COFFS HARBOUR AIRPORT













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ABBREVIATIONS

AAA Australian Airports Association

ABS Australian Bureau of Statistics

AC Advisory Circular

ACN Aircraft Classification Number

AEDT Aviation Environmental Design Tool

AHD Australian Height Datum

Airservices Airservices Australia

Airworks Consulting Pty Ltd

ALOP Aerodrome Local Ownership Plan

APS Airport Planning Support

ANEC Australian Noise Exposure Concept

ANEF Australian Noise Exposure Forecast

ANEI Australian Noise Exposure Index

ARI Average Recurrence Interval

ARFF Aviation Rescue and Fire Fighting

ASDA Accelerate Stop Distance Available

ATC Air Traffic Control

BITRE Bureau of Infrastructure, Transport and Regional Economics

BoM Bureau of Meteorology

BRA Building Restricted Areas

CAGR compound average growth rate

CAAP Civil Aviation Advisory Publication

CAR Civil Aviation Regulations

CASA Civil Aviation Safety Authority

CASR Civil Aviation Safety Regulations

CHCC Coffs Harbour City Council

CNS Communications, Navigation and Surveillance

CUTE Common User Terminal Equipment

DCP Development Control Plan

dGB de Groot & Benson

DIRDC Department of Infrastructure, Regional Development and Cities (formerly

Department of Infrastructure and Transport)

DME Distance Measuring Equipment

DUAP Department of Urban Affairs and Planning

EA Environmental Assessment

EIS Environmental Impact Statement

EMP Environmental Management Plan

FBO Fixed Base Operator

FCC Fire Control Centre

FTEs Full Time Equivalents

GA general aviation

GBAS Ground Based Augmentation System

GDP Gross Domestic Product

GNSS Global Navigation Satellite System

GRP Gross Regional Product

GSE ground support equipment

GSP Gross State Product

HLS Helicopter Landing Site

ICAO International Civil Aviation Organization

IFR Instrument Flight Rules

ILS Instrument Landing System

IMC Instrument Meteorological Conditions

INM Integrated Noise Model

IP&R Integrated Planning and Reporting

IWDI illuminated wind direction indicator

JRPP Joint Regional Planning Panel

LDA Landing Distance Available

LEP Local Environmental Plan

LGA Local Government Area

LGMS Local Growth Management Strategy

MOS 139 Manual of Standards Part 139 - Aerodromes

MTOW Maximum Take-off Weight

NASF National Airports Safeguarding Framework

NBN National Broadband Network

NDB Non-directional Beacon

NPWS National Parks and Wildlife Service

OLS Obstacle Limitation Surfaces

PANS-OPS Procedures for Air Navigation Services and Operations

PAPI Precision Approach Path Indicator

PCN Pavement Classification Number

PIR Post Implementation Review

PSA Public Safety Area

RPT Regular Public Transport

SBAS Satellite Based Augmentation System

SEE Statement of Environmental Effects

SEPP State Environmental Planning Policy

SGS Satellite Ground Station

TAG The Airport Group

TFI Tourism Futures International

TSP Transport Security Program

TODA Take-off Distance Available

TORA Take-off Run Available

TSP Transport Security Program

VMOM Vegetation Management Operations Manual

VMP Vegetation Management Plan

VOR VHF Omni-directional Range

WDI wind direction indicator

EXECUTIVE SUMMARY

Introduction

In January 2019, Coffs Harbour City Council (CHCC) commissioned Airport Planning Support (APS) to prepare a Master Plan Update for Coffs Harbour Airport. Airworks Consulting Pty Ltd (Airworks) was also commissioned to prepare a range of graphics supporting the update. This update builds on a range of earlier planning initiatives and documents, augmented where changes have occurred, or where new information has become available. Additionally, new air traffic forecasts have been prepared by Tourism Futures International (TFI).

Airport History

An airport for Coffs Harbour was mooted in 1928. In 1930, funds were secured enabling improvements to a grass landing strip and site drainage. A year later Council was gazetted as the Trustee of Coffs Harbour Aerodrome.

In 1936, the aerodrome was transferred to the Commonwealth which undertook a range of improvements. During World War II, the two existing runways 01/19 and 10/28 were lengthened and strengthened. A third runway on the 14/32 alignment was also developed.

After World War II, the Airport was administered by the Commonwealth through the Department of Civil Aviation and its successors. During the 1950s improvements were made to facilitate passenger operations. Airline services also commenced at this time.

Council again resumed ownership from the Commonwealth under the Aerodrome Local Ownership Plan (ALOP) in 1984. A major upgrade to the Airport for jet passenger operations was completed in 1986. A range of carriers and aircraft types have served the Airport since this time.

In 1991, the Commonwealth announced the wind up of the ALOP and encouraged aerodrome owners to take over full responsibility for their facilities. Council assumed full control in 1991.

Since 1984, the main runway, supporting taxiways and the main apron have continued to be upgraded and strengthened as aircraft sizes and aircraft operating frequencies have increased. Supporting infrastructure such as the terminal, ground access and utilities have also undergone major upgrades resulting from passenger growth.

Master Plan Context

In late 2018, Council undertook a review of the governance models suitable for the Airport. After reviewing all relevant options available to it, it was resolved (reference 2018/269).

That Council:

- 1. Progresses the Airport Lease model for the Coffs Harbour Airport to the next stages and preparation of due diligence and undertake an expression of interest.
- 2. Endorse the procurement of independent expert advisors to assist with advancing the airport lease process.
- 3. Note that a further report on the outcome of the expression of interest will be provided to Council for consideration.

This Master Plan Update will help inform that process.

Master plans are usually built around a planning horizon or period and depict a representation of the airport at a future point in time. This update has a planning period of 20 years i.e. to 2039/40 to align with the air traffic forecasts presented below.

The update is cognisant of relevant NSW regional strategic planning initiatives, Coffs Harbour City Council's local strategic planning, and future population projections for the Airport catchment.

The Airport Enterprise Park was publicly exhibited prior to receiving approval from the Joint Regional Planning Panel (JRPP) in July 2017.

At its 10 October 2019 Ordinary Meeting, Council resolved (2019/175) to place a draft of the Master Plan Update on public exhibition for 28 days and invited public submissions. The submission period commenced on 16 October 2019 and concluded on 12 November 2019. Three written submissions were received and a report prepared for Council.

Economic and Regional Significance

The Airport is one of the largest and busiest regional airports in NSW and currently handles the second largest number of passengers flying to and from Sydney compared to other destinations within the State. The Airport is a facilitator of major economic activity for the city and people of Coffs Harbour by:

- providing for high capacity and high frequency quality RPT passenger services to/from Sydney, Melbourne and Brisbane;
- providing for a range of GA opportunities such as flying training, aviation medical services such as the Air Ambulance, private and commercial operators etc.; and
- providing for a range of other aviation and non-aviation related development opportunities.

The update is cognisant of the three areas of strategic importance identified in the *Coffs Harbour Economic Development Strategy 2017-2022*, namely the digital economy, the food manufacturing and agribusiness (agri-food) economy and the visitor economy. A key direction arising from the Strategy is to support Council-adopted investment delivering infrastructure such as the Airport Enterprise Park, which is an initiative designed to attract commercial investment and jobs to the Airport precinct.

Aerodrome Planning and Standards

The standards for aerodromes are contained in the Civil Aviation Safety Authority's (CASA) *Manual of Standards Part 139 – Aerodromes* (MOS 139). It is supported by a range of other documents. Australia's standards essentially mirror those published by the International Civil Aviation Organization (ICAO) in the document *Annex 14 Aerodromes Volume 1 Aerodrome Design and Operations*.

CASR Part 139 and the Part 139 Manual of Standards for aerodromes were some of the first rule parts to transition to the *Civil Aviation Safety Regulations 1998* in 2003. The ruleset has undergone a comprehensive post-implementation review as part of CASA's standard rules development and implementation process. The review considered issues of complexity, inflexibility, cost and regulatory impact. It was also a chance to align the rules with international best practice and the latest amendments to ICAO standards for aerodromes published in Annex 14.

Following the review process, the rules have been updated to reflect changes in the industry, technology, international standards and best practice. They are intended to be more flexible and practical to suit the diversity of aerodrome operations. Revised regulations covering the operations of aerodromes have been formally made. The revised Part 139 of the CASR includes a range of changes to the rules covering aerodromes to reduce complexity and costs and improve operational flexibility.

In September 2019, CASA made the *Part 139 (Aerodromes) Manual of Standards 2019* (Part 139 MOS) which will replace the current MOS 139. The Part 139 MOS will not come into effect until August 2020 and a transition period to August 2022 will be provided. Therefore, for the purpose of the Master Plan Update, the standards adopted are those contained in the MOS 139 (Version 1.14: January 2017).

In addition to MOS 139, the National Airports Safeguarding Framework (NASF) provides guidance on planning requirements for development that affects aviation operations. This includes building activity on and around airports that might penetrate operational airspace and/or affect navigational procedures for aircraft. The Framework applies at all airports in Australia and affects planning and development on and around airports, including development activity that might penetrate operational airspace and/or affect navigational procedures for aircraft.

Existing Airport Characteristics

The Airport occupies 322.7ha of coastal land situated approximately 3.3km by road south of the city centre. External ground access is via Hogbin Drive, a two/three lane arterial road which links the city to the village of Sawtell located south of the Airport. The north coast rail line is located adjacent and parallel to the eastern boundary of the Airport.

The main characteristics of the existing Airport layout are shown on Figure ES1.

Movement Area

The Airport has a two-runway system aligned in the 03/21 and 10/28 directions as shown in **Figure ES1.**

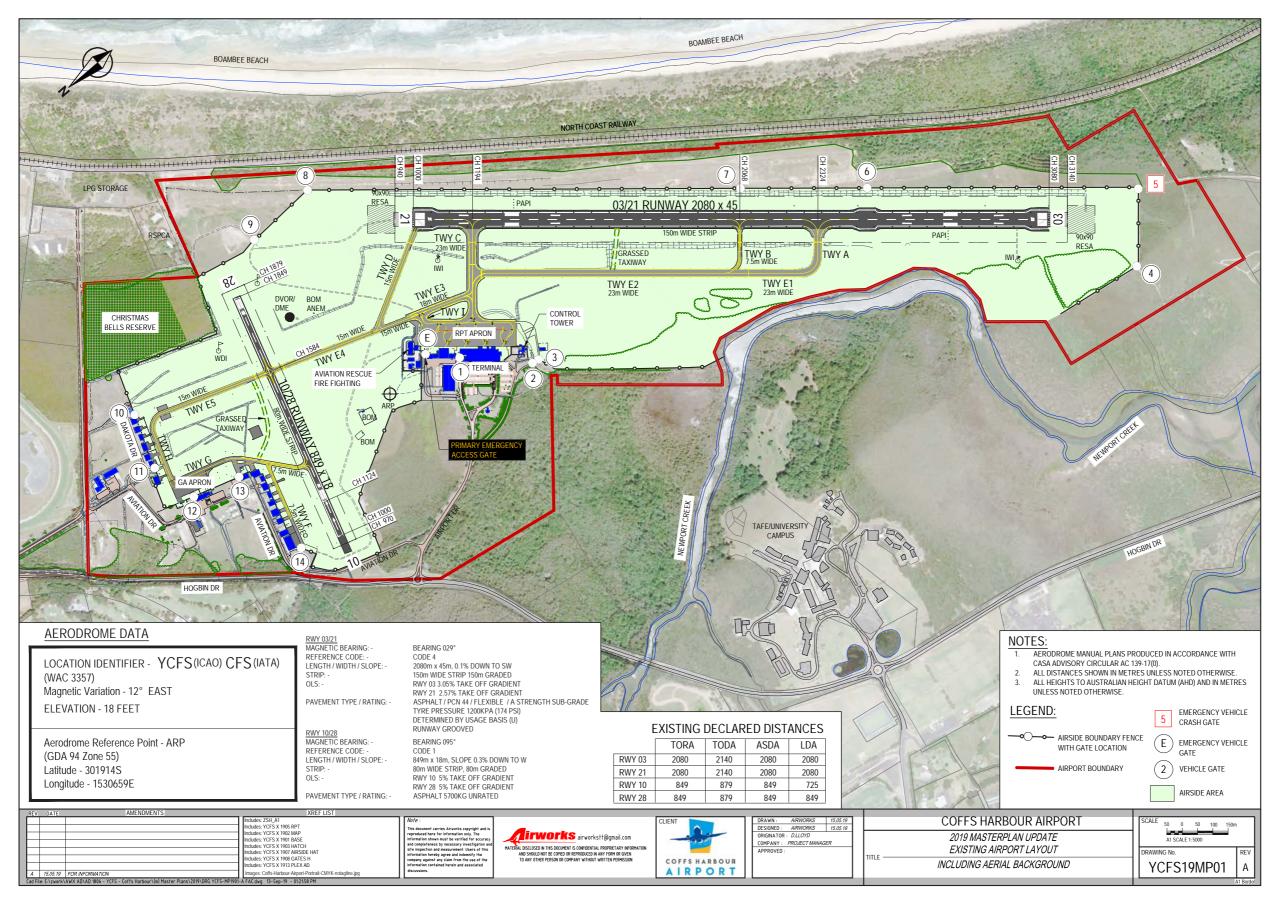
Runway 03/21 (the main runway) is paved and is 2,080m long by 45m wide, contained within a 150m wide graded runway strip. The runway was widened from 30m to 45m in 1999 to meet B767 specifications. This project was assessed and approved as part of the 1998 Environmental Impact Statement (EIS). The runway widening also permits unrestricted operations by medium jet aircraft e.g. B737/A320, which previously could be operationally limited in some circumstances. The runway is of adequate strength for operations by current domestic jet types including BAe-146, F100, E190, B717, B737, and A320 series aircraft. The runway was last re-surfaced in 2014 at a cost of \$7.5M. Runway end safety areas (RESA) abut the runway strip ends.

Runway 10/28 (the cross runway) is 849m long by 18m wide, contained within an 80m wide graded runway strip. The runway is sealed with the pavement strength unrated and limited to aircraft not above a maximum take-off weight (MTOW) of 5,700kg.

Runway 03/21 is served by a network of taxiways as shown in **Figure ES1**. Most taxiways are sealed. Taxiways A, B, C and D all serve as entry/exit taxiways to Runway 03/21. Taxiways E1, E2 and E3 form a partial parallel taxiway system for Runway 03/21. This aids runway capacity in busy periods by avoiding the need for aircraft to backtrack along significant lengths of the runway, prior to take-off or following a landing. It also enhances safety by mitigating the potential for runway incursions. Taxiway I. is a short section of stub taxiway connecting Taxiway E3 to the Regular Public Transport (RPT) apron. A section of grass taxiway connects Runway 03/21 to Taxiway E2.



Figure ES1 - Existing Airport Layout



Source: Airworks 2019.



Runway 10/28 is served by several taxiways as shown in **Figure ES1**. Taxiway E4 connects the southern (RPT) sector to the northern general aviation (GA) sector. Taxiways E4, E5, G and H all serve the GA area. Taxiway F serves several fixed and rotary winged hangars to the west of Taxiway G. A grass taxiway links Taxiways G and E5. Several taxiways have weight restrictions.

The original high strength RPT apron developed in 1987 has been extended and strengthened several times in response to demand and the need to cater for larger aircraft. The apron was most recently upgraded in 2016 at a cost of \$4.4M. The apron can currently accommodate the simultaneous operation of up to five free moving medium jet aircraft such as B737-800 and A320 family. Free moving parking positions are space intensive and greater apron efficiencies can be achieved using a power-in/push-back configuration. The current apron length would permit seven B737-800/A320 parking positions to be provided with some minor pavement augmentation.

The concrete (former RPT) apron at the northern end of the GA sector can accommodate a range of aircraft types including some light business jets. Light aircraft and helicopter aprons are provided in several locations associated with the private and business hangars in the GA area, and there are also marked grassed parking areas available for GA aircraft and helicopters.

Currently there are no published Helicopter Landing Sites (HLS). Two existing helicopter parking pads are located to the south of Taxiway F.

Airfield Lighting, Visual and Non-Visual Navigation Aids

Runway 03/21 is equipped with medium intensity runway white edge lighting, and associated threshold and runway end lighting. Lit taxiways are equipped with blue edge lighting. Runway 10/28 is not lit. A single-sided Precision Approach Path Indicator (PAPI) system serves the 03 and 21 approaches. Pilot Activated Lighting and Aerodrome Frequency Response Unit capabilities are provided.

Runway, taxiway and apron pavement markings, and runway strip markers are provided.

The Airport has two illuminated wind direction indicators (IWDI) and one wind direction indicator (WDI). An aerodrome beacon is mounted on the top of the control tower cab.

Airservices' co-located VHF Omni-directional Range (VOR) and Distance Measuring Equipment (DME) is situated south of the Runway 28 end as shown on **Figure ES1**. The VOR/DME provides for both enroute navigation guidance and published non-precision instrument approaches for Runway 03/21.

There are published Global Navigation Satellite System (GNSS) procedures supporting similar non-precision instrument approaches for Runway 03/21. These do not rely on any ground-based navigation equipment.

Airspace Management, and Aviation Rescue and Fire Fighting (ARFF)

Airservices owns and operates the Air Traffic Control (ATC) tower as shown on **Figure ES1**. The tower is staffed during published hours (generally coinciding with RPT operations). Airservices also owns and operates the ARFF fire station as shown on **Figure ES1**. The fire station is staffed during published hours and provides a Category 6 service.

Other Facilities

Both JET A-1 and AVGAS aviation fuels are both available at the Airport which are provided by commercial operators.

The Bureau of Meteorology (BoM) owns and operates several facilities at the Airport which are shown on **Figure ES1**. These are the anemometer, vertical wind profiler and instrument enclosure.

RPT Terminal Precinct

The passenger terminal is located as shown on **Figure ES1**. The original terminal was opened in 1986. Since then, the terminal has been extensively modified and extended several times in response to growing passenger demand and increased aircraft size. The most recent extensions were undertaken in 2018 at a cost of \$2.1M, and the building now provides a total floor area of some 3,985 square metres.

Council Airport staff occupy three buildings within the precinct, the Airport administration building and charter lounge, hangar facility next to the administration building and a plant and machinery shed south of the control tower.

The air freight building is located to the north of the Council hangar. The building functions primarily as a throughput rather than a storage facility, given the express nature of most air freight product. A small number of dedicated air freight services operate using Metro aircraft but most air freight is carried by passenger aircraft.

Primary ground access to the RPT precinct is provided from Hogbin Drive via a roundabout intersection with Airport Drive which is a two-lane road, prior to bifurcating into one-way inbound and outbound routes either side of the main public parking area in front of the terminal. Along Airport Drive just prior to the terminal there is a taxi storage lane and bus stop. Along the terminal kerb frontage, there are public drop-off and taxi pick-up sections, with a through lane for exiting traffic. Recent modifications have increased the available kerb length in front of the terminal.

The general car park is accessed from either the inbound section of Airport Drive or from an entry near the end of the terminal. The car park has 240 car spaces. There is an undercover security car park located to the north of the main car park which provides 118 car spaces. There is a car rental car park located to the south of the public car park with 120 car spaces. An internal airport road provides access from Airport Drive to a staff car park with 34 car spaces, ARFF, air freight and other non-terminal related facilities. This road also serves public vehicles exiting the security car park.

Airport Enterprise Park and GA Precinct

The northern precinct accommodates the bulk of GA activities at the Airport. It is also the location for the Airport Enterprise Park development which will facilitate a range of land use opportunities, including future GA requirements.

Currently, there are 16 privately owned GA hangars on land leased from Council. Most GA operations are by fixed wing aircraft although the two hangars at the western end of Taxiway F are dedicated helicopter related facilities.

Other facilities in the precinct include the Aero Club, the PPT flying training facility and the bulk aviation fuel storage facility. Additionally, at the northern end of the precinct there is a large Fire Control Centre operated by the NSW Rural Fire Service.

The NSW Air Ambulance operates a patient transfer service adjacent to the northern end of the PPT building, performing into-aircraft transfers on the adjacent apron.

External ground access is provided from Hogbin Drive and Christmas Bells Road. Internal Airport access is provided via Aviation and Dakota Drives which service the existing facilities in the precinct. Public car parking areas are located near PPT and the Aero Club.

Trunk Engineering Services

The Airport is currently serviced by reticulated water, sewerage, electricity and telecommunications. New and augmented engineering services are being provided as part of the Airport Enterprise Park development.

Security

The Airport is designated a security-controlled airport. The Airport is required to submit, hold and maintain an approved Transport Security Program (TSP). Aviation security screening of passengers and baggage before boarding or loading an aircraft is an important security layer and is the responsibility of Council who are the authorised screening authority.

Historical and Current Air Traffic

In the ten years to 2018/19, RPT passenger numbers grew from just under 319,000 to just under 397,000, representing a compound average growth rate (CAGR) of 2.1%. **Figure ES2** depicts annual passengers between 2009/10 and 2018/19.

450000
400000
350000
250000
100000
100000
50000
0
2009/10 2010/11 2011/12 2012/13 2013/14 2014/15 2015/16 2016/17 2017/18 2018/19
Financial Year

Figure ES2 – Historical RPT Passengers 2009/10 to 2018/19

Source: CHCC 2019.

During this period there were several major changes to services and routes as follows:

- 2013 commencement of Tigerair services to Sydney;
- 2013 cessation of Brindabella services to Brisbane;
- 2014 commencement of Qantas/QantasLink services to Melbourne;
- 2015 commencement of Tigerair services to Melbourne;
- 2016 commencement of Fly Corporate services to Brisbane;
- 2016 cessation of Virgin Australia services to Melbourne
- 2016 cessation of QantasLink services to Melbourne;
- 2016 commencement of Fly Pelican services to Newcastle (Williamtown);
- 2017 cessation of Fly Pelican services to Newcastle (Williamtown);
- 2018 reduction of Virgin Australia services to Sydney from double daily to one per day;
 and
- 2018 increase of Tigerair services to Sydney.

Over the ten-year period to 2018/19, RPT aircraft movements declined from around 7,100 to around 5,700 per annum as shown in **Figure ES2**. However, average passengers per flight have grown from 45 to 69 which reflects progressive up-gauging in aircraft size by the airlines.

Other than RPT, aircraft movements include those by GA fixed wing, helicopters and military. **Figure ES3** depicts the total aircraft movements by category between 2009/10 and 2018/19.

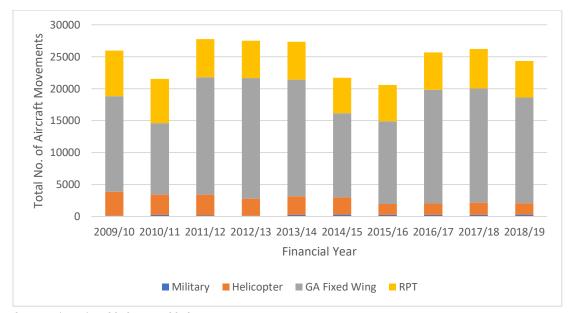


Figure ES3 – Historical Aircraft Movements by Category 2009/10 to 2018/19

Source: Airservices 2019, BITRE 2019.

Four airlines currently service Coffs Harbour on three routes using the aircraft and seating configurations shown in **Table ES1**.

Table ES1 – Current RPT Operations

Carrier and Route	Aircraft Type	Typical Seating
QantasLink	DHC8-400	74
(Sydney)	DHC8-300	50
	DHC8-200	36
Virgin Australia	B737-800	176
(Sydney)		
Tigerair	A320/B737-800	180
(Sydney and Melbourne)		
Fly Corporate	SAAB 340B	34
(Brisbane)	Metro 23	19

Source: airline websites 2019.

In the current scheduling season, these carriers provide the following services:

- QantasLink up to six services per day to/from Sydney;
- Virgin Australia one service per day to/from Sydney;
- Tigerair six services per week to/from Sydney;
- Tigerair four services per week to/from Melbourne; and
- Fly Corporate six services per week to/from Brisbane.

In the current scheduling season, the busy day occurs on Mondays, Wednesdays and Fridays. The busy hour occurs in the 0900-1000 hour with three concurrent operations through the terminal. This consists of three departures and two arrivals. Assuming on-time running this means potentially two DHC8-400 (74 seat) and one B737-800/A320 (180 seat) aircraft. These busy hour numbers are historically low and well within the capacity of the terminal and its associated systems to function efficiently. Previous schedules have resulted in a busy hour consisting of concurrent operations by two B737-800/A320 and one DHC8-400 aircraft. This is also within the facilitation capability of the terminal and its associated systems.

The Airport currently accommodates a range of GA activities including the Air Ambulance, other types of aeromedical and emergency management services operations, helicopter maintenance, fixed wing flying training, charter and private aircraft. Military aircraft movements remain a small component of the overall fleet mix.

Air Traffic Forecasts

Tourism Futures International (TFI) was commissioned by Council to prepare air traffic projections for the 20-year period from 2019/20 through to 2039/40. The planning period for this Master Plan Update is also 20 years to align with the forecasts. TFI's full report, *Air Traffic Prospects for Coffs Harbour Airport September 2019* has been provided to Council as a standalone report.

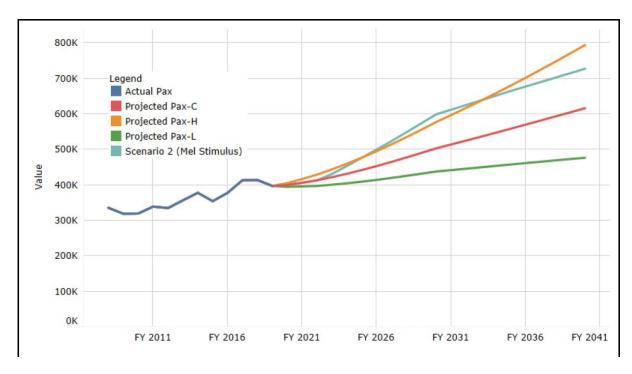
TFI reviewed a large number of potential drivers for traffic at Coffs Harbour. These include national, State and regional factors. TFI developed several models based on these factors. The main model used NSW GSP and national discounted airfares. However, other models use the national and regional factors. TFI also identified the main traffic segments and estimated growth for each. The outcome of the review is the **Scenario 1**-Central forecasts shown in **Table ES2** along with the forecast growth rates. In recognition of the uncertainty associated with forecasting, TFI has prepared Central, Low and High Forecasts. **Figure ES4** depicts the RPT passenger forecasts.

Table ES4 – Domestic Passenger Forecasts FY19 to FY 40

Years End 30 June	Actual (000's)		Scenario 1 (000's)		Scenario 2 (000's)
		Central	High	Low	
2009	318				
2014	377				
2018	413				
2019	397	397	397	397	397
2025		441	476	409	476
2030		503	577	437	599
2035		558	679	457	664
2040		616	794	476	727
CAGR					
2009 to 2019	2.2%				
2014 to 2019	1.0%				
2019 to 2030		2.2%	3.5%	0.9%	3.8%
2030 to 2040		2.1%	3.2%	0.9%	2.2%
2019 to 2040		2.1%	3.4%	0.9%	2.9%

Source: TFI 2019

Figure ES4 - Passenger Forecasts for Coffs Harbour - Summary



Source: TFI 2019.

Airport Development Concepts

Projects arising from the Airport's future development concepts described below either have been or will be subject to the application of the *NSW Environmental Planning and Assessment*Act 1979 in terms of the level and types of environmental assessments required. Additionally,

depending on the proposal or activity, the provisions of the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) may be applicable.

Design Aircraft

Determining the appropriate design aircraft to adopt for the planning and design of the movement area and supporting facilities such as the terminal, is the fundamental first step in establishing the development concept for the Airport. The aircraft mix requires consideration of two different categories of fixed wing aircraft, for different parts of the airport. These are:

- that part of the movement area associated with RPT operations i.e. Runway 03/21, and associated taxiways and apron; and
- that part of the movement area associated with GA operations i.e. Runway 10/28, and associated taxiways and aprons.

Earlier master planning adopted the B767 series aircraft as the design aircraft for Runway 03/21 and its associated movement area infrastructure. The B767 is a wide-bodied aeroplane that was in widespread use with Qantas where it typically had 240-seats in a two-class configuration. B767 aircraft have completely disappeared from passenger operations in Australia having been replaced by more modern aircraft such as the A330 series which are larger aeroplanes, typically seating around 300 passengers.

Later master planning acknowledged the phase-out of B767 passenger aircraft and assumed it was appropriate to base future planning primarily around narrow-bodied medium jet aircraft i.e. B737/A320 aeroplanes. Given Runway 03/21's existing width of 45m, the potential for occasional larger wide-bodied operations was noted, assuming issues such as pavement strength and taxiway shoulder width, for example, could be suitably addressed.

With the phasing out of the B767 and Airbus equivalents, both manufacturers have concentrated on maximising the passenger capacities of their high volume selling narrow-bodied aircraft. This has been achieved by utilising more efficient airframe aerodynamics, stretching the fuselage and adopting advanced engine technologies. **Table ES5** shows some of the main features of the current largest variants from the two manufacturers.

Table ES5 – Narrow-Bodied Medium Jet Aircraft Characteristics

Aircraft	Wingspan (m)	Length (m)	Maximum Seating (one-class)	Typical Seating (two-class)
B737- MAX 10	35.9	43.8	230	188-204
A321neo	35.8	44.5	244	206

Source: Boeing 2019, Airbus 2019.

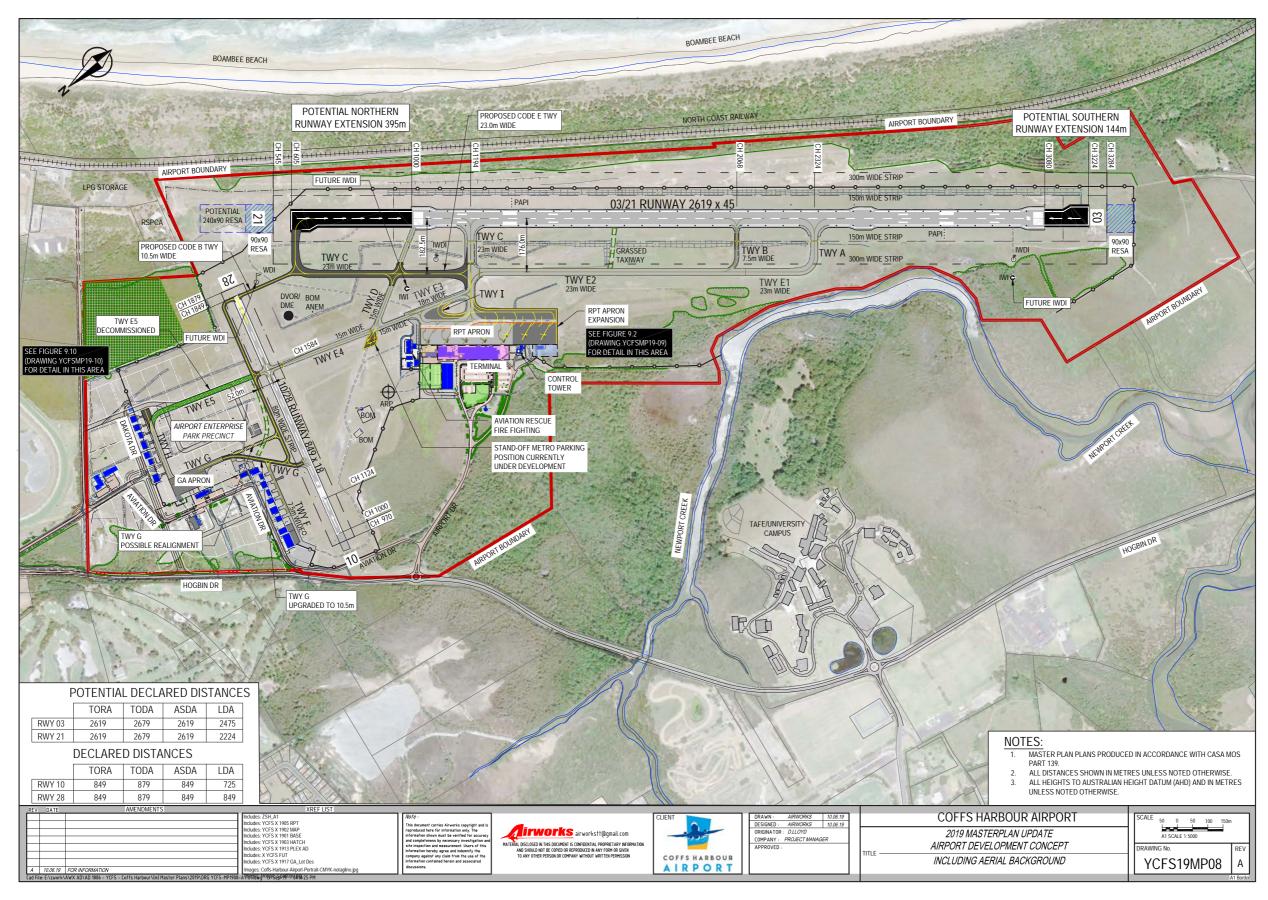
Virgin Australia has recently swapped some of its order from the B737 MAX 8 to the larger MAX 10, for delivery from mid-2021 with some 25 currently on order. The Qantas Group already operates the A321 aircraft through Jetstar and has an order for 109 new A320 family aircraft, of which 36 are the new A321 XLR long range model. These new types could therefore be possible candidate aircraft for the Airport, during the life of this Master Plan Update and beyond.

