft operations and that their presence is properly taken into account.

Since the OLS are relevant only to visual operations it may be sufficient to ensure that the obstacle is conspicuous to pilots, and this may simply require that it be marked and/or lit. Of course each new obstacle will in some way restrict the freedom of aircraft operations and inevitably contribute to flight path congestion and delays. If an obstacle is located in the approach and take-off areas pilots will need to make adjustments to their normal take-off and landing to make guarantee obstacle clearance. This may mean using less than the full runway length available and may result in significant operational penalties such as fewer passengers, or less cargo or other operational restrictions.

The most stringent requirements apply on the extended centre line of a runway in the approach and take-off areas. Depending on the type of aircraft able to use the runway, the approach and take-off surfaces may extend 15 km from the runway strip end. At either side of the runway strip and the approach surface are two OLS components called the transitional surfaces. These are intended to protect an aircraft which encounters severe cross winds during the final phase of the approach to land and may then drift sideways as the pilot decides to ‘go around’ for another attempt.

There are two, or in some cases three, other surfaces which provide obstacle protection for aircraft circling to land – the inner horizontal surface, the conical surface and/or the outer horizontal surface. Depending on aircraft size and the type of activities catered for by the Airport, their combined effect may extend up to 5.5 km radius of the Airport.

The OLS provides the basis for future planning of the airport and surrounding precincts to meet aviation, commercial and legislative demands. An obstacle limitations surface (OLS) plan was prepared by Airservices Australia based on the following data and is attached in **Appendix N**.

RWY11/29 Code 4D	Instrument non-precision approach runway	
Approach surface	Inner edge width	150m
	Splay	15%
	Length	15000m
	Slope	2.00%-3000 first section 2.5%-3600m second section Level-8400m horiz section
Take-off surface	Inner edge width	150m
	Splay	12.5%
	Length	15000m
	Slope	2.00%
Inner Horizontal Surface	45m above the aerodrome	
Conical Surface	120m above the aerodrome	

Table 14: Runway detail

More recently, the Queensland Government has produced online mapping of airport OLS. This is also attached in **Appendix O** to provide further context and include OLS of nearby Hamilton Island Airport.

10.2 PANS-OPS

The PANS-OPS surfaces are based on criteria released by the International Civil Aviation Organization (ICAO) in a document named “Procedures for Air Navigation Services –Aircraft Operations” Volume II (document 8168 –PANS-OPS). Aircraft flight paths are accommodated within those unpenetrated surfaces to clear obstacles by a safe margin. All Airports which have a scheduled or regular passenger service or those which allow for “all-weather” operations MUST have such flight paths (procedures).

Aircraft not only fly in fine weather conditions, but also in weather which limits the pilot’s ability to see obstacles or the Airport. In these conditions the pilot must rely on instruments in the cockpit to provide navigation. This is called Instrument Flight and there are rules (I.F.R.) which mandate aircraft operations. Instrument Flight Procedures (IFP) are defined flight paths which guarantee the safety of aircraft operating without visual reference, and these are developed in accordance with the criteria in PANS-OPS. The surfaces created to this standard offer aircraft a minimum clearance from obstacles based on statistics, weather records and aircraft performance characteristics.

For larger ports, departure procedures are created to safeguard all weather departures and to facilitate Air Traffic Control information services. Large aircraft (greater than 5700kg) must also have a safe departure path in the case of an engine failure of the critical engine after take-off. Approach procedure paths guide a landing aircraft to align with the landing runway and generally position the aircraft at a height, orientation and 3D velocity from which the pilot can make a safe visual landing, or, if unsuccessful, will allow the pilot to climb to a safe height to consider the next option.

Manoeuvring to align with the runway can commence as far as 56km from the Airport and forms a horizontal plane which surrounds the Airport at a safe height. Through that surface, individual surfaces descending to the runway or climbing from the runway form channels of safe heights in 3D. Where flight paths cross, the lowest individual surface is ‘critical’ and will ‘cut’ through other surfaces. With many flight paths the resulting surface will be very complex. The modelling of such surfaces can either be as individual surfaces, which are then easier to interpret, or a combined critical surface model, which has complex interactions modelled as a series of contours and intersecting planes. The latter version, although more difficult to comprehend, allows for determination of a single critical height at any particular location.

The PANS-OPS surfaces protect aircraft in all-weather operations and specifically when the ambient conditions do not allow the pilot to see the runway or manoeuvre to avoid obstacles. Because of this limitation, NO intrusion is acceptable to the PANS-OPS surfaces under ANY condition.

10.3 Building heights and other obstacles

Obstacles in the vicinity of an Airport, whether they be natural or constructed may seriously limit the scope of the Airport's operations. Most people appreciate that tall structures and Airports are basically incompatible, but they tend to consider only the immediate approach and take-off areas and of structures that are a short distance away. While this is of primary concern, it is equally true that objects up to 56 km from the Airport and apparently unrelated to the runway alignment can affect aircraft approaching or departing an Airport, particularly in poor weather conditions or in instances of 'One Engine Inoperative' (engine failure) departures. OLS are used to define these airspace requirements and to assess the significance of an existing or proposed object.

10.4 Hazardous lighting

The source of light emissions in close proximity to the Airport is a potential source of concern to safe aircraft operations for two main reasons. Firstly, if bright lights, such as floodlights, emit too much light above the horizontal plane, there is the possibility that a pilot can be dazzled and momentarily be unable to read the flight deck instruments. Secondly, lights might create a pattern that looks similar to approach or runway lighting and this might cause confusion for a pilot unfamiliar with the Airport. Street lighting, security lighting and illuminated sports grounds are examples that require special consideration. The problem can often be corrected by providing suitable screening or shielding of the light source.

CASA has powers to impose requirements on developers of a controlled activity (artificial lighting) to deal with lights that could be considered to cause confusion, distraction or glare to pilots and potentially endanger safe aircraft operations by prevention of clear reception of instruments and air navigation lights.

It is preferable if the lighting design can take account of these issues in advance, rather than requiring modification or the extinguishment of the light source after installation is complete.

Local authorities' planning schemes should recognise the potential hazard of inappropriate lighting by specifying appropriate performance standards for lighting installations in proximity to Airports.

Developers/designers will need to take advice upon the zones of restricted lighting at WCA in accordance with the guidelines issued by CASA -*Lighting in the Vicinity of Aerodromes - Advice to Designers*.

10.5 Navigation aids and aircraft operations

Development on the Airport must be carried out and constructed in a manner that does not compromise the efficiency of navigation aids or the operational capability of aircraft using the Airport.

In that regard all developments will be required to give due and proper consideration where applicable to the following issues:

- Navigation Aid infrastructure safety zones and signal direction;
- Minimising sun glare from reflective surfaces;
- Wind turbulence impacts during construction and of the finished facility;
- Height limitations in respect of OLS and PANS-OPS surfaces;
- Height limitations including dishes and aerials;
- Thermal plumes or misting from roof vents; and
- Lighting that may illuminate above the horizontal.

10.6 Australian Noise Exposure Forecast Chart

An ANEF for the airport has been produced separately to this master plan. This has been produced to a level for certification from Airservices Australia.

11 AIRSIDE PLANNING

11.1 Aerodrome Reference Code System

One of the most important elements of the CASA Manual of Standards Part 139 (MOS) is the Aerodrome Reference Code system. In this regard the MOS states:

> *Australia has adopted the International Civil Aviation Organisation (ICAO) methodology of using a code system, known as the Aerodrome Reference Code, to specify the standards for individual aerodrome facilities which are suitable for use by aeroplanes within a range of performances and sizes. The Code is composed of two elements: element 1 is a number related to the aeroplane reference field length; and element 2 is a letter related to the aeroplane wingspan and outer main gear wheel span. A particular specification is related to the more appropriate of the two elements of the Code or to an appropriate combination of the two Code elements. The Code letter or number within an element selected for design purposes is related to the critical aeroplane characteristics for which the facility is provided. There could be more than one critical aeroplane, as the critical aeroplane for a particular facility, such as a runway, may not be the critical aeroplane for another facility, such as the taxiway.*

The MOS is the key document to be referred to when designing an airport/aerodrome and the Aerodrome Reference Code system forms a critical starting point for the design process.

The Aerodrome Reference Code is based on the characteristics of an aircraft not the airport. Once the critical aircraft (or design aircraft) is determined then the aerodrome facilities are designed and built to meet those characteristics. The table below indicates the aircraft characteristics that determine the Aerodrome Reference Code.

Aerodrome Reference Code				
Code Element 1		Code Element 2		
Code number	**Aeroplane reference field length (ARFL)**	**Code letter**	**Wing span**	**Outer main gear wheel span**
1	Less than 800m	A	Up to but not including 15m	Up to but not including 4.5m
2	800m up to but not including 1200m	B	15m up to but not including 24m	4.5m up to but not including 6m
3	1200m up to but not including 1800m	C	24m up to but not including 36m	6m up to but not including 9m
4	1800m and over	D	36m up to but not including 52m	9m up to but not including 14m
		E	52m up to but not including 65m	9m up to but not including 14m
		F	65 up to but not including 80m	14m up to but not including 16m

Table 15: Aerodrome Reference Code (MOS Part 139)

The Code number for element 1 of the Aerodrome Reference Code is determined from column 1 of the above table. The Code number corresponding to the highest value of the aeroplane reference field lengths for which the runway is intended must be selected.

"Aeroplane reference field length" is defined in the MOS as:

> *The minimum field length required for take-off at maximum certificated take-off mass, sea level, standard atmospheric conditions, still air and zero runway slope, as shown in the appropriate aeroplane flight manual prescribed by the certificating authority or equivalent data from the aeroplane manufacturer. Field length means balanced field length for aeroplanes, if applicable, or take-off distance in other cases.*

As noted in the MOS:

> *The determination of the aeroplane reference field length is solely for the selection of a Code number and must not be confused with runway length requirements, which are influenced by other factors.*

The Code letter for element 2 of the Aerodrome Reference Code is determined from column 3 of the above table. The Code letter, which corresponds to the greatest wingspan, or the greatest outer main gear wheel span, whichever gives the more demanding Code letter of the aeroplanes for which the facility is intended must be selected. Currently, the airport is Code 4D, but can take up to 4E on concession.

Unless otherwise agreed by CASA, aerodrome operators are required to maintain the airport's runways and taxiways in accordance with the standards set out in the MOS applicable to the Aerodrome Reference Code for that runway or taxiway.

The WCA is classified as (G) General, operating on Common Traffic aerodrome frequency (CTAF) 126.7 and Air Traffic Services (ATS) provided by Brisbane Centre. This is adequate for the airport's current, low traffic environment. The airport has all the navigational requirements for an operator of Commercial Instrument Flight Rules (IFR) procedures.

As air traffic increases, there will likely be a need to re-classify the airport to (E) with the inclusion of a control tower and a requirement for all aircraft to have two-way radio communications. Currently the Whitsunday Coast Airport is a Code D, with Common Traffic Advisory Frequency (CTAF) procedures requiring mandatory radio communications.

11.2 Design aircraft infrastructure

Determining runway length, width and strength for an airport needs to be based on the critical aircraft that are likely to use the airport in the future. Usually this is based on RPT aircraft.

Table 16 shows the indicative characteristics of a range of the aircraft currently operating at WCA.

Aircraft	Seats	ARFL (m) *	MTOW (kg) *	ACN *	CODE
B737-800	176	2256	78,240	46	4C
B737-700	128	2058	70,143	40	4C
A320	180	2058	72,000	40	4C
Embraer E190	98	1,250	51,800	30	3C

Table 16: Aircraft characteristics
(Virgin fleet, Jetstar fleet, IATA, CASA)

* ARFL = Aeroplane reference field length
* MTOW = Maximum take-off weight

* ACN = Aircraft Classification number. The ACN is based on the aircraft's MTOW on a flexible pavement with a sub-grade rating of "B".

The largest types of aircraft currently operating worldwide are Code F aircraft. The AAA advice that when planning an international airport it is appropriate to adopt the Code F design aircraft. However, for regional airports with existing or proposed RPT operations it is likely that a Code C design aircraft will suffice. It is noted that the Boeing 737 and Airbus A320 are both Code C aircraft. The Whitsunday Coast Airport is a Code D Airport and has the ability to receive Code E aircraft upon concession.

It is also necessary to consider aircraft length, which is not part of the ICAO classification system, in order to establish a design aircraft envelope for planning purposes, particularly for planning apron areas. Over time many aircraft types have stretched in length to provide greater carrying capacity.

11.3 Public Safety Zones (PSZ)

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.

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 27 below.

Other methods (such as that adopted in the UK) vary the RPZ dimensions as 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 the Runway at WCA and will be based on the forecast aircraft mix and individual runway risk contours.

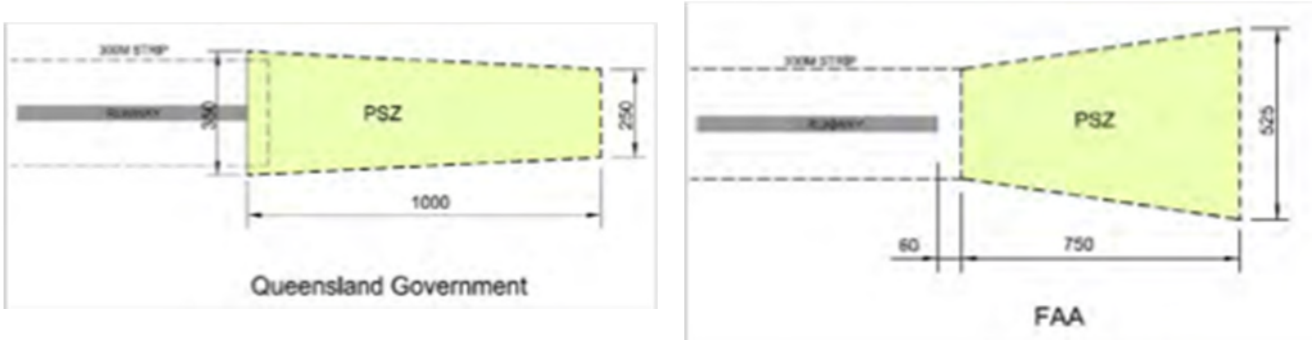

Figure 27: QLD Government RPZ

With regard to the WCA, the notional RPZ at the eastern end of the runway lies substantially on land outside the boundary of the Airport. It is recommended that the WRC either acquires sufficient land to accommodate the PSZs or gives consideration to working with neighbouring land occupants to institute appropriate land use controls within the notional PSZ at that end of the runway end to achieve the following:

- 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; and
  - Car parking.

- 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; and
  - Fuel storage facilities.

SWOT ANALYSIS

12 SWOT ANALYSIS

12.1 Strengths

- The region is an iconic internationally recognised tourist destination, one of a few in Australia with a modern airport and potential for growth.
- The tourism industry segment has the greatest opportunity for economic growth in the region and will have the largest impact on WCA. This segment represents the largest user of the airport currently, and the economic fundamentals are now shifting to underpin a period of potentially strong sustained growth in both domestic and international visitors.
- Devaluation of the Australian dollar occurring at the time of writing is a stimulatory for both domestic and in bound international tourists.
- There is a strong existing relationship with the Chinese tourist market.
- The WCA has existing Queensland Government support.
- There are large amounts of land adjacent to the airport site that can be commercially developed.
- International service demand and market includes population of the Mackay region given distance to Cairns and Brisbane.
- The existing runway infrastructure is already capable of handling short haul international flights.
- The Terminal is a modern, adaptable design.
- There is ample land to expand car parking facilities.
- There is no residential development nearby which minimises noise conflict.
- The region is a favored location for overseas investment (largely Indian and Chinese) – with a clear indication of preference to an international airport.

12.2 Weaknesses

- Increasing aircraft movements will place pressure on airport infrastructure.
- Apron parking bays will need to be increased for any major increases in PAX and aircraft movements.
- The runway will need to be extended for long haul international flights.
- Runway strength will need to be upgraded for long haul international flights.
- Direct international flights will require investment in Customs and Quarantine facilities.
- The existing schedule highlights weaknesses in the airports infrastructure capacity, particularly when there are any delays (i.e. terminal capacity and apron parking).
- Car parking capacity and rental car availability will need increasing if full potential of airport is to be reached.
- There is no existing freight handling facility.
- Currently there is a lack of suitable and/or enough accommodation in the region to match demand.
- Airlines may utilise WCA as a domestic network airport rather than implement new international services due to existing links in Cairns and Brisbane.
- Major resource projects in the area are moving from construction to operation – aircraft used on the high yield FIFO routes will now be redeployed to other routes.

12.3 Opportunities

- Increased PAX volumes will likely drive airport revenue. i.e. PSC, landing fees, retail, rental cars, car park revenue etc.
- Given the location of the airport and surrounding land, there are landside development opportunities for regional, natural resource related and services businesses.
- A number of mooted resource related projects in the region have the potential to significantly increase passenger numbers for a finite period of time. A major percentage of workers for construction of these projects are expected to be FIFO.
- There is opportunity to leverage off strong established international flows with domestic connections.
- Opportunity to create an intermodal transport hub taking advantage of existing rail spur, highway frontage, and airport.
- Oil prices are one of the major airline costs. Long term oil price reduction will mean cheaper air fares.
- Increased international seat capacity and the growth in low cost carriers will likely fuel competition to develop new routes. Boeing forecast 13,000 additional aircraft will be added to the Asia Pacific region in the next 20 years.
- Direct international flights to Asia have the opportunity to create freight export opportunities for local agriculture and aquaculture producers.
- The location of WCA provides a midpoint between Cairns and Brisbane – there is an opportunity for the airport to attract international market through this.
- Rising world income levels will likely stimulate international travel.
- If domestic seat capacity is increased, history has shown strong demand for seats to the region if there is appropriately priced supply.
- There is a shortage of commercial/industrial land in the region, which provides an opportunity for development at the airport.
- There is an opportunity to develop and expand the airport concurrently with significant overseas investment (largely Indian and Chinese) expected in the next 10 years or so.

12.4 Threats

- Timing of airport infrastructure upgrades may not line up with the timing of the need by the FIFO industry.
- Project commencements are currently very fluid due to global commodity price reductions and high cost of production.
- A lack of funding to develop the airport infrastructure will limit access to the region.
- If the region does not reach its potential it will fail to achieve significant growth of inbound tourism numbers.
- Change in the key fundamentals may dampen growth, i.e. exchange rate, seat capacity.
- Airlines may deploy aircraft to other routes, thereby reducing seats.

IMPLEMENTATION

13 DEVELOPMENT STRATEGIES

The following provides a summary of the key strategies and justification for critical elements of development and expansion presented in this master plan development.

Drawings presented in this section are largely indicative. Further in depth engineering and architectural drawings will be required when proceeding with any development presented here.

13.1 Airspace Instrument Upgrade Requirements

Increased aircraft movements, and particularly international services, are likely to require an upgrade of existing airspace instruments at WCA.

The need for both the control tower and instrument landing system should be evaluated periodically. Given the expected short term rapid increase in aircraft movements and PAX at WCA, this should be evaluated in the short term. Airservices Australia requirements and standards must be adhered to in this regard.

13.1.1 Control Tower and or Radar

WCA is currently an uncontrolled airport, classified as (G) General airspace where aviators are required to provide their own traffic separation. Additional services are provided by Brisbane Flight Information Area for RPT and IFR operators. As traffic grows and simultaneous jet operations take place at the airport, a control tower is needed to manage air traffic and provide safety against potential air incidents. This would change the classification of the airspace to (D) where communication between aircraft and the control tower to allow for the safe operation within the airport environment

As traffic density increases, an air traffic radar system would allow the airport to accommodate this growth, providing air traffic control with the precise location of all aircraft and hence provide adequate separation over all aircraft. This would change the airport classification to (C) where air traffic must receive clearances from the control tower. Currently the Whitsunday Coast Airport provides a code (D) on the basis of CTAF communications.

13.1.2 Instrument Landing System (ILS)

In low visibility and challenging weather conditions, a radio based Instrument Landing System (ILS) enable aircraft to safely land at the airport. It consist of 4 components, a localizer, glide slope, marker beacons and high intensity runway lights. The current instrument approaches require large aircraft to have the airport in visible at 1660 feet above sea level and if this is not possible due to weather or any other environmental factors, aircraft are required to divert to an alternate airport, resulting in delays and lost of income. Currently the nearest alternative ILS capable airport is Townsville to the north or Gladstone to the south.

Depending on the system implemented, an ILS could provide guidance to allow aircraft to safely land from a cloud height of 200 feet and 800 meter visibility to no cloud base and no visibility. It should be noted that a ILS system is costly and newer alternatives are in development.

A new aircraft landing system known as SmartPath has been brought into service at Sydney Airport – the first of its type in the southern hemisphere. The SmartPath technology (otherwise known as a Ground Based Augmentation System, GBAS), is a precision approach and landing system allowing suitably equipped aircraft to land within one metre of the runway centre line in low visibility conditions. This technology is still in development but may be deployed by the time passenger numbers grow.

As air traffic grows, there will be a need to re-classify the airport to (D) with the inclusion of a control tower and a requirement for all aircraft to have 2 way radio communications.

13.2 Airside Infrastructure

13.2.1 11/29 Runway

Based on the previous planning appraisal conducted by LEAPP and confirmation from the WRC, an extension of the runway 11/29 to the northwest has been identified as a high priority airside infrastructure upgrade. The runway will be extended by 327m to make it 2,400m. There are numerous supporting reasons to extend the runway:

- It will be required to accommodate an increase in existing aircraft movements, particularly when implementing international services and utilising larger aircraft for these services.

- All required land for this extension is within the airport site. In addition, majority of the PSZ is within the airport site. Given the land adjacent is zoned as rural, it is not likely the PSZ within this land will have any impact.

- Based on this initial evaluation, there is not significant consideration necessary for environmental impact on the creek located at the end of the proposed runway extension. However, further in depth environmental assessment should be conducted before construction the runway.

- There are no issues with departures turning north with the runway extended to 2,400m.

13.2.2 Taxiway

A need for taxiway expansion has been highlighted by previous appraisals in addition to discussions with the WRC.

In the short term the existing taxiway link is expected to be sufficient. In the medium – long term, a second dual taxiway system will be required. In the long term, it is expected that significant expansion will require further upgrades of taxiway links and a parallel taxiway.

There are numerous supporting reasons to expand the taxiway system:

- Dual taxiways provide circulation and redundancy during maintenance;

- Dual taxiways allows for a cheaper interim arrangement without parallel taxiway until movements dictate need for increased infrastructure;

- The additional use of the perpendicular taxiways allows for vacating an aircraft without having to taxiway to the middle of the airfield;
- Perpendicular taxiways allow smaller aircraft to line up for an intersection departure;
- Change in runway duty due to wind change increases flexibility for head to head aircraft taxi arrangement;
- Perpendicular taxiways are sufficient for an airport with busy hour movements estimated to be under 25 (departures and arrivals) (ICAO);
- Perpendicular taxiways are less expensive and, when properly located along the runway, achieve an efficient flow of traffic; and
- Full parallel taxiway reduces runway occupancy.

13.2.3 Apron

A need for apron expansion has been highlighted by WRC as a high priority. Periodic apron expansion will increase the capacity of the airport. In addition, Code E aprons will allow for larger, wide bodied aircraft. This is crucial when considering international services or a significant increase in peak hour demand.

There are numerous supporting reasons to expand and upgrade the apron parking bays:

- An initial Code C extension and Code C upgrade of existing apron will reduce cost on extension for new pavement and be a cheaper interim arrangement until Code E more regular;
- Flexibility with apron area to allow additional Code E if first goes unserviceable;
- Prime positions remain for general Code C aircraft – easier for ground handlers;
- Apron depth not limited to design code E (A330) and may allow stretch versions to operate i.e A350-1000.

A staging plan and master plan for airside development described in this section area presented on pages 53 and 54 (following).

STAGE 1
SHORT TERM TIME FRAME (-5YRS)
RUNWAY EXTENSION TO THE WEST - 14176m²
ADDITIONAL CODE C PARKING BAY - 12168m²
LEGEND
EXISTING INFRASTRUCTURE
PROPOSED CONSTRUCTION
RPT APRON
TWY B
TWY A
182.5m
TURNING NODE AREA TO BE INCREASED FOR CODE E OPERATIONS
PROPOSED 11/29 SEALED RUNWAY 2400 x 45
11
29
TURNING NODE AREA TO BE CONSTRUCTED FOR CODE E OPERATIONS
327.0m
RUNWAY EXTENSION
2073.0m
EXISTING RUNWAY
STAGE 2
MEDIUM TERM TIME FRAME (5-10YRS)
NEW TAXIWAY - 8963m²
APRON EXTENSION TO WEST - 7374m²
APRON EXTENSION TO EAST - 5223m²
STAGE 3
LONG TERM TIME FRAME (+10YRS)
APRON CODE E PARKING BAY - 14927m²
Includes X YBPN CHAIN
Includes X YBPN BASE
Includes X YBPN STRIP
PRELIMINARY ISSUE
TAG173 Pty. Ltd
Licensee of The Airport Group Pty. Ltd.
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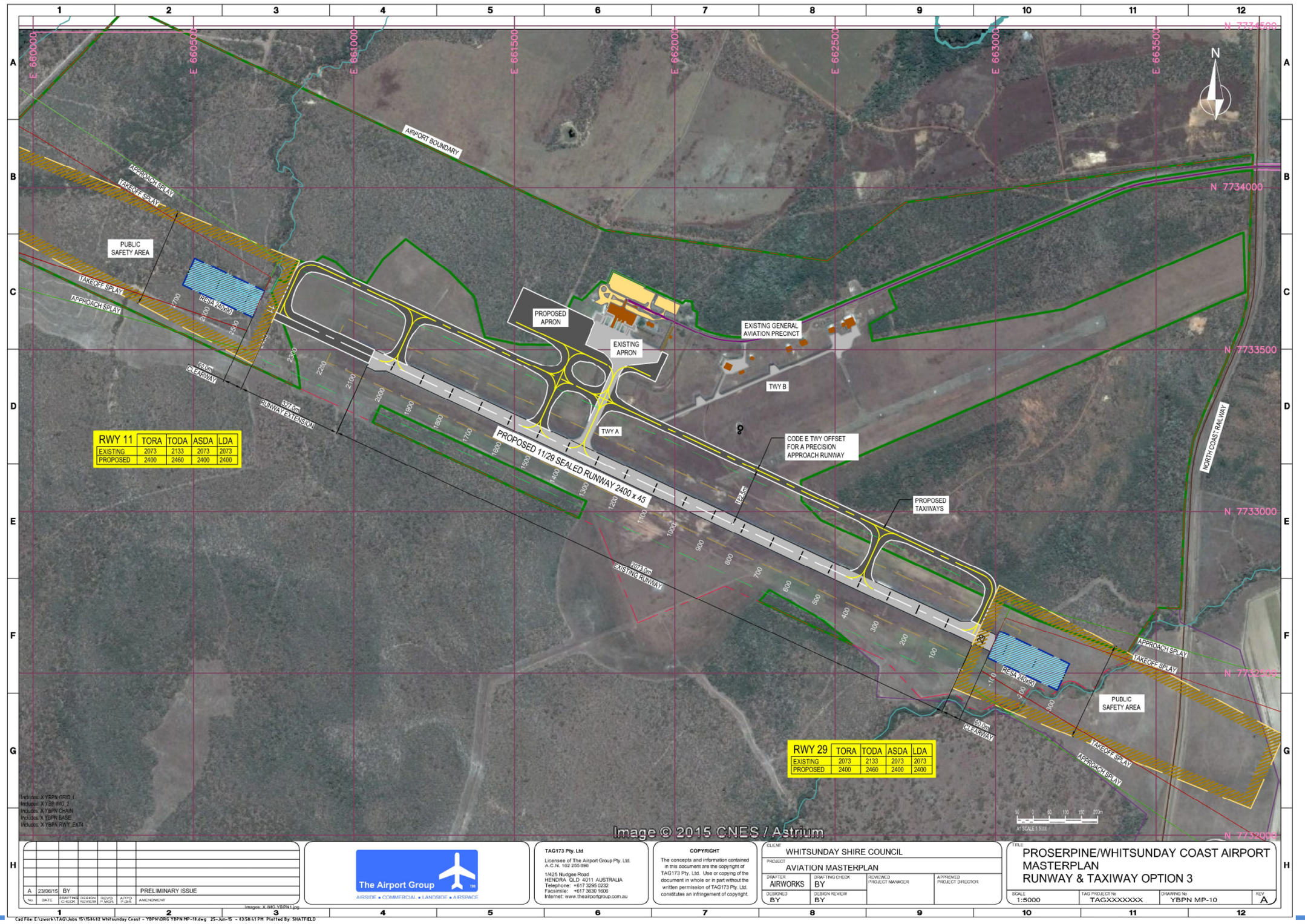
PROJECT AVIATION MASTERPLAN
DRAFTER AIRWORKS
DRAFTING CHECK BY
DESIGNED BY
DESIGN REVIEW BY
REVIEWED PROJECT MANAGER
APPROVED PROJECT DIRECTOR
TITLE PROSERPINE/WHITSUNDAY COAST AIRPORT MASTERPLAN
LONG TERM STAGING - OPTION 3
SCALE 1:5000
TAG PROJECT No TAGXXXXXXX
DRAWING No YBPN MP-09
REV A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E 663500
AIRPORT BOUNDARY
APPROACH SPLAY
TAKEOFF SPLAY
PUBLIC SAFETY AREA
RESA 240x90
60m CLEARWAY
327.6m RUNWAY EXTENSION
PROPOSED APRON
EXISTING APRON
EXISTING GENERAL AVIATION PRECINCT
TWY B
TWY A
PROPOSED 11/29 SEALED RUNWAY 2400 x 45
CODE E TWY OFFSET FOR A PRECISION APPROACH RUNWAY
PROPOSED TAXIWAYS
2073.3m EXISTING RUNWAY
NORTH COAST RAIL WAY
RWY 11 | TORA | TODA | ASDA | LDA
EXISTING | 2073 | 2133 | 2073 | 2073
PROPOSED | 2400 | 2460 | 2400 | 2400
RWY 29 | TORA | TODA | ASDA | LDA
EXISTING | 2073 | 2133 | 2073 | 2073
PROPOSED | 2400 | 2460 | 2400 | 2400
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PROJECT AVIATION MASTERPLAN
DRAFTER AIRWORKS
DRAFTING CHECK BY
DESIGNED BY
DESIGN REVIEW BY
TITLE PROSERPINE/WHITSUNDAY COAST AIRPORT MASTERPLAN RUNWAY & TAXIWAY OPTION 3
SCALE 1:5000
TAG PROJECT No TAGXXXXXXX
DRAWING No YBPN MP-10
REV A