Overall Development Concept

The overall development concept for the Airport is shown on Figure ES5.



Figure ES5 - Airport Development Concept



Source: Airworks 2019.





Movement Area

Previous master planning and the 1998 EIS considered various potential runway lengthening scenarios, primarily to facilitate future operations by wide-bodied aircraft. Some of these scenarios identified both physical constraints and Aboriginal heritage related issues which would need to be addressed in undertaking such a lengthening project. In its report to Council on the 1998 EIS (*Environmental Impact Assessment, Coffs Harbour Regional Airport, Director-General's Examination Section 113(5) of the Environmental Planning and Assessment Act 1979)*, the Department of Urban Affairs and Planning recommended against the runway lengthening proposals. The reasons given at that time were environmental concerns and the lack of an economic justification for extending the runway.

When approving the 2004 Master Plan in 2007, Council's resolution of 15 March 2007 to limit any future extension of the runway to an overall length of 2,700m was confirmed and this was reflected in subsequent planning updates. A further initiative arising from the 1994 Master Plan and subsequent planning updates was to retain both the 03 and 21 thresholds in their current locations, irrespective of any runway lengthening i.e. becoming permanently displaced thresholds. This was a noise mitigation decision to ensure that aircraft on approach would fly no lower than currently, over the Jetty and Toormina residential areas.

The development concept for Runway 03/21 for this update assumes a potential total overall runway length of 2,619m, achieved with a 395m northern extension and a 144m southern extension. The reason for the reduction from 2,700m is twofold.

- For the northern extension, to be able to provide for a 300m runway strip width totally contained within the airport boundary, it is necessary to limit any runway extension to 395m. It is noted that the new Part 139 MOS permits a runway strip width of 280m. The potential northern extension could therefore be revisited in the future, following the Airport's transition to the new Part 139 MOS.
- 2. For the southern extension, a check survey shows the distance between the current 03 runway end and the airside fence to the south is 294.4m. The land to the south of the airside fence was identified in the 1998 EIS as an area of Aboriginal spiritual significance which effectively constrains any airport development to its northern side. In order to comply with the required clearway length of 60m and RESA length of 90m, the maximum potential extension achievable is 144m.

Therefore, for the purpose of the Runway 03/21 development concept, the maximum practicable runway length achievable under current rules is 2,619m (as shown on **Figure ES4**).

Any decision to extend the runway would need to consider the relative benefits of either a northern, southern or both extensions, based on an identified need at that time. As part of the 2004 Master Plan, Council commissioned Qantas to prepare a Range Payload Study considering various lengthening scenarios. The study considered three types of aircraft, namely the B737-800, A320 and B737-700. In summary, the study found Runway 03 is the most limiting direction. Assuming both extensions were undertaken, the study found it would only provide marginal performance and range gains for the aircraft modelled, however, newer generation aircraft may provide an improved outcome. This study supplemented similar work undertaken for the 1994 Master Plan and the EIS.

In common with previous planning, the development concept retains the provision for a 300m wide runway strip (150m graded and 75m wide flyover sections on each side). There are operational benefits to achieving an overall 300m wide runway strip as it would provide full compliance for current non-precision instrument approaches, and it may help facilitate future precision instrument approaches. However, there are environmental and physical constraints to achieving this runway strip widening. On the eastern and south western sides of the runway there is vegetation classified as Coastal Wetlands. Also, in addition to the area of Aboriginal spiritual significance discussed above, the 1998 EIS identified Aboriginal sites along the eastern edge of the 300m wide runway strip flyover area.

The development concept for Runway 10/28 retains the existing length and width. The development concept retains the 80m runway strip width which would permit night operations in the future, if a decision was made to install runway lighting

The development concept for future taxiways remains consistent with recent master planning initiatives. Provision has been made to extend a section of parallel taxiway from the Taxiway C/E2 intersection through Taxiway D to an extended 21 runway end. A future taxiway link is provided to connect the Runway 28 end to the extended section of parallel taxiway serving the extended Runway 21 end. The concept for the Airport Enterprise Park development involves decommissioning Taxiway E5 just north of the intersection with Runway 10/28 through to Taxiway H. It is proposed to replace this taxiway with a section of parallel taxiway on the northern side of the runway. Taxiway G would also be upgraded.

The increased fuselage length for the design aircraft for the full RPT apron, will require the apron width to be increased to meet the required clearances to the feeder taxilane for Bays 4 and 5. Apron extensions to the north are not feasible due to the presence of the ARFF fire station. However, there is enough land to the south to further extend the apron if required. For the purpose of the development concept, two additional free-moving B737/A320 parking positions are shown on **Figure ES5** (total seven). The increased width required for the apron may also allow for a free moving parallel parking position for a wide-bodied aircraft such as an A330, subject to compliance with clearances and pavement assessment. As noted above, power-in/push-back parking configurations are a more efficient use of apron space. The extent of apron development shown on **Figure ES5** may support up to nine medium jet aircraft in a power-in/push-back parking configuration.

Terminal Precinct Development Concept

It is assumed that future terminal expansion when required would essentially follow previous upgrading patterns i.e. adding new modules as necessary. It would be physically possible to extend the building to the south up to the clearances associated with Airservices' satellite ground station (SGS). Similarly, it would be possible to extend the terminal to the north up to the air freight building. This would involve building over Council's hangar, offices and charter lounge. The terminal reserve footprint is approximately 11,167 square metres representing about a 280 percent increase on the current terminal footprint (including the checked baggage screening section).

The development concept allows for the air freight facility to be extended to the north over the existing leased building.

The development concept provides for an aviation support reserve to the south of the control tower. Any building development would be height constrained to ensure control tower line of sight

requirements are maintained. Potential uses could be maintenance support, fixed base operator (FBO), freight or ground support equipment (GSE) storage etc.

Council has been evaluating medium-term options to improve ground access and traffic movement in the approach to and vicinity of the terminal. Longer-term ground access changes will largely be driven by future terminal expansion, particularly if this takes place to the north and it becomes necessary to increase kerb length in front of the terminal.

Provision has been for an extension of the undercover security carpark which will take the number of car spaces to 175. The development concept allows for the general car park to be further expanded to the north-west and south-west. Two options have been developed, which depending on the access solution to be adopted would provide either an additional 85 or 138 car spaces, for a total of 325-378 spaces overall.

Airport Enterprise Park and Associated GA Precinct Development Concept

The Airport Enterprise Park development consists of a subdivision of approximately 43ha of land for the purpose of aviation-related, and compatible commercial and business uses as shown on **Figure ES5**. Since development approval, further work has occurred to refine the lot layout responding to the input of potential users, and the design requirements of the enabling infrastructure such as filling and drainage, engineering services etc. This work is ongoing, and components may be subject to further consent from Council as the development proceeds.

The Airport Enterprise Park subdivision concept provides for a range of lot sizes that may be developed for aviation-related, and compatible commercial and business uses. Development including the enabling infrastructure, will occur in stages. Additionally, approximately 1.6ha of existing high ecological value land will be conserved within a reserved lot and a further 4.21ha of new drainage reserve area with ground levels lowered, will be vegetated and conserved as a vegetated drainage reserve. In addition to the new lots, the subdivision also creates lots for several existing facilities that will remain in the precinct.

The majority of the Airport Enterprise Park in terms of site area provides development opportunities that respond to demand for businesses seeking the locational advantages of proximity to the main functional area of the Airport, and excellent ground transport linkages to the Pacific Highway. The Airport Enterprise Park will provide high quality fully serviced land in a business park setting, making use of extensive landscaping and well-planned internal linkages.

Landscaping will respond to the requirements of nearby aircraft operations, with species selection made to minimise potential for aircraft bird strike. New planting will compliment the function and physical requirements of the subdivision by maintaining an open presentation to the new lots and minimising potential conflict with driveway access.

Two bike paths are proposed to link the subdivision with the existing bike path along Hogbin Drive The bike paths will be located within drainage reserves where higher levels of public access present the opportunity to create small open parkland areas with informal seating. Additionally, there is potential to provide a public park/aircraft viewing area near the northern end of the concrete GA apron.

A main entry gateway statement is proposed on either side of the entry near the Hogbin Drive intersection to create a sense of arrival into the Airport Enterprise Park. It will sit above water features on either side of Road 1.

Figures ES6 and **ES7** depict artist's impressions of the development concept.

Figure ES6 – Artist Impression Looking East



Figure ES7 – Artist Impression Looking South



Source: CHCC 2019.

Source: CHCC 2019.

The subdivision also creates lots for several existing GA businesses and private hangars, as well as new lots for future hangars. Most future hangars would be expected to cater for fixed wing operations, although provision has been made for another large helicopter hangar to the west of Eaglecopters. Fixed wing hangar lots are notionally 30m x 30m. A larger hangar is also possible adjacent to the northern end of the GA apron. Up to 24 hangar lots could be provided (including two currently under development) noting that further design work is required to address the future hangar floor levels relative to the existing levels of Taxiways G and H, in those locations where they service some of the new lots. Grassed GA and helicopter parking areas would be retained or provided in various locations.

Taxiway E4 meets medium jet width requirements and subject to a pavement strength assessment, there is the potential for larger aircraft to be accommodated at the southern end of the GA hangar development as an alternative to some of the future smaller GA hangar lots. A possible development option which locates the proposed taxiway north of Runway 10/28 for medium jets and provides for an adjacent apron and building area is feasible. Potential use could be for aircraft accommodation, emergency management services aviation support facilities, aircraft maintenance, freight, FBO etc.

Several new or rebuilt roads will provide vehicle, cycle and pedestrian access. Future tenants will be responsible for the provision of on-site parking in accordance with Council's requirements for the particular development, based on its function and specific needs. Public parking areas will remain available.

Council requirements are that developments of the size and nature of the subdivision consider the possible impact of climate change including sea level rise of 0.91m by 2100.

As a condition of development approval, Council required a detailed flood study to be submitted detailing all works required on and around the site to satisfy Council's flood planning controls, prior to the issue of the first Construction Certificate for civil works. This study was submitted and approved by Council.

As the site is poorly drained due to its low and flat topography, it will be filled to lift the lots associated with new development above flood levels and assist with drainage. A combination of reduced pipe gradients of 0.3% and open channels is proposed to provide adequate drainage. These will be largely sized to compensate for the flat hydraulic gradients. The drainage system also includes a large detention basin in the north-west corner of the site to partly compensate for the lost floodplain storage from site filling and increased impervious surfaces resulting from new development. The proposed detention basin has the capacity to manage the additional stormwater that will be generated, so as to not adversely impact downstream properties. Use will also be made of bio-retention areas within the subdivision to mitigate drainage issues.

Water, sewerage, electrical and telecommunications will be either upgraded or provided to meet the requirements of the development.

An Environmental Management Plan (EMP) covering Phase 1 of the development was prepared in accordance with Council's development consent conditions. A Vegetation Management Plan (VMP) identifying vegetation to be removed, compensatory planting locations, maintenance regime and tree protection procedures is included in the EMP. The EMP addresses potential environmental impacts and mitigation covering a range of parameters. Subsequent phases/stages of the Airport Enterprise Park may require EMPs as the development proceeds.

Airspace Protection

Amongst other matters, NASF guidelines provides advice for land use planners and decision makers about assessment of developments within and around an airport's prescribed airspace, including intrusions into that airspace, and the need to better integrate aviation issues with land use planning and development approvals processes. Guidelines relate to:

- Obstacle Limitation Surfaces (OLS) which protect the immediate airspace in the vicinity of the Airport for visual operations and are based on specifications laid down in the MOS 139 for the applicable runway classification;
- Procedures for Air Navigation Services and Operations (PANS-OPS) surfaces which protect
 the immediate airspace in the vicinity of the Airport for instrument operations. The PANSOPS surfaces differ to the OLS in that they protect aircraft conducting operations under
 Instrument Flight Rules (IFR) and as such cannot be infringed under any circumstances, as
 aircraft relying on them may be flying in Instrument Meteorological Conditions (IMC);
- communication, navigation and surveillance facilities (CNS) that support the systems and processes in place by Airservices, or other agencies under contract with the Australian Government, to safely manage the flow of aircraft into, out of and across Australian airspace; and
- lighting external to the airport which protects the airspace from lighting interference, to
 ensure pilots relying on aeronautical lighting are not distracted or confused by other forms
 of ground lighting.

Additionally, ATC and ARFF lateral and vertical line of sight requirements need to be considered when evaluating land use or development proposals both on and off the Airport.

Statutory Planning

Statutory planning in relation to the Airport is regulated under the *NSW Environmental Planning and Assessment Act 1979*. The primary statutory land use planning instrument covering the Airport is the *Coffs Harbour Local Environmental Plan 2013* (LEP) which was made in September 2013.

Under the LEP, most of the Airport land is zoned as SP 1 Infrastructure – Air Transport Facility. The objectives of this zone are:

- to provide for special land uses that are not provided for in other zones;
- to provide for sites with special natural characteristics that are not provided for in other zones; and
- to facilitate development that is in keeping with the special characteristics of the site or its
 existing or intended special use, and that minimises any adverse impacts on surrounding
 land.

An area of land bordering Newports Creek in the south west sector of the Airport is zoned as E2 – Environmental Conservation. The objectives of this zone are

- to protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values; and
- to prevent development that could destroy, damage or otherwise have an adverse effect on those values.

The LEP is supported by the *Coffs Harbour Development Control Plan 2015* (DCP). The DCP applies to all land shown on the Coffs Harbour LEP 2013 Land Application Map. This includes the Airport. The purpose of the DCP is to give effect to the aims of the LEP, to facilitate development that is permissible under the LEP and achieve the objectives of land use zones under the LEP. The DCP's objectives cover environmental sustainability, social sustainability, civic leadership and economic sustainability. Although the DCP does not contain any Airport specific matters, subdivision controls, built form controls, environmental controls and general development controls will have application in some circumstances and therefore need to be considered in development proposals.

The Act also gives effect to Section 117 Ministerial Directions Part 3.5 - Development Near Regulated Airports and Defence Airfields which specifies objectives to be met when considering controls for development near the Airport.

State Environmental Planning Policies (SEPPs) are planning instruments that deal with matters of State or regional environmental planning significance. They are made by the Governor on the recommendation of the Minister for Planning. The following SEPPs either are or may, be applicable to the Airport:

- State Environmental Planning Policy (Infrastructure) 2007;
- State Environmental Planning Policy (State and Regional Development) 2011;
- State Environmental Planning Policy (Coastal Management) 2018; and
- State Environmental Planning Policy No 44—Koala Habitat Protection.

Environmental Considerations

The update does not comprehensively address all airport environmentally related issues. It provides a high-level overview of the types of environmental matters most typically associated with airport master planning and aircraft operations, updated with contemporary information where it has become available. Environmental matters are more extensively detailed in the various studies cited in the update.

Matters discussed in the update include:

- aircraft noise including assessment and mitigation;
- air quality;
- flooding;
- hazard and risk;
- Aboriginal heritage;
- European heritage;
- bushfire prone areas;
- · vegetation communities and environmental management;
- koala habitat; and
- wildlife hazard management.

Future Technologies

A feature of aviation is one of being an early adopter and catalyst for technological advancement. Some of these existing and emerging technologies could be expected to have application at the Airport during the life of this Master Plan Update. These technologies include:

- passenger facilitation and security screening enhancements;
- increased use of GNSS for navigation and surveillance; and
- remote (digital) tower technology.

CHAPTER 1

INTRODUCTION



1 INTRODUCTION

In January 2019, Coffs Harbour City Council (CHCC) commissioned Airport Planning Support (APS) to prepare a Master Plan Update for Coffs Harbour Airport. Airworks Consulting Pty Ltd (Airworks) was also commissioned to prepare a range of graphics supporting the update. This update builds on earlier planning initiatives and documents which include:

- Coffs Harbour Regional Airport Master Plan 1994;
- Proposed Coffs Harbour Regional Airport Upgrading Environmental Impact Statement 1998 (EIS);
- Coffs Harbour Regional Airport Master Plan Review 2004. Following public exhibition of the 2004 review, Council made some minor changes in 2007. These included a decision to limit any future extension of Runway 03/21 to an overall length of 2,700m, as per Council's resolution of 15 March 2007 (see Appendix A);
- the 2011 Terminal Precinct Master Plan (TPMP) which addressed the southern sector of the airport i.e. the area generally south of Runway 10/28. The TPMP's primary focus was the area in the immediate vicinity of the passenger terminal. It therefore replaced and updated the planning provisions contained in the Master Plan Review 2004 (as amended in 2007) for this area;
- the 2014 Master Plan Update which was primarily focused on the northern sector of the Airport i.e. the area generally north of Runway 10/28 which amongst other things accommodates the Airport's general aviation (GA) activities. Notwithstanding this focus, the opportunity was taken to update parts of the 2011 TPMP and earlier documents where changes had occurred; and
- Council's Airport Enterprise Park development in the northern sector of the Airport as proposed in the Statement of Environmental Effects 2015 (SEE). Development approval for this project from the NSW Joint Regional Planning Panel (JRPP) was received in July 2017.

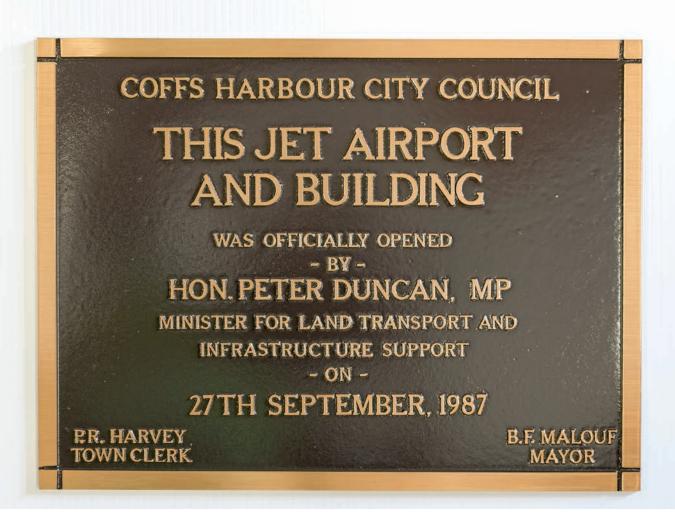
This 2019 Master Plan Update is essentially a compilation of previous planning documents augmented and updated where changes have occurred, or where new information has become available. Additionally, new air traffic forecasts have been prepared by Tourism Futures International (TFI). These were last reviewed in 2011.

In addition to this update, planning for the Airport therefore includes the documents and initiatives described above. Where inconsistencies occur between these and this update, the relevant update provisions and/or those of specialist's reports listed in the Bibliography take precedence over those of the earlier documents.

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CHAPTER 2

AIRPORT HISTORY



2 AIRPORT HISTORY

An airport for Coffs Harbour was mooted by the then Dorrigo Council in 1928 and in the same year an air pageant was held utilising rapidly prepared rudimentary facilities. However, it was not until 1930 that funds were secured enabling improvements to the grass landing strip and site drainage. A year later Council was gazetted as the Trustee of Coffs Harbour Aerodrome by the Lands Department. The aerodrome comprised 405ha of land and included a north-south runway and eastwest runway of 700m and 720m respectively.

In 1936, the aerodrome was transferred to the Commonwealth which undertook a range of improvements. During World War II, the two existing runways 01/19 and 10/28 were lengthened and strengthened. A third runway on the 14/32 alignment was also developed. Royal Australian Air Force units which were based or operated from Coffs Harbour included 71SQN which undertook maritime patrol and anti-submarine operations using Avro Anson aircraft. Runway 01/19 was further strengthened and lengthened to 1650m in 1942 to cater for heavy bomber aircraft. **Figure 2.1** is an aerial photograph taken during World War II, prior to the 14/32 runway development. The runway running roughly parallel to the beach alignment, is the former Runway 01/19 which was the main runway until the 1980s. Today, much of it serves as a taxiway. The cross runway is Runway 10/28 which is still in use.

Figure 2.1 – Coffs Harbour Airport During World War II.



Source: www.airforce.gov.au nd.

After World War II, the Airport was administered by the Commonwealth through the Department of Civil Aviation and its successors. Runway 14/32 was decommissioned and during the 1950s improvements were made to facilitate passenger operations. These were initially undertaken by airlines such as Butler Air Transport, later absorbed into Ansett Airlines, whose regional arm Airlines of NSW served Coffs Harbour. The airline went through several incarnations, culminating in being

named Ansett Express in 1990. Aircraft operated over this period included the DC3, and the turboprop F27 and Viscount.

Council again resumed ownership from the Commonwealth under the Aerodrome Local Ownership Plan (ALOP) in 1984. Through the ALOP, The Commonwealth continued to provide 50% of maintenance and development costs. The Commonwealth also undertook to provide 50% of the costs associated with the introduction of medium jet operations (F28) at certain aerodromes, which included Coffs Harbour. A major upgrade to the Airport was undertaken including:

- a new Runway 03/21 of 2,080m length and 30m width;
- new taxiways;
- conversion of most of Runway 01/19 into a taxiway;
- new terminal and apron;
- new control tower; and
- ground access and utilities infrastructure.

The first flight by an F28 occurred in December 1986.

In 1991, the Commonwealth announced the wind up of the ALOP and encouraged aerodrome owners to take over full responsibility for their facilities. CHCC assumed full control in 1991, with the Commonwealth again funding several smaller infrastructure projects.

Operating medium jet aircraft, Ansett together with its regional affiliate Kendell Airlines continued to service Coffs Harbour through to the collapse of Ansett in 2001. Eastern Australia Airlines (now part of Qantas operating under the QantasLink brand) commenced operations into Coffs Harbour in the 1990's which continue to this day. Regional Express Airlines (Rex) also operated into Coffs Harbour during the 2000s, following its acquisition of Hazelton and Kendell Airlines in 2002. Virgin Blue Airlines (now Virgin Australia) commenced operations into Coffs Harbour in 2002 and Tiger Airways (now owned by Virgin Australia) also commenced operations in 2013. Both carriers continue to service Coffs Harbour with medium jet aircraft.

Since 1984, Council has developed and implemented a series of Plans of Management to guide ongoing investment and enhancements to Airport infrastructure, facilities and aviation services. Throughout this period, the main runway, supporting taxiways and the main apron have continued to be upgraded and strengthened as aircraft sizes and aircraft operating frequencies have increased. Supporting infrastructure such as the terminal, ground access and utilities have also undergone major upgrades resulting from passenger growth.

CHAPTER 3

MASTER PLAN CONTEXT



3 MASTER PLAN CONTEXT

3.1 Background

In late 2018, Council undertook a review of the governance models suitable for the Airport. After reviewing all relevant options available to it, it was resolved (reference 2018/269).

That Council:

- 1. Progresses the Airport Lease model for the Coffs Harbour Airport to the next stages and preparation of due diligence and undertake an expression of interest.
- 2. Endorse the procurement of independent expert advisors to assist with advancing the airport lease process.
- 3. Note that a further report on the outcome of the expression of interest will be provided to Council for consideration.

This Master Plan Update will help inform that process.

Airport master plans typically:

- provide the strategic planning framework for the future provision of facilities and infrastructure, to achieve optimal airport land use i.e. highest and best use;
- incorporate planning considerations and guidelines to ensure the airport is developed in a socially and environmentally responsible manner, recognising relevant Commonwealth, NSW Government and local government requirements; and
- identify constraints and opportunities for the development of aviation and non-aviation land uses.

Master plans are usually built around a planning horizon or period and depict a representation of the airport at a future point in time. This update has a planning period of 20 years i.e. to 2039/40 to align with the air traffic forecasts presented in **Chapter 8**. However, it would not be expected that all the development opportunities shown in the update, would necessarily be undertaken within the planning period. Given that aviation has historically experienced periods of rapid change, airport master plans need to be refreshed regularly to ensure they remain relevant to their contemporary environment.

3.2 Regional Strategic Planning,

In 2017, the NSW Government released the *North Coast Regional Plan 2036*. The Plan is the blueprint for the next two decades that reflects community and stakeholder aspirations and opportunities from leveraging the North Coast's position between two of the fastest growing population corridors in the nation. It notes that the Pacific Highway is a critical link for Australia, NSW and the North Coast. Ongoing upgrades to the Highway and access to a series of regional and international airports are expected to drive economic growth and bring communities closer together.

The Plan will guide the NSW Government's land use planning priorities and decisions to 2036. It is not intended to be a step-by-step approach to all land use planning. Rather, it provides an

overarching framework to guide subsequent and more detailed land use plans, development proposals and infrastructure funding decisions.

In relation to the Coffs Harbour Local Government Area (LGA), the Plan notes it is strategically positioned midway between South East Queensland and Sydney. Coffs Harbour is the regional city for this area. It provides a significant share of the region's housing and jobs, and delivers a variety of high-level services, including civic, entertainment and cultural venues. Local services and jobs are also available at other centres, such as Woolgoolga and Sawtell. The area has a growing and diverse economy based on services and industry anchors like the Coffs Harbour Airport, and the Health and Education campuses. The delivery of the National Broadband Network (NBN) has facilitated a growing digital innovation sector and collaborative partnerships with adjoining local government areas. These adjoining areas have growing creative, manufacturing and transport industries that will facilitate new employment opportunities in Coffs Harbour and the Mid North Coast. The area also supports a highly productive agricultural hinterland, including the nationally significant blueberry industry. Recreation and tourism are important contributors to the Coffs Harbour economy. The area has become a destination for international and national sporting events like the World Rally Championship, and has significant natural areas including the Solitary Islands Marine Park and Bongil Bongil and Bindarri national parks.

The Plan sets out a series of goals and directions which recognise airports are important gateways for business, tourism and personal travel, as well as high-value freight. Airport precinct plans will be developed to investigate opportunities for compatible and complementary air transport-related industry and business uses, on land adjoining airports. In relation to Coffs Harbour, it is proposed to deliver an airport precinct plan that capitalises on opportunities to diversify and maximise the potential of value-adding industries close to the Airport.

Figure 3.1 taken from the Plan shows the urban growth area map for the Coffs Harbour LGA.

ASPENIE ST Figure 7: Coffs Harbour Regional City Investigation Area – Urban Land City Centre Airport Precinct Parks and Reserves Existing Urban Release Area Railway Station Urban Area Urban Renewal Education Precinct IIIIIII Railway Non-Urban Area Health Services Precinct Employment Land Regional Connection Watercourse Investigation Area – Employment Land Proposed Pacific Highway Upgrade Civic Precinct **Business Centre** Harbour

Figure 3.1 – Coffs Harbour LGA Urban Growth Area Map

Source: Department of Planning and Environment 2017.

3.3 Local Strategic Planning

In 2017, CHCC released the *MyCoffs Community Strategic Plan* (CSP) which is a whole-of-community Plan that sets out the long-term aspirations of the Coffs Harbour LGA community. It reflects expectations to be achieved in ten years and is the key reference point for decision-making impacting Coffs Harbour during this period. The Plan was prepared by Council on behalf of the Coffs Harbour LGA's residents, business and land owners, Councillors and community groups, and with regard to State and Regional policy direction. In this regard, the CSP forms part of the NSW Government's Integrated Planning and Reporting (IP&R) Framework sitting within the hierarchy established in part by the *North Coast Regional Plan 2036* discussed above. The CSP is intended to represent the main priorities and aspirations of the community and is not intended to cover only Council services and facilities. Other stakeholders are expected to contribute to deliver the long-term objectives of the CSP – for instance business, community groups and other tiers of government.

The MyCoffs Community Vision is "connected, sustainable, thriving".

MyCoffs represents the highest level of long-term planning focused on the LGA. It provides a blueprint to help achieve the community's vision of the future and identifies indicators to track progress with regards to meeting this vision.

All Councils in NSW are tasked to produce a set of documents as part of the IP&R Framework These documents set out where Coffs Harbour wants to be in ten years and how Council will respond to help achieve these aspirations through details of its budgets, activities and performance measures.

In relation to the Airport and under the adopted 2017 to 2021 Delivery Program, the key areas of focus are to:

- review and implement a sustainable management and development model for the Coffs Harbour Airport;
- continue the Airport upgrade program and
- pursue opportunities for non-Regular Public Transport (RPT) revenue-generation at the Airport (including progressing the Airport Enterprise Park Development).

In March 2019, CHCC released a partial *draft Local Growth Management Strategy, Coffs Harbour to 2036 and Beyond* (LGMS) for public comment. The draft LGMS is underpinned by the four key themes of the CSP:

- Community Wellbeing;
- Community Prosperity;
- A Place for Community; and
- Sustainable Community Leadership.

The aim of the draft LGMS is to provide a coordinated, strategic and planned approach to cater for growth in the LGA to 2036.

A Land Capacity Assessment Audit was completed by Council in October 2014. In relation to the Airport, the audit found it offers an opportunity to deliver further industrial land, capitalising on economic agglomeration. The audit also found there is no employment land available zoned as B5 Business Development and that collaboration with stakeholders is required to deliver high-value economic agglomeration to occur at the Airport, Health and Education precinct.

The growth model provided, maintains the community's preference for a Compact City approach. The Compact City Program will be delivered through various infill and renewal initiatives in targeted locations across the LGA, and by optimising existing greenfield areas that have been identified within Council's existing growth strategy since 2008, which have not yet been realised. Goals established to action the compact city approach in relation to the Airport are to:

- promote sustainable development within the Airport Precinct; and
- develop an Airport Precinct Plan.

Detailed maps provided within the Strategy have been developed to identify the location of infill, renewal and growth areas within the LGA to 2036. The infill and renewal maps identify expected additional dwelling yields which are to be realised in accordance with the key directions for infill and renewal areas.

Figures 3.2 to 3.4 show the proposed infill for those areas in proximity to the Airport.

Figure 3.2 – Proposed Infill Airport, Health, Education, Stadium and South Coffs Infill Airport, Health, Education, Stadium & South Coffs Residential Lands of the endorsed Coffs Harbour Local Growth Management Strategy. Airport
 Health Campus 3 Education Campus 4 Stadium (5) South Coffs Location **Principles** Collaborate with stakeholders to guide coordinated development across the five precincts PARK BEACH Facilitate housing diversity and choice COFFS HARBOUR · Promote university housing · Deliver sustainable communities, with higher residential densities & mixed land uses Enable efficient public transport and an urban layout which encourages walking and cycling SAWTELL BONVILLE Land Release Program (Collaboration with Department of Planning and Environment Required as part of the Regional Action Plan) 2 4 3 0 Key Investigation Area - Urban Land (Refer to relevant Growth maps) Dwelling yield / water and sewer Infrastructure subject to detailed masterplanning. Public Open Space Coastal Wetland Investigation Area - Employment Land National Park Littoral Rainforests Dwelling yield subject to detailed Investigation Area - Commercial Land State Forest Sufficient Sewer Capacity Infill or Renewal Area Sufficient Water Capacity Regional Park Existing Commercial Land Riparian Land & Watercourses US Insufficient Sewer Capacity This map and associated insets is indicative only and should be read in conjunction with Coffs Harbour City Council's online spatial mapping layers. Insufficient Water Capacity Existing Urban Land Waterways Proposed Highway Upgrade Corridor High Value Habitats Planned Water/Sewer Upgrades

Source: CHCC 2019.

Pacific Highway

Heritage Item

Heritage Conservation Area

1

Not Serviced

Schools

Not To Scale

Total Additional Dwelling Yield
Chapter 4 Compact City Program 55

Rural Land

Flood Prone Land

Coastal Hazard Zone

Figure 3.3 – Proposed Infill Coffs Harbour Jetty

Infill Coffs Harbour Jetty See Action 23.1 within Chapter 7 - Residential Lands of the endorsed Coffs Harbour Local Growth Management Strategy. Jetty Orlando Street Spine Jetty Camperdown Street S Jetty Harbour Drive Spine Jetty Camperdown Street Spine Location Principles Utilise existing urban structure and laneways to facilitate townhouse and mews urban forms · Deliver housing diversity and choice · Promote a strong sense of place through the protection of COFFS HARBOUR views and vistas Encourage quality streetscapes with consistent front setbacks Infill Program SAWTELL **High Priority** Key Investigation Area - Urban Land (Refer to relevant Growth maps) Public Open Space Littoral Rainforests National Park Investigation Area - Employment Land Dwelling yield subject to detailed investigation Sufficient Sewer Capacity Investigation Area - Commercial Land State Forest Sufficient Water Capacity Regional Park Infill or Renewal Area Riparian Land & Watercourses Insufficient Sewer Capacity Existing Commercial Land This map and associated insets is indicative only and should be read in conjunction with Coffs Harbour City Council's online spatial mapping layers. Insufficient Water Capacity Existing Urban Land Waterways Proposed Highway Upgrade Corridor High Value Habitats Pacific Highway Not Serviced Rural Land Heritage Item Flood Prone Land 0 Schools Heritage Conservation Area Coastal Hazard Zone Total Additional Dwelling Yield Chapter 4 Compact City Program 53

Source: CHCC 2019.

Figure 3.4 - Proposed Infill Sawtell



Source: CHCC 2019.

3.4 Population Projections

While the bulk of origin/destination RPT passengers would be expected to be associated with the Coffs Harbour LGA, the neighbouring LGAs also make up part of the wider Airport catchment. Clarence Valley also accommodates some Sydney RPT services through Grafton Airport, however, none of the remaining neighbouring LGAs host RPT services. A proportion of Kempsey LGA passengers also use Port Macquarie Airport which offers both Sydney and Brisbane RPT services.

The current population projections for the LGA's that form part of the Airport catchment are shown in **Table 3.1.**

Table 3.1 – LGA Population Projections

	Year				
LGA	2016	2021	2026	2031	2036
Bellingen	13,050	13,100	13,100	13,000	12,850
Clarence Valley	52,800	54,450	55,800	56,800	57,450
Coffs Harbour	75,850	80,450	84,800	88,900	92,650
Kempsey	29,800	30,300	30,700	30,850	30,850
Nambucca	19,800	20,250	20,550	20,800	20,850
Totals	191,300	198,550	204,950	210,350	214,650

Source: Department of Planning and Environment 2016.

3.5 Consultation

The Airport Enterprise Park development was publicly exhibited prior to receiving approval from the JRPP in July 2017.

At its 10 October 2019 Ordinary Meeting, Council resolved (2019/175) to place a draft of the Master Plan Update on public exhibition for 28 days and invited public submissions. The submission period commenced on 16 October 2019 and concluded on 12 November 2019. Three written submissions were received and a report prepared for Council.

CHAPTER 4

ECONOMIC AND REGIONAL SIGNIFICANCE



4 ECONOMIC AND REGIONAL SIGNIFICANCE

4.1 Role of the Airport

Coffs Harbour Airport is one of the largest and busiest regional airports in NSW and currently handles the second largest number of passengers flying to and from Sydney compared to other destinations within the State. The Airport is a facilitator of major economic activity for the city and people of Coffs Harbour by:

- providing for high capacity and high frequency quality RPT passenger services to/from Sydney, Melbourne and Brisbane;
- providing for a range of GA opportunities such as flying training, aviation medical services such as the Air Ambulance, private and commercial operators etc.; and
- providing for a range of other aviation and non-aviation related development opportunities.

4.2 Economic Contribution

The *Coffs Harbour Economic Development Strategy 2017-2022* has identified three areas of strategic importance. These have been selected where the economy has traditional strength (agriculture, tourism), but which still have growth potential, and those growth industries which drive economic growth and create jobs in shaping a regional city (digital and innovation). In all cases, these sectors are ones in which Council can play a positive role in providing civic leadership to stimulate development, investment and sustainable employment while working collaboratively with the business community.

The three areas of focus are:

- The digital economy which is at the forefront of innovation and technology, and central to a strong services sector. Digital has now become mainstream and "business as usual" rather than merely an appendage to economic development and the creation of jobs.
- The food manufacturing and agribusiness (agri-food) economy the latter a traditional strength of the Coffs Harbour LGA, but heavily skewed towards blueberries, which needs diversification, especially into value-add products, services and processing.
- **The visitor economy** a mainstay of the local economy, but which operates in a highly competitive market, and has a history of under-investment within the region.

A key direction arising from the Strategy is to support Council-adopted investment delivering infrastructure such as the Airport Enterprise Park, which is an initiative designed to attract commercial investment and jobs to the Airport precinct. This will cement the Airport's position as one of the fastest growing regional airports in Australia. It will also contribute to greater connectivity with key markets, including Sydney.

Council is a primary supporter, attractor and facilitator of major events for the region focusing on sporting, cultural and tourism opportunities. For example, Coffs Harbour hosts the Australian round of the World Rally Championship, several national sporting championships and the Australian Ladies Classic golf tournament.

The Australian Airports Association (AAA) publication *Regional Airport Infrastructure Study, Economic Contribution and Challenges of Regional Airports in Australia 2016,* assesses the economic contribution of regional airports and the economic challenges they face in operating and maintaining these airports, and in ensuring that future developments, will enable them to continue meeting the needs of the communities they serve.

Key findings from the report are:

- "Regional airports play vital social and economic roles in local communities across Australia.
- Regional airports across Australia invested \$185 million in 2014-15 to maintain and improve operations.
- These airports induced another \$83.4 million in spending in the rest of the Australian economy.
- Regional airports across Australia employed 1,720 full time equivalents (FTEs) in 2014-
- These airports induced the employment of another 2,750 FTEs in the rest of the Australian economy.
- Many regional airports owners face financial stress from the costs of maintaining and operating the airport.
- Regional airports also face great challenges in upgrading facilities to meet future aviation needs.
- On average regional airports had a 6 per cent funding gap in 2014-15 between the
 expenditure required to operate the airport and subsequent revenue collected from its
 operations.
- The funding gap was 3.4 per cent for Regular Public Transport (RPT) airports and 45.6 per cent for non-RPT airports.
- 61 per cent of regional airports had budget deficits in 2014-15.
- Expenditures at regional airports are expected to rise by 38 per cent over the next decade.
- Nearly 40 per cent of regional airports expect persistent budget deficits over the next 10 years.
- Across Australia's regional airport network, it is expected that the annual budget deficit
 will be \$17 million per year, equating to a \$170 million shortfall in essential
 infrastructure and maintenance funding at regional airports over the next 10 years."
 (AAA 2016)

CHAPTER 5 **AERODROME PLANNING AND STANDARDS**



5 AERODROME PLANNING AND STANDARDS

5.1 Manual of Standards Part 139 – Aerodromes (MOS 139)

The standards for aerodromes are contained in the Civil Aviation Safety Authority's (CASA) *Manual of Standards Part 139 – Aerodromes* (MOS 139). It is supported by a range of other documents such as Civil Aviation Advisory Publications (CAAP) and Advisory Circulars (AC). Australia's standards essentially mirror those published by the International Civil Aviation Organization (ICAO) in the document *Annex 14 Aerodromes Volume 1 Aerodrome Design and Operations*.

5.2 Rule Changes

CASR Part 139 and the Part 139 Manual of Standards for aerodromes were some of the first rule parts to transition to the *Civil Aviation Safety Regulations 1998* in 2003. The ruleset has undergone a comprehensive post-implementation review as part of CASA's standard rules development and implementation process.

The review considered issues of complexity, inflexibility, cost and regulatory impact. It was also a chance to align the rules with international best practice and the latest amendments to ICAO standards for aerodromes published in Annex 14.

Following the review process, the rules have been updated to reflect changes in the industry, technology, international standards and best practice. They are intended to be more flexible and practical to suit the diversity of aerodrome operations. Revised regulations covering the operations of aerodromes have been formally made. The revised Part 139 of the CASR includes a range of changes to the rules covering aerodromes to reduce complexity and costs and improve operational flexibility.

A summary of the changes is as follows:

- aerodromes will be either 'regulated' (certified) or 'unregulated', reducing complexity;
- only aerodromes with instrument flight procedures would be required to be regulated (as per current rules), otherwise regulation is voluntary;
- administrative and system requirements will be scalable, dependent on the size and complexity of the aerodrome operations and associated risk;
- physical standards will be more flexible, with minimum, maximum and new 'preferred' limits
 to suit a variety of practical situations. These design standards can be implemented as
 infrastructure is built, replaced or upgraded;
- there are new options and standards to use enhanced visual aids to improve safety;
- inspection and reporting requirements for all aerodromes will support risk-based regulatory surveillance;
- existing aerodrome facilities will continue to be 'grandfathered' until they are upgraded or replaced; and
- aerodromes currently issued exemptions under Part 11 of CASR may now be granted a wider range of enduring approvals subject to a suitable safety case being provided to CASA. This option is also available for aerodrome operators who wish to explore alternative means of compliance and can demonstrate an acceptable level of safety.

Not all of the above changes may be applicable at Coffs Harbour Airport.

In September 2019, CASA made the *Part 139 (Aerodromes) Manual of Standards 2019* (Part 139 MOS) which will replace the current MOS 139. The Part 139 MOS will not come into effect until August 2020 and a transition period to August 2022 will be provided. Therefore, for the purpose of the Master Plan Update, the standards adopted are those contained in the MOS 139 (Version 1.14: January 2017).

It is noted the new Part 139 MOS contains a range of changes which may benefit the Airport in the future.

5.3 Aerodrome Reference Code

Australia has adopted the 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:

- the first is a number related to the aerodrome reference field length; and
- the second is a letter related to the aeroplane wingspan and outer main gear wheel span.

Table 5.1 depicts the Aerodrome Reference Code.

Table 5.1 - Aerodrome Reference Code

Aerodrome Reference Code				
Code Element 1		Code Element 2		
Code Number	Aeroplane Reference	Code Letter	Wing Span	Outer Main Gear
	Field Length			Span
1	Less than 800m	Α	Up to but not	Up to but not
			including 15m	including 4.5m
2	800m up to but not	В	15m up to but not	4.5m up to but not
	including 1200m		including 24m	including 6m
3	1200m up to but not	С	24m up to but not	6m up to but not
	including 1800m		including 36m	including 9m
4	1800m and over	D	36m up to but not	9m up to but not
			including 52m	including 14m
		Е	52m up to but not	9m up to but not
			including 65m	including 14m
		F	65m up to but not	14m up to but not
			including 80m	including 16m

Source: CASA 2017.

A particular aerodrome specification is related to the more appropriate of the two elements of the Code, or to an appropriate combination of the two Code elements.

5.4 Helicopters

There are no prescribed physical geometric standards for helicopters contained in the MOS other than for markings. CASA publishes *CAAP 92-2 (2) Guidelines for the establishment and operation of onshore use of helicopter landing sites*. CASA has indicated it intends to eventually incorporate the

CAAP into the MOS 139, which will mean its provisions will become mandatory rather than advisory. The CAAP requires a design helicopter or helicopters to be adopted for the basis of helicopter facility planning.

5.5 National Airports Safeguarding Framework (NASF)

The NASF provides guidance on planning requirements for development that affects aviation operations. This includes building activity on and 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 consists of:

- Principles for National Airports Safeguarding Framework
- Guideline A: Managing Aircraft Noise
- Guideline B: Managing Building Generated Windshear and Turbulence
- Guideline C: Managing Wildlife Strike Risk
- Guideline D: Managing Wind Turbine Risk to Aircraft
- Guideline E: Managing Pilot Lighting Distraction
- Guideline F: Managing Protected Airspace Intrusion
- Guideline G: Communications, Navigation and Surveillance
- Guideline H: *Protecting Strategically Important Helicopter Landing Sites* (note this Guideline is not applicable to Coffs Harbour Airport)
- Guideline I: Managing the Risk in Public Safety Areas at the Ends of Runways

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 applies at all airports in Australia and affects planning and development on and around airports, including development activity that might penetrate operational airspace and/or affect navigational procedures for aircraft.

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

CHAPTER 6

EXISTING AIRPORT CHARACTERISTICS



6 EXISTING AIRPORT CHARACTERISTICS

6.1 Locality

Coffs Harbour Airport occupies 322.7ha of coastal land situated approximately 3.3km by road south of the city centre as shown in **Figure 6.1**. External ground access is via Hogbin Drive, a two/three lane arterial road which links the city to the village of Sawtell located south of the Airport. The north coast rail line is located adjacent and parallel to the eastern boundary of the Airport.

Figure 6.1 – Locality Plan



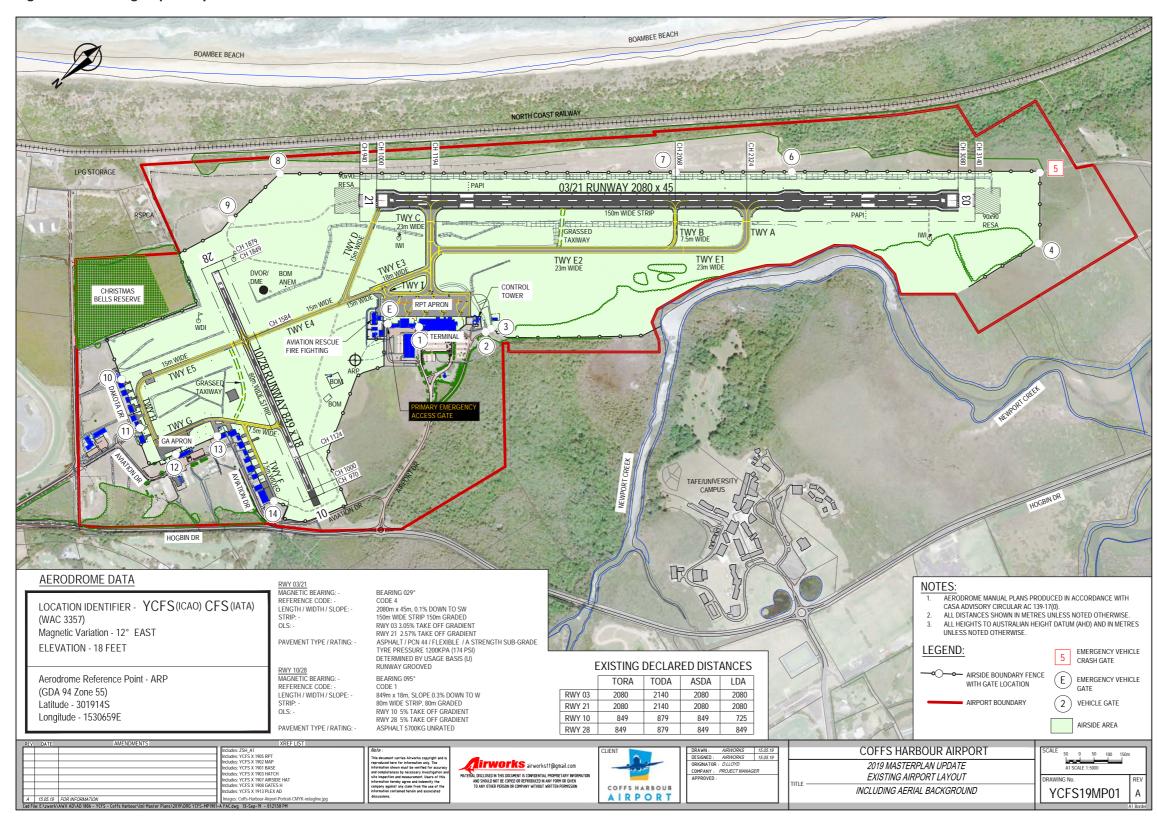
Source: Google Earth Pro Image © 2019 TerraMetrics, © 2018 Europa Technologies, © 2018 Google.



6.2 Existing Airport Layout

The main characteristics of the existing Airport layout are shown on Figures 6.2 to 6.4.

Figure 6.2 – Existing Airport Layout



Source: Airworks 2019.



Figure 6.3 – Existing RPT Precinct



Source: Airworks 2019.

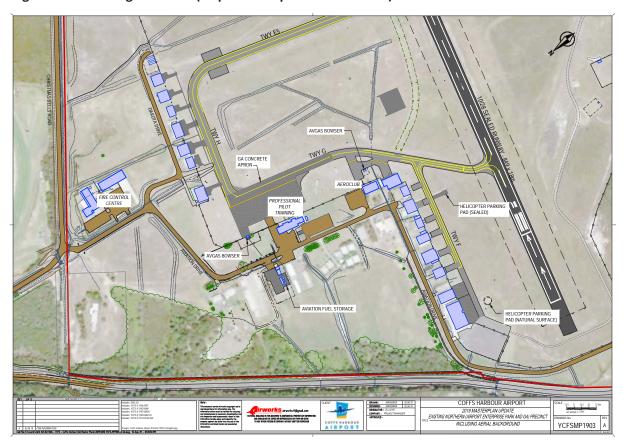


Figure 6.4 – Existing Northern (Airport Enterprise Park and GA) Precinct

Source: Airworks 2019.

6.2.1 Runways

Coffs Harbour Airport has a two-runway system aligned in the 03/21 and 10/28 directions as shown in **Figure 6.2.**

Runway 03/21 (the main runway) is declared as Code 4 and is 2,080m long by 45m wide, with 7.5m wide shoulders contained within a 150m wide graded runway strip. The runway was widened from 30m to 45m in 1999 to bring it to Code 4D (e.g. B767) specifications. This project was assessed and approved as part of the 1998 EIS. The runway widening also permits unrestricted operations by Code 4C aircraft (e.g. B737/A320), which previously could be operationally limited in some circumstances. The runway is of flexible pavement construction with a grooved bituminous concrete surface. Sealed 7.5m wide shoulders are also provided. The runway has a published Pavement Classification Number (PCN) of 44. The runway is of adequate strength for operations by current domestic jet types including BAe-146, F100, E190, B717, B737, and A320 series aircraft. The runway was last re-surfaced in 2014 at a cost of \$7.5M. Turning nodes of 60m width are established at the runway ends, and there is an intermediate turning node approximately 600m from the Runway 03 end. There are 60m long sections of blast protection pavement beyond each runway end. Runway end safety areas (RESA) 90m long by 90m wide abut the runway strip ends. The current published runway strip end gradients for the 03 and 21 ends are 2.99% and 2.5% respectively.

Runway 10/28 is declared as Code 1 and is 849m long by 18m wide, with 13.5m wide shoulders of remnant runway pavement contained within an 80m wide graded runway strip. The Runway 10 threshold is displaced by 124m. The runway is sealed with the pavement strength unrated and limited to aircraft not above a maximum take-off weight (MTOW) of 5,700kg. The current published runway strip end gradients for the 10 and 28 ends are 5% and 5.5% respectively.

The current declared distances for the runways are shown in **Table 6.1**.

Table 6.1 – Declared Distances

Runway	Take-off Run Available (TORA) (m)	Take-off Distance Available (TODA) (m)	Accelerate Stop Distance Available (ASDA) (m)	Landing Distance Available (LDA) (m)
03	2080	2140	2080	2080
21	2080	2140	2080	2080
10	849	879	849	725
28	849	879	849	849

Source: Airservices 2019.

6.2.2 Taxiways

Runway 03/21 is served by a network of taxiways as shown in **Figure 6.2**. Unless noted otherwise all taxiways are sealed.

Taxiways A, B, C and D all serve as entry/exit taxiways to Runway 03/21. Taxiways A, B and C are 23m wide. Taxiways A and B have grassed shoulders and Taxiway C has 7.5m wide sealed shoulders. Taxiway D is 15m wide with grassed shoulders.

Taxiways E1, E2 and E3 form a partial parallel taxiway system for Runway 03/21. The runway centreline to taxiway (E1-E2) centreline separation is 176m meeting Code D standards. The partial parallel taxiway system aids runway capacity in busy periods by avoiding the need for aircraft to

backtrack along significant lengths of the runway, prior to take-off or following a landing. It also enhances safety by mitigating the potential for runway incursions.

Taxiway E1 an E2 are 23m wide with grassed shoulders. Taxiway E3 south of Taxiway I is 18m wide and 15m wide north of Taxiway I. These sections of Taxiway E3 also have some remnant former runway pavements which serve as shoulders. Taxiway I is a short section of stub taxiway connecting Taxiway E3 to the RPT apron. A section of grass taxiway connecting Runway 03/21 to Taxiway E2 is located approximately 650m from the Runway 21 end.

Runway 10/28 is served by several taxiways as shown in **Figure 6.2**. Taxiway E4 connects the southern (RPT) sector to the northern (GA) sector. Taxiways E4, E5 and H are all 15m wide with some remnant former runway or taxiway pavements which serve as shoulders. Taxiway G is 7.5m wide with 3m wide sealed shoulders and connects the GA concrete apron with Runway 10/28. Taxiway F is 7.5m wide and serves several fixed and rotary winged hangars to the west of Taxiway G. A grass taxiway links Taxiways G and E5.

Several taxiways have weight restrictions as shown in **Table 6.2.**

Table 6.2 – Taxiway Weight Restrictions

Taxiway	Weight Restriction		
B, F and G	Not above 5,700kg MTOW		
E4, E5 and H	Not above 19,000kg MTOW		
D, E3 and I	Not above 34,000kg MTOW		
Grassed taxiways	Not above 2,700kg MTOW		

Source: Airservices 2019.

6.2.3 Aprons

The original high strength RPT apron developed in 1987 has been extended and strengthened several times in response to demand and the need to cater for larger aircraft. The apron was most recently upgraded in 2016 at a cost of \$4.4M. As shown in **Figure 6.5**, the apron can currently accommodate the simultaneous operation of up to five free moving power-in/power-out Code C medium jet aircraft such as B737-800 and A320 family, including the longer A321 for Bays 1-3. This more than supports the current airline schedule and provides for contingency parking in the case of aircraft unserviceability, or for larger itinerant aircraft remaining for extended periods. A paved area adjacent to the southern end of the apron is provided for ground service equipment (GSE) storage.

TWY C

TW

Figure 6.5 – Existing RPT Apron Parking Positions

Source: Airworks 2019.

Free moving power-in/power-out parking positions are space intensive and greater apron efficiencies can be achieved using a power-in/push-back configuration. The current apron length would permit seven B737-800/A320 parking positions to be provided, albeit with a need to slightly increase apron length, provide a push-back node at the southern end and add some Taxiway I pavement fillet widening (as shown on **Figure 6.6**). The aircraft to aircraft spacing shown is greater than required under MOS 139 to facilitate rear door passenger access and GSE operations more generally. It is acknowledged that power-in/push-back configurations introduce added costs to an airlines' operation and are generally only established when physical constraints make it necessary, or when passenger walking distances become excessive.

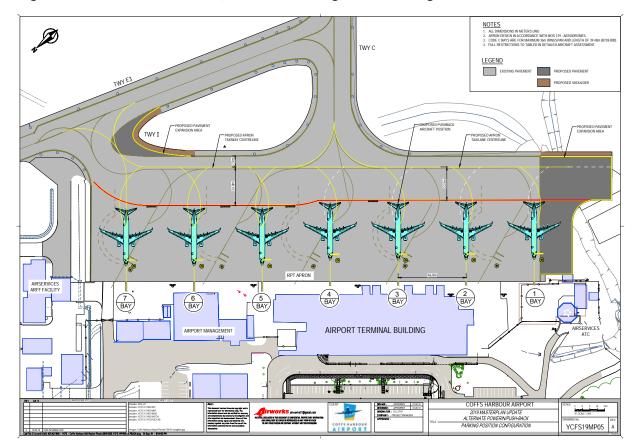


Figure 6.6 – Alternative Power-In/Push-Back Parking Position Configuration

Source: Airworks 2019.

The concrete (former RPT) apron at the northern end of the GA sector can accommodate a range of aircraft types including some light business jets. There are no marked aircraft parking positions provided. Light aircraft and helicopter aprons are provided in several locations associated with the private and business hangars in the GA area, and there are also marked grassed parking areas available for GA aircraft and helicopters.

6.2.4 Helicopters

Currently there are no published Helicopter Landing Sites (HLS). An existing helicopter parking pad is located to the south of Taxiway F at its eastern end. Additionally, the earthworks component for a future helicopter parking pad was constructed just south of the western Eaglecopters facility, in conjunction with the associated apron development at that time.

6.3 Airfield Lighting

Runway 03/21 is equipped with medium intensity runway white edge lighting, and associated threshold and runway end lighting. The turning nodes are equipped with blue edge lighting. Lit taxiways are also equipped with blue edge lighting. Runway 10/28 is not lit.

The primary and secondary cable system for Runway 03/21 and associated taxiways was replaced in 2019 at a cost of \$1.2M and a standby power generator of 450KVA capacity and associated infrastructure was installed in 2017 at a cost of \$0.75M.

A single-sided Precision Approach Path Indicator (PAPI) system serves the 03 and 21 approaches.

Pilot Activated Lighting and Aerodrome Frequency Response Unit capabilities are provided.

6.4 Visual and Non-Visual Ground Navigation Aids

Runway, taxiway and apron pavement markings, and runway strip markers are provided in accordance with MOS 139.

The Airport has two illuminated wind direction indicators (IWDI) and one wind direction indicator (WDI) as shown on **Figure 6.2**. The IWDI near the Runway 21 end is also co-located with the Airport signal circle.

An aerodrome beacon is mounted on the top of the control tower cab.

Airservices' co-located VHF Omni-directional Range (VOR) and Distance Measuring Equipment (DME) is situated south of the Runway 28 end as shown on **Figure 6.2**. The VOR/DME provides for both enroute navigation guidance and published non-precision instrument approaches for Runway 03/21.

Airservices' former non-directional beacon (NDB) was decommissioned in 2016.

6.5 Global Navigation Satellite System (GNSS) Procedures

There are published Global Navigation Satellite System (GNSS) procedures supporting similar non-precision instrument approaches for Runway 03/21. These do not rely on any ground-based navigation equipment.

Airservices will introduce Baro-VNAV technology for landing approaches in October 2019. Used in conjunction with the GNSS approaches, it will allow aircraft to land more smoothly and reduce pilot workload by decreasing their reliance on visual assessments, leading to improved safety. The technology will allow the missed approach point, which is currently located 550m prior to the runway threshold, to be relocated to the runway threshold. This will enable the altitude by which the pilot must be visual to be lowered to 520 feet from 700 feet for Runway 03, and to 500 feet from 680 feet for Runway 21 for straight-in approaches, and to 800 feet (from 1,000 feet) for circling approaches depending on the type or category of aircraft. These altitude reductions will lead to less missed approaches or diversions needing to be made.

6.6 Airspace Management

Airservices owns and operates the Air Traffic Control (ATC) tower as shown on **Figures 6.2** and **6.3**. The tower is staffed during published hours (generally coinciding with RPT operations). During hours of operation, the airspace is classified as Class D with responsibility for a block of airspace up to 4,500 feet above mean sea level surrounding the Airport. The tower provides both aerodrome and approach control services. Outside of tower hours, the airspace reverts to Class G. Circuit directions are left-hand apart from Runway 03 which is right-hand unless directed by ATC.

6.7 Aviation Rescue and Fire Fighting (ARFF)

Airservices owns and operates the ARFF fire station as shown on **Figures 6.2** and **6.3.** The fire station is staffed during published hours and provides a Category 6 service. It is understood the facility,

which was built and commissioned in 2015, can support a Category 7 service with the addition of further staff and fire vehicles.

6.8 Bureau of Meteorology (BoM)

The BoM owns and operates several facilities at the Airport which are shown on **Figures 6.2** and **6.3**. These are the anemometer, vertical wind profiler and instrument enclosure. BoM staff are no longer located at the Airport, following the BoM's transition to automated facilities. Council Airport staff provide support to the BoM as required. An aerodrome weather information service is provided by telephone and VHF ground-to-air radio.

6.9 Aviation Fuel

JET A-1 and AVGAS aviation fuels, and other lubricants are available at the Airport which are provided by commercial operators. Two AVGAS bowsers are located in the GA area as shown on **Figure 6.4**. JET A-1 refuelling is undertaken by mobile tanker. The bulk aviation fuel storage facility is situated landside in Aviation Drive as shown on **Figure 6.4** and has four 27,000 litre above ground tanks. This facility is owned by World Fuel Services.

6.10 RPT Terminal Precinct

6.10.1 Passenger Terminal

The passenger terminal is located as shown on **Figures 6.2** and **6.3**. The original terminal was opened in 1986 in conjunction with Runway 03/21 and other associated infrastructure. Since then, the terminal has been extensively modified and extended several times in response to growing passenger demand and increased aircraft size, as well as the introduction of mandated security screening requirements for passengers and baggage.

The largely modular nature of the original single-level steel framed design has assisted in being able to extend the building relatively efficiently. The most recent extensions were undertaken in 2018 at a cost of \$2.1M, and the building now provides a total floor area of some 3,985 square metres. The existing terminal facilities are shown on **Figure 6.7**.

Boggage Molecup

Departure Lounge

Departure Lounge

Arrivals

Sterile Arsa

Departures Concourse

Set Down

Pick Up

Set Down

Pick Up

Set Down

Figure 6.7 – Existing RPT Terminal Facilities

Source: Airworks 2019.

The main functional areas within the building include:

- 11 airline check-in desks;
- Qantas regional lounge and future airline lounge/meeting room;
- an extended departures concourse;
- passenger and cabin baggage screening point;
- sterile departures lounge downstream of the screening point;
- three departure gates;
- public arrivals area;
- two baggage reclaim devices;
- two food and beverage outlets (one within the departures lounge and one within the arrivals area;
- six car rental desks;
- three separate toilet facilities;
- baggage make-up and breakdown areas; and
- airline ground handling offices.