13.3 Terminal and terminal plaza

The terminal size needs to be expanded as a high priority. The departure lounge space is currently inadequate when aircraft factor load exceeds 80%, and the lounge is congested when one flight is delayed with second flight required to occupy the same space. When international services are implemented, the terminal will not be adequate.

The existing security screening is adequate for current operations. However, based on passenger and aircraft forecasts, further facilities will be required. In particular, when international services are implemented, immigration and customs security screening will be required.

WRC has elected to expand the existing terminal and construct a separate international terminal. Ultimately these two terminals will be connected.

The expansion of the domestic terminal has been designed based on a busy hour throughput of 1,000 passengers. The total area of the expanded terminal will be 6,258m^{2,} including 1,872 m^2 of retained existing terminal. The benefits of this expansion include:

- Extending the building to the south and west will not encroach on, nor require the replication of, existing car parking and ground transport systems, and aircraft parking bays;
- An extension to the west would allow for straight forward implementation of international security screening requirements to be located separate to domestic, as required by law;
- Construction is able to be done in stages that do not significantly impact operations;
- Costs are lower when expanding rather than new construction; and
- An expansion of the existing domestic terminal allows for use of existing services and infrastructure.

The design of a new international terminal has been designed based on a busy hour throughput of 420 passengers. The total area of the new terminal will be 4,034 m$^{2.}$ The benefits of this new terminal construction include:

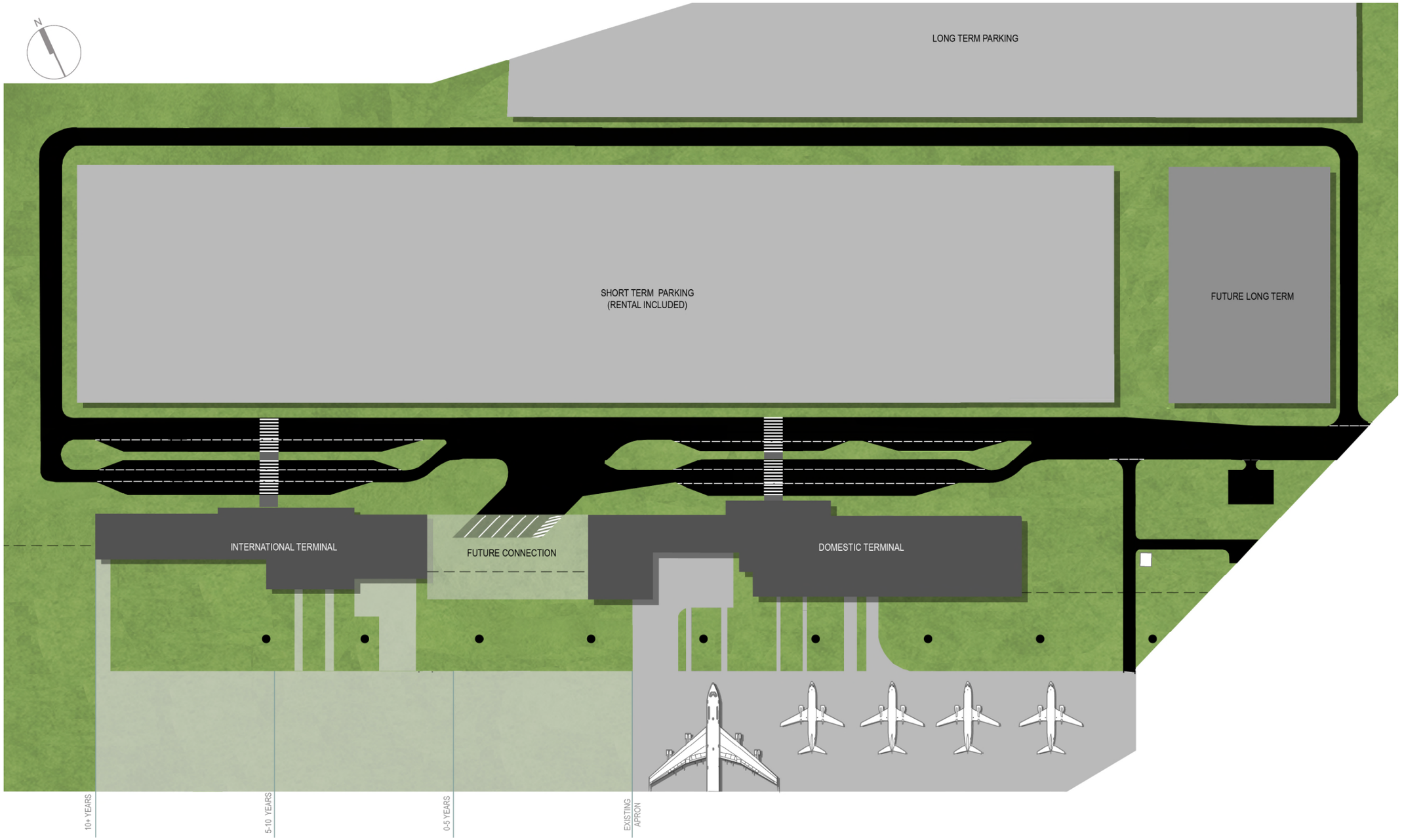
- A new terminal building for international services would not significantly impede existing domestic services and operations at the airport;
- Opportunity to focus on construction of new terminal and develop entirely new aesthetic feel for the terminal;
- The development of a second terminal gives the option of operating two separate terminals – one for international and one for domestic services;
- A brand new building allows for construction without the worry of staging or interrupting existing services;
- A future connection will provide ease of transfers for passengers;

The international terminal design has been developed based on the IATA standards for Level of Service C and is shown on page 67.

The layout of the expansion and new terminal allows room for short and long term car parking areas to expand when required. In addition, sufficient space has been allowed for expansion of car rental parking.

An indicative long term layout of the expanded terminal new international terminal, and expanded terminal plaza area is presented on page 68.

new international terminal whitsundays coast airport . proserpine . 7740 . rev 'a' . may 2015



Airport terminal site plan

whitsundays coast airport • proserpine • 7740 • rev 'c' • June 2015

pdt. architects

13.4 Land use development

There are a number of land use development opportunities at the WCA site. Of particular significance is the area of land to the east of the airport site which connects the airport to the highway. This area has the potential to provide substantial land to support airport development and develop freight connections through the intermodal connection of air, rail and road transport.

13.4.1 Real Estate profile and analysis

Airport real estate demand
WCA has land that will not be required for airfield uses and hence can be utilized to support airport related uses as well as activities that may wish to be located at or near the airport for other reasons.

Airport related activities include rental car storage areas, freight sheds, hotels, fuel storage and dispensing, aircraft maintenance facilities and offices for airport related business. Uses that may wish to be located at or near the airport for other reasons include offices for businesses that use the airport, general warehousing, retail fuel sales, road freight facilities.

The range and size of airport related activities are generally related to the scale and type of activity at the airport: domestic and/or International; PAX numbers; hub airport.

The demand from users that may wish to be located at or near the airport is influenced by the scale and type of activity at the airport as well as the scale and type of regional activity, including the regional business profile, population size and growth, and government activity.

Land use is generally non-residential in nature (apart from short stay hotel).

Regional Real Estate Demand
Initial consultation with local real estate agents identified that the nonresidential real estate market is generally characterised by a low levels of turnover, and a lack of supply of appropriately zoned and developed land for commercial and industrial use. This is confirmed by analysis of registered sales in the period 1 January 2012 to January 2015 that recorded a total of 23 sales of improved and unimproved commercial and residential land in the Proserpine / Airlie Beach region, of which approximately nine were vacant land.

Underlying demand anecdotally is for lot sizes ranging from 2,000m^2 to approximately 10,000 m^2. From TAG's experience this appears to be consistent with the level of regional activity evidenced in the Whitsunday region.

Adjoining Land
On the airport's eastern boundary are a number of parcels of land that extend to the Bruce Highway which have an area of approximately 674 hectares. The aggregation of this land with the airport is a unique opportunity to create a Priority Development Area. This would provide the land and focus for facilitating trade and investment for the broader region. This area of land, properly positioned and marketed, (such as the *Whitsunday Airport Development Zone*, or the *Whitsunday Coast International Export Hub*) would provide:

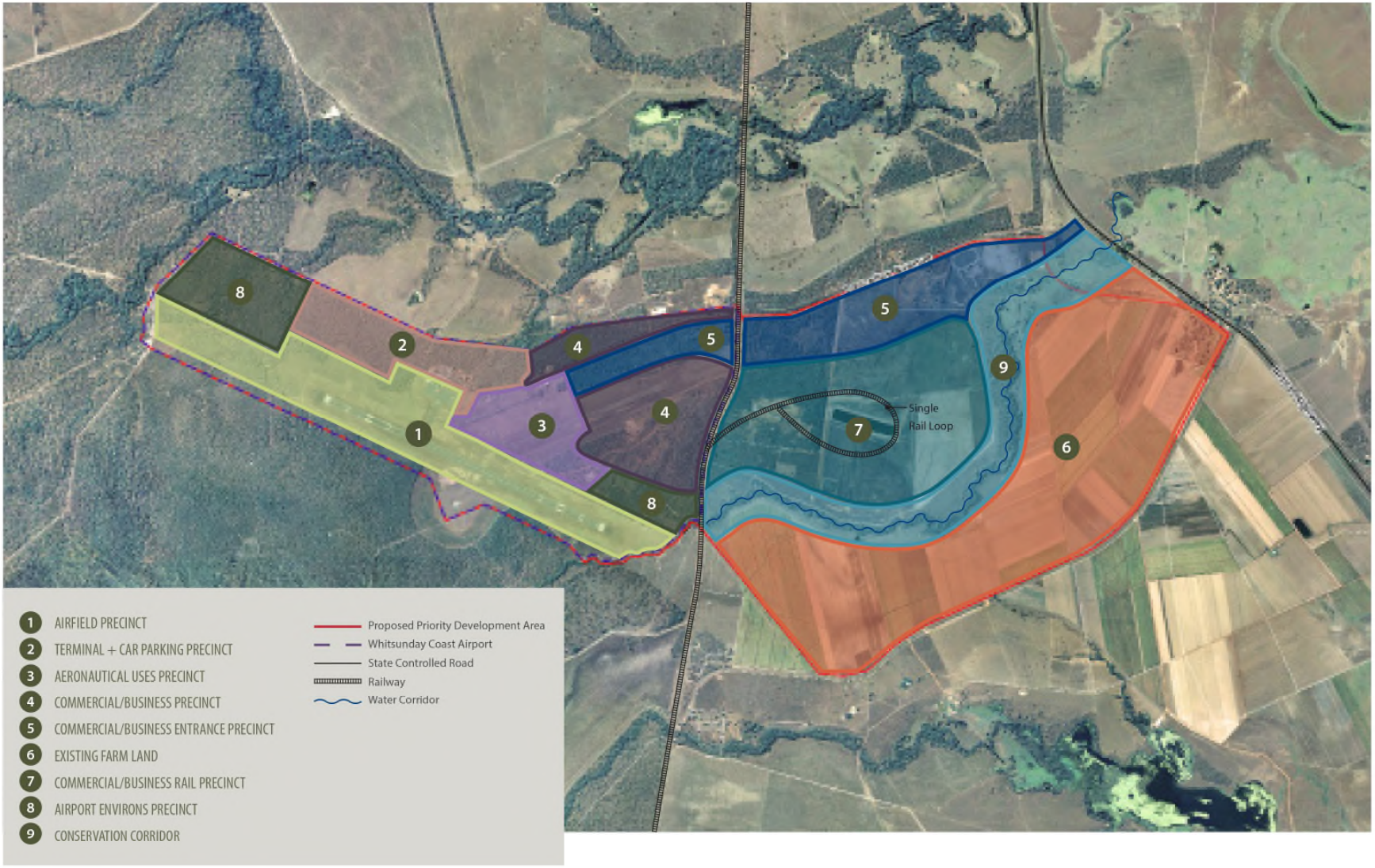
- An area within the region that can be the focus of nonresidential businesses to locate;
- An ideal location for regional and stage government offices;
- Location for an intermodal freight hub (road, air);
- Supply of land for nonresidential development that is in short supply;
- Highway frontage for the airport significantly improving exposure; and
- A powerful marketing proposition for attracting regional, national and international businesses wishing to locate in north Queensland.