6.10.2 Council Airport Facilities

Council Airport staff occupy three buildings within the precinct as shown on **Figure 6.3** as follows:

• Airport administration building and charter lounge;

YCFS19MP07

- · hangar facility next to the administration building; and
- plant and machinery shed south of the control tower.

6.10.3 Airservices' Facilities

Airservices has three facilities within the precinct as shown on Figure 6.3 as follows:

- control tower;
- satellite ground station (SGS); and
- ARFF fire station.

6.10.4 Air Freight Building

The air freight building is located to the north of the Council hangar as shown on **Figure 6.3**. The building functions primarily as a throughput rather than a storage facility, given the express nature of most air freight product. Domestic animal transfers are also undertaken in conjunction with the airlines. A small number of dedicated air freight services operate using Metro aircraft but most air freight is carried by passenger aircraft.

6.10.5 Other Buildings

Another building which adjoins the air freight building was originally constructed for BoM use. As the BoM no longer has a staffed presence on the Airport, this building is leased to two third parties.

6.10.6 Ground Access and Parking

Primary ground access to the RPT precinct is provided from Hogbin Drive via a roundabout intersection with Airport Drive as shown on **Figure 6.2.** Airport Drive is a two-lane road prior to bifurcating into one-way inbound and outbound routes either side of the main public parking area in front of the terminal. Along Airport Drive just prior to the terminal there is a taxi storage lane and bus stop. Forest Coach Lines service the Airport three times daily as part of their Coffs Harbour to Sawtell route. Along the terminal kerb frontage, there are public drop-off and taxi pick-up sections, with a through lane for exiting traffic. Recent modifications have increased the available kerb length in front of the terminal as shown on **Figure 6.8**. A median divides this section from another two through lanes and the main public car park.

Setdown

Set

Figure 6.8 – Recent Modifications to Terminal Kerb Frontage

Source: CHCC 2017.

The general car park is accessed from either the inbound section of Airport Drive or from an entry near the end of the terminal. The car park has 240 car spaces of which seven are for disabled drivers. Fees apply for stays longer than 15 minutes.

There is a car rental car park located to the south of the public car park with 120 car spaces. It is accessed for drop-off from the outbound one-way section of Airport Drive. Rental cars exit the car park via Fellowship Drive which rejoins Airport Drive.

There is an undercover security car park located to the north of the main car park which also attracts fees for users. This facility provides for 118 car spaces of which two are for disabled drivers.

An internal airport road provides access from Airport Drive to a staff car park with 34 car spaces, ARFF, air freight and other non-terminal related facilities. This road also serves public vehicles exiting the security car park.

Just to east of the roundabout intersection with Hogbin Drive, there is a T-intersection with Airport and Aviation Drives. Public use of this section of Aviation Drive is discouraged, although further north Aviation Drive becomes the one of the main access roads for the Airport Enterprise Park and GA precinct.

6.11 Airport Enterprise Park and GA Precinct

The northern precinct accommodates the bulk of GA activities at the Airport. It is also the location for the Airport Enterprise Park development which will facilitate a range of land use opportunities, including future GA requirements.

Currently, there are 16 GA hangars which are serviced from Taxiways F, G and H. as shown on **Figure 6.4**. These hangars are all privately owned on land leased from Council. Most GA operations are by fixed wing aircraft although the two hangars at the western end of Taxiway F are dedicated helicopter related facilities.

Other facilities in the precinct include the Aero Club, the PPT flying training facility and the bulk aviation fuel storage facility. Additionally, at the northern end of the precinct there is a large Fire Control Centre operated by the NSW Rural Fire Service.

The NSW Air Ambulance operates a patient transfer service adjacent to the northern end of the PPT building, performing into-aircraft transfers on the adjacent apron. This is a relatively high frequency regular operation as well as catering to emergency situations. Other aero medical operators also utilise this area.

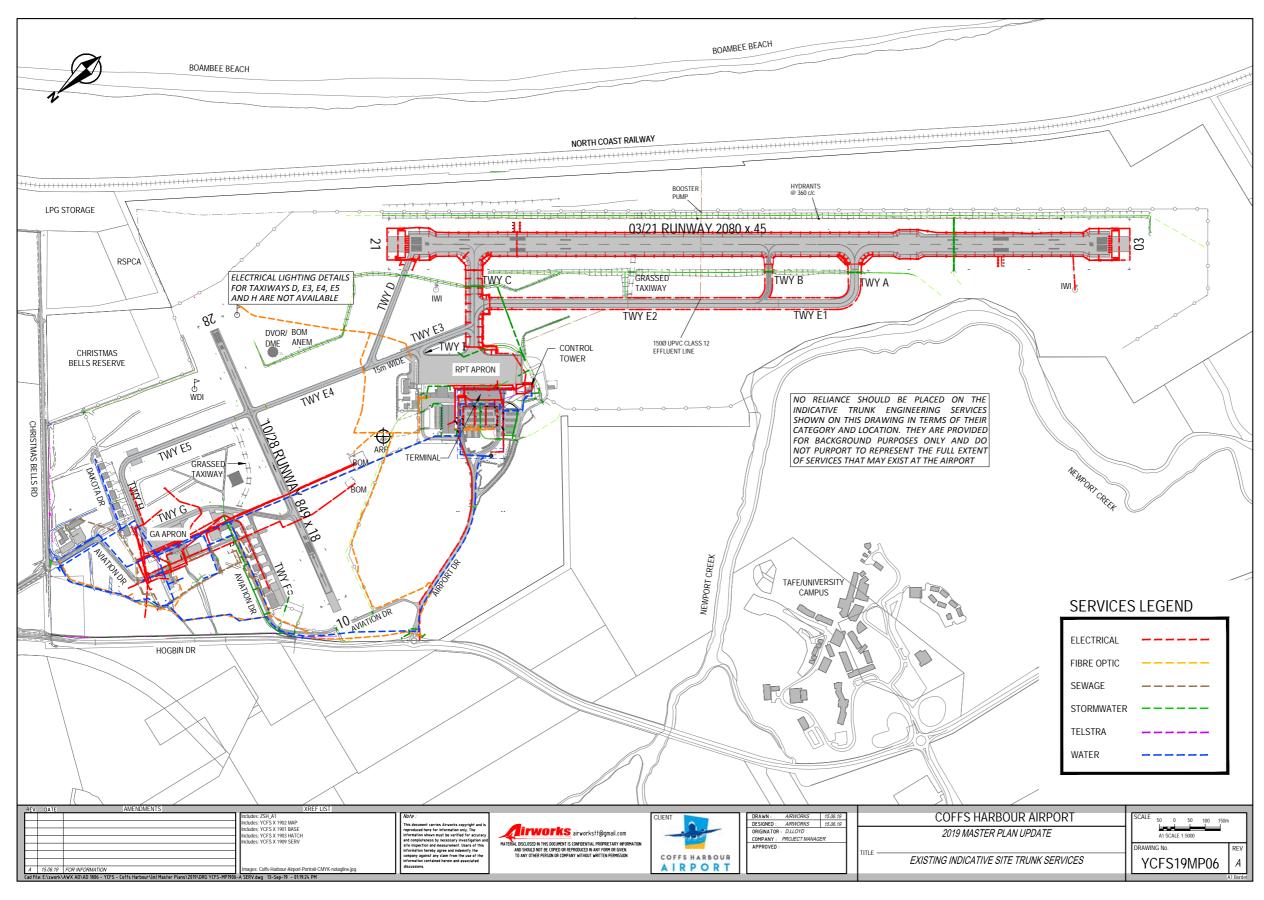
The precinct has recently seen demolition of several building and facilities as the site is prepared for future development associated with the Airport Enterprise Park.

External ground access is provided from Hogbin Drive and Christmas Bells Road. Internal Airport access is provided via Aviation and Dakota Drives which service the existing facilities in the precinct. Public car parking areas are located near PPT and the Aero Club. Elsewhere, cars park on or adjacent to individual leased areas.

6.12 Trunk Engineering Services

The Airport is currently serviced by reticulated water, sewerage, electricity and telecommunications. **Figure 6.9** shows general layout and location of the trunk engineering services.

Figure 6.9 – Trunk Engineering Services



Source: Airworks 2019.





6.12.1 Water Supply

Water is supplied to the Airport from a 150mm diameter main which runs along Airport Drive from Hogbin Drive to the Airport Enterprise Park. This connects to a 200mm diameter main that extends along Howard Street. As part of the development of the Airport Enterprise Park, a network of 150mm and 100mm mains will be provided to connect to these main supply lines. A water storage tank and pump located adjacent to Airport Drive in the RPT precinct, provides additional storage and booster pressure for fire-fighting purposes via a 150mm diameter fire service main. Water is provided from the Roberts Hill Service Reservoir which has a capacity of 20 megalitres and a top water level of 92m above Australian Height Datum (AHD).

6.12.2 Sewerage

Sewage from the terminal building gravitates via a 150mm diameter sewer line with a capacity of 18 litres per second (L/s) to a sewage pumping station (Number 41) located on the southern side of the public car park. The pump station has an installed capacity of 2.5 L/s. A 65mm diameter rising main runs north from Pump Station 41 and connects to a sewer manhole at the rear of the Aero Club, which in turn discharges to a second sewage pumping station (Number 40). Pump Station 40 which also has an installed capacity of 2.5 L/s, services a number of allotments in the northern precinct, including the PPT facility, Aero Club and hangars, before discharging via a 65mm diameter rising main to the Council sewerage reticulation system adjacent to Howard Street.

As part of the Airport Enterprise Park development, some of this infrastructure will be replaced, with the majority of the proposed lots being serviced by a pressure sewer system pumping directly to the treatment plant. This is further described in **Section 9.4.7.2.**

6.12.3 Electrical Supply

Electricity is supplied to individual sites around the Airport by Essential Energy. This supply is provided by two 300kVA transformers, one located in the RPT precinct near the terminal and the other located in the northern (Airport Enterprise Park/GA) precinct. Each sub-station is supplied by a single 11Kv power supply.

6.12.4 Telecommunications

The Airport was originally serviced by Telstra through two 50mm diameter conduits, one servicing the RPT precinct and the other the control tower. These were operating close to full capacity. With the introduction of NBNCo, the Telstra system has been replaced by a fibre optic system providing spare capacity.

Additionally, Council has developed its own fibre optic network through "City Smart Solutions" which includes the Airport. This network is available for connection to new lots developed in the Airport Enterprise Park as described in **Section 9.4.7.4.**

6.13 Security

The Airport is designated a security-controlled airport and therefore subject to the application of the *Aviation Transport Security Act 2004* and associated regulations. The Department of Home Affairs is responsible for administering the legislation while aviation industry participants, such as the airport and aircraft operators, are responsible for delivering security on a day-to-day basis.

The Airport is required to submit, hold and maintain an approved Transport Security Program (TSP). The TSP sets out the measures and procedures that need to be met to implement to meet the specific obligations under the legislation. The TSP identifies the Airport's security measures based on the local security risk profile and operating environment.

Aviation security screening of passengers and baggage before boarding or loading an aircraft is an important security layer and is the responsibility of Council who are the authorised screening authority.

CHAPTER 7

HISTORICAL AND CURRENT AIR TRAFFIC



7 HISTORICAL AND CURRENT AIR TRAFFIC

7.1 Historical RPT Passengers

In the ten years to 2018/19, RPT passenger numbers grew from just under 319,000 to just under 397,000, representing a compound average growth rate (CAGR) of 2.1%. **Figure 7.1** depicts annual passengers between 2009/10 and 2018/19.

450000
400000
350000
250000
100000
50000
0
2009/10 2010/11 2011/12 2012/13 2013/14 2014/15 2015/16 2016/17 2017/18 2018/19
Financial Year

Figure 7.1 – Historical RPT Passengers 2009/10 to 2018/19

Source: CHCC 2019.

During this period there were several major changes to services and routes as follows:

- 2013 commencement of Tigerair services to Sydney;
- 2013 cessation of Brindabella services to Brisbane;
- 2014 commencement of Qantas/QantasLink services to Melbourne;
- 2015 commencement of Tigerair services to Melbourne;
- 2016 commencement of Fly Corporate services to Brisbane;
- 2016 cessation of Virgin Australia services to Melbourne
- 2016 cessation of QantasLink services to Melbourne;
- 2016 commencement of Fly Pelican services to Newcastle (Williamtown);
- 2017 cessation of Fly Pelican services to Newcastle (Williamtown);
- 2018 reduction of Virgin Australia services to Sydney from double daily to one per day; and
- 2018 increase of Tigerair services to Sydney.

7.2 Historical RPT Aircraft Movements

Over the ten-year period to 2018/19, RPT aircraft movements declined from around 7,100 to around 5,700 per annum as shown in **Figure 7.2**. However, average passengers per flight have grown from

45 to 69 which reflects progressive up-gauging in aircraft size by the airlines. This up-gauging is a consistent feature in the Australian aviation landscape and can assist airport operators by making better use of existing infrastructure where it is appropriately sized.

8000

7000

Financial Year

Figure 7.2 – Historical RPT Aircraft Movements 2009/10 to 2018/19

Source: BITRE 2019.

7.3 Overall Historical Aircraft Movements 2009/10 to 2018/19

Other than RPT, aircraft movements include those by GA fixed wing, helicopters and military. **Figure 7.3** depicts the total aircraft movements by category between 2009/10 and 2018/19.

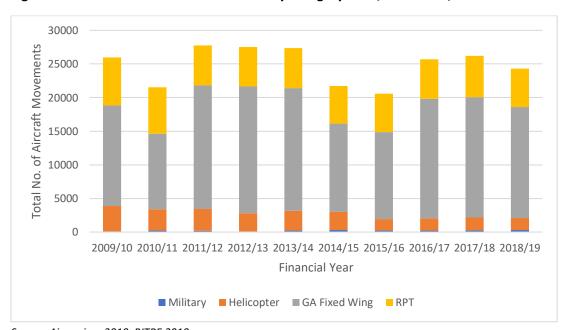


Figure 7.3 – Historical Aircraft Movements by Category 2009/10 to 2018/19

Source: Airservices 2019, BITRE 2019.

Figure 7.3 shows the volatility in the GA fixed wing and helicopter categories which is not uncommon in the broader Australian context. Specific CAGR for the various categories are as follows:

RPT -2.2%
GA Fixed Wing 1.0%;
Helicopter -7.2%; and
Military 11.0%.

Average annual movements for the various categories over the ten-year period were as follows:

RPT 6,084;
GA Fixed Wing 15,993;
Helicopter 2,570; and
Military 216.

Except for military, it is noteworthy that aircraft movements declined or were virtually flat across all categories over the ten-year period.

It should also be noted that the movement data is based on Airservices' tower records and therefore excludes the relatively small number of operations which took place outside the tower's hours of operation.

7.4 Current Operations

7.4.1 RPT Passengers

Four airlines currently service Coffs Harbour on three routes using the aircraft and seating configurations shown in **Table 7.1**.

Table 7.1 - Current RPT Operations

Carrier and Route	Aircraft Type	Typical Seating
QantasLink	DHC8-400	74
(Sydney)	DHC8-300	50
	DHC8-200	36
Virgin Australia	B737-800	176
(Sydney)		
Tigerair	A320/B737-800	180
(Sydney and Melbourne)		
Fly Corporate	SAAB 340B	34
(Brisbane)	Metro 23	19

Source: airline websites 2019.

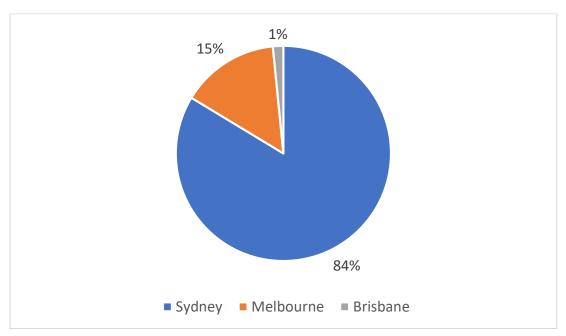
In the current scheduling season, these carriers provide the following services:

- QantasLink up to six services per day to/from Sydney;
- Virgin Australia one service per day to/from Sydney;
- Tigerair six services per week to/from Sydney;
- Tigerair four services per week to/from Melbourne; and
- Fly Corporate six services per week to/from Brisbane.

The Sydney market dominates the passenger numbers through Coffs Harbour by a large margin. Direct Melbourne services commenced in 2004 and Brisbane services were only reinstated in 2016 after an absence of over two years. Newcastle services commenced in October 2016 and ceased in August 2017.

Figure 7.4 shows the route market share for 2018/19.

Figure 7.4 – Route Market Share 2018/19

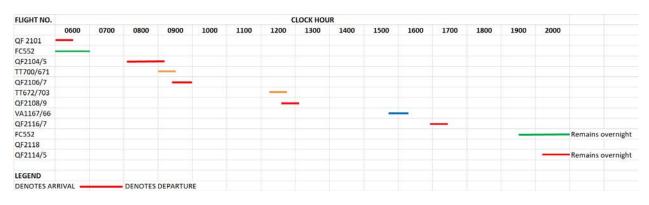


Source: CHCC 2019.

7.4.3 RPT Busy Day/Hour

In the current scheduling season, the busy day occurs on Mondays, Wednesdays and Fridays. **Figure 7.5** depicts a typical busy day gate occupancy by Flight Number.

Figure 7.5 – Current Schedule Typical Busy Day Gate Occupancy Chart



Source: CHCC 2019.

Figure 7.5 shows the busy hour occurs in the 0900-1000 hour with three concurrent operations through the terminal. This consists of three departures and two arrivals. Assuming on-time running this means potentially two DHC8-400 (74 seat) and one B737-800/A320 (180 seat) aircraft. **Table 7.2** shows typical passenger numbers based on a range of potential load factors (LF).

Table 7.2 – Typical Current Busy Hour Passenger Numbers

Arrivals	70% LF	75% LF	80% LF	Departures	70% LF	75% LF	80% LF
				QF 2105	52	56	60
TT 700	126	135	144	TT 671	126	135	144
QF 2106	52	56	60	QF 2107	52	56	60
TOTALS	178	191	204	TOTALS	230	247	264

Source: current airline schedules.

These busy hour numbers are historically low and well within the capacity of the terminal and its associated systems to function efficiently. Previous schedules have resulted in a busy hour consisting of concurrent operations by two B737-800/A320 and one DHC8-400 aircraft. This is also within the facilitation capability of the terminal and its associated systems. **Table 7.3** shows typical passenger numbers related to a previous busy hour based on a range of potential LF.

Table 7.3 – Typical Previous Busy Hour Passenger Numbers

Arrivals	70% LF	75% LF	80% LF	Departures	70% LF	75% LF	80% LF
B737-800/A320	126	135	144	B737-800/A320	126	135	144
B737-800/A320	126	135	144	B737-800/A320	126	135	144
DHC8-400	52	56	60	DHC8-400	52	56	60
TOTALS	304	326	348	TOTALS	304	326	348

Source: previous airline schedules.

Table 7.3 shows the terminal and its associated systems accommodated around 300 to 350 arriving and 300 to 350 departing passengers (total 600-700) in a previous busy hour. It is noted this previous busy hour occurred prior to the most recent expansion of the terminal footprint in 2018.

7.4.4 Non-RPT Operations

Coffs Harbour currently accommodates a range of GA activities including the Air Ambulance, other types of aeromedical and emergency management services operations, helicopter maintenance, fixed wing flying training, charter and private aircraft. Military aircraft movements remain a small component of the overall fleet mix.

CHAPTER 8

AIR TRAFFIC FORECASTS



8 AIR TRAFFIC FORECASTS

Tourism Futures International (TFI) was commissioned by Council to prepare air traffic projections for the 20-year period from 2019/20 through to 2039/40. The planning period for this Master Plan Update is also to 2039/40 to align with the forecasts. TFI's full report, *Air Traffic Prospects for Coffs Harbour Airport September 2019* has been provided to Council as a standalone report. **Sections 8.1** to **8.7** below are taken directly from the report and have been reformatted to suit this document.

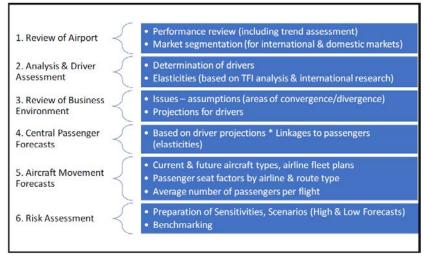
8.1 Approach to Forecasts

The approach adopted by TFI is based on a number of elements:

- A review of the traffic history available for domestic and international passenger traffic for Australia and Australian airports. Traffic activity data is available from BITRE and international visitor and resident travel data is available from the Australian Bureau of Statistics (ABS).
- Analysis of the aviation and business environment, current airline schedules and proposed new services.
- The use of the models TFI has developed over the past 29 years for forecasting Australian
 airport growth. For the international market these contain estimates of the responsiveness
 of passenger traffic to general economic activity (generally measured by GDP), air fares and
 exchange rates. The main influences on domestic growth are Australian GDP/GSP and
 airfares. Results from aggregate and market-based models are compared before finalising
 results.

In summary, the steps involved are shown in **Figure 8.1** below.

Figure 8.1 – TFI Forecasting Approach



Source: TFI 2019.

8.2 Drivers, Business Environment and Key Assumptions

The assumptions shown in **Table 8.1** below are the main economic/capacity assumptions underlying the forecasts for the Airport. In the medium-term the key issues in the business environment include:

- Policy uncertainties, namely around negotiation of the UKs relationship with the EU post-Brexit and around US regulatory and fiscal policies.
- The risk of a sharp slowdown in China if authorities fail in their efforts to rein in the credit expansion.
- Low inflation, weak productivity growth and rising old-age dependency ratios in some of the advanced economies.
- Constrained scope for easing fiscal policy to support economic activity in many of the emerging and developing economies.
- Pressures for increased protectionism and the associated risk of intensified conflict and geopolitical tensions.
- For Australia the Reserve Bank notes that inflation pressures and wages growth are subdued. The slow growth in real wages and high levels of household debt remain a source of uncertainty in the outlook for household consumption.

In the shorter-term, airline capacity decisions are important, and these have influenced the strong growth over recent years. For the next 18 months key capacity influences for Coffs Harbour include:

- Nationally the combined impact of pilot shortages and delays in aircraft deliveries.
- The impacts of cuts to Qantas and Virgin Australia services.

Table 8.1 – Key Forecast Assumptions – Annual Change

Driver	2002 to 2019	2020 to 2029	2030 to 2040
Australian GDP	2.9%	2.8%	2.6%
Australian Population	1.6%	1.5%	1.2%
NSW GDP	2.3%	2.5%	2.3%
NSW Population	1.2%	1.4%	1.1%
Coffs Harbour GRP	2.6%	1.6%	1.5%
Coffs Catchment Population	0.7%	0.6%	0.5%
Australian Seat Capacity	2.9%	3.0%	3.5%
Discount Fares	-2.2%	0.5%	-0.5%
Oil Prices	6.5%	2.0%	2.0%

Source: TFI based on research and Economic Forecasters.

8.3 Passenger and RPT Aircraft Movement Forecasts

TFI reviewed a large number of potential drivers for traffic at Coffs Harbour. These include national, State and regional factors. TFI developed several models based on these factors. The main model used NSW GSP and national discounted airfares. However, other models use the national and regional factors. TFI also identified the main traffic segments and estimated growth for each. The outcome of the review is the **Scenario 1**-Central forecasts shown in **Table 8.2** along with the forecast

growth rates. In recognition of the uncertainty associated with forecasting, TFI has prepared Central, Low and High Forecasts. The variations are built based on varying assumptions:

Scenario 1 is based on an analysis of past history.

- Central forecasts are based on assumptions shown in **Table 8.1** above.
- For the Low scenario a 0.5 percentage point reduction on the Central assumptions for growth in GDP and GSP is assumed throughout the forecast period. Fares are assumed to increase at a rate of 0.5 percentage point per year above the Central assumption also throughout the forecast period.
- For the High scenario a 0.5 percentage point increase in the Central assumptions for growth in GDP and GSP is assumed throughout the forecast period. Travel costs are assumed to decrease at a rate of 0.5 percentage point per year below the Central assumption.

Scenario 2 assumes that Coffs Harbour grows strongly, built around visitors from Melbourne and growth in Melbourne air services. It is assumed that competitive services from Melbourne (daily from two airlines) are secured by FY30 and this grows to 16 services weekly by FY35 (at 85% passenger seats factor). From FY31 growth is at the overall **Scenario 1**-Central forecast growth rate. Note that TFI assumes that 20% of the Melbourne traffic is transferred from the Sydney route (i.e. previously travelled from Melbourne to Coffs Harbour over Sydney). **Scenario 2** shows the stronger growth possible for Coffs Harbour if the region can develop further as an interstate destination out of Melbourne and Southeast Australia generally.

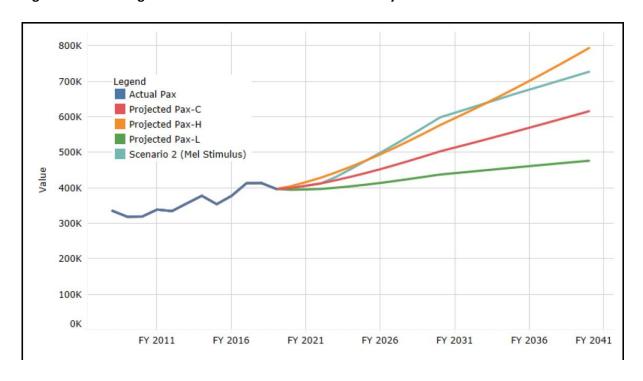
Table 8.2 shows that **Scenario 1** passenger movements are forecast to grow from 397,000 in FY19 to 503,000 by FY30 (within the range of 437,000 to 577,000 passengers). Forecast growth averages 2.1% over the forecast period FY19 to FY40 for the **Scenario 1** Central forecast compared to 0.9% for the Low scenario and 3.4% for the High scenario. **Scenario 2** passenger movements grow to 599,000 by FY30 and 727,000 passengers by FY40, a CAGR over FY19 to FY40 of 2.9%. **Figure 8.2** summarises the forecasts in graphical form.

Table 8.2 – Domestic Passenger Forecasts FY19 to FY 40

Years End 30 June	Actual (000's)		Scenario 2 (000's)		
		Central	High	Low	
2009	318				
2014	377				
2018	413				
2019	397	397	397	397	397
2025		441	476	409	476
2030		503	577	437	599
2035		558	679	457	664
2040		616	794	476	727
CAGR					
2009 to 2019	2.2%				
2014 to 2019	1.0%				
2019 to 2030		2.2%	3.5%	0.9%	3.8%
2030 to 2040		2.1%	3.2%	0.9%	2.2%
2019 to 2040		2.1%	3.4%	0.9%	2.9%

Source: TFI 2019

Figure 8.2 - Passenger Forecasts for Coffs Harbour - Summary



Source: TFI 2019.

Table 8.3 provides aircraft movement forecasts consistent with the passenger forecasts. TFI assumes an increase in average seats per movement (from 96 in FY19 to 114 by FY40) and in average passenger seat factors (from 72.5% in FY19 to 78.5% by FY40).

Table 8.3 – RPT Aircraft Movement Forecasts

Years End 30 June	Actual (000's)		Scenario 2 (000's)		
	, ,	Central	(000's) High	Low	, ,
2009	7.1				
2014	5.9				
2018	5.9	5.9	5.9	5.9	5.9
2019	5.7	5.7	5.7	5.7	5.7
2025		6.0	6.5	5.5	6.5
2030		6.5	7.4	5.6	7.7
2035		6.7	8.2	5.5	8.0
2040		6.9	8.9	5.3	8.2
CAGR					
2009 to 2019	-2.1%				
2014 to 2019	0.7%				
2019 to 2030		1.2%	2.4%	-0.1%	2.8%
2030 to 2040		0.6%	1.8%	0.5%	1.0%
2019 to 2040		0.9%	2.1%	0.3%	1.7%

Source: TFI 2019.

8.4 Busy Hour Forecasts

TFI reviewed the schedules for Coffs Harbour to establish a busy hour passenger number and stand demand and to assess the potential change over the next 20 years. For Coffs Harbour in the May 2019 schedule, TFI found:

- two arriving flights in an hour between 0810 and 0900 hours and again between 0900 and 0920 hours both on a Monday. These include a Tigerair flight (A320/B737) and one QantasLink flight (Q400).
- three departing flights within an hour at 0915, 0930 and 1000 hours on a Monday. These included one Tigerair flight (A320/B737) and two QantasLink flights (Q400).

Table 8.4 below shows the assumptions used to grow the busy hour. TFI has assumed that the two arriving aircraft in the FY19 base increase to three flights over a decade and to four flights by 2040. It is assumed that the departing flights also grow to four by 2040. TFI has also allowed for larger aircraft in the peak in later years.

By 2040 and with an assumed 80% passenger seat factor these assumptions generate 589 passenger arrivals and departures in the peak hour. The forecasts provided in **Table 8.4** suggest a requirement for two A321neo/B737MAX-10 aircraft in 2040 along with one stand for the smaller A320neo/B737MAX-9 aircraft.

Table 8.4 – Busy Hour Passenger Forecasts and Stand Requirements

	Arrivals					Departures					
	A321neo/	A321neo/	B717/	Q400	SUM		A321neo/	A321neo/	B717/	Q400	SUM
	B737Max 10	B737Max 9	F100				B737Max 10	B737Max 9	F100		
FY19		1		1	2	FY19		1		2	3
Base						Base					
FY30		2	1		3	FY30		2	1		3
FY40	2	1	1		4	FY40	2	1	1		4
Seats						Seats					
FY19						FY19					
Base						Base					
FY30	220	180	110	74		FY30	220	180	110	74	
FY40	220	180	110	74		FY40	220	180	110	74	
	220	180	110	74			220	180	110	74	
Seat						Seat					
Factor						Factor					
FY19	75%	75%	75%	75%		FY19	75%	75%	75%	75%	
Base						Base					
FY30	80%	80%	80%	80%		FY30	80%	80%	80%	80%	
FY40	80%	80%	80%	80%		FY40	80%	80%	80%	80%	
Busy						Busy					
Hour						Hour					
Pax						Pax					
FY19	0	135	8	56	191	FY19	0	135	0	111	246
Base						Base					
FY30	0	298	88	0	386	FY30	0	298	88	0	386
FY40	352	149	88	0	589	FY40	352	149	88	0	589

Source: TFI 2019

8.5 Direct International Services

Note that the forecasts (**Scenario 1** and **Scenario 2**) include only passengers carried on domestic air services. Thus, international visitors to Coffs Harbour by air are assumed to travel on these domestic services.

TFI has reviewed Australian ports with international air services. Apart from the State capital cities and the Gold Coast and Cairns, international services operate to/from:

- Seasonal services for the Sunshine Coast and Newcastle to/from New Zealand (by Air New Zealand and Virgin Australia respectively).
- Canberra (Singapore Airline services operate services Sydney-Canberra-Singapore).
- Port Hedland (Virgin Australia services to Bali).
- Airline services from Port Moresby to Townsville ceased in September 2018.

Based on the experience across Australia and the level of international visitation currently in Coffs Harbour, TFI's assessment is that regular direct international services to/from Coffs Harbour are not likely in the next decade.

Beyond 10 years several factors could increase the prospects for charter operations and/or seasonal flights from Asia in particular:

- Coffs Harbour Council, Destination NSW and local tourism operators are working to increase visitation to the region. Growth in international visitation, even if largely on domestic services, increases long term prospects for direct international services;
- new aircraft types (A320neo and B737MAX) are fuel efficient and have a relatively longerrange capability than their previous versions; and
- the number of tourists from Asia is expected to grow strongly over the next decade given the growth in the Middle Class along with the expected growth in Low Cost Carrier (LCCs) in Asia.

8.6 Carriage of Airfreight

Data on freight carried by airlines is not collected on a regular basis. Management has estimated that currently on a weekly basis 4.5 tonnes of airfreight is carried inwards to Coffs Harbour with five tonnes carried outwards. This is carried on the Qantas Q400 flights and the daily Toll Metro service. Airfreight data has been available nationally from the BITRE since January 2010. Over the period FY11 to FY19 cargo carried on domestic flights decreased marginally (CAGR of -0.9%), having fallen from 253,000 tonnes in FY11 to 192,000 tonnes in FY15. It has since increased to 236,000 tonnes in FY19.

Prospects for increasing freight are improving as:

- the NSW Government has announced its intention to build a state-of-the-art digital freight and logistics hub at the Western Sydney Airport (WSA). The aim is to allow fresh produce from NSW to be transported to WSA, chilled and then sent overseas;
- in its *Coffs Harbour Economic Development Strategy 2017-2022*, Council identifies the food manufacturing and agribusiness (agri-food) economy as one of three areas where it can play a positive role in stimulating development; and
- as the number of RPT passenger flights to Coffs Harbour increase, and with larger aircraft, the amount of belly space capacity for freight will increase.

8.7 GA Forecasts

In addition to the forecasts for RPT services shown in **Table 8.3**, TFI has prepared forecasts covering GA – fixed wing, military and helicopter – services. These are shown, along with the RPT forecasts, in **Table 8.5**. The source for the base data is Airservices Australia and **Figure 8.3** shows the performance of these sectors over FY00 to FY19.

Forecasts are as follows:

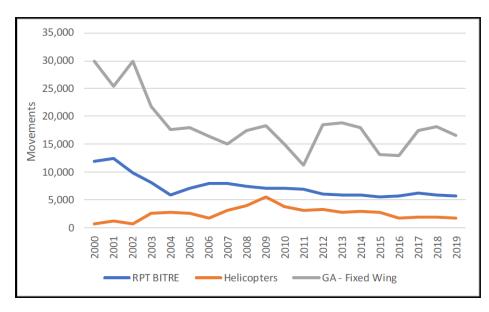
- RPT movements based on passengers and assumed changes in average seats/movements and passenger seat factors;
- fixed-wing GA based on a growth of 0.5% per annum around one-half the growth in NSW GSP/capita and broadly consistent with growth over the past decade; and
- military and helicopter flights maintained at the 2019 level throughout the forecasting period. Note that there were 1,772 helicopter flights recorded in FY19, down from 5,594 in FY09. In part this reflects the move of medical flights from the airport to Coffs Harbour Base Hospital.

Table 8.5 – RPT and GA Aircraft Movements

Years end 30 June	RPT ('000s)		Total Movements ('000s)		
	Passenger Aircraft	Fixed Wing	Helicopters	Military	
Actual					
2009	7.1	18.3	5.6	0.3	31.3
2014	5.9	17.9	2.9	0.2	27.0
2018	5.9	18.2	1.9	0.3	26.2
2019	5.7	16.5	1.8	0.3	24.3
Forecasts					
2025	6.0	17.0	1.8	0.3	25.1
2030	6.5	17.5	1.8	0.3	26.0
2035	6.7	17.9	1.8	0.3	26.7
2040	6.9	18.3	1.8	0.3	27.3
CAGR					
2009 to 2019	-2.2%	-1.0%	-10.9%	1.4%	-2.5%
2014 to 2019	-0.1%	-1.6%	-9.4%	5.3%	-2.1%
2019 to 2030	1.2%	0.5%	0.0%	0.0%	0.6%
2030 to 2040	0.6%	0.5%	0.0%	0.0%	0.5%
2019 to 2040	0.9%	0.5%	0.0%	0.0%	0.6%

Source: TFI 2019

Figure 8.3 – Annual Aircraft Movements



Source: TFI 2019

CHAPTER 9

AIRPORT DEVELOPMENT CONCEPTS



9 AIRPORT DEVELOPMENT CONCEPTS

Projects arising from the Airport's future development concepts described below either have been or will be subject to the application of the *NSW Environmental Planning and Assessment Act 1979* in terms of the level and types of environmental assessments required. Additionally, depending on the proposal or activity, the provisions of the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) may be applicable.

9.1 Design Aircraft

Determining the appropriate design aircraft to adopt for the planning and design of the movement area and supporting facilities such as the terminal, is the fundamental first step in establishing the development concept for the Airport. The aircraft mix both now and as anticipated into the future, requires consideration of two different categories of fixed wing aircraft, for different parts of the airport. These are:

that part of the movement area associated with RPT operations i.e. Runway 03/21, and associated taxiways and apron; and

that part of the movement area associated with GA operations i.e. Runway 10/28, and associated taxiways and aprons.

The 1994 Master Plan adopted the B767 series aircraft as the design aircraft for Runway 03/21 and its associated movement area infrastructure. The B767 is a wide-bodied Code 4D aeroplane that was in widespread use with Qantas at that time. In Qantas service, it typically had 240-seats in a two-class configuration. B767 aircraft have completely disappeared from passenger operations in Australia having been replaced by more modern aircraft such as the A330 series which are larger Code 4E aeroplanes, typically seating around 300 passengers. Currently, there are very limited numbers of Code 4D passenger aircraft being produced. Boeing has flagged it is considering what it calls a middle of the market aeroplane but there are no details yet as to its likely code. Any intention to proceed with offering this aircraft is not expected for some time.

The 2004 Master Plan and subsequently updated planning documents in 2011 and 2014 acknowledged the phase-out of Code D passenger aircraft and assumed it was appropriate to base future planning primarily around Code C aircraft. Given Runway 03/21's existing width of 45m, the potential for occasional Code E operations was noted, assuming issues such as pavement strength and taxiway shoulder width, for example, could be suitably addressed.

With the phasing out of the B767 and Airbus equivalents, both manufacturers have concentrated on maximising the passenger capacities of their high volume selling narrow-bodied aircraft, namely the B737 and A320 series aeroplanes. This has been achieved by utilising more efficient airframe aerodynamics, stretching the fuselage and adopting advanced engine technologies. **Table 9.1** shows some of the main features of the current largest variants from the two manufacturers.

Table 9.1 – Code C Aircraft Characteristics

Aircraft	Code	Wingspan (m)	Length (m)	Maximum Seating (one-class)	Typical Seating (two-class)
B737- MAX 10	4C	35.9	43.8	230	188-204
A321neo	4C	35.8	44.5	244	206

Source: Boeing 2019, Airbus 2019.

Virgin Australia has recently swapped some of its order from the B737 MAX 8 to the larger MAX 10, for delivery from mid-2021 with some 25 currently on order. The Qantas Group already operates the A321 aircraft through Jetstar and has an order for 109 new A320 family aircraft, of which 36 are the new A321 XLR long range model. These new types could therefore be possible candidate aircraft for the Airport, during the life of this Master Plan Update and beyond.

For Runway 10/28 and associated movement area, all previous master planning assumed Code 1B aircraft as the appropriate Code to adopt. This remains the case for this update.

The design aircraft adopted for the 2019 Master Plan Update are:

for Runway 03/21 and associated movement area, a hybrid Code 4C aircraft combining the B737 series wingspan of 35.9m with the A321 series fuselage length of 44.5m. It is also appropriate not to preclude possible occasional Code 4E operations by aircraft such as the A330 series; and

for Runway 10/28 and associated movement area, Code 1B aircraft up to Beech 200 Kingair, Cessna 208 Caravan, Cessna 400 series etc., and smaller aircraft.

The 2014 Master Plan Update introduced the concept of a design helicopter for planning purposes as it coincided with the establishment of the Eaglecopters helicopter facility adjacent to Precision Helicopters at the western end of Taxiway F. Eaglecopters also operate from another hangar towards the eastern end of Taxiway F. The design helicopter/s adopted were the Bell 412EP and Augusta Westland 139 as representative of typical medium helicopters with skid and wheeled undercarriages respectively. This remains the case for this update, noting larger, predominately military helicopters also use the Airport occasionally. These tend to operate from the RPT apron and/or Runway 03/21 and do not require specific helicopter facilities.

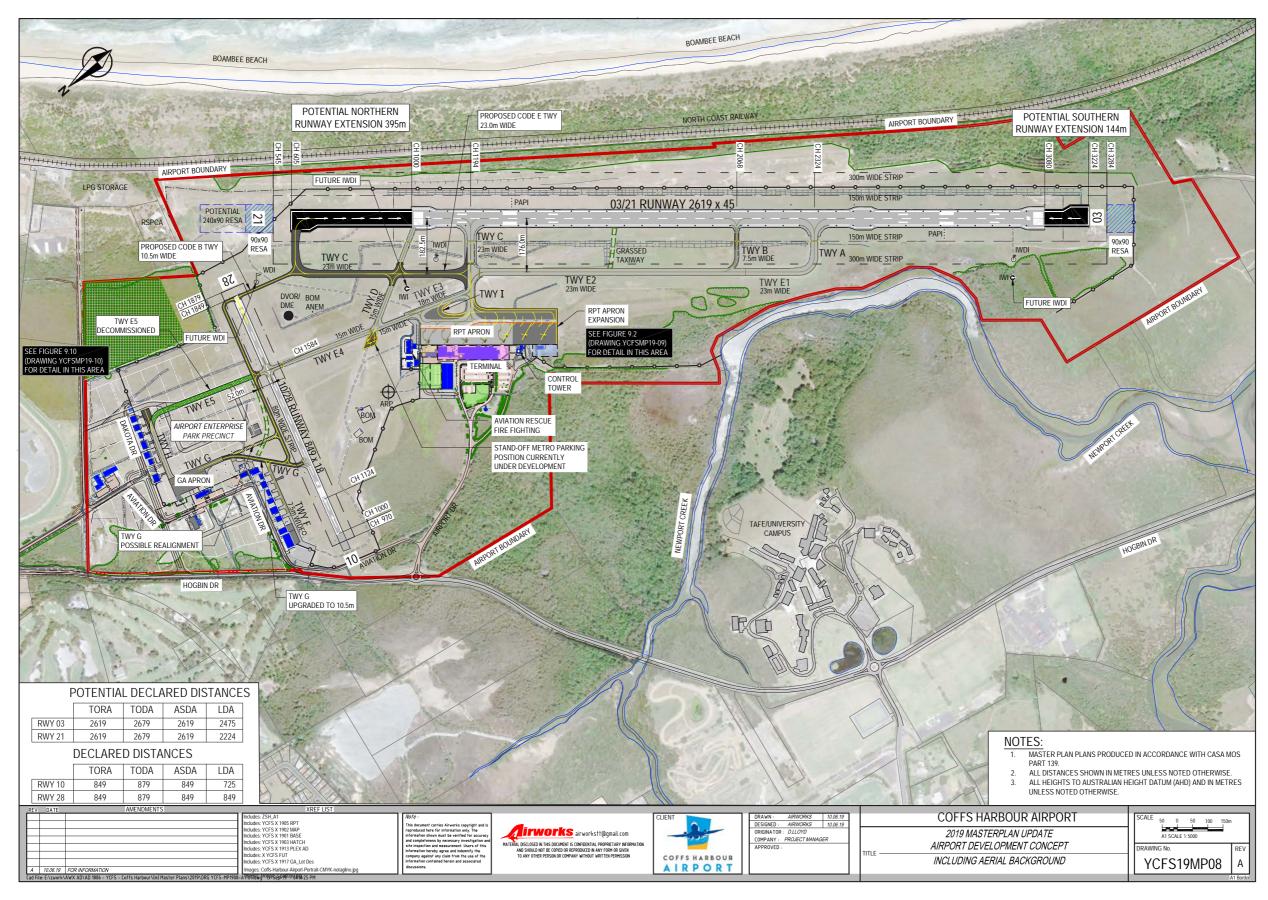
9.2 Airport Development Concept

The overall development concept for the Airport is shown in Figure 9.1.



COFFS HARBOUR AIRPORT – MASTER PLAN UPDATE 2019

Figure 9.1 – Airport Development Concept



Source: Airworks 2019.



9.2.1 Runways

9.2.1.1 Runway 03/21

Previous master planning and the 1998 EIS considered various potential runway lengthening scenarios, primarily to facilitate future operations by wide-bodied aircraft. Some of these scenarios identified both physical constraints and Aboriginal heritage related issues which would need to be addressed in undertaking such a lengthening project. In its report to Council on the 1998 EIS (*Environmental Impact Assessment, Coffs Harbour Regional Airport, Director-General's Examination Section 113(5) of the Environmental Planning and Assessment Act 1979*), the Department of Urban Affairs and Planning recommended against the runway lengthening proposals. The reasons given at that time were environmental concerns and the lack of an economic justification for extending the runway.

When approving the 2004 Master Plan in 2007, Council's resolution of 15 March 2007 to limit any future extension of the runway to an overall length of 2,700m was confirmed and this was reflected in subsequent planning updates (see **Appendix A**). A further initiative arising from the 1994 Master Plan and subsequent planning updates was to retain both the 03 and 21 thresholds in their current locations, irrespective of any runway lengthening i.e. becoming permanently displaced thresholds. This was a noise mitigation decision to ensure that aircraft on approach would fly no lower than currently, over the Jetty and Toormina residential areas. Retention of the current threshold locations means their respective approach surface inner edges will remain in their current positions.

The development concept for Runway 03/21 for this update assumes a potential total overall runway length of 2,619m, achieved with a 395m northern extension and a 144m southern extension. The reason for the reduction from 2,700m is twofold.

- For the northern extension, to be able to provide for a 300m runway strip width totally
 contained within the airport boundary, it is necessary to limit any runway extension to 395m. It
 is noted that the new Part 139 MOS permits a runway strip width of 280m. The potential
 northern extension could therefore be revisited in the future, following the Airport's transition
 to the new Part 139 MOS.
- 2. For the southern extension, a check survey shows the distance between the current 03 runway end and the airside fence to the south is 294.4m. The land to the south of the airside fence was identified in the 1998 EIS as an area of Aboriginal spiritual significance. This is further discussed in **Section 12.5**, but it effectively constrains any airport development to the northern side of the airside fence. The check survey result means in order to comply with the required clearway length of 60m and RESA length of 90m, the maximum potential extension achievable is 144m.

Therefore, for the purpose of the Runway 03/21 development concept, the maximum practicable runway length achievable under current rules is 2,619m (as shown on **Figure 9.1**).

The potential future declared distances if the runway is extended both to the north and south is shown in **Table 9.2**.

Table 9.2 – Runway 03/21 Potential Future Declared Distances

Runway	TORA (m)	TODA (m)	ASDA (m)	LDA (m)
03	2619	2679	2619	2475
21	2619	2679	2619	2224

Any decision to extend the runway would need to consider the relative benefits of either a northern, southern or both extensions, based on an identified need at that time. As part of the 2004 Master Plan, Council commissioned Qantas to prepare a Range Payload Study considering various lengthening scenarios. A copy of the study is contained at **Appendix B**. The study considered three types of aircraft, namely the B737-800, A320 and B737-700. In summary, the study found Runway 03 is the most limiting direction. Assuming both extensions were undertaken, the study found it would only provide marginal performance and range gains for the aircraft modelled, however, newer generation aircraft may provide an improved outcome. This study supplemented similar work undertaken for the 1994 Master Plan and the 1998 EIS.

In common with previous planning, the development concept retains the provision for a 300m wide runway strip (150m graded and 75m wide flyover sections on each side). There are operational benefits to achieving an overall 300m wide runway strip as it would provide full compliance for current non-precision instrument approaches, and it may help facilitate future precision instrument approaches. However, there are environmental and physical constraints to achieving this runway strip widening. On the eastern and south western sides of the runway there is vegetation classified as Coastal Wetlands (see **Section 11.4.3**). Also, in addition to the area of Aboriginal spiritual significance discussed above, the 1998 EIS identified Aboriginal sites along the eastern edge of the 300m wide runway strip flyover area (see **Section 12.5**).

Although the 300m wide runway strip approach surface inner edges will remain in their current positions if the runway is extended, it is important that the full 300m width is protected to each of the extended runway ends. This is to enable the introduction of Standard Instrument Departures should they be promulgated in the future.

The development concept provides for MOS 139 compliant 90m x 90m RESA at each end of the runway as extended. It is noted the new Part 139 MOS minimum RESA length is 90m with 240m preferred (mandatory for scheduled international air transport operations). A 240m long RESA is possible in combination with the northern runway extension of 395m but not at the southern end due to the constraints discussed above.

9.2.1.2 Runway 10/28

The development concept for Runway 10/28 retains the existing length and width. The runway is declared as a non-instrument Code 1 facility limited to daylight operations only and is restricted to aircraft below 5,700kg MTOW. As such, the runway strip width could be reduced from the current 80m to 60m. However, the development concept retains the 80m width which would permit night operations in the future, if a decision was made to install runway lighting

This runway's declared distances remain unchanged.

9.2.2 Taxiways

The development concept for future taxiways remains consistent with recent master planning initiatives.

Provision has been made to extend a section of parallel taxiway from the Taxiway C/E2 intersection through Taxiway D to an extended 21 runway end. It is proposed this section of future taxiway be located based on the Code E runway centreline to taxiway centreline requirement of 182.5m. This is slightly different to the existing Code D runway centreline to taxiway centreline of 176m for Taxiways E1 and E2. Code E operations on Taxiways E1 and E2 would require the relocation of the taxiway centreline by 6.5m and the provision of MOS 139 compliant shoulders to the taxiways. A future Code B taxiway link is provided to connect the Runway 28 end to the extended section of parallel taxiway serving the extended Runway 21 end.

The concept for the Airport Enterprise Park development involves decommissioning Taxiway E5 just north of the intersection with Runway 10/28 through to Taxiway H. It is proposed to replace this taxiway with a section of Code B parallel taxiway on the northern side of the runway, with a runway centreline to taxiway centreline distance of 52m. This section of parallel taxiway would extend from the remnant stub of Taxiway E5 through to Taxiway G. Taxiway G would be upgraded to Code B (10.5m wide) from its current Code A status (7.5m wide). As Taxiway E5 is lit, the new section of parallel taxiway and the upgraded section of Taxiway G would be provided with taxiway lighting to maintain night-time capability to the northern section of the movement area. The alignment of Taxiway G between the concrete section at the southern end, and Runway 10/28 may need to be re-evaluated to better match some of the future GA hangar sites associated with the Airport Enterprise Park, in terms of minimising taxilane connection lengths. A possible realignment option is shown on **Figure 9.1.**

The decommissioning of Taxiway E5 will mean the current taxiway loop system serving the GA precinct will revert to a single taxiway configuration via Taxiways G and H to and from other parts of the movement area. If head to head taxiing conflicts become an issue in the future, it may be necessary to provide for a Code B passing bay (with appropriate line marking) on the GA concrete apron. The termination of the GA taxiway system at the eastern end of Taxiway H may enable the reclassification of Taxiways G and H from movement area to manoeuvring area. This would mean ATC may no longer need to provide taxi clearances to pilots operating on this part of the Airport, and also allow taxilane to object clearances to be adopted for geometric planning purposes.

9.2.3 Aprons

The increased fuselage length of 44.5m for the design aircraft for the full RPT apron, will require the apron width to be increased to meet the required clearances to the feeder taxilane for Bays 4 and 5. Apron extensions to the north are not feasible due to the presence of the ARFF fire station. However, there is enough land to the south to further extend the apron if required. For the purpose of the development concept, two additional free-moving parking positions are shown (total seven) as depicted on **Figure 9.2**. Provision for an airside road behind the rear of the aircraft has been made to facilitate GSE operations. The increased width required for the apron may also allow for a free moving parallel

parking position for a Code E aircraft such as an A330, noting that issues such as pavement strength, pavement fillets, runway turning nodes and taxiway shoulder requirements would all need to be addressed to support Code E aircraft operations. As noted in **Section 6.2.3**, power-in/push-back parking configurations are a more efficient use of apron space. The extent of apron development shown on **Figure 9.2** may support up to nine aircraft in a power-in/push-back parking configuration. It is possible these may need to be introduced at some point in the future.

The development concept for RPT apron within the overall RPT precinct is shown on Figure 9.2.

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Figure 9.2 - Terminal Precinct Development Concept

Source: Airworks 2019.

The concrete (former RPT) apron at the northern end of the GA sector is not expected to need augmentation in the future.

Aprons and associated taxilanes for future GA hangars arising from the Airport Enterprise Park development, are discussed in **Section 9.4.3.**

9.2.4 Helicopters

Council has actively encouraged the separation of fixed wing and helicopter operations where practicable, as an important airport planning principle. This has resulted in the development of the helicopter precinct at the western end of Taxiway F. While the Master Plan Update does not make any

specific provision for a designated HLS, the existing and partially developed parking pads located south of Taxiway F, could function as designated HLS if required (subject to meeting obstacle clearance requirements), particularly if additional helicopter operators seek accommodation in the precinct in the future.

9.3 Terminal Precinct Development Concept (see Figure 9.2)

9.3.1 Terminal

It is assumed that future terminal expansion when required would essentially follow previous upgrading patterns i.e. adding new modules as necessary. It would be physically possible to extend the building to the south up to the clearances associated with Airservices' SGS. Similarly, it would be possible to extend the terminal to the north up to the air freight building. This would involve building over Council's hangar, offices and charter lounge. Future terminal expansion could include provision for Council's airport administration functions within the terminal development. It is understood the original terminal design from the mid-1980s, allowed for the building footprint at that time to be developed as a two-storey facility. The terminal reserve footprint is approximately 11,167 square metres representing about a 280 percent increase on the current terminal footprint (including the checked baggage screening section).

9.3.2 Air Freight

The development concept allows for the air freight facility to be extended to the north over the existing leased building as shown on **Figure 9.2**.

9.3.3 Aviation Support Reserve

The development concept provides for an aviation support reserve to the south of the control tower. Any building development would be height constrained to ensure control tower line of sight requirements are maintained. Potential uses could be maintenance support, fixed base operator (FBO), freight or GSE storage etc.

9.3.4 Ground Access and Parking

Council has been evaluating medium-term options to improve ground access and traffic movement in the approach to and vicinity of the terminal. **Figures 9.3** and **9.4** depict a concept under consideration, based around the current terminal footprint.

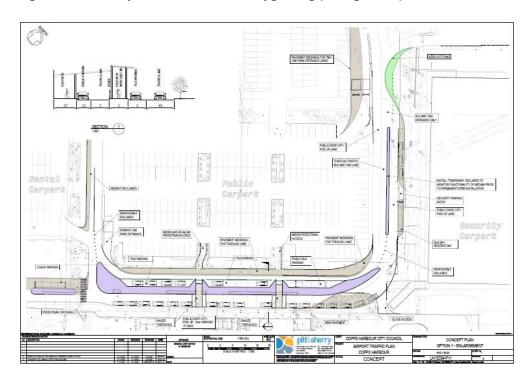
Longer-term ground access changes will largely be driven by future terminal expansion, particularly if this takes place to the north and it becomes necessary to increase kerb length in front of the terminal.

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Figure 9.3 – Concept for Ground Access Upgrading

Source: CHCC 2016.

Figure 9.4 – Concept for Ground Access Upgrading (Enlargement)



Source: CHCC 2016.

The development concept makes provision for an extension of the undercover security carpark which will take the number of car spaces to 175. It will necessitate relocation of part of the staff car park to the north as shown. The development concept allows for the general car park to be further expanded to the north-west and south-west. Two options have been developed, which depending on the access solution to be adopted would provide either an additional 85 or 138 car spaces, for a total of 325-378 spaces overall. The rental car park is assumed to not require any further expansion, as the rental car operators will be relocating their main off-Airport operating bases to the Airport Enterprise Park, in close proximity to the RPT precinct.

9.4 Airport Enterprise Park and Associated GA Precinct Development Concept

9.4.1 Description

The Airport Enterprise Park development consists of a subdivision of approximately 43ha of land for the purpose of aviation-related, and compatible commercial and business uses. **Figure 9.5** depicts the overall subdivision layout as approved by the JRPP in July 2017. Several new or rebuilt access roads are proposed, numbered 1-6. The subdivision approval is subject to a range of conditions which need to be met as required.

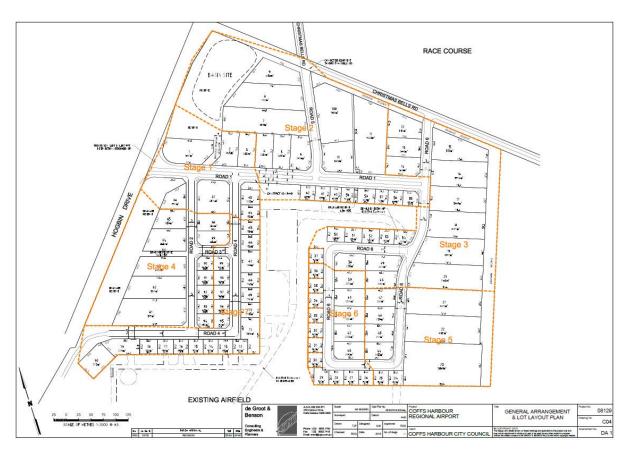


Figure 9.5 – Airport Enterprise Park Subdivision (Overall)

Source: de Groot & Benson 2015.

Since development approval, further work has occurred to refine the lot layout responding to the input of potential users, and the design requirements of the enabling infrastructure such as filling and drainage, engineering services etc. This work is ongoing, and components may be subject to further consent from Council as the development proceeds. The current proposed lot layout is shown on **Figure 9.6**.

Figure 9.6 – Airport Enterprise Park Subdivision (Updated)

Source: de Groot & Benson 2019.

The Airport Enterprise Park subdivision concept provides for a range of lot sizes that may be developed for aviation-related, and compatible commercial and business uses. Development including the enabling infrastructure, will occur in stages. Additionally, approximately 1.6ha of existing high ecological value land will be conserved within a reserved lot and a further 4.21ha of new drainage reserve area with ground levels lowered, will be vegetated and conserved as a vegetated drainage reserve.

Phase 1 of the development will comprise all of Stage 1, part of Stage 2, all of Stage 4 and all of Stage 7. Construction Certificate approvals are being progressively sought for the Phase 1 works.

In addition to the new lots, the subdivision also creates lots for several existing facilities that will remain in the precinct.

9.4.2 Key Attributes

The majority of the Airport Enterprise Park in terms of site area provides development opportunities that respond to demand for businesses seeking the locational advantages of proximity to the main functional area of the Airport, and excellent ground transport linkages to the Pacific Highway. The Airport Enterprise Park will provide high quality fully serviced land in a business park setting, making use of extensive landscaping and well-planned internal linkages.

Landscaping will respond to the requirements of nearby aircraft operations, with species selection made in accordance with the *Airport Enterprise Park Design Guidelines 2018* to minimise the potential for aircraft bird strike. New planting will compliment the function and physical requirements of the subdivision by maintaining an open presentation to the new lots and minimising potential conflict with driveway access.

Two bike paths are proposed to link the subdivision with the existing bike path along Hogbin Drive which will be modified at the new intersection with Road 1. The bike paths will be located within drainage reserves where higher levels of public access present the opportunity to create small open parkland areas with informal seating. Additionally, there is potential to provide a public park/aircraft viewing area near the northern end of the concrete GA apron.

A main entry gateway statement is proposed on either side of Road 1 near the Hogbin Drive intersection to create a sense of arrival into the Airport Enterprise Park. It will sit above water features on either side of Road 1.

Figures 9.7 and 9.8 depict artist's impressions of the development concept.

Figure 9.7 – Artist Impression Looking East



Source: CHCC 2019.

Figure 9.8 – Artist Impression Looking South



Source: CHCC 2019.

9.4.3 Associated GA Component

The subdivision also creates lots for several existing GA businesses and private hangars, as well as new lots for future hangars. These new hangar lots are sited to make best use of existing aviation infrastructure such as taxiways and foster the clustering of like facilities to enhance business and commercial synergies. Most future hangars would be expected to cater for fixed wing operations, although provision has been made for another large helicopter hangar to the west of Eaglecopters. Fixed wing hangar lots are notionally 30m x 30m and assumed to cater for up to Code B aeroplanes, with up to 10.5m wide taxilanes serving an apron parking area adjacent to the hangar doors. A larger hangar is also possible adjacent to the northern end of the GA apron. The current indicative concept for the additional hangar lots is shown in **Figure 9.9**. Up to 24 hangar lots could be provided (including two currently under development) noting that further design work is required to address the future hangar floor levels relative to the existing levels of Taxiways G and H, in those locations where they service some of the new lots. Grassed GA and helicopter parking areas would be retained or provided in various locations.

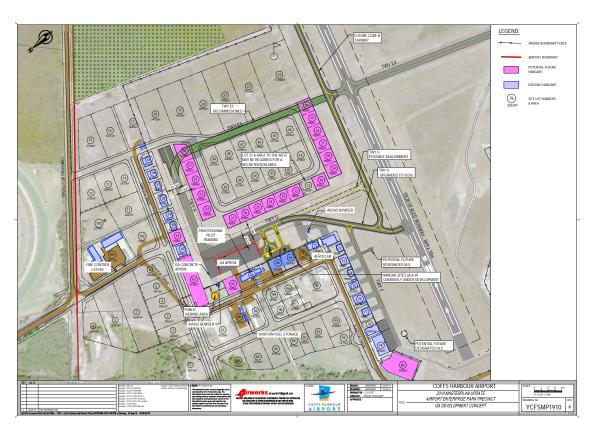


Figure 9.9 – Airport Enterprise Park Precinct GA Development Concept

Source: Airworks 2019.

Given that Taxiway E4 is Code C capable (albeit currently limited to aircraft up to 19,000kg weight) there is the potential for larger aircraft to be accommodated at the southern end of the GA hangar

development as an alternative to some of the future smaller GA hangar lots shown on **Figure 9.9**. A possible Code C development option is shown on **Figure 9.10** which relocates the proposed taxiway north of Runway 10/28 (for Code C) and provides for an adjacent apron and building area. Depending on an identified demand, potential use could be for aircraft accommodation, Emergency Management Services aviation support facilities, aircraft maintenance, freight, FBO etc.

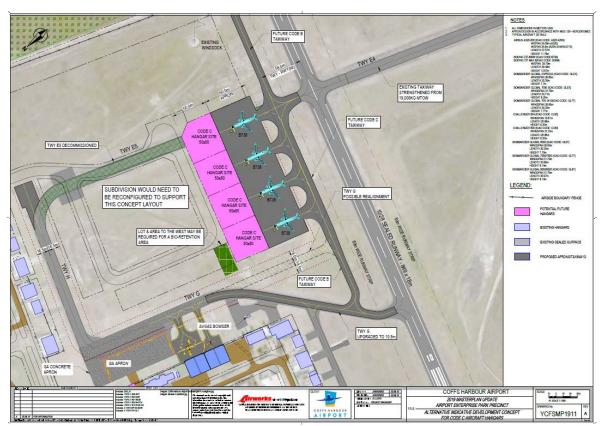


Figure 9.10 – Alternative Indicative Development Concept for Code C

Source: Airworks 2019

9.4.4 Aviation Operational Requirements

Development within the Airport Enterprise Park will need to be assessed amongst other things, against a suite of aviation requirements such as the Obstacle Limitation Surfaces (OLS) as detailed elsewhere in this update. One additional consideration, however, concerns development that may occur closer to Runway 10/28 than exists currently. Proponents will need to consider building induced turbulence in accordance with NASF *Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports 2012*. This guideline permits a proposed building or structure to be assessed in terms of its height, bulk and orientation, for potential safety impacts to aircraft operating on a nearby runway.