We expect land use in this area would be a mixture of:

- Airport related activity;
- Non airport users wishing to be located near the airport;
- Industry related to regional agricultural production;
- Industry to service the regional natural resource activity;
- Business requiring highway exposure, i.e. machinery sales yards, motor vehicle service stations, retail;
- Hotel, motel accommodation;
- Intermodal freight; and

- Tourism services.

An indicative high-level concept land use plan has been produced which illustrates the potential for this area to be developed as a major hub for business and industry to service the wider Whitsunday region.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Single
Rail Loop
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6
1 AIRFIELD PRECINCT
2 TERMINAL + CAR PARKING PRECINCT
3 AERONAUTICAL USES PRECINCT
4 COMMERCIAL/BUSINESS PRECINCT
5 COMMERCIAL/BUSINESS ENTRANCE PRECINCT
6 EXISTING FARM LAND
7 COMMERCIAL/BUSINESS RAIL PRECINCT
8 AIRPORT ENVIRONS PRECINCT
9 CONSERVATION CORRIDOR
Proposed Priority Development Area
Whitsunday Coast Airport
State Controlled Road
Railway
Water Corridor
Scale 1:23,000 @ A3
Whitsunday Coast Airport
Site & Context
d.19.June.2015
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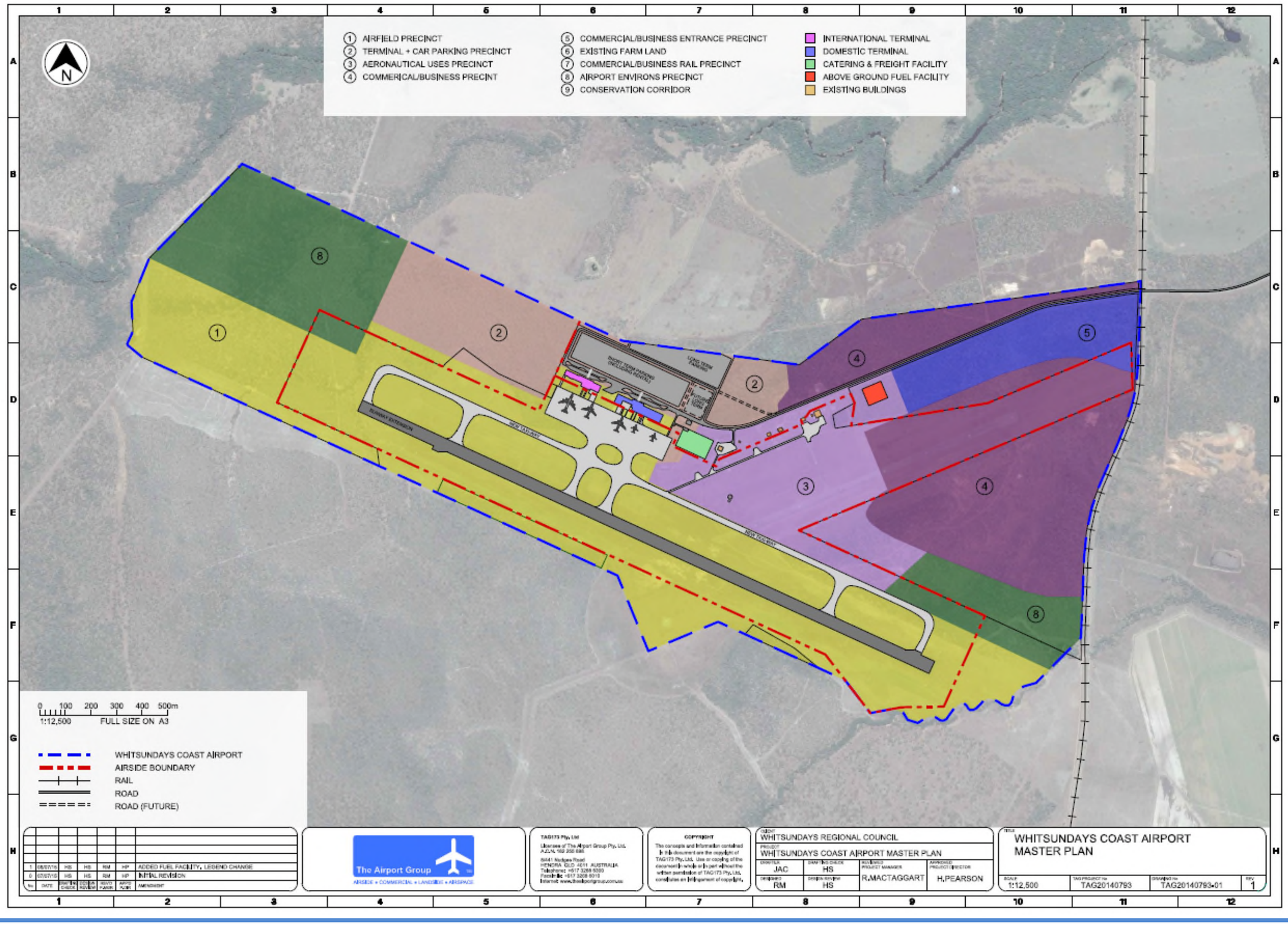
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5 COMMERCIAL/BUSINESS ENTRANCE PRECINCT
6 EXISTING FARM LAND
7 COMMERCIAL/BUSINESS RAL PRECINCT
8 AIRPORT ENVIRONS PRECINCT
9 CONSERVATION CORRIDOR
INTERNATIONAL TERMINAL
DOMESTIC TERMINAL
CATERING & FREIGHT FACILITY
ABOVE GROUND FUEL FACILITY
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WHITSUNDAYS COAST AIRPORT
AIRSIDE BOUNDARY
RAIL
ROAD
ROAD (FUTURE)
WHITSUNDAYS REGIONAL COUNCIL
WHITSUNDAYS COAST AIRPORT MASTER PLAN
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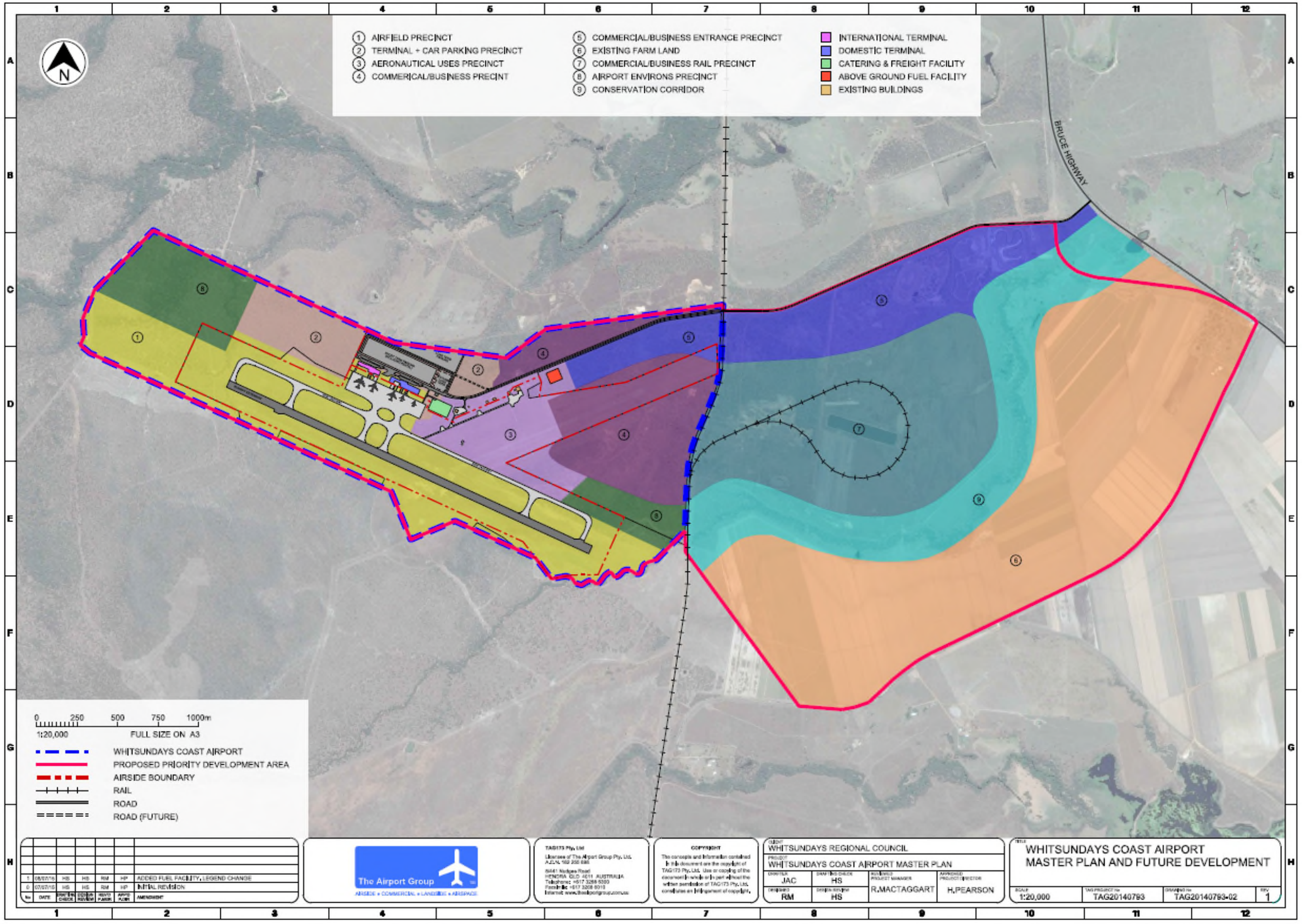
1 AIRFIELD PRECINCT
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6 EXISTING FARM LAND
7 COMMERCIAL/BUSINESS RAIL PRECINCT
8 AIRPORT ENVIRONS PRECINCT
9 CONSERVATION CORRIDOR
INTERNATIONAL TERMINAL
DOMESTIC TERMINAL
CATERING & FREIGHT FACILITY
ABOVE GROUND FUEL FACILITY
EXISTING BUILDINGS
BRUCE HIGHWAY
N
0 250 500 750 1000m
1:20,000 FULL SIZE ON A3
WHITSUNDAYS COAST AIRPORT
PROPOSED PRIORITY DEVELOPMENT AREA
AIRSIDE BOUNDARY
RAIL
ROAD
ROAD (FUTURE)
ADDED FUEL FACILITY, LEGEND CHANGE
INITIAL REVISION
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WHITSUNDAYS COAST AIRPORT MASTER PLAN
R.MACTAGGART
H.PEARSON
WHITSUNDAYS COAST AIRPORT
MASTER PLAN AND FUTURE DEVELOPMENT
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14 DEVELOPMENT PHASING

The development of infrastructure upgrades is primarily driven by forecasts. Should the demand not eventuate as forecasts, the development phases and upgrade triggers made shift. The development phrase timeframes are:

- Short Term: 0 – 5 years;
- Medium Term: 5 – 10 years; and
- Long Term: 10+ years.

Based on the three phases identified, and developments within these time periods, an order of cost estimate has been estimated and is also presented here. Exclusions in this cost estimate are:

- Escalation of cost is excluded, all costs are current prices.
- Estimates do not include GST.
- No allowance for extensions of times or reinstatement.
- Optional apron expansion east (Medium Term) is not included in cost estimate.
- No allowances for locality cost escalation (based on Brisbane prices).
- Authority fees and airport costs are no included.