9.4.5 Ground Access

Several new or rebuilt roads will provide vehicle, cycle and pedestrian access. Road 1 has a road reserve width of 30m and a carriageway width of 20m with a 7m wide internal swale. Road 1 provides the primary access to the Airport Enterprise Park from a new left-in/left-out intersection with Hogbin Drive.

Roads 2-6 have road reserve widths of 20m with carriageway widths of 13m. Road 5 will be a rebuild of the current Aviation Drive and will include a redesign of the current intersection with Christmas Bells Road. The need for the proposed Road 6 intersection with Christmas Bells Road is still under consideration. Road 4 will also be a rebuild and regrading of part of the current Aviation Drive. At its western end a cul-de-sac head will be provided near Eaglecopters. The current access to Eaglecopters will be maintained past the cul-de-sac head and a boom gate located further to the west will provide authorised vehicle access only past this point.

Future tenants will be responsible for the provision of on-site parking in accordance with Council's requirements for the particular development, based on its function and specific needs. Public parking areas will remain available.

9.4.6 Flooding and Drainage

Council requirements are that developments of the size and nature of the subdivision consider the possible impact of climate change including sea level rise of 0.91m by 2100.

In 2013, Council prepared a flood study which is documented in *Coffs Harbour Regional Airport*, *Proposed Subdivision of Lot 146 DP 113927 Hogbin Drive Coffs Harbour, Flood Study 2013*. For the purpose of the SEE accompanying the subdivision Development Application, consultants de Groot & Benson prepared the *Flood Impact Assessment, Coffs Harbour Airport Subdivision 2015*. This study relies on and builds upon Council's earlier 2013 study. As a condition of development approval, Council required a detailed flood study to be submitted detailing all works required on and around the site to satisfy Council's flood planning controls, prior to the issue of the first Construction Certificate for civil works. This study, *Proposed Subdivision of Lot 54 DP 1199012 Airport Drive Coffs Harbour for Coffs Harbour City Council, Revision 3, May 2019* was submitted and approved by Council.

As the site is poorly drained due to its low and flat topography, it will be filled to lift the lots associated with new development above flood levels and assist with drainage. A combination of reduced pipe gradients of 0.3% and open channels is proposed to provide adequate drainage. These will be largely sized to compensate for the flat hydraulic gradients. The drainage system also includes a large detention basin in the north-west corner of the site to partly compensate for the lost floodplain storage from site filling and increased impervious surfaces resulting from new development. The proposed detention basin has the capacity to manage the additional stormwater that will be generated, so as to not adversely impact downstream properties. Use will also be made of bio-retention areas within the subdivision to mitigate drainage issues.

9.4.7 Engineering Services

9.4.7.1 Water Supply

The existing reticulated water supply to the site is described in **Section 6.12.2**. It is proposed to connect to these mains based on the following principles in the final reticulation design. Water mains will run on both sides of proposed roads using minimum of 100mm diameter mains (150mm in some sections). The mains will be sized to ensure adequate water pressure for fire-fighting purposes for each lot.

9.4.7.2 Sewerage

The existing sewerage infrastructure is described in **Section 6.12.3**. Most of this infrastructure does not have the capacity to service the predicted loads generated from the development. Following analysis, it is proposed to use a combination of the existing gravity sewerage system and a new pressure sewerage system. As much of the existing gravity system will be utilised as possible, including the existing pump station. A new pumping station will be provided in the north-eastern section of the site to cater for those lots unable to drain to the existing system. This pumping station will pump directly to the local sewage treatment works.

9.4.7.3 Electrical Supply

As part of the Airport Enterprise Park development, the existing system will be upgraded to be able to supply the development. New transformers will be required as well as a new high voltage and low voltage system. The development will generate a significant demand for energy. It is proposed that all electrical cabling will be installed underground. Several sub-stations will be required within the development site. These sub-stations will be located outside of road reserves and within private property. Details of this new system will not be available until late 2019.

9.4.7.4 Telecommunications

The Airport Enterprise Park will be serviced by a full NBNCo fibre to the premises network. NBNCo and/or Citysmart Solutions is expected to provide the required infrastructure for the development providing a full NBNCo fibre to the premises network.

9.4.8 Environmental Management Plan

Consultants Ecosure prepared the *Environmental Management Plan Coffs Harbour Regional Airport, Final Report, November 2018* for the Airport Enterprise Park in accordance with Council's development consent conditions for the project. The Environmental Management Plan (EMP) covers Phase 1 of the development. This EMP is intended to be used as an adaptive document for the management of environmental factors during the earthworks and demolition stage of Phase 1. A Vegetation Management Plan (VMP) identifying vegetation to be removed, compensatory planting locations, maintenance regime and tree protection procedures is included in the EMP. Koala habitat and refuge plantings are not included in Phase 1 works. The EMP addresses potential environmental impacts and mitigation covering:

```
water quality;
soil;
contaminated land;
flora and fauna including bird strike management;
waste;
air quality - dust; and
cultural heritage.
```

Sensitive receptors, for Phase 1 works, on and adjacent to the site have been identified as:

• Endangered Ecological Communities (EEC) in the southwest of the site;

- vegetation to be retained;
- drainage channels/lines (draining to Newports Creek west of Hogbin Drive); and
- wallum froglet habitat to the north of the site.

Subsequent phases/stages of the Airport Enterprise Park may require EMPs as the development proceeds.

Figure 9.11 depicts the indicative Phase 1 site boundary and Sensitive Receptors identified in the EMP.

Figure 9.11 – Phase 1 Indicative Site Boundary and Sensitive Receptors



Source: Ecosure 2018.

CHAPTER 10

AIRSPACE PROTECTION



10 AIRSPACE PROTECTION

NASF Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports provides advice for land use planners and decision makers about assessment of developments within and around an airport's prescribed airspace, including intrusions into that airspace, and the need to better integrate aviation issues with land use planning and development approvals processes. The guideline primarily relates to the OLS and Procedures for Air Navigation Services and Operations (PANS-OPS) surfaces as detailed below. Additionally, there are other aviation infrastructure elements which require consideration of airspace protection when assessing proposed development both on and off-airport.

10.1 OLS

The OLS protect the immediate airspace in the vicinity of the Airport for visual operations and are based on specifications laid down in the MOS 139 for the applicable runway classification. The OLS are a set of airspace reference surfaces comprising a series of imaginary planes, which desirably should be kept free of obstacles to ensure the safety of aircraft operations. The OLS are depicted on **Figures 10.1** and **10.2** (existing runway layout) and **Figures 10.3** and **10.4** (future runway layout allowing for extensions to Runway 03/21).

Figure 10.1 – OLS for Existing Runway Layout

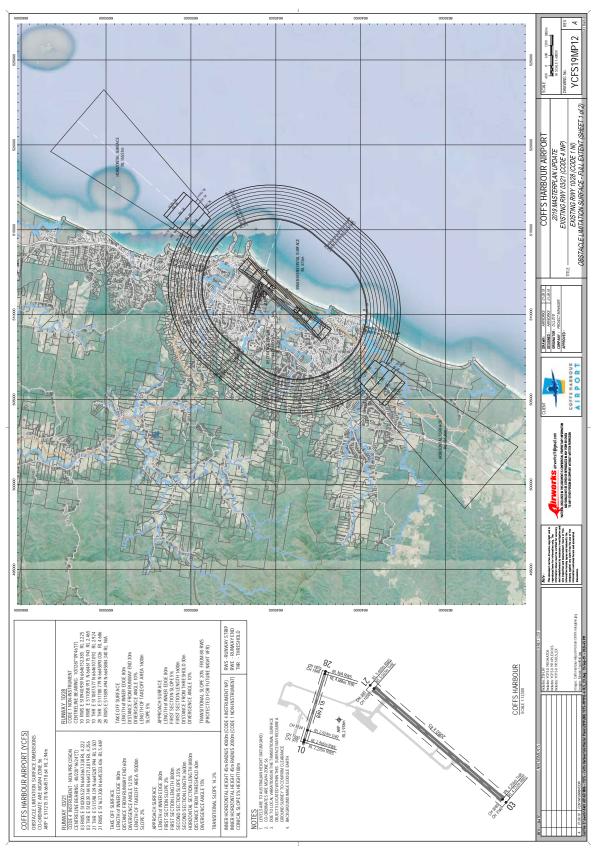
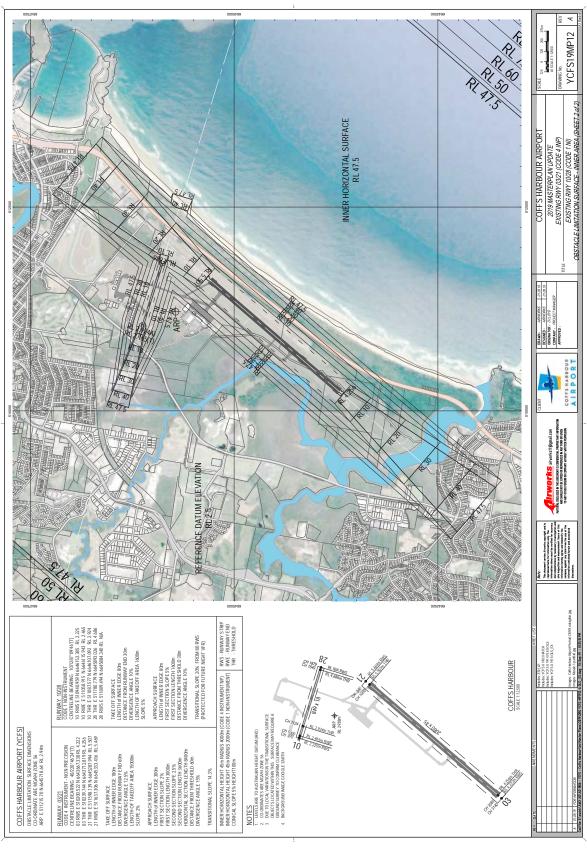


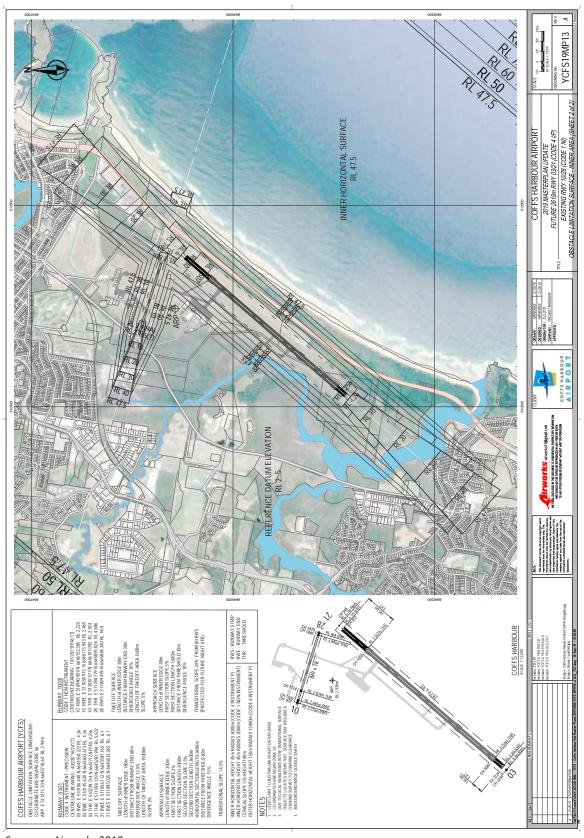
Figure 10.2 – OLS for Existing Runway Layout (Inner Area)



YCFS19MP13 COFFS HARBOUR AIRPORT
2019 MASTERPLAN UPDATE
FUTURE 28/19 WN 0221 (CODE 1 19)
ENSTING RAY 1028 (CODE 1 18)
OBSTACLE LMITATION SURENCE - FULL EXTENT (SHEET 1 of 2) COFFS HARBOUR INNER HORZONTAL HEIGHT 45m RADIUS, 4000m (CODE 4 INSTRUMENT P)
NARRE HORZONTAL HEIGHT 45m RADIUS, 2000m (CODE 1 NON-NISTRAMENT)
COUNCAL, SLOPE, 58, HEIGHT 100m RADIUS, 19000m (CODE 4 WISTRUMENT P)
OUTER HORZONTAL HEIGHT 150m RADIUS, 19000m (CODE 4 WISTRUMENT P) COFFS HARBOUR AIRPORT (YCFS)
OBSTACE LIMITATION SURFACE DIMENSIONS
CO-ORDINATE ARE MEMBER 20NE 56
ARP E 511215.70 N 6645718.64 R.L.2.94m

Figure 10.3 – OLS for Future Runway Layout Incorporating Provision for Runway 03/21 Extensions

Figure 10.4 – OLS for Future Runway Layout Incorporating Provision for Runway 03/21 Extensions (Inner Area)



10.2 PANS-OPS

Another set of airspace reference surfaces known as PANS-OPS protect the immediate airspace in the vicinity of the Airport for instrument operations. The PANS-OPS surfaces differ to the OLS in that they protect aircraft conducting operations under Instrument Flight Rules (IFR) and as such cannot be infringed under any circumstances, as aircraft relying on them may be flying in Instrument Meteorological Conditions (IMC). PANS-OPS surfaces generally (although not always) sit at an equivalent or higher level in the airspace than the OLS and are therefore normally protected by virtue of the lower OLS. PANS-OPS also require that no development occur within 150m of the centreline of Runway 03/21 to protect the ability to design standard instrument departures in the future. The PANS-OPS surfaces are depicted on **Figures 10.5** to **10.8**. Note that at the time of preparing the Master Plan Update, the PANS-OPS surfaces are being amended to take account of revised instrument procedures.

Figure 10.5 – PANS-OPS Sheet 1

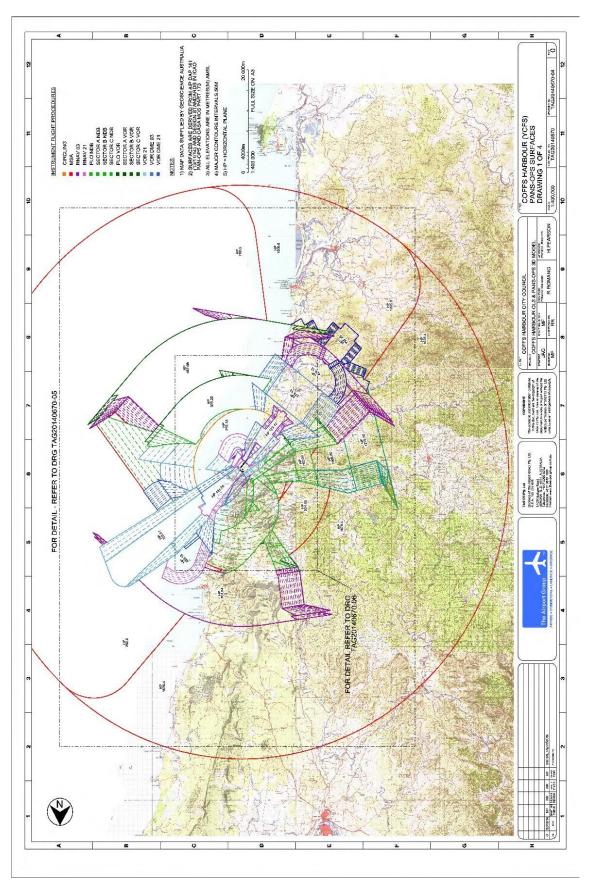


Figure 10.6 – PANS-OPS Sheet 2

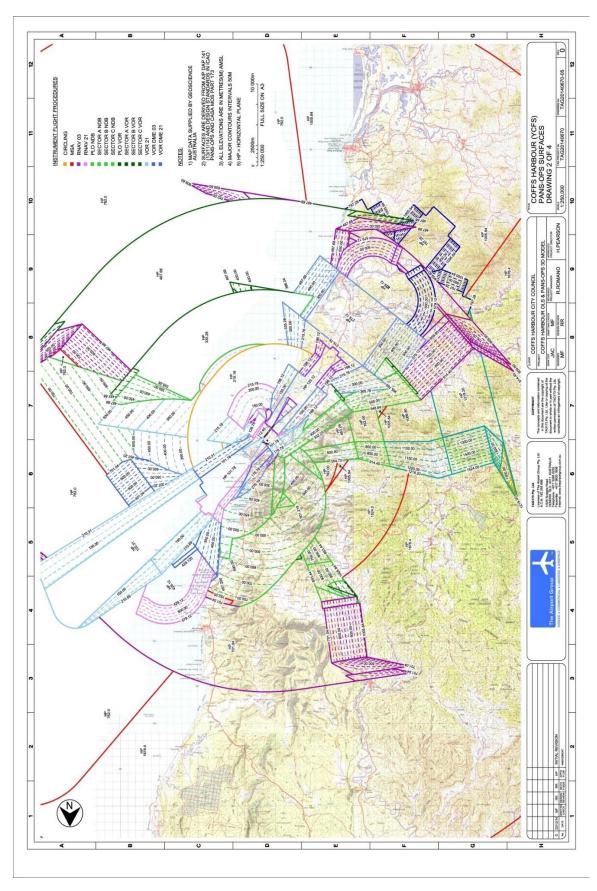


Figure 10.7 – PANS-OPS Sheet 3

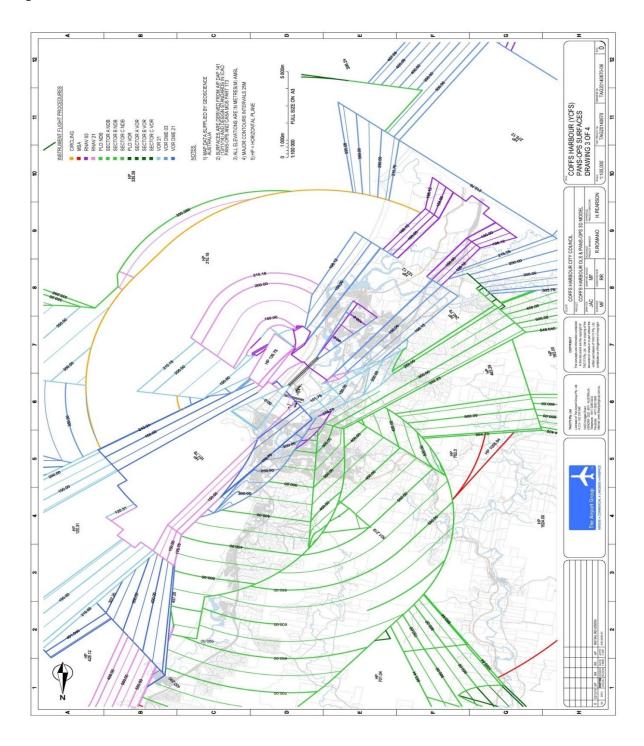
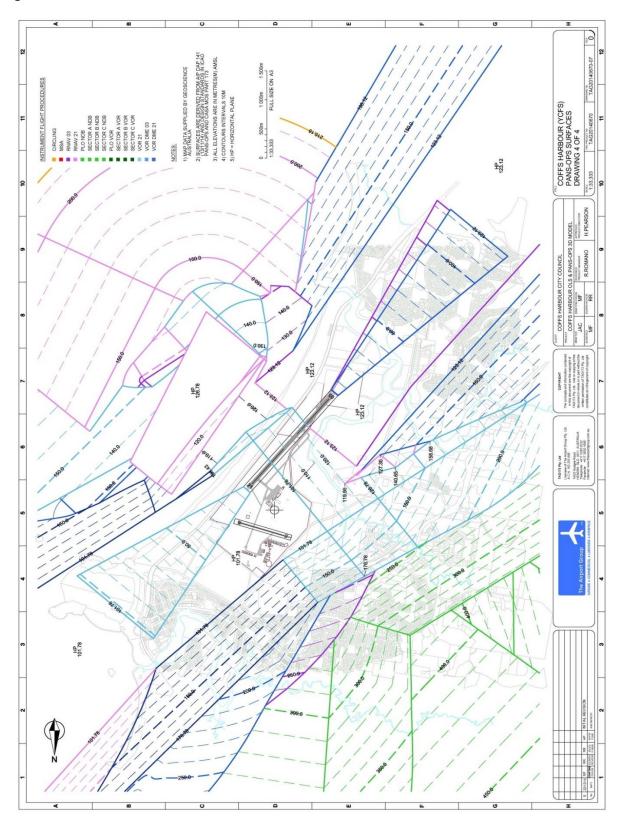


Figure 10.8 - PANS-OPS Sheet 4



10.3 Communications Navigation and Surveillance (CNS) Facilities

NASF *Guideline G: Communications, Navigation and Surveillance 2016* provides land use planning guidance to better protect CNS facilities which support the systems and processes in place by Airservices, or other agencies under contract with the Australian Government, to safely manage the flow of aircraft into, out of and across Australian airspace. It informs procedures which ensure development and associated activities within Building Restricted Areas (BRA) of CNS facilities do not adversely affect the facility or cause interference for air traffic controllers or aircraft in transit.

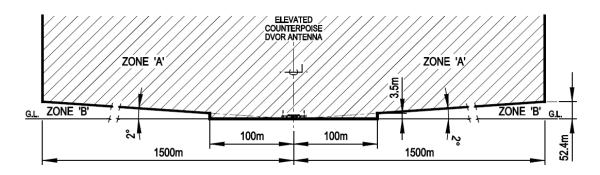
Guideline G provides Commonwealth, State, Territory and Local Government land use planning decision makers with guidance for assessing development proposals in a BRA, and for working with Airservices in assessing those proposals. It therefore formalises the protection of CNS facilities in land use planning decisions.

Airservices' VOR, DME, and SGS require assessments to be made in relation to their respective BRA when considering land use or development proposals both on and off the Airport. The BRAs include both lateral and vertical (airspace) restrictions. The purpose of BRAs is to trigger an assessment of potential impacts on CNS facilities from proposed developments. They are not intended to prohibit development, except where it would lead to an adverse impact on a CNS facility.

Figures 10.9 to **10.11** depict the respective VOR, DME and SGS restrictions and areas of interest. These are a summary only and do not include all the matters which are set out in Guideline G.

Figure 10.9 – VOR Restrictions and Area of Interest

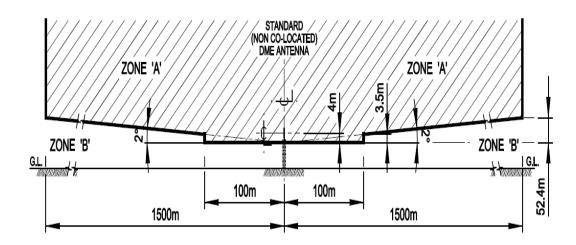
NOT TO SCALE



Source: DIRDC 2016.

Figure 10.10 – DME Restrictions and Area of Interest

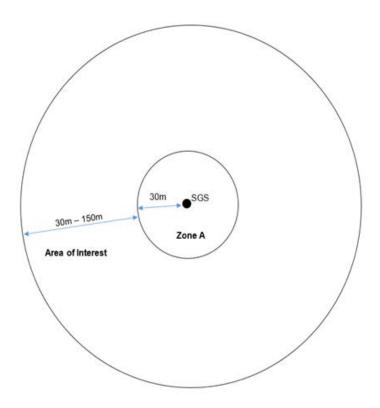
NOT TO SCALE



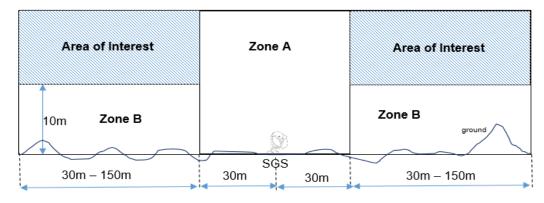
Source: DIRDC 2016.

Note at Coffs Harbour, the VOR and DME are co-located. In this case, the BRA should be based on the that applicable to the DME.

Figure 10.11 – SGS Restrictions and Area of Interest



Source: DIRDC 2016.



Source: DIRDC 2016.

10.4 Lighting External to the Airport

Pilots are reliant on the specific patterns of aeronautical ground lights during inclement weather and outside daylight hours. These aeronautical ground lights, such as runway lights and approach lights, play a vital role in enabling pilots to align their aircraft with the runway in use. They also enable the pilot to land the aircraft at the appropriate part of the runway.

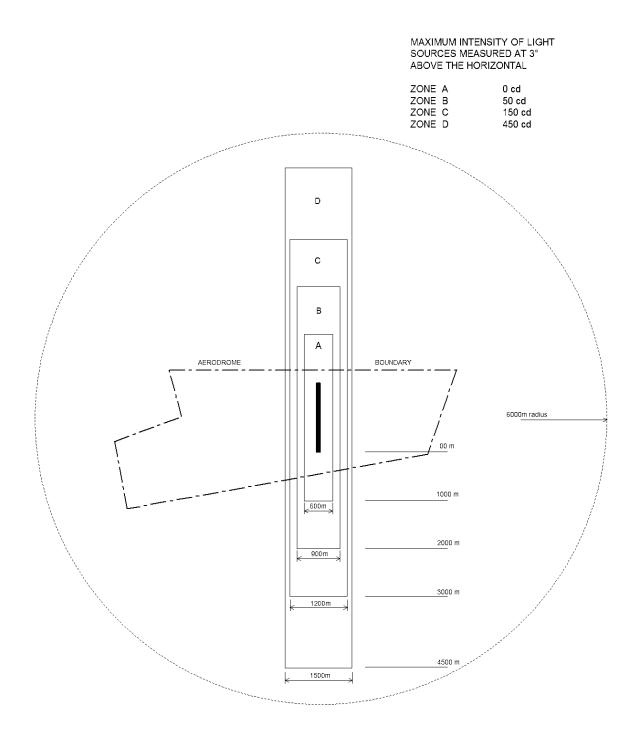
It is therefore important that lighting in the vicinity of airports is not configured or is of such a pattern that pilots could either be distracted or mistake such lighting as being ground lighting from the airport. NASF *Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the*

Vicinity of Airports 2012 provides guidance for designers and installation contractors for situations where lights are to be installed within a 6km radius of a known aerodrome. Lights within this area fall into a category most likely to be subject to the provisions of regulation 94 of Civil Aviation Regulations (CAR) 1988, whereby CASA can require lights which may cause confusion, distraction or glare to pilots in the air, to be extinguished or modified. Types of lighting which may need to be considered at an airport such as Coffs Harbour could include but not be limited to:

- motorway/freeway lighting;
- stadium flood lighting; and
- construction lighting.

Figure 10.12 depicts the primary area of concern for a generic runway and nominates the intensity of light emission above which interference is likely. Lighting projects within this area need to be closely examined to ensure that they do not infringe the provisions of regulation 94 of CAR 1988. Within this large area there exists a primary area which is divided into four light control zones: A, B, C and D. These zones reflect the degree of interference ground lights can cause as a pilot approaches to land. These provisions are also contained in MOS 139.

Figure 10.12 – Maximum Lighting Intensities



Source: CASA 2017.

10.5 Other Airspace Considerations

10.5.1 ATC

An ATC requirement is that that controllers have:

- (a) adequate visibility to all the manoeuvring area and airspace which are under the controllers' area of responsibility;
- (b) a view of all runway ends and taxiways, with suitable depth perception;
- (c) maximum visibility of airborne traffic patterns with primary consideration given to the view from the aerodrome control position(s);

unobstructed lines of sight from the control tower eye level to:

- the manoeuvring area of the aerodrome;
- the runway approach lights and/or graded areas at ground level for distance of 300m from
 the threshold along the extended centreline, then upward and outward within the take-off
 climb area normally at an angle not less than 2.5 degrees;
- the first 150m of any fire routes service roads adjacent to the areas mentioned above; and
- sections of aprons used as a taxiway to a line, at ground level, 15m from the apron edge, towards the building line.

These requirements therefore need to be considered when evaluating land use or development proposals both on and off the Airport.

10.5.2 ARFF

The ARFF fire station contains an elevated Fire Control Centre (FCC) cab which accommodates an airport firefighter during ARFF operating hours. Like the control tower, the FCC must provide for clear lines of sight to the runways and final approach areas. Airservices supplements some current line of sight constraints using closed circuit TV (thermal and optical) technology.

These requirements therefore need to be considered when evaluating land use or development proposals both on and off the Airport.

CHAPTER 11

STATUTORY PLANNING



11 STATUTORY PLANNING

Statutory planning in relation to the Airport is regulated under the NSW Environmental Planning and Assessment Act 1979.

11.1 Local Environmental Plan 2013

The primary statutory land use planning instrument covering the Airport is the *Coffs Harbour Local Environmental Plan 2013* (LEP) which was made in September 2013.

Under the LEP, most of the Airport land is zoned as SP 1 Infrastructure – Air Transport Facility. The objectives of this zone are:

- to provide for special land uses that are not provided for in other zones;
- to provide for sites with special natural characteristics that are not provided for in other zones; and
- to facilitate development that is in keeping with the special characteristics of the site or its
 existing or intended special use, and that minimises any adverse impacts on surrounding
 land.

An area of land bordering Newports Creek in the south west sector of the Airport is zoned as E2 – Environmental Conservation. The objectives of this zone are

- to protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values; and
- to prevent development that could destroy, damage or otherwise have an adverse effect on those values.

This area of land is discussed further in **Section 11.4** below.

In relation to aircraft operations the LEP also contains:

- provisions for development in areas subject to aircraft noise;
- provisions for ensuring development does not compromise "Limitation or Operations Surface" [sic]. This is interpreted as referring the OLS and PANS-OPS surfaces; and
- provisions to protect the community from undue risk.

These matters are discussed in following chapters.

Figure 11.1 is an extract from the LEP covering the Airport showing the relevant land use zoning.

Figure 11.1 – Airport LEP Land Use Zoning



Source: CHCC 2019.

11.2 Development Control Plan 2015

The LEP is supported by the *Coffs Harbour Development Control Plan 2015* (DCP). The DCP applies to all land shown on the Coffs Harbour LEP 2013 Land Application Map. This includes the Airport.

The purpose of the DCP is to give effect to the aims of the LEP, to facilitate development that is permissible under the LEP and achieve the objectives of land use zones under the LEP.

The DCP's objectives cover environmental sustainability, social sustainability, civic leadership and economic sustainability.

Although the DCP does not contain any Airport specific matters, subdivision controls, built form controls, environmental controls and general development controls will have application in some circumstances and therefore need to be considered in development proposals.

Whilst they sit outside the DCP, Council has also developed the *Airport Enterprise Park Design Guidelines 2018*. These provide advice on a range of Airport specific requirements which in some instances supplement controls applying under the DCP. Where there is an inconsistency between the guidelines and the DCP, the DCP provisions apply unless it can be justified otherwise.

11.3 Section 117 Ministerial Direction

The Act also gives effect to Section 117 Ministerial Directions Part 3.5 - Development Near Regulated Airports (see **Note 1**) and Defence Airfields which applies with the following objectives:

(a) to ensure the effective and safe operation of regulated airports and defence airfields;

- (b) to ensure that their operation is not compromised by development that constitutes an obstruction, hazard or potential hazard to aircraft flying in the vicinity; and
- (c) to ensure development, if situated on noise sensitive land, incorporates appropriate mitigation measures so that the development is not adversely affected by aircraft noise.

This direction applies when a relevant planning authority prepares a planning proposal that will create, alter or remove a zone or a provision relating to land near a regulated airport which includes a defence airfield.

As Council is a relevant planning authority under this direction, when planning a proposal that sets controls for development of land near a regulated airport, it must:

- consult with the lessee/operator of that airport;
- take into consideration the operational airspace and any advice from the lessee/operator of that airport;
- for land affected by the operational airspace, prepare appropriate development standards, such as height controls; and
- not allow development types that are incompatible with the current and future operation of that airport.