14.1 Short Term: 0 – 5 years

Development	Quantity	Cost
Airside		
Extend runway to 2,400m	14,176m^2	$8,860,000
Expand apron for Code C (west)	12,168m^2	$7,658,000
Overlay existing infrastructure	(AECOM Report)	$10,045,000
Professional fees	12%	$1,987,862
Preliminaries	15%	$2,477,328
Contingency	10%	$1,651,552
	Subtotal	**$32,679,742**
Landside		
Expansion of domestic terminal by 4386m^2	4386m^2	$15,836,000
Expand car park by approx. 450 additional bays	14,625m^2	$2,700,000
Professional fees	18%	$3,336,431
Preliminaries	15%	$2,780,359
Contingency	10%	$1,853,573
	Subtotal	**$26,506,363**
	Total	**$59,186,105**

14.2 Medium Term: 5 – 10 years

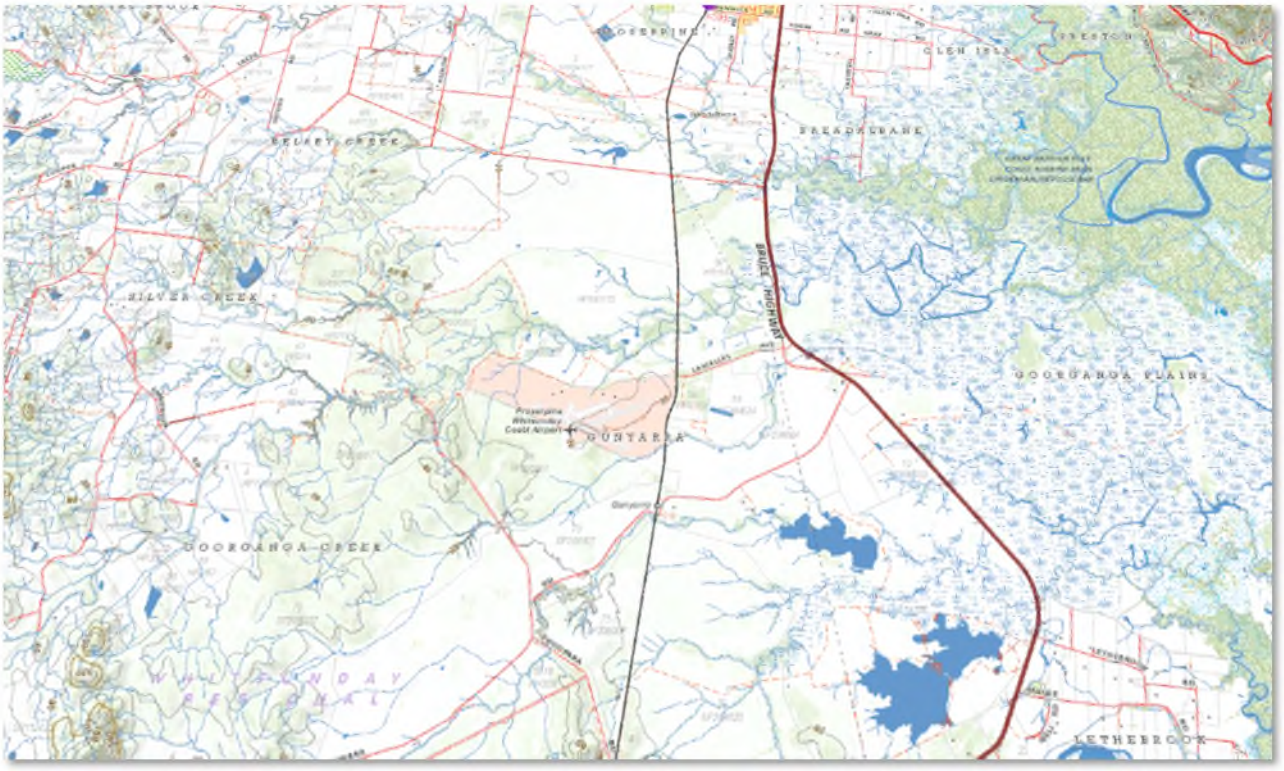
Development	Area		Cost
Airside			
1 additional Code E bay on apron (West)	7,374m^2		$4,410,500
Construct perpendicular taxiway link	8,963m^2		$3,820,000
Professional fees	12%		$987,443
Preliminaries	15%		$1,234,303
Contingency	10%		$822,869
		Subtotal	**$11,275,115**
Landside			
Construct new international terminal	4,034m^2		$11,400,000
Terminal plaza expansion to service new terminal	9,775m^2		$1,400,000
Professional fees	8%		$1,020,364
Preliminaries	10%		$1,275,455
Contingency	10%		$1,138,905
		Subtotal	**$16,234,724**
		Total	**$27,509,839**

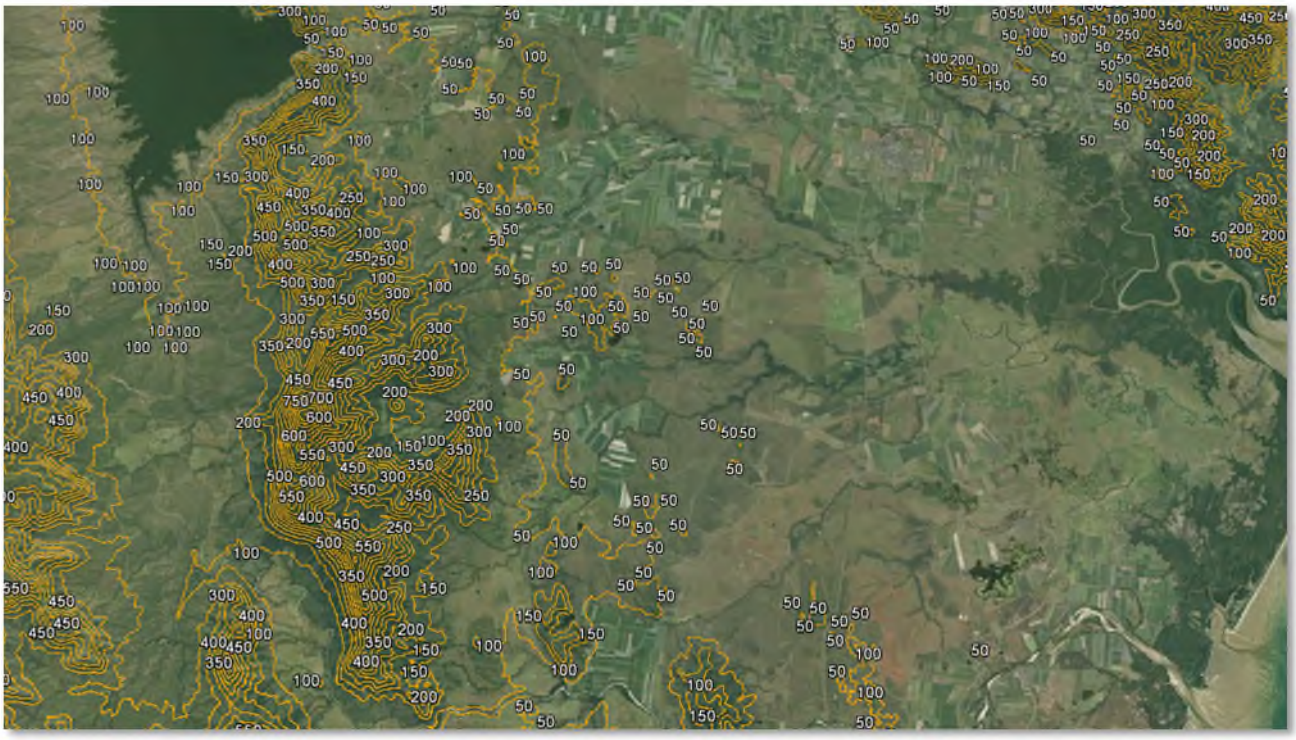
14.3 Long Term: 10+ years

Development	Area		Cost
Airside			
1 additional Code E bay on apron (west)	14,927 m^2		$7,945,000
Professional fees	12%		$953,310
Preliminaries	15%		$1,191,637
Contingency	10%		$794,425
		Subtotal	**$10,884,372**
Landside			
Further car park expansion	50,875 m^2		$6,105,000
Professional fees	8%		$488,400

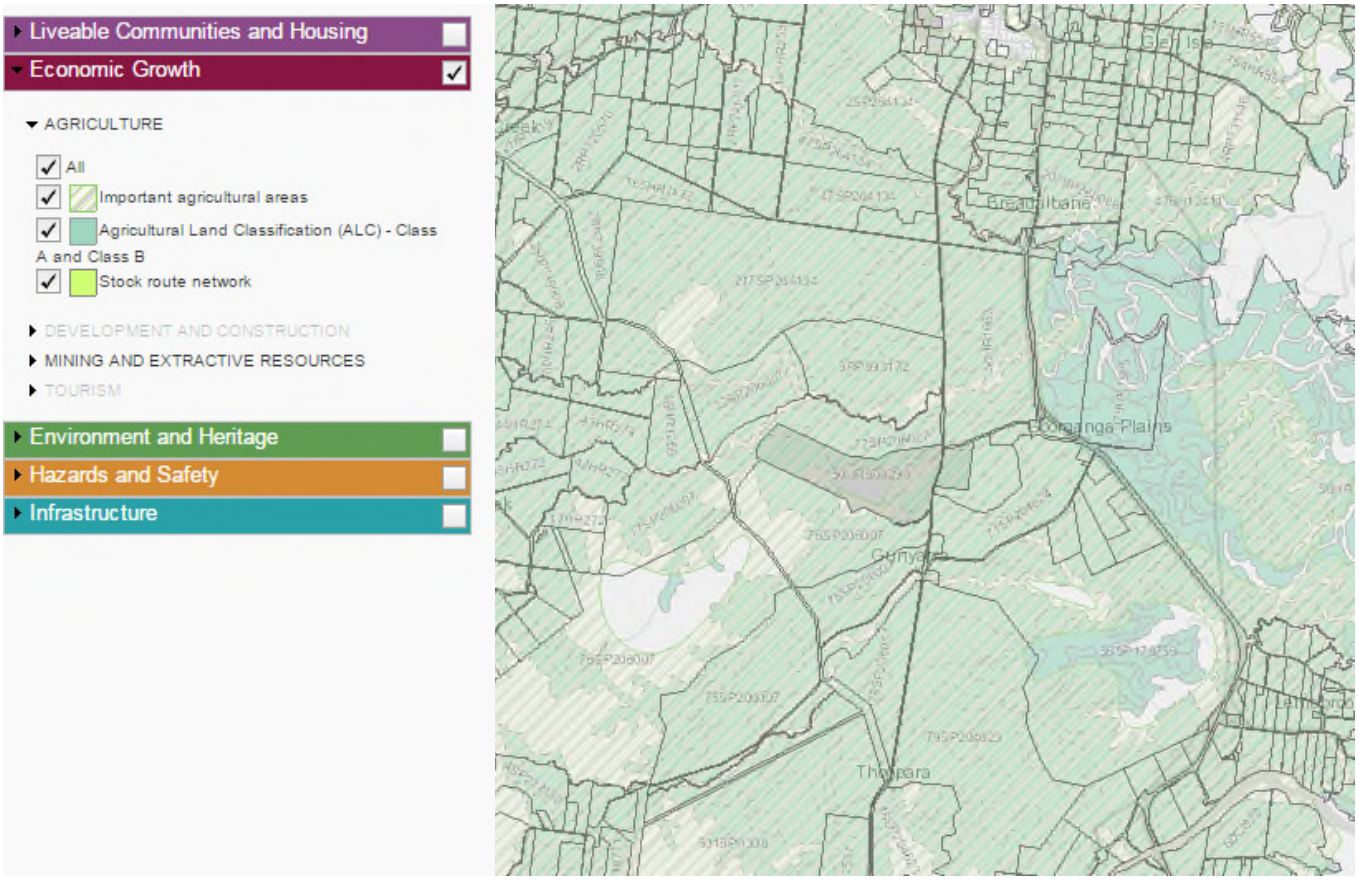
Preliminaries	10%		$610,500
Contingency	10%		$610,500
		Subtotal	**$7,814,400**
		Total	**$18,698,772**

APPENDIX A: QUEENSLAND TOPOGRAPHIC MAP / CONTOURS

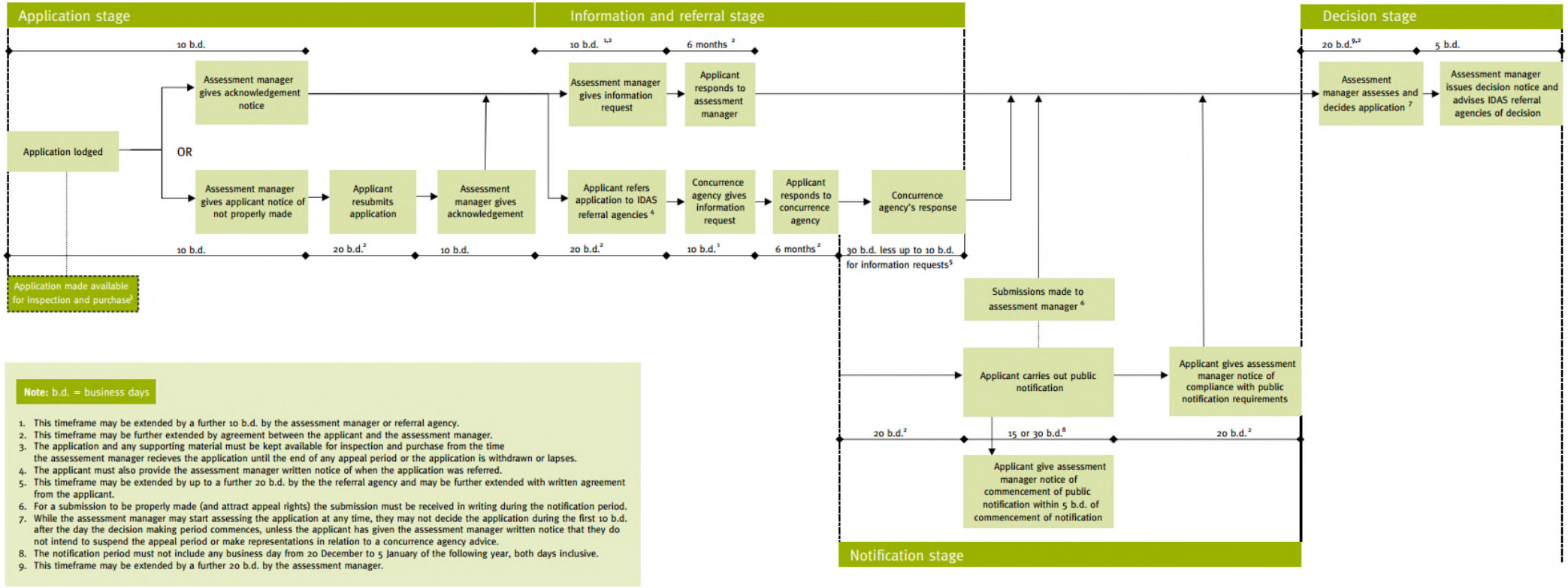




APPENDIX B: SPP Mapping (Agriculture)