Note 1: the term "regulated" is applicable to Coffs Harbour which is a licensed (certified) airport.

The new Part 139 MOS discussed in **Section 5.2** above adopts the new term "regulated" airports in lieu of the current terminology. The Ministerial Direction therefore anticipated this change occurring.

Additional relevant requirements are that a planning proposal must include a provision to ensure that development meets *Australian Standard 2021 – 2015, Acoustic- Aircraft Noise Intrusion – Building siting and construction* with respect to interior noise levels, if the proposal seeks to rezone land:

- (a) for residential purposes or to increase residential densities in areas where the Australian Noise Exposure Forecast (ANEF) is between 20 and 25; or
- (b) for hotels, motels, offices or public buildings where the ANEF is between 25 and 30; or
- (c) for commercial or industrial purposes where the ANEF is above 30.

The ANEF is discussed in Chapter 12.

11.4 State Environmental Planning Policies (SEPP)

SEPPs are planning instruments that deal with matters of State or regional environmental planning significance. They are made by the Governor on the recommendation of the Minister for Planning. The following SEPPs either are or may, be applicable to the Airport.

11.4.1 State Environmental Planning Policy (Infrastructure) 2007

This aims of this SEPP are to facilitate the effective delivery of infrastructure across the State by:

(a) improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and

- (b) providing greater flexibility in the location of infrastructure and service facilities, and
- (c) allowing for the efficient development, redevelopment or disposal of surplus government owned land, and
- (d) identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and
- (e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and
- (f) providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing, and
- (g) providing opportunities for infrastructure to demonstrate good design outcomes.

Part 3 Division 1 Air transport facilities states, that development for the purpose of an airport may be carried out by or on behalf of a public authority without consent on land in any of the following land use zones or in a land use zone that is equivalent to any of those zones:

- (a) RU1 Primary Production,
- (b) RU2 Rural Landscape,
- (c) IN4 Working Waterfront,
- (d) SP1 Special Activities,
- (e) SP2 Infrastructure,
- (f) W2 Recreational Waterways,

As indicated in **Section 11.1**, most the Airport is zoned SP1.

Development for any of the following purposes may be carried out with consent on land within the boundaries of an existing air transport facility if the development is ancillary to the air transport facility:

- (a) passenger transport facilities,
- (b) facilities for the receipt, forwarding or storage of freight,
- (c) hangars for aircraft storage or maintenance,
- (d) commercial premises,
- (e) industries,
- (f) recreation areas, recreation facilities (indoor) or recreation facilities (outdoor),
- (g) residential accommodation,
- (h) tourist and visitor accommodation.

11.4.2 State Environmental Planning Policy (State and Regional Development) 2011 The aims of this SEPP are:

- (a) to identify development that is State significant development,
- (b) to identify development that is State significant infrastructure and critical State significant infrastructure,
- (c) to identify development that is regionally significant development.

Schedules relevant to the Airport under the SEPP are as follows.

Schedule 1 identifies development for the purpose of air transport facilities that has a capital investment value of more than \$30 million as State significant development.

Schedule 7 identifies private infrastructure and community facilities as regionally significant development that has a capital investment value of more than \$5 million for any of the following purposes:

 air transport facilities, electricity generating works, port facilities, rail infrastructure facilities, road infrastructure facilities, sewerage systems, telecommunications facilities, waste or resource management facilities, water supply systems, or wharf or boating facilities.

11.4.3 State Environmental Planning Policy (Coastal Management) 2018

The aims of this SEPP are to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the *Coastal Management Act 2016*, including the management objectives for each coastal management area, by:

- (a) managing development in the coastal zone and protecting the environmental assets of the coast, and
- (b) establishing a framework for land use planning to guide decision-making in the coastal zone, and
- (c) mapping the four coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the *Coastal Management Act 2016*.

This SEPP consolidates and updates SEPP 14 (Coastal Wetlands), SEPP 26 (Littoral Rainforests) and SEPP 71 (Coastal Protection). It defines the coastal zone and establishes state-level planning priorities and

development controls to guide decision-making for development within the coastal zone. The coastal zone is defined in the Act as being land that is comprised of one or more of four coastal management areas.

Figures 11.2 and **11.3** show the areas on the Airport mapped as Coastal Wetlands and their associated proximity areas. These are located along the southwestern boundary bordering Newports Creek and the north-west/east sectors of the Airport respectively. The solid blue shading identifies the Coastal Wetlands and the adjacent blue cross hatched section identifies the Proximity Area for Coastal Wetlands. The Coastal Wetlands along the Airport boundary with Newports Creek also reflect the area zoned E2 in **Figure 11.1**.

Development controls for the Coastal Wetlands have been established, which are reproduced at **Appendix C1**.

Figure 11.2 – Coastal Wetlands Along South-Western Boundary



Source: Department of Planning and Environment 2018.

Figure 11.3 - Coastal Wetlands North-East and North-West Sectors

 $Source: \quad \textit{Department of Planning and Environment 2018}.$

Figure 11.4 shows the mapping (blue shading) which defines the Coastal Environment Area on and in the vicinity of the Airport. Development controls for the Coastal Environment Area have been established, which are reproduced at **Appendix C2**.

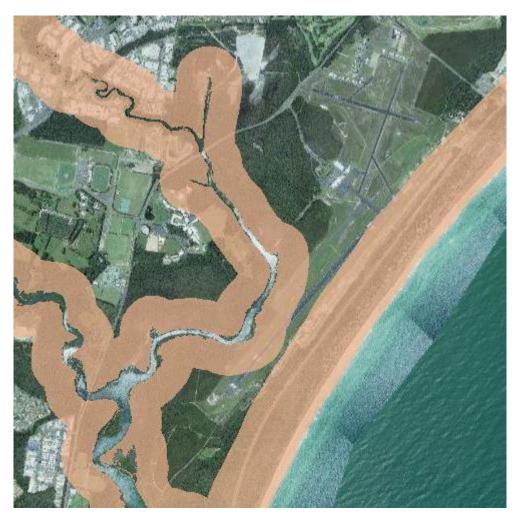
Figure 11.4 – Coastal Environment Area



 $Source: \quad \textit{Department of Planning and Environment 2018}.$

Figure 11.5 shows the mapping (tan shading) which defines the Coastal Use Area on and in the vicinity of the Airport. Development controls for the Coastal Use Area have been established, which are reproduced at **Appendix C3.**

Figure 11.5 - Coastal Use Area



Source: Department of Planning and Environment 2018.

11.4.4 State Environmental Planning Policy No 44—Koala Habitat Protection

This SEPP aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline. Currently, there are proposed amendments in place that relate to the definitions of koala habitat, species list of koala food trees, list of Councils (this includes CHCC) where SEPP 44 is applied, and the development assessment process in relation to koala habitat protection.

Development controls for koala habitats have been established, which are reproduced at **Appendix C4.**

CHAPTER 12

ENVIRONMENTAL CONSIDERATIONS



12 ENVIRONMENTAL CONSIDERATIONS

This Chapter does not comprehensively address all airport environmentally related issues. It is a high-level overview of the types of environmental matters most typically associated with airport master planning and aircraft operations, updated with contemporary information where it has become available. Environmental matters are more extensively detailed in the various studies cited in the Chapter. Also, as noted in **Chapter 9** projects arising from the Airport's future development concepts described above, either have been or will be subject to the application of the *NSW Environmental Planning and Assessment Act 1979* in terms of the level and type of environmental assessments required. Additionally, depending on the proposal or activity, the provisions of the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) may be applicable.

12.1 Aircraft Noise

Noise mitigation measures at the Airport are aimed at minimising noise impacts on nearby residential communities. When the tower is active, these abatement measures are to utilise Runway 03 in preference to Runway 21 for landing and take-off, although if traffic conditions permit, ATC may nominate Runway 21 as the first preference for aircraft inbound from the north, north-west and east. When the tower is not active, Runway 21 is preferred for landings and Runway 03 for take-offs. Additionally, ATC will avoid approving flights over built-up areas whenever weather and traffic conditions permit. Council also restricts circuit training to between 0700 and 2200 hours daily.

Over many years aircraft and engine manufacturers have been focused on reducing the effects of aircraft noise on communities near airports. The most effective way of managing aircraft noise impacts is through adopting and implementing appropriate land use policies, development controls and acoustic standards. The traditional system of aircraft noise assessment in Australia for land use planning purposes is based around the ANEF metric, which is a modification of the United States Noise Exposure Forecast system. The ANEF is the only metric approved and promoted by the Federal Government for assessing the suitability of land use against aircraft noise. The ANEF system is also associated with Australian Standard AS 2021:2015 Acoustics – Aircraft Noise Intrusion – Building siting and construction. The ANEF is one of three types of charts which can be produced using the ANEF metric as follows:

- ANEF charts show the average daily forecast of aircraft noise levels that are expected to
 exist at some point in the future, typically ten, or 20 years from the present. ANEF charts
 are sometimes also prepared based on the ultimate capacity of the airport, rather than
 being linked to a particular point in time;
- Australian Noise Exposure Index (ANEI) charts show the average daily actual, historical
 aircraft noise levels over a given period of time, where the specific numbers and types of
 aircraft that operated at the airport are known; and
- Australian Noise Exposure Concept (ANEC) charts are used to evaluate hypothetical options such as new runway configurations, fleet mix variations etc. They have no official status and cannot be used for land use planning purposes.

An ANEF is the only type of chart which has status in land use planning decisions and when endorsed for technical accuracy by Airservices becomes the official ANEF for the airport. Only one ANEF is current at any one time and is only superseded when a more recent ANEF is endorsed. ANEI charts may also be endorsed by Airservices and are used primarily as benchmarks or indicators of change of aircraft exposure.

An assessment of aircraft noise impacts has not been undertaken for this Master Plan Update although ANEF, ANEI and ANEC charts have been prepared in the past.

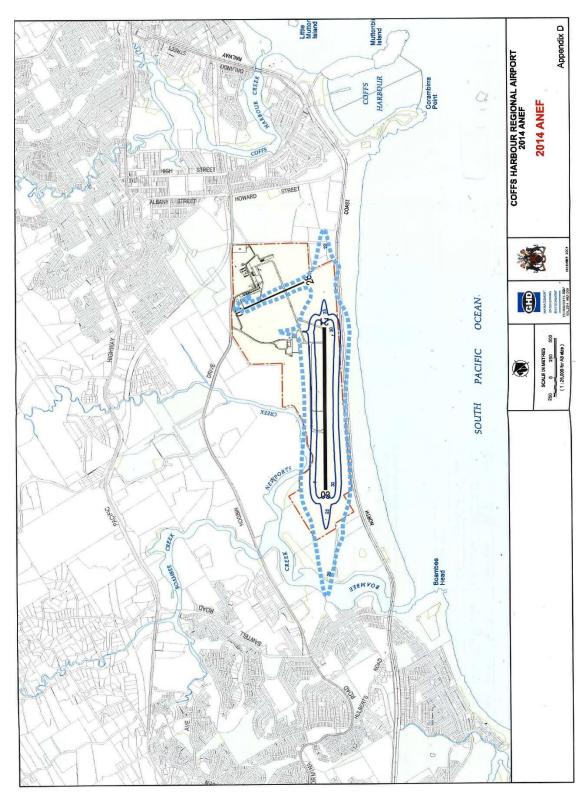
The most recent ANEI was prepared by Airservices for the Year 2000. The ANEI was not formally endorsed by Airservices. The noise contours for the ANEI are available on Council's website and are shown on **Figure 12.1**.

Figure 12.1 – 2000 ANEI

Source: CHCC 2019.

The most recent ANEF was prepared in 2004 by consultants GHD for the Year 2014. It does not appear to have been submitted to Airservices for endorsement. **Figure 12.2** depicts the ANEF. Generally, larger aircraft, particularly jets, contribute more to an ANEF footprint than smaller less noisy aircraft types. In the case of the 2014 ANEF, it was assumed on average there would be four movements per day by medium jet aircraft e.g. B737-800. This approximates to the average number of daily medium jet operations currently occurring. The 2014 ANEF is therefore generally representative of the current noise environment, ignoring the contribution made by smaller aircraft.

Figure 12.2 - 2014 ANEF



Source: GHD 2004.

Given it is some time since this ANEF was prepared, the new air traffic forecasts shown in **Chapter 8** would provide the basis for a new ANEF to be developed. It is also noted that the computer model traditionally used to develop ANEFs known as the Integrated Noise Model (INM) is transitioning to

the US Aviation Environmental Design Tool (AEDT), during the current calendar year. Until the end of 2019, Airservices accepts either model when considering endorsement.

While the ANEF is predominately a land use planning tool, it has been recognised that alternative noise descriptors are a useful way to more meaningfully explain noise impacts to the general public, particularly for areas beyond the 20 ANEF contour line. It is one of the aims of NASF to provide this type of information, and *Guideline A: Managing Aircraft Noise 2012* provides advice on a range of suitable alternative metrics. For example, an approach is available that combines the information in a single event noise contour, with the ability to consolidate this information into a description of high noise 'zones'. Information on the number of noise events is termed the 'Number Above' noise metric. In Australia, this is commonly called the N70 (or N65 or N60) where N70 is the number of aircraft noise events louder than 70 dB(A). Thus, residents can be informed in a way that is more intuitive, by showing how many "noisy" events will be experienced within the illustrated zone. 70 dB(A) events have often been used to categorise an event as 'noisy', as these correspond to a 60 dB(A) noise level indoors, which can disturb conversation or other indoor activities such as watching television. Most Australian airports now provide this additional type of information as part of the ANEF and master planning process.

12.2 Air Quality

An assessment of air quality was undertaken in conjunction with the 1994 Master Plan. This assessment concluded that emissions associated with aircraft operations at the Airport are considerably less than from other major airports and less than from motor vehicles in the adjacent area. A new assessment is not within the scope of this Master Plan Update.

The new US AEDT being used for ANEF production also provides a software system that models aircraft performance in space and time to estimate fuel consumption, emissions and air quality consequences. The new air traffic forecasts shown in **Chapter 8** would provide the basis for an updated air quality assessment to be made using the AEDT. As part of its ongoing commitment to reducing emissions more generally, Council provides ground power outlets for the RPT parking positions which enable aircraft auxiliary power units to be able to shut down during turnarounds. QantasLink aircraft currently utilise this facility. Additionally, Council has a project to install a 150Kw Solar PV system to the roof of the security car park to reduce emissions and energy consumption.

12.3 Flooding

This section focusses on the Airport as a whole. Flooding and drainage in relation to the Airport Enterprise Park is addressed in **Section 6.4.6**.

Council's flood mapping for the Airport site is shown on **Figure 12.3**. It shows in blue shading and cross hatching those parts of the Airport subject to inundation for a 100-year average recurrence interval (ARI) event. Those locations most likely to be subject to inundation, are the western end of Runway 10/28 through to parts of the RPT precinct and adjacent to the south-western side of Runway 03/21.

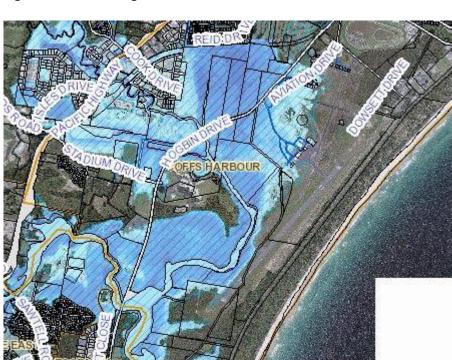


Figure 12.3 – Flooding Information

Source: CHCC 2019.

12.4 Hazard and Risk

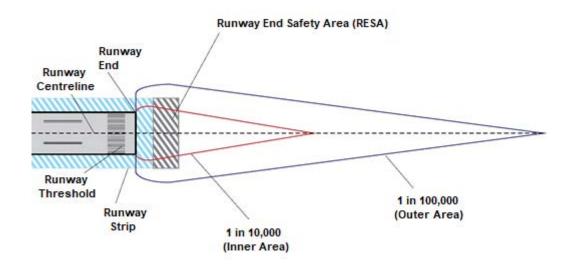
An assessment of hazard and risk was undertaken in conjunction with the 1994 Master Plan. This assessment compared a range of risks associated with everyday activities and noted that travelling by air is one of the safest forms of transport. The 1994 assessment also considered aircraft crash risk both on the Airport and adjacent areas and indicated the probability of an accident occurring increases as the distance from the Airport decreases. A new assessment is not within the scope of this Master Plan Update.

Since 1994, CASA has mandated the provision of RESA for runways such as Runway 03/21 as an increased safety measure compared to previous requirements. Also, in 2018 NASF *Guideline I: Managing the Risk in Public Safety Areas at the Ends of Runways 2018* was published. This provides guidance to decision makers on the assessment and treatment of potential increases in risk to public safety which could result from an aircraft incident or development proposal in areas near the end of an airport runway.

It introduces the concept of Public Safety Areas (PSA) which are designated areas of land beyond the end of an airport runway within which development may be restricted in order to control the number of people on the ground at risk of injury or death in the event of an aircraft accident on take-off or landing. The purpose of a PSA is not, primarily, to reduce the severity of damage to an aircraft or injury to its occupants as a result of an aircraft incident. Unlike a RESA that seeks to address the risk to aircraft and passengers, the PSA seeks to address the risk to the community around an airport. PSA models generally aim to limit land uses that increase the number of people living, working or congregating within the PSA. The dimensions of a PSA are typically determined by

reference to the levels of statistical chance of an accident occurring at a particular location. The number of aircraft movements and the distance of the location from the critical take-off and landing points can be used to model the total statistical likelihood of a fatal accident at the location over a one-year period. This modelling work can be used to determine the extent of the PSA. In some cases, the resultant shape of the PSA is that of an elongated isosceles triangle as shown on **Figure 12.4**. In this example, the PSA shows an inner and outer area corresponding to the modelled levels of risk. The actual sizes of the modelled areas would be airport specific. The air traffic forecasts depicted in **Chapter 8** would provide part of the input for this type of analysis to be undertaken.

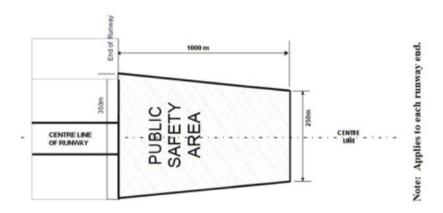
Figure 12.4 – PSA Example (Not to Scale)



Source: DIRDC 2018.

In Australia, Queensland is the only jurisdiction with a mandated PSA policy for specifically nominated airports. The PSA shape is based on a modified version of research conducted in the UK on risk to third parties and is currently under review by the Queensland Government. The review is considering the suitability of moving to a more tailored airport-specific approach based on the UK methodology. However, Queensland's existing PSA model is expected to remain in place for the foreseeable future. **Figure 12.5** shows the Queensland PSA template which takes the form of an isosceles trapezoid—1000m long, 350m wide closest to the runway end, tapering to a width of 250m furthest from the runway.

Figure 12.5 – Queensland PSA Template (Not to Scale)



Source: DIRDC 2018.

12.5 Aboriginal Heritage

Aboriginal heritage was assessed as part of the 1998 EIS and more recently in the SEE (2015) for the Airport Enterprise Park Development.

The 1998 EIS identified several Aboriginal sites across the study area and a spiritually important site (the latter in the area beyond the southern end of Runway 03/21 and known as Site 11). These are shown on **Figure 12.6**. Sites 1-10 primarily comprise middens and campsites. The significance of the sites is variously characterised as high, medium-high and low. The sites showed varying degrees of disturbance and the EIS identified safeguards to minimise impacts. Since 1998, Council has worked with the Aboriginal community in mitigating impacts to cultural heritage, as well as seeking the relevant permits to undertake earthworks for the staged Airport developments.

Site 11 is reported in the EIS as

"...an area where a number of Gumbaynggir people hold strong beliefs in the existence of a spiritually important site. The site is associated with creation stories and is seen as scared and sensitive. Information on the site has been handed down through kin and has been kept secret in accordance with beliefs about the site. Although men hold knowledge about the site, only women should enter the site proper and it is therefore defined by these people as a women's site". (GHD 1998).

Also, as reported in the EIS

"Gumbaynggir elders maintain that the outer perimeter of Site 11 would have once extended over the southern part of the Airport area as defined by the existing fence. The elders recognise that some site destruction has already occurred. In the light of this, elders stated that they had no objection to the redevelopment within the current fenced airspace [sic]". (GHD 1998).

Council's decision to limit any southern runway extension and the associated clearway and RESA to the northern side of the existing airside/landside fence, therefore maintains this position.

Council's recent advice is that the current Aboriginal Heritage Information Management System (AHIMS) identifies all 11 sites irrespective of their condition. Sites 1 to 10 did or have cultural artefact material present on site - this includes both shell and stone material. No physical material has been identified at Site 11 and the location is somewhat fluid in its boundary. None of the sites remaining are discrete occurrences, being typically broadly spread and with an undefined boundary. The most likely impacts that would arise in connection with the Airport Enterprise Park project would be from alteration to surface deposits such as earthworks, construction of roads, installation of underground services, landscaping etc.

In 2015, a group of Aboriginal women rangers from Minyumai Indigenous Protected Area and Darrunda Wajaarr (Repair to Country) team came together to assist the Rural Fire Service to implement a cultural burn as a part of a broader hazard reduction burn at Coffs Harbour Airport including the area around Site 11. The burn extended across a 12ha Coastal Wallum Heathland south of the airside/landside fence.

The burn resulted in a reduction of bush fire risk to the Airport and surrounding properties. The burn outcome will enhance the ecological values of the shrub land given the length of time estimated since the vegetation was last subject to fire. While it is not possible to give a definitive estimate of time since last fire, several lines of evidence indicate that the shrubby heath in the study area maybe close to 30 years without fire. (www.firesticks.org.au)

The SEE for the Enterprise Park Development prepared in 2015 included an archaeological investigation of the project site area to identify any potential constraints there might be to development on archaeological or cultural grounds. Local Aboriginal representatives assisted in the field survey and at the completion of the study they agreed that there were no constraints to the proposed development on cultural grounds. A copy of correspondence from the Coffs Harbour and District Local Aboriginal Land Council is contained in **Appendix D**. This correspondence notes that should any material suspected to be of Aboriginal origin be uncovered during disturbance activities, all works must cease immediately in the vicinity of the find and registered Aboriginal stakeholder groups be notified immediately for inspection of the material/s and clearance given for works to recommence.

Council is keen to maintain an ongoing relationship with the local Aboriginal community and acknowledges any future projects involving earthworks on land within and adjacent to the airport boundary will require consultation with the relevant stakeholders as well as an Aboriginal Heritage Impact Permit from Office of Environment and Heritage where appropriate.

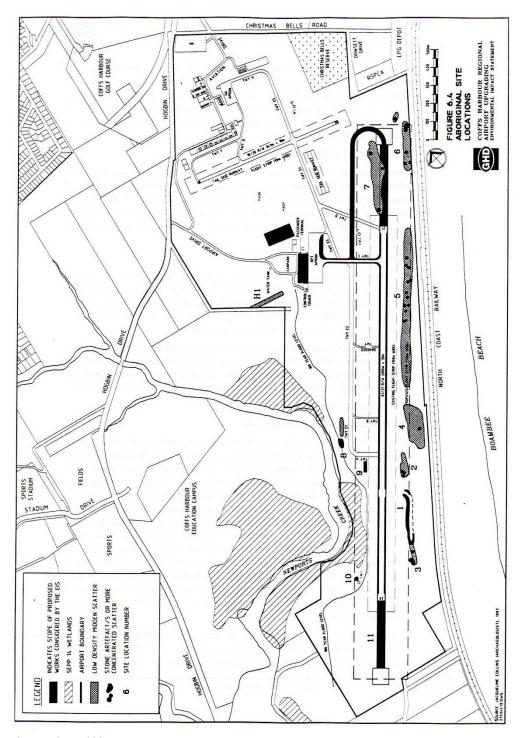
Council has a current project to upgrade the existing emergency vehicle access track from Gate 5 on the airside/landside security fence near the southern end of Runway 03/21. Approximately 100m of the access track is on Airport land with the remaining length on Crown Land beyond the Airport boundary. The upgrade is required to enable ARFF fire vehicles to use the track and responds to a request from Airservices following advice from CASA.

The access track traverses part of the area of Site 11. At the time of preparing this update, processes are underway to address the following:

- transfer of some Crown Land to Council;
- Native title assessment; and
- Part 5 assessment under the NSW Environmental Planning and Assessment Act 1979.

It is understood this will take 2-3 months, with project completion expected by the end of 2019.

Figure 12.6 – Aboriginal Site Locations



Source: GHD 1998.

Note: the runway extensions shown above do not reflect the 2,700m overall length subsequently adopted by Council, or the 2,619m adopted for this update.

12.6 European Heritage

The 1998 EIS included a search of various heritage registers which did not identify items within the Airport site listed on the registers. During associated field work only one area of heritage significance was discovered, this being a raised earthen causeway west of the control tower. This causeway is part of a tramway built in the early 1900s for transporting timber. It was recommended that the site receive the necessary level of protection from future work by clearly identifying the location on Airport development maps. The site is shown on **Figure 9.2** noting it falls outside of the Airport boundary.

12.7 Bushfire Prone Areas

Council's mapping for the Airport identifies bushfire prone areas as shown on **Figure 12.7**. Both Category 1 (brown shading) and 100m buffer areas (pink shading) are located within vegetated parts of the Airport site.



Figure 12.7 – Bushfire Prone Areas

Source: CHCC 2019.

12.8 Vegetation Communities and Environmental Management

Vegetation management associated with Phase 1 of the Airport Enterprise Park development is addressed in **Section 9.4.8** above. Council's Class 5 (fine scale) mapping for the overall Airport site and adjacent areas is shown on **Figure 12.8**. It includes areas of forested wetlands (light blue shading), freshwater wetlands (dark blue shading), grasslands (light green shading) and heathlands (red shading). EEC identified in the mapping, include freshwater wetlands.

Council also commissioned Ecosure to prepare the *Vegetation Management Operations Manual 2018* (VMOM). The VMOM is an operational manual enabling vegetation to be managed to ensure OLS requirements are met, and that the biodiversity values are protected within all areas impacted by airport operations. It identifies the processes to be followed by the Airport and provides detailed measures that support the long-term management of vegetation and associated biodiversity values across land managed for Airport operations.

In addition, Council commissioned Ecosure to prepare an Environmental Assessment (EA) under Part 5 of the *Environmental Planning and Assessment Act* 1979 to address potential environmental impacts associated with proposed OLS vegetation maintenance works (the activity) in accordance with Council's VMOM. The EA is documented in the *Environmental Assessment Report for OLS Vegetation Maintenance Works 2018.* In order to reduce the need for an EA whenever maintenance works are required, the report is valid for all works outlined in the VMOM for a period of three years. Any additional vegetation works required outside the scope of the VMOM will require a separate assessment to review.

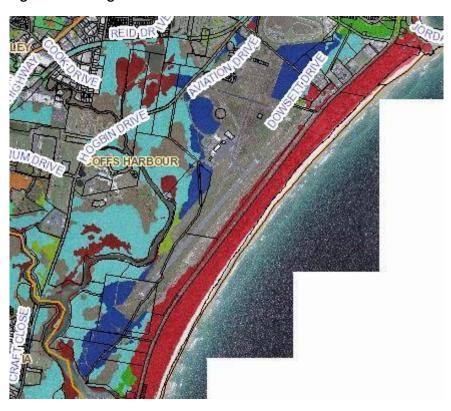


Figure 12.8 – Vegetation Communities

Source: CHCC 2019.

12.9 Koala Habitat

The EMP for Phase 1 of the Airport Enterprise Park development notes that Koala habitat and refuge plantings are not included in Phase 1 works but that future stages of the development will require further consultation with the Office of Environment and Heritage regarding koala plantings.

Council's mapping of primary koala habitat for the Airport site and adjacent areas is shown on **Figure 12.9**. It includes an area to the west of and along the edge of Airport Drive. Council has a

Comprehensive Koala Plan of Management that notes mapped primary koala habitat occurs on a significant portion of land within the Airport with koala food tree species dominating a number of vegetation communities across the site.

Figure 12.9 – Koala Habitat



Source: CHCC 2019.

12.10 Wildlife Hazard Management

Council has a proactive approach to managing wildlife hazards. Consultant Avisure's latest *Wildlife Hazard Assessment Report* of 2019 notes the Airport shows a commitment to improve wildlife hazard management and have a good level of regulatory compliance.

This commitment is demonstrated through:

- Commissioning Avisure to annually evaluate the wildlife hazard management program since 2005.
- Stakeholder engagement through monthly Tenant, quarterly Runway Safety and annual Wildlife Hazard Management Committee meetings.
- Implementation of a Preliminary Vegetation Management Plan which identifies wildlife attracting vegetation and recommends appropriate native vegetation for revegetation.
- The use of a variety of wildlife management tools.
- Wildlife monitoring and strike reporting by the Airport Reporting Officers.
- Provision of wildlife management training for Airport Reporting Officers.
- Off-airport monitoring of potentially wildlife attracting sites within a 13km radius of the airport.

- Analysis of Airport Reporting Officers count data to understand the wildlife risk at the airport.
- Removal of Cocos palms landside to reduce wildlife attraction.

CHAPTER 13

FUTURE TECHNOLOGIES



13 FUTURE TECHNOLOGIES

A feature of aviation is one of being an early adopter and catalyst for technological advancement. Some of the following existing and emerging technologies could be expected to have application at the Airport during the life of this Master Plan Update.

13.1 Passenger Facilitation

A feature at some of the major Australian airports is the trend towards self-check-in kiosks and bag drop facilities at busy terminals. This technology is now well established and largely accepted by passengers. It can help free-up space in the check-in area by reducing the number of staffed check-in desks required, thereby enhancing the overall efficiency of the departure process. In the master planning context, the need to provide additional check-in expansion space as passenger demand grows may therefore be reduced. The technology may have application at the Airport in the future.

Currently, the airlines use dedicated check-in counters. An option for the future to mitigate the need for additional check-in facilities would be to move to Common User Terminal Equipment (CUTE), which would bring all check-in desks to a common platform, enabling an airline to use any desk at busier times. This system is already in use at many of the major Australian airports.

Australia is currently trialling new 3D X-Ray technology and body scanners ahead of an expected introduction at airports such as Coffs Harbour in the near future. Also, automated tray return systems that will allow passengers to keep laptops and other electronic devices in their bags when going through screening points, should permit reduced processing times, as well as potentially downsizing the area required for queuing prior to the screening point.

Biometrics are already being used at Australian international gateways in terms of border control processes. Biometrics may have a future application at the Airport to deliver a secure, paperless way to identify passengers.

13.2 Increased Use of GNSS for Navigation and Surveillance

As noted in **Section 6.4** the Airport is already benefiting from GNSS procedures supporting non-precision instrument approaches for Runway 03/21. Currently, these permit aircraft to operate to the same conditions of visibility and cloud base as those utilising VOR/DME procedures, and from October 2019 to lower altitudes. If the weather conditions are worse than those of the published procedures, approaching aircraft must either make another landing attempt or divert. While diversions are infrequent, they are nevertheless very inconvenient and can be costly to both passengers and the airlines. The next level of approach capability is a precision instrument approach which has traditionally been provided by an Instrument Landing System (ILS). These require ground-based radio equipment for each approach direction to be served and are costly to procure, install and maintain. ILS are in operation at all major Australian airports and some limited regional locations. However, a precision approach capability does allow aircraft to typically operate to much lower visibility and cloud base conditions compared to a non-precision instrument approach.