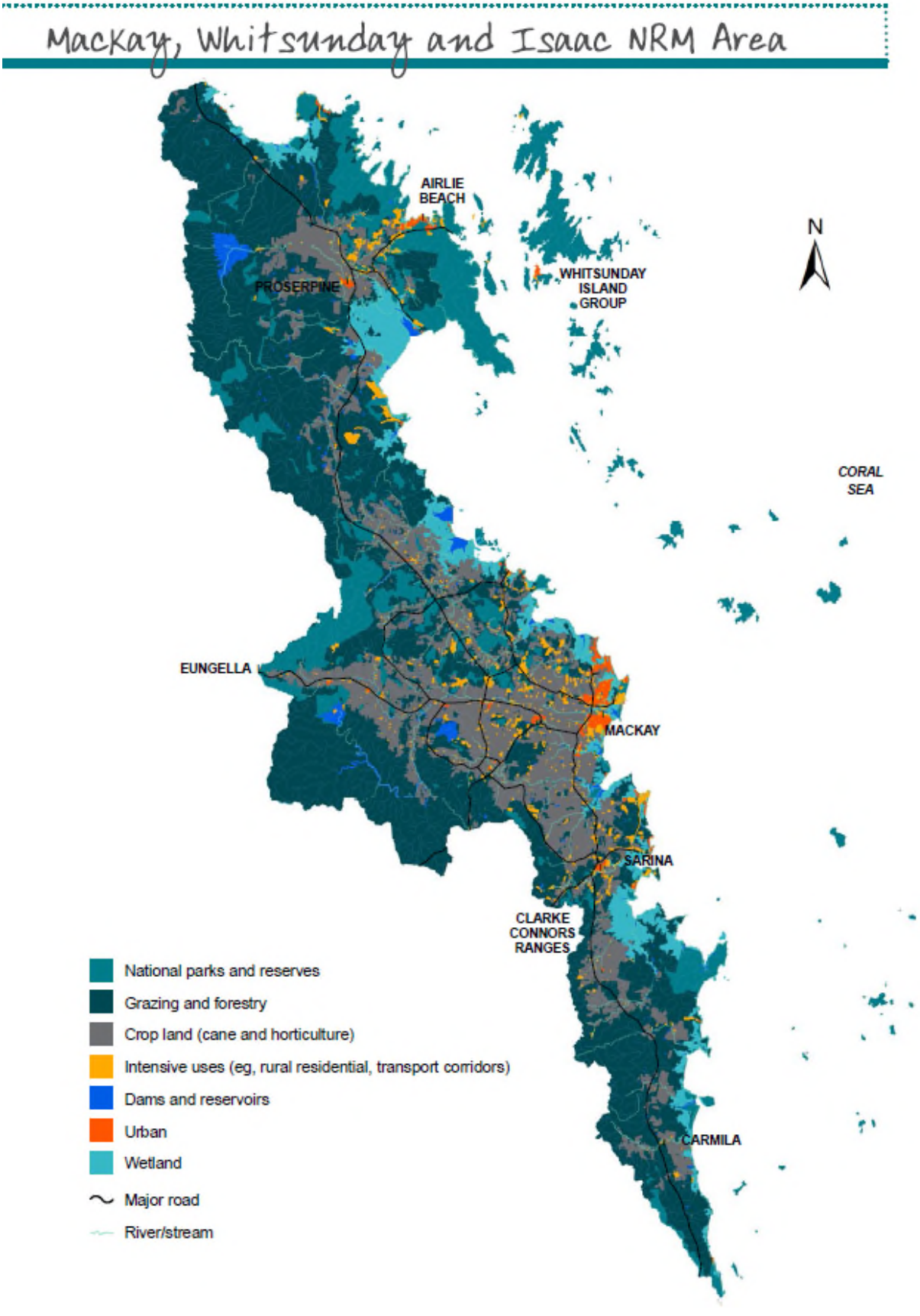
APPENDIX C: IDAS representative flow chart



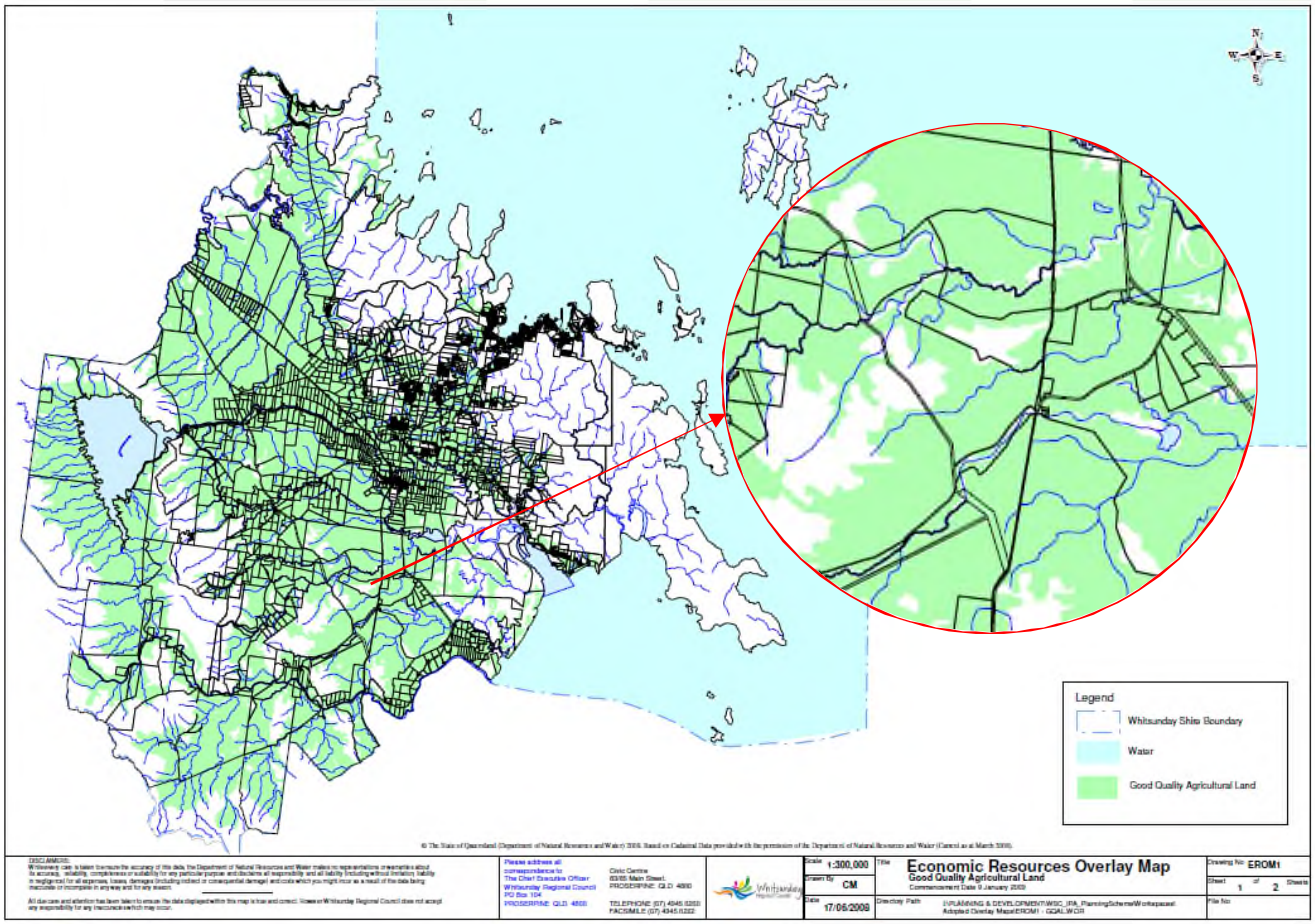
Note: b.d. = business days

1. This timeframe may be extended by a further 10 b.d. by the assessment manager or referral agency.
2. This timeframe may be further extended by agreement between the applicant and the assessment manager.
3. The application and any supporting material must be kept available for inspection and purchase from the time the assessement manager recieves the application until the end of any appeal period or the application is withdrawn or lapses.
4. The applicant must also provide the assessment manager written notice of when the application was referred.
5. This timeframe may be extended by up to a further 20 b.d. by the the referral agency and may be further extended with written agreement from the applicant.
6. For a submission to be properly made (and attract appeal rights) the submission must be received in writing during the notification period.
7. While the assessment manager may start assessing the application at any time, they may not decide the application during the first 10 b.d. after the day the decision making period commences, unless the applicant has given the assessment manager written notice that they do not intend to suspend the appeal period or make representations in relation to a concurrence agency advice.
8. The notification period must not include any business day from 20 December to 5 January of the following year, both days inclusive.
9. This timeframe may be extended by a further 20 b.d. by the assessment manager.

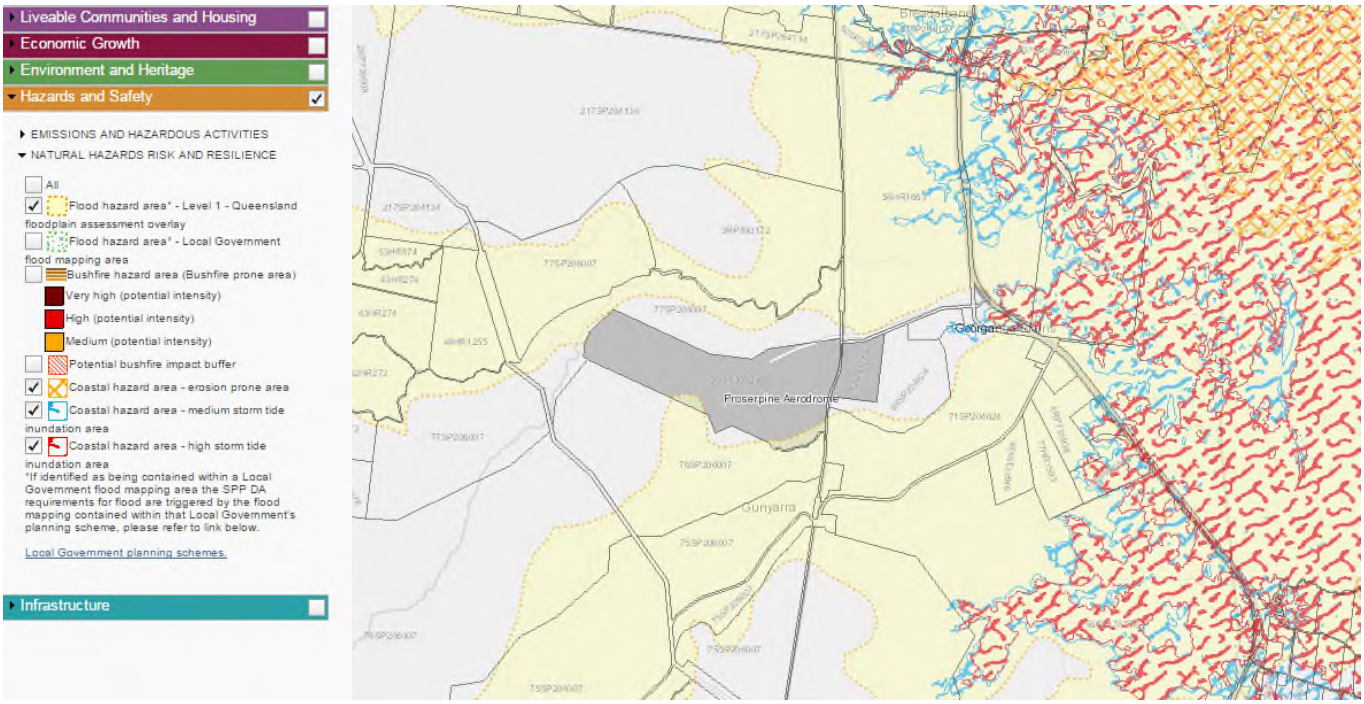
APPENDIX D: NRM Region Map



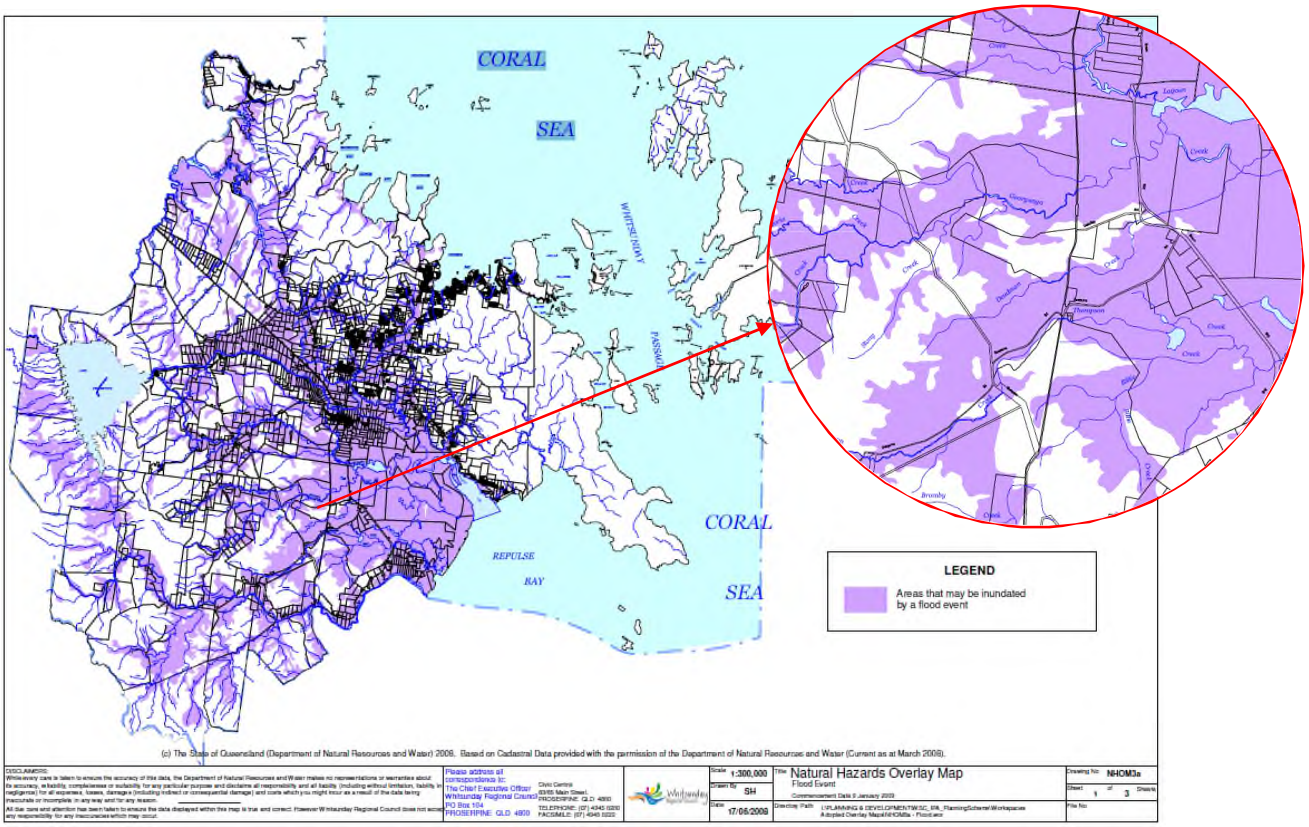
APPENDIX E: Planning Scheme: Economic Resources Overlay (Agricultural Land)



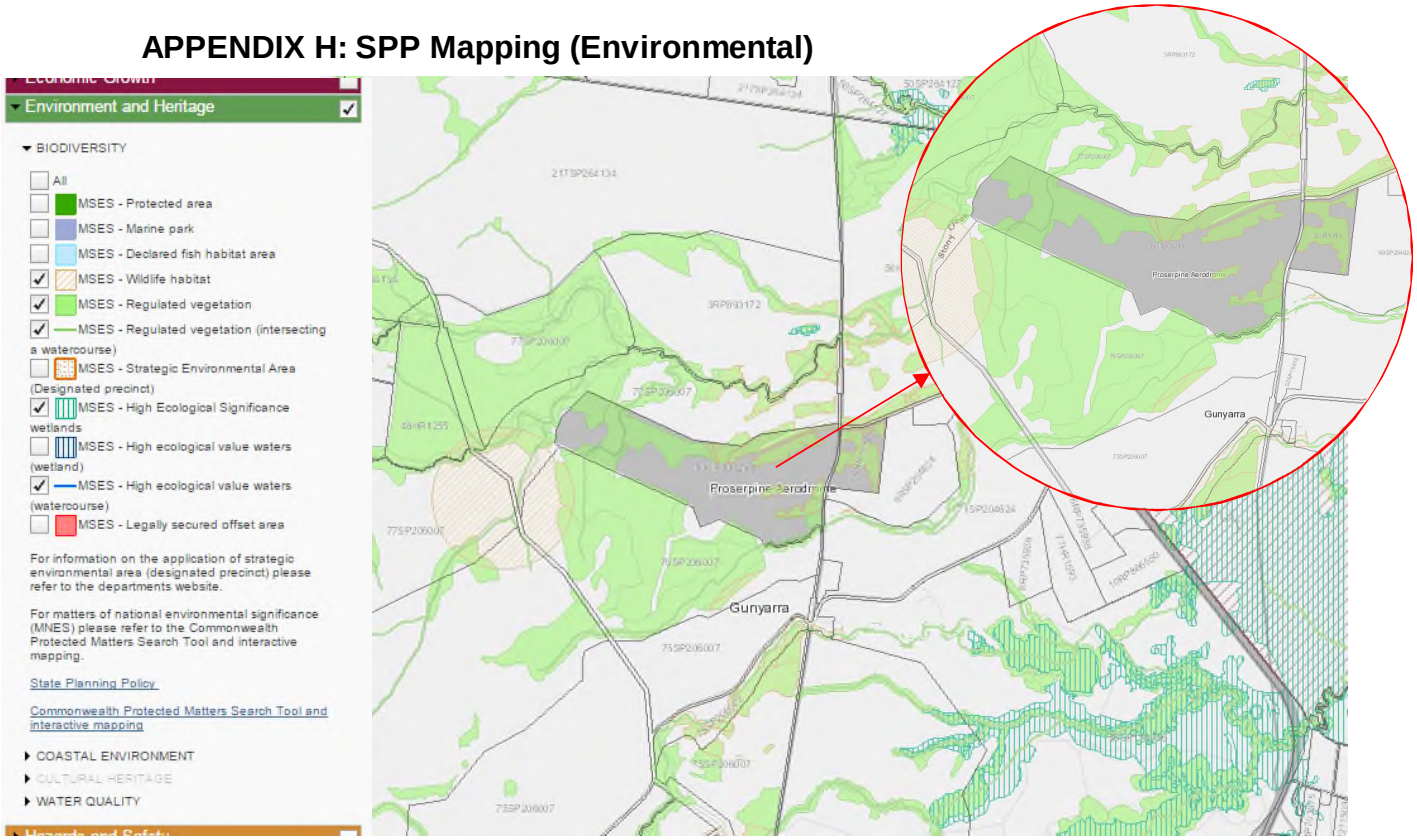
APPENDIX F: SPP Mapping (Flooding and coastal hazard area)



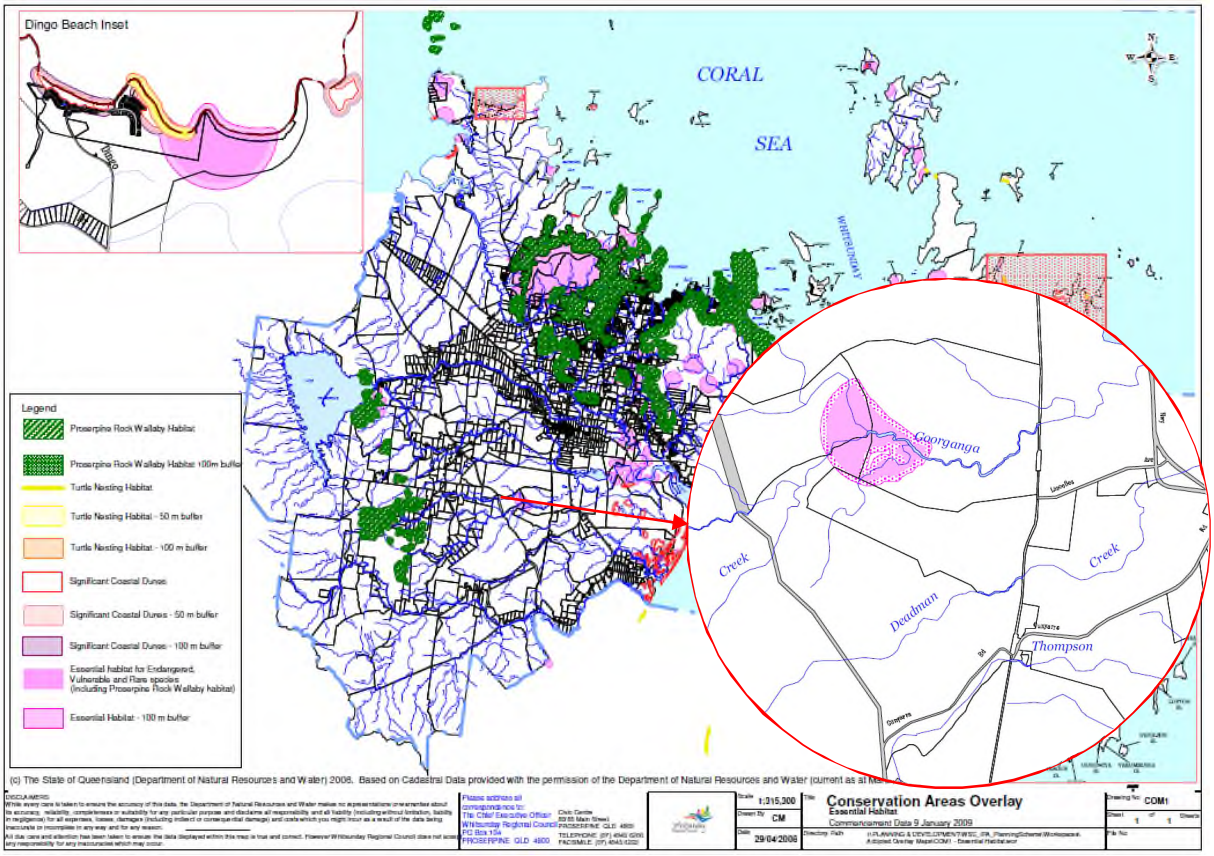
APPENDIX G: Planning Scheme: Natural Hazards Overlay Map (Flood Event)



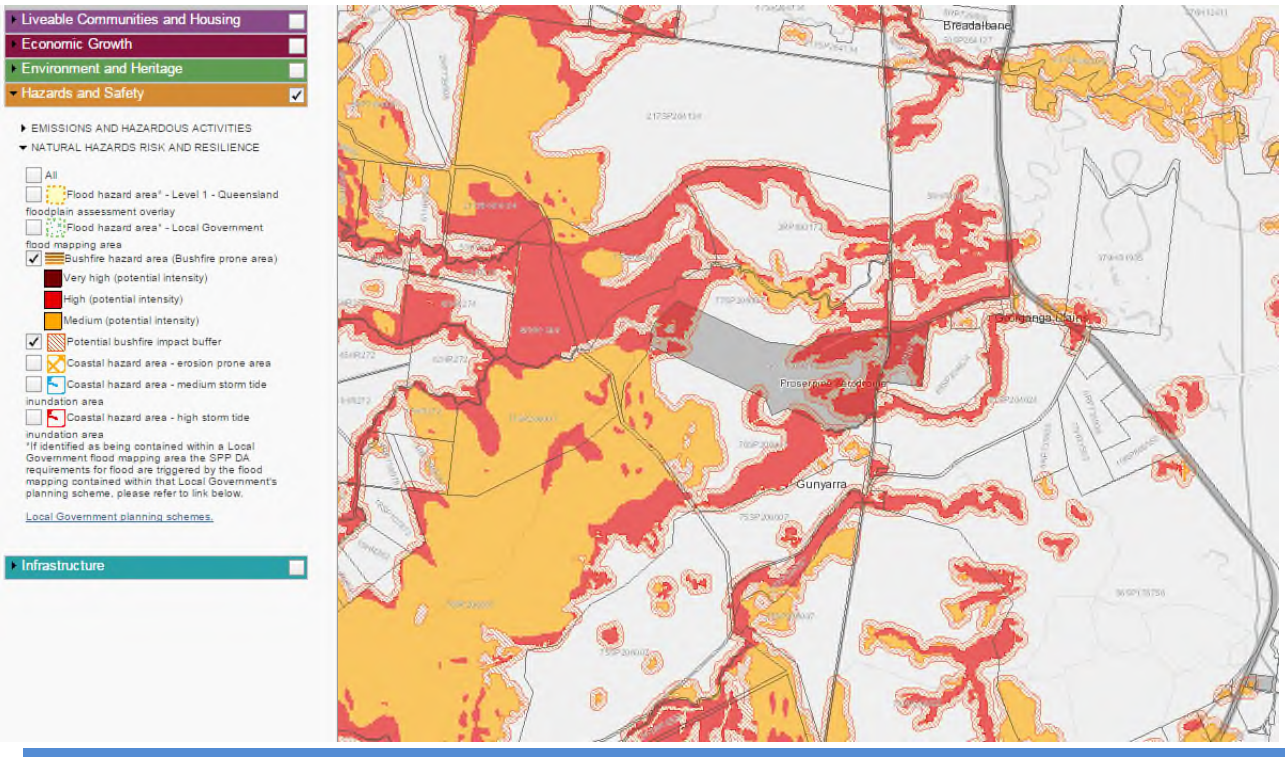
APPENDIX H: SPP Mapping (Environmental)



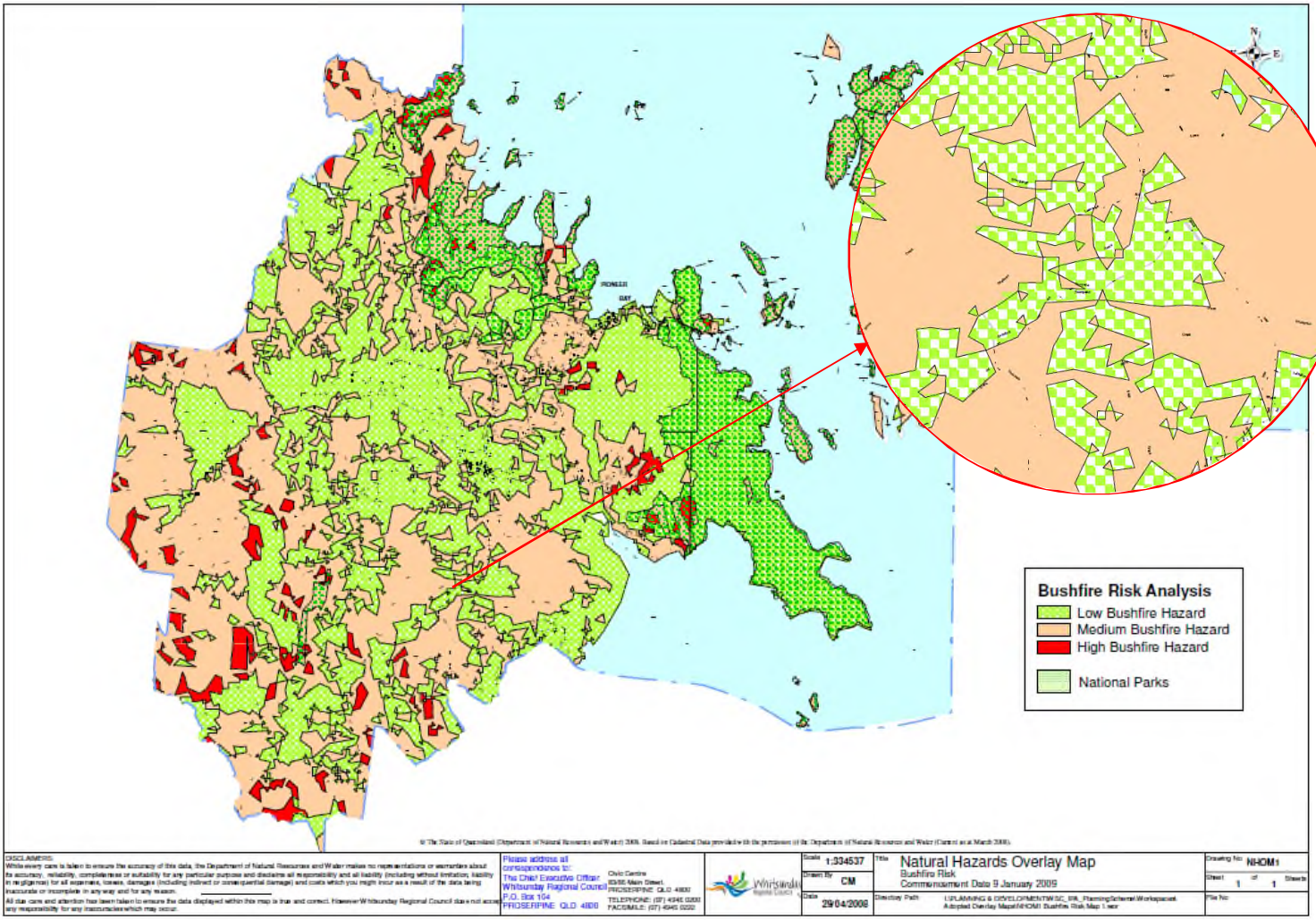
APPENDIX I: Planning Scheme: Conservations Overlay (Essential Habitat)



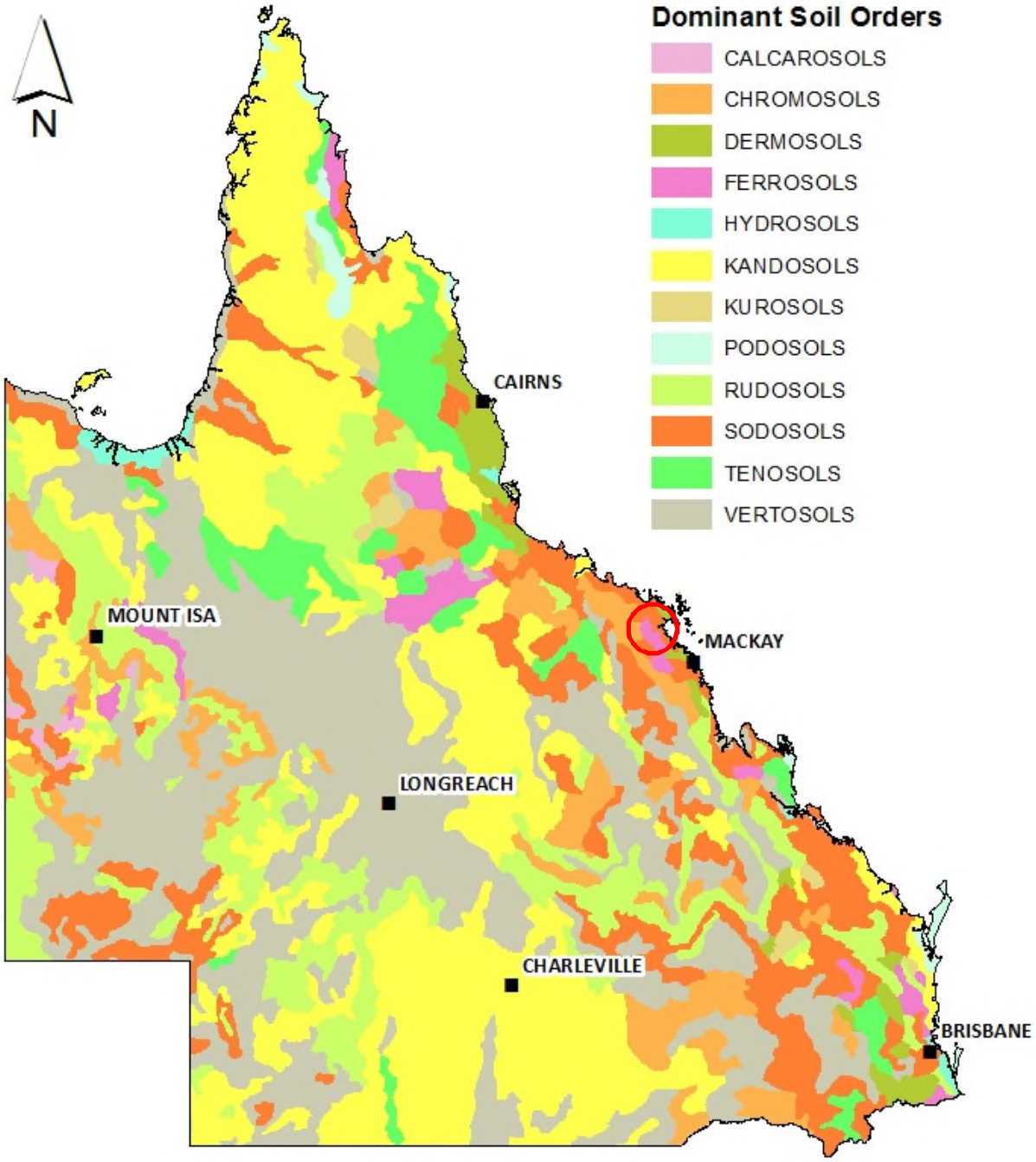
APPENDIX J: SPP Mapping (Bushfire Hazard and Risk)



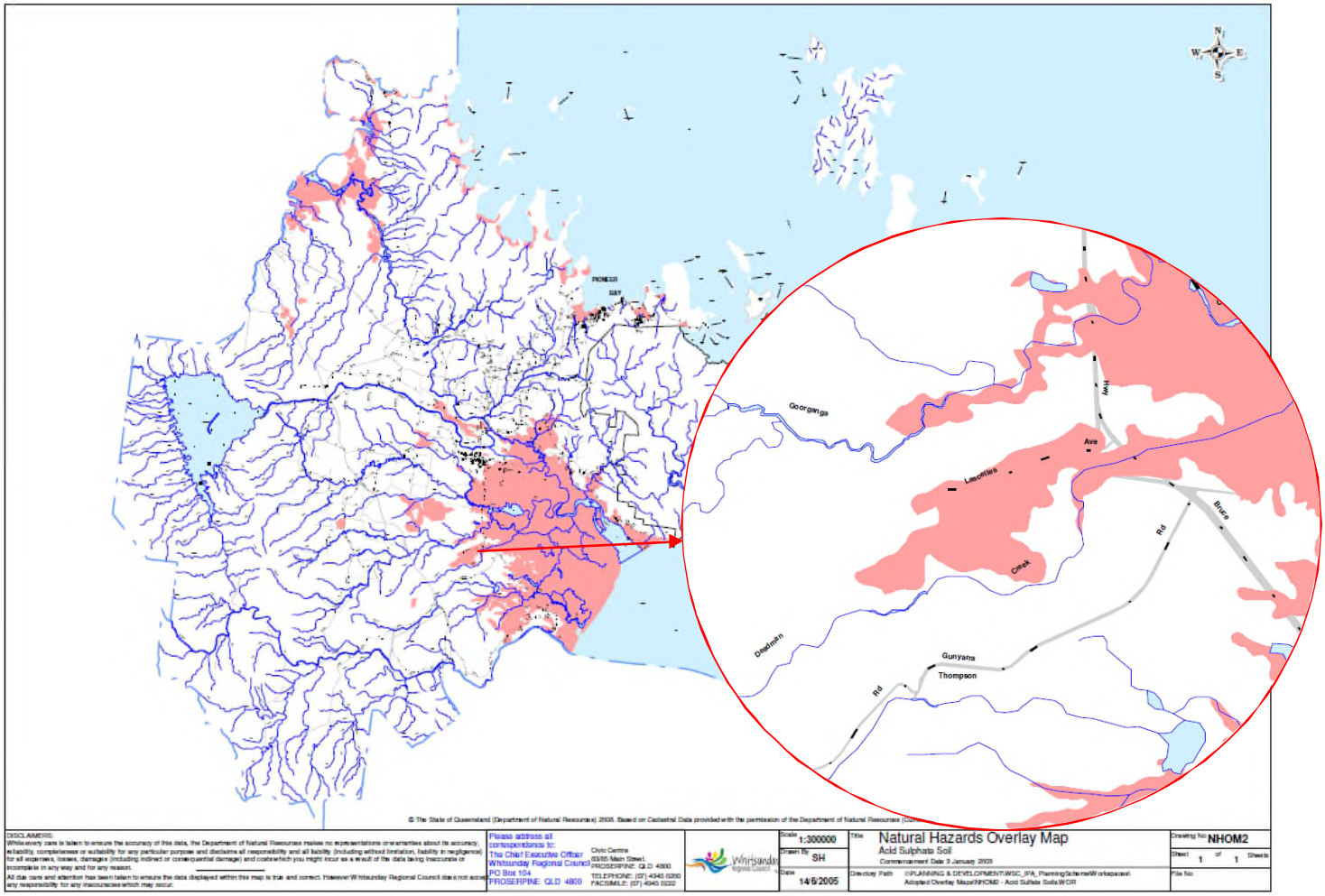
APPENDIX K: Planning Scheme (Bushfire Risk Analysis)



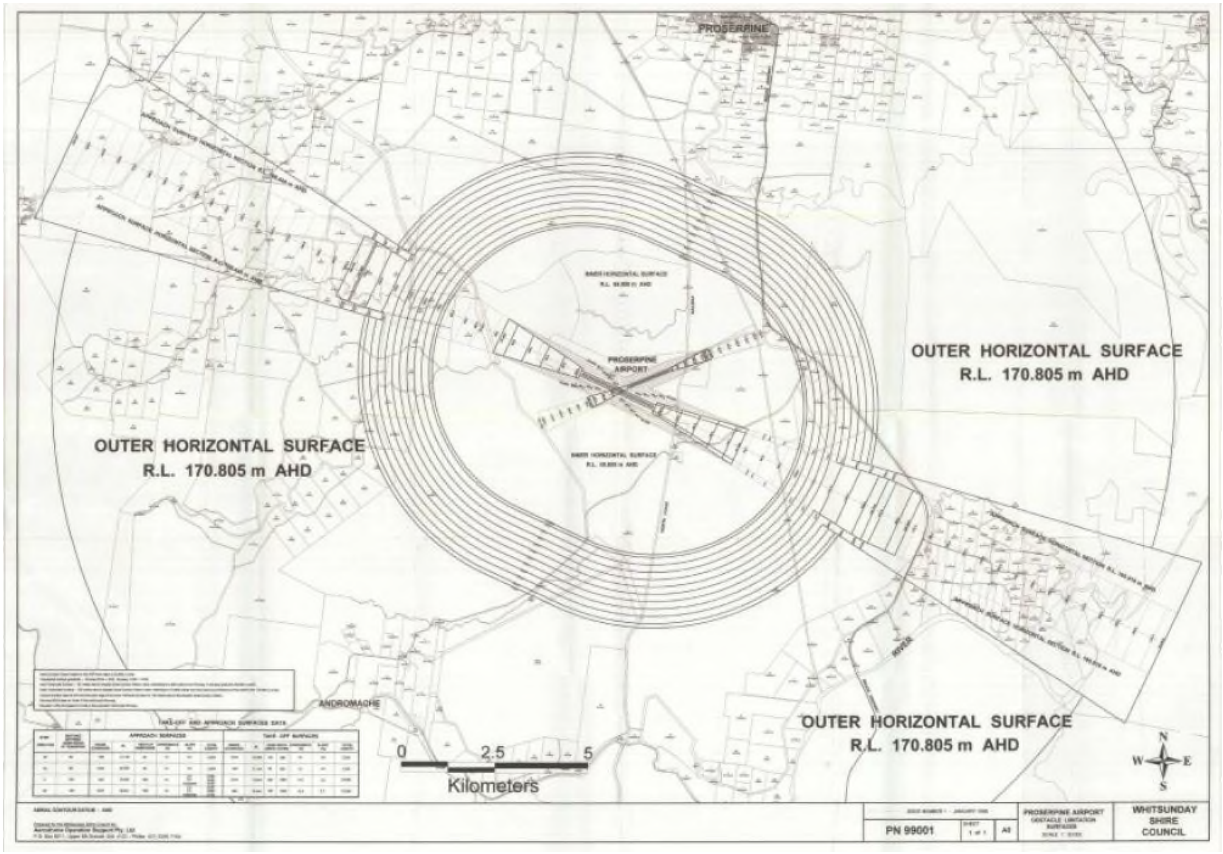
APPENDIX L: Dominant Soil Orders in Queensland



APPENDIX M: Planning Scheme (Acid Sulphate soils)



APPENDIX N: Airservices Australia OLS Plan



APPENDIX O: Queensland Government OLS Plan