Satellite-based technology for precision instrument approaches is emerging as a much more costeffective way of achieving ILS type capability. There are two types of systems which could have application at Coffs Harbour in the future.

Firstly, the Ground Based Augmentation System (GBAS), known in Australia as Honeywell SmartPath, is a satellite-based precision landing system and is recognised by ICAO as a potential future replacement for current ILS. In 2014, a CAT-I Honeywell SmartPath at Sydney Airport was commissioned into service. It provides what are known as GLS approaches in lieu of the traditional ILS.

Secondly, it is recognised that GBAS technology is usually found only in large aircraft. Geoscience Australia is currently assessing Satellite Based Augmentation System (SBAS) technology across Australia using information gathered from trials in multiple sectors including agriculture, mining and aviation. A SBAS would potentially allow turboprop regional carriers and smaller aircraft to reap the same benefits as larger aircraft without the need for an airport or Airservices to install ILS infrastructure.

In terms of surveillance, Automatic Dependent Surveillance Broadcast (ADS-B) is an air traffic surveillance technology that enables aircraft to be accurately tracked by air traffic controllers and other pilots without the need for conventional radar. At Coffs Harbour, radar coverage is generally not available below an altitude of 4,500 feet. Australia now has significant ADS-B surveillance coverage available across the continent. This additional surveillance has become necessary due to the ever-increasing volume of traffic that Australia now experiences, particularly in remote regions. Importantly, it also offers airspace users many benefits.

13.3 Remote (Digital) Tower Technology

The existing control tower is some 33 years old and will at some point reach the end of its economic life. Airservices may choose to replace the existing tower with a new staffed facility in the future. However, it is noted in several locations around the world, some new and replacement control towers are making use of remote (digital) tower technology rather than the traditional on-airport staffed model.

The technology involves capturing imagery of an airport and surrounding airspace via video cameras, sometimes up to 15 mounted on a mast. Imagery is compressed and sent by wide area network and displayed on screens at a centrally based control room which does not have to be at the specific airport.

Typically, screens are positioned in an arc to display a 360-degree picture of the airport and surrounding airspace. A small number of pan-tilt-zoom cameras are also used, enabling air traffic controllers to replicate the functionality of binoculars. **Figure 13.1** illustrates a digital tower imagery facility.

Figure 13.1 – Digital Tower Imagery Facility



Source: NATS 2017.

The technology offers significant advantages for regional airports by providing centralised services to more than one location, thus resulting in efficiencies by a more cost-effective allocation of resources. Digital towers are already operating in Sweden, and London City Airport will be operating a digital tower later in 2019, with the air traffic control staff located some 100km away from the airport. Airways (the NZ equivalent to Airservices) expects to be operating a digital tower at the regional airport in Invercargill in 2020.

A new staffed or digital tower could significantly enhance development opportunities in the area south of Runway 10/28 and west Taxiway E4. Due to current tower line of sight constraints, this part of the Airport is effectively restricted to surface level land uses such as car parking etc. A tower positioned say north of the fire station and built to a greater height than the current tower would eliminate many of the current constraints, enabling this area to be optimised for higher order land uses.

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APPENDICIES

Appendix A – Council Resolution 27 of 15 March 2007

COFFS HARBOUR CITY COUNCIL ORDINARY MEETING (CORPORATE BUSINESS) 15 MARCH 2007

RECOMMENDATION: CB16

Adopted By Resolution Number: 27

Minutes confirmed at Council meeting: 5 April 2007

To view Report, double-click on Agenda Report link below

Agenda Report

C15 AIRPORT MASTER PLAN REVIEW

The purpose of this report is to put to Council for adoption the revised Airport Master Plan.

CB16 RECOMMENDED (Ovens/Palmer) that it is recommended that Council:

- 1. Adopt the 2007 Coffs Harbour Regional Airport Master Plan as presented in Attachment A of this report
- 2. Note that the requirements of Part 139 Manual of Standards will require an engineering solution to be found for the provision of a Runway End Safety Area for southern extension of Runway 03/21 if the extension is to proceed as shown in the 2007 Airport Master Plan.
- 3. Note the decommissioning of grass runways 10/28 and 10/19.
- 4. Seek quotations for a flooding and drainage study over airport site for inclusion in the 2007/08 budget.

Listed below is a summary of the advice and suggested changes arising from the airport master plan review:

- It is recommended that the Airport retain its capacity to accommodate B767 (240-seat) Code D aircraft.
- The new master plan reflects Council's resolution of 4 March 1999 and shows the proposed length of Runway 03/21 as 2700m instead of the original 2900m.
- It is recommended that Council be made aware that the runway end areas will need to be redesigned to meet the new Civil Aviation Safety Regulations Part 139 Manual of Standards. This has implications for any southern extension of Runway 03/21.
- It suggests that when planning for works for the main terminal, the main apron, and for Runway 03/21 and Taxiway C provision be made for the occasional operation of a Code E aircraft such as a B777 (400-seat).
- No changes will have to be made to the footprint of the Passenger Terminal Area from that shown in the 1994 Master Plan to accommodate these Code E aircraft.
- Unless demand dictates otherwise, defer any decision to strengthen the pavement on the main runway to handle Code D (B767) aircraft until a maintenance overlay is due. This maintenance overlay is anticipated to be required some time in the next 10 to 15 years.
- Cross runway 10/28 be redesignated to Code 1B.
- It is recommended that the Airport Manager's decision to decommission grass runways 10/28 and 01/19 be ratified.
- o It demonstrates that by altering the configuration of the General Aviation (GA) Area taxiways more land can be made available for GA operations.
- Make Council aware of the need to commission a detail flooding and drainage study for the airport, preferably before extensive development occurs in the GA Area. (Flooding information already exists for much of the RPT area)

The major changes to the airport layout that Council will approve in adopting the 2007 Coffs Harbour Regional Airport Master Plan as presented are detailed in the table below:

Table 1 – Recommended Changes Arising from the Airport Master Plan Review

Item	1994	2007 Master Plan
Main taxiway east of RWY 03/21	Proposed in 1994 plan	Previously deleted by resolution of Council
ARFFS* fire training area	Nth of RWY 10/28	W of Twy E4
Runway 03/21 Length	2,900m	2,700m by previous resolution of Council
Runway 03/21 southern extension	370m	150m due to environment. By previous resolution of Council

Compass Swing Area	Shown off Taxiway D2 (Now designated Taxiway E2)	Deleted – as considered unnecessary
New Position for VOR**	Proposed for the Western side at southern end of RWY 03/21	Locate east Taxiway E4
RESA***	90m x 90m	240m x 90m due to changes in standards
General Aviation (GA) taxiways	As shown	Reconfigured
Grassed Runways 10/28**** & 10/19	Existing in 1994	Removed as no longer required.
GA Area Land-use	All aviation	Multiple use
Commercial area S of Airport Drive. Smaller commercial area N of Aviation Drive.	Included in 1994 plan.	Eliminated for environmental reasons
Major freight facilities	Proposed in 1994 plan	Deleted for environ. reasons. Land partially available for aviation purposes.

^{*} ARFFS – Airport Rescue and Fire Fighting Services

^{**} VOR – Radio Navigation Beacon owned by Airservices Australia

^{***} RESA – Runway End Safety Area

^{****} Grass Runway 10/28 was located within the grassed section of the runway strip of Runway 10/28

QANTAS

Payload Range Study- Coffs Harbour Airport

Payload Range Capabilities

For Proposed Runway Extensions

Coffs Harbour Airport

A320-200 B737-800W B737-700

Prepared by: Tony Filacouridis

Approved by: George Mylonas

Snr Aircraft Performance Engineer Aircraft Performance Engineering Manager Aircraft Performance Engineering Aircraft Performance Engineering

Date: 20th August 2004

Date: 20th August 2004

DEO 04101/221-0-GEN AUG 20/2004



The information contained herein is supplied to COFFS HARBOUR CITY COUNCIL,
Locked Bag 155 Coffs Harbour NSW 2450 Australia from
QANTAS AIRWAYS LIMITED,
203 Coward Street, Mascot, New South Wales 2020

1. RECITALS

COFFS HARBOUR CITY COUNCIL requires an aircraft range capability study based upon proposed runway extensions in relation to operations for the Airbus A320-200, Boeing 737-800W / 737-700 at the Coffs Harbour Airport.

2. IMPLEMENTATION

- 2.1 Qantas to provide aircraft payload information based upon proposed runway extensions in relation to proposed operations for the Airbus A320-200, Boeing 737-800W / 737-700 at the Coffs Harbour Airport.
- 2.2 The work will be approved by the Manager of Flight Operations Engineering who holds a CASA letter of authority for approval of performance data and flight limitations based on performance data contained in approved Airplane Flight Manuals.
- 2.3 Provision by QANTAS of Aircraft Performance Engineering at the request of COFFS HARBOUR CITY COUNCIL to be charged \$10,000.00 + GST to complete the task.

3. LIABILITY AND INDEMNITY

- 3.1 Qantas shall not be liable for any loss, damage or injury (including without limitation any consequential loss) to any person or COFFS HARBOUR CITY COUNCIL or any other property arising from any cause whatsoever except the gross negligence or wilful act or omission of Qantas, its servants, agents or sub-contractors.
- 3.2 Qantas shall not be liable for any loss or damage to COFFS HARBOUR CITY COUNCIL or its parts arising out of the provision of services under this Agreement except where such loss or damage is caused by the gross negligence or wilful act or omission on the part of Qantas in the provision of the services contemplated by this Agreement and in no circumstance will Qantas be liable for any consequential loss to COFFS HARBOUR CITY COUNCIL.
- 3.3 COFFS HARBOUR CITY COUNCIL hereby releases and indemnifies and covenants and agrees to release and indemnify and keep indemnified and hold harmless Qantas (and any sub-contractor of it) and their respective employees, servants and agents ("Indemnified persons") from and against all liabilities, claims, proceedings, damages, losses, costs, charges and expenses and any other obligations whatsoever ("Indemnified Losses") which may be made or accrued against or be suffered or incurred by the Indemnified Persons or any of them for or by reason of any loss or injury or loss of life to persons or loss of or damage to property sustained by any person or persons (including, without limitation, any sub-contractor of COFFS HARBOUR CITY COUNCIL or any employee, servant or agent of such sub-contractor) arising out of or in any way connected with the performance by the Indemnified persons or any of them of all or any of the obligations arising, or services to be performed under this Agreement or otherwise in connection therewith, except where the Indemnified Losses or any of them in connection with the provision of the services contemplated by this Agreement. The indemnity given by COFFS HARBOUR CITY COUNCIL herein shall continue in full force and effect notwithstanding the expiration or termination of this Agreement.

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INTRODUCTION

This report provides payload range estimates for the AIRBUS A320-200, BOEING 737-700, and BOEING B737-800W aircraft operating from the Coffs Harbour Airport under various runway length scenarios as supplied by Coffs Harbour City Council.

The data in this report is based on performance information available to Qantas. It should be regarded as general information, and only be used to initially determine runway length requirements. Operations into and out of Coffs Harbour Airport should not be planned using the information provided in this report.

This report is a technical evaluation and does not commit Qantas to any operational opportunities made available by the proposed runway extensions. The marketing division is responsible for these decisions.



AIRPORT INFORMATION

Runway Characteristics

The following information is a summary of the physical runway characteristics used to evaluate the payload range capabilities of the A320-200 and B737-800W and B737-700 aircraft.

Three options were provided by Coffs Harbour City Council to form the basis of the evaluation. Option 1 consists of a northern extension of 450m, option 2 consists of both a northern extension of 450m and a southern extension of 150m, and option 3 consists of both a northern 450m and a southern extension of 240m.

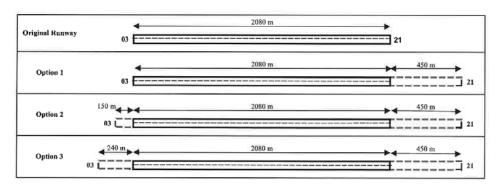
Existing runway and proposed runway extensions are shown in Table 1 below.

Runway	Existing Runway		Opt	Option 1		Option 2		Option 3	
Information	03	21	03	21	14	32	14	32	
BR Elev (ft)	14	18	*	*	*	*	*	*	
LO Elev (ft)	18	14	*	nje	*	*	*	*	
Slope%	0.06	-0.06	0.06	-0.06	0.06	-0.06	0.06	-0.06	
TORA (m)	2080	2080	2530	2530	2680	2680	2770	2770	
TODA (m)	2140	2140	2590	2590	2740	2740	2830	2830	
ASDA (m)	2080	2080	2530	2530	2680	2680	2770	2770	
LDA (m)	2080	2080	2530	2080	2530	2230	2530	2320	

Table 1: Runway Lengths

- Note: 1. (*) Takeoff reference point is currently undetermined. Existing runway slope will be assumed to continue into runway extensions.
 - Proposed distances have been supplied by Sinclair Knight Merz (email from Mr D. Lloyd Dated 29th July 2004)
 - 3. Runway width is 45 metres.

Layout Of Proposed Runway Extensions



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Obstacle Information

For twin engine aircraft CAO 20.7.1B requires that a gross gradient climb capability of 2.4% (1.6% net) be available upon takeoff and subsequent gear retraction. For any obstacle in the takeoff splay that has a gradient larger than 1.6%, the takeoff may become obstacle limited, thereby reducing the effective length of the TODA. The tables below summarise the obstacles applicable to the takeoff performance on runway 03/21 TODA.

RWY 03	Survey	HEIGHT FM LO		DIST FM	Gradient	DIST FM I	.O (M)
OBSTACLE	Reference	HGT (M)	HGT (FT)	TODA (M)	Gradient	Options 1,2,3	GRAD
1. Power Pole	1	56.9	187	1989	2.86%	1479	3.85%
2. Group of Trees	4	21.0	69	852	2.46%	342	6.13%
3. Palm with spike	5	61.3	201	2040	3.00%	1530	4.00%
4. Aerial	6	60.0	197	2007	2.99%	1497	4.01%
5. Tree right Splay	8	11.7	38	550	2.13%	40	29.15%

Table 2: Runway 03 Obstacle Summary

RWY 21	Survey	HEIGHT	ΓFM LO	DIST FM	Gradient
OBSTACLE	Reference	HGT (M)	HGT (FT)	TODA (M)	Gradient
 Far tree 	2	32.9	108	1565	2.10%
2. Far tree	7	49.7	163	2652	1.87%
Peaked tree	8	19.4	63	941	2.06%
4. Tree (stick on top)	9	36.3	119	1986	1.83%
Far tree	11	28.5	93	1306	2.18%

	DIST FM LO (M)												
Options 1	Gradient	Options 2	Gradient	Options 3	Gradient								
1565	2.10%	1415	2.32%	1325	2.48%								
2653	1.87%	2503	1.99%	2413	2.06%								
941	2.06%	791	2.45%	701	2.76%								
1986	1.83%	1836	1.98%	1746	2.08%								
1306	2.18%	1156	2.46%	1066	2.67%								

Table 3: Runway 21 Obstacle Summary

Note: Obstacle information was supplied by Coffs Harbour Council. The September 2003 survey was analysed and the limiting obstacles have been noted above.

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Airport and En-route Weather Data

The ability of an airline to accurately plan payload capability on a particular service requires the forecasting of accurate wind and temperature, both at airports (i.e., for the take-off phase) and en-route (i.e., for the climb, cruise and descent phase). Industry recognised sources of this wind and temperature data are the Boeing Surface Temperature Database, which provides airport temperatures (Boeing document number D6-56233), and the Boeing WindTemp© database, which provides winds and temperatures on a given route (Boeing document number D6-56162). The Surface Temperature Database is based on data provided by the US National Climatic Data Centre, and the WindTemp© databases are based on daily data released by the US National Centre for Atmospheric Research.

Table 4 below shows the surface temperature data for Coffs Harbour Airport. Surface temperatures are shown in degrees Celsius.

Month	65% Reliability Airport Tempera- ture at Coffs Harbour Airport
January	24.1
February	24.9
March	23.9
April	21.3
May	17.6
June	15.4
July	14.3
August	15.3
September	18.0
October	20.3
November	22.9
December	24.4
Monthly Average	20.7
Worst Month	24.9

Table 4: Statistical Weather Data

The airport temperature data is based on a 65% reliability (ie, 65% probability to never exceed the temperatures shown in each month).

These reliability levels are well recognised and accepted throughout the airline industry as being a reasonable level in order to determine payload capabilities from a particular airport.

The enroute winds and temperatures have not been quantified in this report. Once defined sectors have been recognised, enroute winds and temperatures can be quantified for different months of the year. It is not the intent of this report to evaluate commercial operations of sectors, but to highlight the range capabilities of the noted A320-200, B737-700, and the B737-800W aircraft with respect to the proposed runway extensions.

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TAKEOFF PERFORMANCE

Certified Take-off Performance

The maximum weight at which an aircraft can safely take-off from a runway is dependent upon, amongst other parameters, the runway length, obstacles in the takeoff splay, the airport temperature and the effective wind (ie, the wind strength parallel to the runway heading). This maximum weight is calculated assuming an engine failure occurs whilst the aircraft is still on the runway, and takes into account both a continued take-off and climb and an aborted take-off with one engine inoperative. Consideration is also given to both a continued take-off and an aborted take-off with all engines operating. This final case (ie, an aborted take-off with all engines operating) is generally the most limiting for a twin engine aircraft.

The takeoff performance limit weights are determined in accordance with CAO 20.7.1B, and are based on data contained in the CASA approved Airplane Flight Manual (AFM). It should be noted that the take-off performance provided in this report is preliminary, and therefore only representative of the aircraft performance. Takeoff information suitable for operational use cannot be produced until accurate survey data is available for the runway, which would provide detailed data on runway length, including any stopway and/or clearway available for use, runway slope, and details of any terrain under the take-off flight path. Nevertheless, the take-off performance shown is considered to be reasonably accurate for payload planning purposes and this would not be expected to change significantly.

The new generation aircraft evaluated in this report are certified to different requirements than that of their predecessors. The 737-800W and the 737-700 are certified to FAR Part 25.109 Amendment 92, and the Airbus A320-200 to JAR Part 25. These certifications require takeoff performance to be calculated for both dry and wet runways. The wet runway normally being the most limiting of the two. Takeoff performance for both wet and dry runways is calculated in this report, however the payload range study will be based upon dry runway takeoff performance with adjustments for wet runway performance provided.

Takeoff Procedure

The performance limit takeoff weight has been calculated based on the obstacles present in the straight-ahead (runway heading) takeoff splay.

For runway 03 departures, a turn to the right at the runway head was considered, to enable the avoidance of obstacles located on Beacon Hill, and thus permitting a higher takeoff weight. A turn at runway head requires sufficient ground clearance to initialise a banked turn. Normally a dummy obstacle is placed at the runway head to ensure the aircraft crosses the given point at a specified height. In this instance, the dummy obstacle would be more limiting than the obstacles on Beacon Hill, due to the hills relative close proximity.

Analysis of the straight ahead departure indicates these flight paths are acceptable departure routes for all engine and engine out operations.

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Takeoff Weights

RINWAY	RUNWAY 03 (DRY)		OPTION 1		OPTIO	N 2	OPTION 3	
ROHWA	05 (DR1)	EXISTING	PROPOSED	DELTA	PROPOSED	DELTA	PROPOSED	DELTA
737-800	FLAP 5	70750	74400	3650	75300	4550	75850	5100
727-000	FLAP 15	70150	70150	0	70850	700	71300	1150
737-700	FLAP 5	66789	66789	0	67448	659	67826	1037
757-700	FLAP 15	62287	62287	0	62746	459	63007	720
	CONF1+F	70950	72450	1500	73350	2400	73850	2900
A320-200	CONF2	70950	72250	1300	73100	2150	73600	2650
	CONF3	71350	72300	950	73150	1800	73550	2200

RUNWAY 03 (WET)		FYISTING	OPTION 1		OPTIO	N 2	OPTION 3	
	03 (1111)	EXTIGITIVE	PROPOSED	DELTA	PROPOSED	DELTA	PROPOSED	DELTA
737-800	FLAP 5	69350	73300	3950	74700	5350	75250	5900
757-000	FLAP 15	69850	69850	0	70550	700	71000	1150
737-700	FLAP 5	66770	66770	0	67446	676	67824	1054
737-700	FLAP 15	62287	62287	0	62746	459	63007	720
	CONF1+F	69750	71250	1500	71350	1600	71950	2200
A320-200	CONF2	69750	70150	400	71700	1950	72300	2550
	CONF3	70150	70900	750	72250	2100	72850	2700

RIINWAY	21 (DRY)	EXISTING	OPTION I		OPTION 2		OPTION 3	
ROTT WITE	21 (DR1)	LAISTING	PROPOSED	DELTA	PROPOSED	DELTA	PROPOSED	DELTA
737-800	FLAP 5	71050	78650	7600	80100	9050	80100	9050
757-000	FLAP 15	72250	75850	3600	75850	3600	75850	3600
737-700	FLAP 5	69884	72324	2440	72324	2440	72324	2440
757-700	FLAP 15	65366	65895	529	65895	529	65895	529
	CONF1+F	68450	76650	8200	77150	8700	77250	8800
A320-200	CONF2	72950	76750	3800	77150	4200	77350	4400
	CONF3	73300	77250	3950	77450	4150	77500	4200

RUNWAY 03 (WET)		FXISTING	OPTION 1		OPTIO	N 2	OPTION 3	
10111111	05(1121)	LAIGING	PROPOSED	DELTA	PROPOSED	DELTA	PROPOSED	DELTA
737-800	FLAP 5	69650	76950	7300	79300	9650	79400	9750
757-000	FLAP 15	70850	75350	4500	75350	4500	75350	4500
737-700	FLAP 5	69235	72322	3087	72322	3087	72322	3087
757-700	FLAP 15	65366	65895	529	65895	529	65895	529
	CONF1+F	66050	75250	9200	75750	9700	75050	9000
A320-200	CONF2	71750	75550	3800	75250	3500	75150	3400
	CONF3	72100	76050	3950	75250	3150	75500	3400

Table 5: Takeoff Performance Weights

- Note: 1. To conservatively account for the 65% reliability airport temperatures at Coffs Harbour Airport, 27°c (ISA+12°) and nil wind have been used as the reference for the takeoff weights. This was agreed to by Mr Bevan Edwards, Airport Manager, Coffs Harbour Airport.
 - Shaded cells indicate the takeoff weight used for this analysis. This is the max takeoff weight for the given runway and nil wind.
 - 3. For weights above maximum structural weight, max structural weight will be used for the analysis.

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Pavement Strength

Evaluation of the existing runway PCN (25/F/A/1200, ERSA dated 10/06/04), against the ACN for the proposed takeoff weights indicates that the B737-800W, B737-200 and A320-200 are limited. Qantas is aware that Coffs Harbour City Council issue runway pavement concessions for current RPT operations that marginally exceed pavement strength limitations. The proposed runway extensions enable the noted aircraft to operate at or near their structural takeoff weights which in turn would increase the current runway overload factor significantly. The current runway pavement strength will require addressing if the runway extensions are to be planned.

Aircraft Type	737-800W	737-700	A320-200
PCN 25/F/A Limit Weight (kg)	48100	50000	50000
Required PCN for Operation	44	38	37

Table 6: Pavement Limitations

MISSION ANALYSIS

Aircraft Configuration.

The table below highlights the aircraft data and configurations utilised in this report. The data may not necessarily reflect the Qantas fleet technical specification but provides generic information pertaining to the specific aircraft type used for evaluation and planning purposes.

AIRCRAFT CONFGURATION	B737-800W	B737-700	A320-200	
Maximum Takeoff Weight	79 015 kg	70 080 kg	77 000 kg	
Maximum Zero Fuel Weight	61 688 kg	55 202 kg	62 500 kg	
Operational Empty Weight	43 724 kg	38 187 kg	43 156 kg	
Engine	CFM56-7B26	CFM56-7B24	V2527-A5	
Tankage	26 023 L	26 023 kg	23 860 L	
Seating configuration	12J/156Y	12J/102Y	180Y	
Max Pax Payload	16 800 kg	11 400 kg	18 000 kg	
Max Payload	17 964 kg	14 084 kg	19 344 kg	

Table 7: Aircraft Specifications

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^{*}Note: Pax weights are based upon domestic travel weight allowances. Standard Pax weight 84 kg & Luggage allowance 16 kg.



Mission Rules

Mission capability has been assessed using the following performance rules and conditions:

- En-route temperatures of ISA+10°C;
- · En-route winds at 85% monthly reliability;
- · 3% Fuel flow factor;
- · Cruise speed schedule of LRC;
- Standard Qantas reserve fuel policy and passenger weights;
- · Standard Line-Up Allowances;

Payload Capability

Aircraft	Runway	Max Pax	Delta Wet Runway		Max Payload	Delta Wet Runway				
Type	Ruitway	Range (nm)	TOW (kg) PAX Range (nm)		Range (nm)	TOW (kg) Freight + Pax			Range (nm)	
A320-200	03 Existing	1237	-1200	-12	-245	967	-1200	-1200	0	-245
	03 Option 1	1420	-1200	-12	-245	1153	-1200	-1200	0	-245
	03 Option 2	1568	-1100	-11	-225	1303	-1100	-1100	0	-225
	03 Option 3	1649	-1000	-10	-204	1385	-1000	-1000	0	-204
	21 Existing	1560	-1200	-12	-245	1294	-1200	-1200	0	-245
	21 Option 1	2189	-1200	-12	-245	1931	-1200	-1200	0	-245
	21 Option 2	2196	-1700	-17	-347	1939	-1700	1344	-4	-347
	21 Option 3	2196	-2000	-20	-409	1939	-2000	1344	-7	-409
	03 Existing	1231	-900	-9	-176	993	-900	-900	0	-176
B737-800	03 Option 1	1838	-1100	-11	-215	1606	-1100	-1100	0	-215
	03 Option 2	1958	-600	-6	-117	1754	-600	-600	0	-117
	03 Option 3	2073	-600	-6	-117	1843	-600	-600	0	-117
	21 Existing	1483	-1400	-14	-274	1248	-1400	1164	-3	-274
	21 Option 1	2519	-1700	-17	-333	2293	-1700	1164	-6	-333
	21 Option 2	2576	-800	-8	-157	2351	-800	-800	0	-157
	21 Option 3	2576	-700	-7	-137	2351	-700	-700	0	-137
B737-700	03 Existing	2730	-19.2	-1	0	2137	-19.2	-19.2	0	0
	03 Option 1	2730	-19.2	-1	0	2137	-19.2	-19.2	0	0
	03 Option 2	2844	-2	0	0	2255	-2	-2	0	0
	03 Option 3	2910	-2	0	0	2322	-2	-2	0	0
	21 Existing	3256	-650	-7	-149	2678	-650	-650	0	-149
	21 Option 1	3262	-2	0	0	2731	-2	-2	0	0
	21 Option 2	3262	-2	0	0	2731	-2	-2	0	0
	21 Option 3	3262	-2	0	0 -	2731	-2	-2	0	0

Table 8: Maximum Payload Capability

Note: 1) The Max Pax range column represents the capable range with maximum passenger load and nil freight.

- The Max Payload Range column represents the capable range with maximum passenger and freight load limited by max takeoff weight.
- Depending upon aircraft configuration, max payload may be limited by the volumetric or structural limitations.
- 4) Wet runway performance accountability is given as a delta of the number of pax off loaded to achieve required range or the reduction of range to maintain the same payload

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Payload Range Charts

The ability of an aircraft to carry a given payload over a given range can be described in one curve which generally encompasses three different constraints. The maximum payload constraint of the payload range curve appears as a horizontal line at the top, and in this case represents the volumetric payload limit. Maximum payload can be carried until increasing fuel needs raise the takeoff weight to its maximum, that being the structural or the performance limit weight (takeoff weight limited by airport physical and environmental conditions). Once the airplane has reached its limit takeoff weight, payload will be decreased as fuel is added to fly further. Once fuel capacity is reached, the slope of the line becomes dramatically steeper as payload must be rapidly decreased to accomplish a small increase in range.

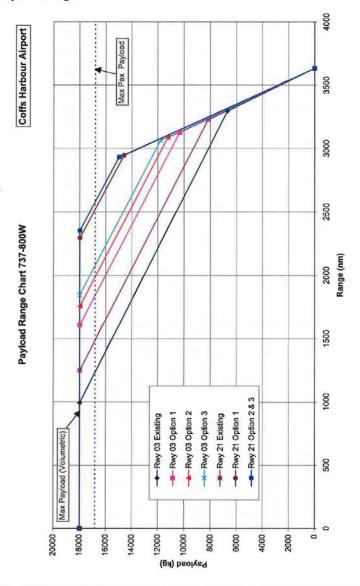
18000 18000 Max Pax Payload Decreasing Takeoff Weight Varying depending upon airport information and limited to structural takeoff weight Fixed limits based upon aircraft specification and configuration Fixed limits based upon aircraft specification and configuration 5000 500 1000 1500 2000 2500 3000 3500 4000

Payload Range Curve

Payload range charts have been created to reflect the performance and range capability of the noted aircraft from the proposed runway extensions. The curves can be interpreted as per the explanation above and appear overleaf.

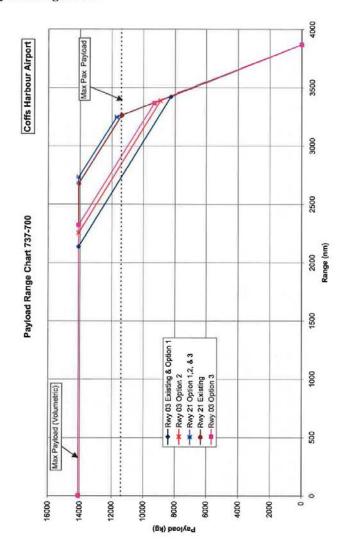
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B737-800W Payload Range Chart



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B737-700 Payload Range Chart

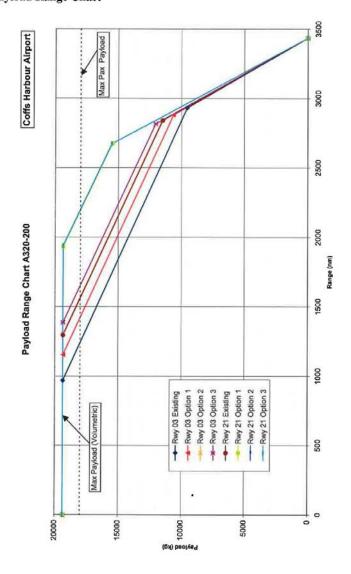


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A320-200 Payload Range Chart



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Range Circles

A graphical representation of the max pax and max payload range data can be generated by overlaying the ranges as circles onto a scaled map. The intent of the range circle is to provide a visual tool connecting distance with actual places from a known origin.

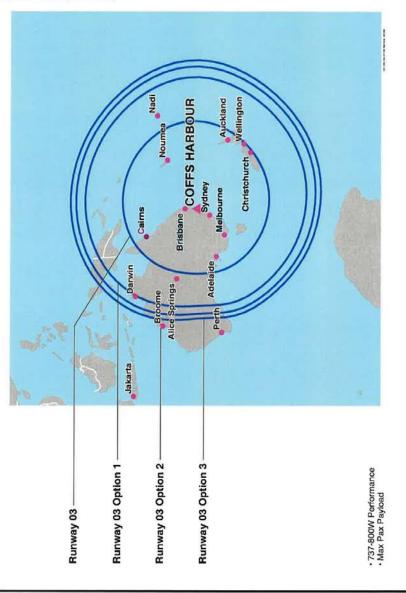
The ranges represent "Equivalent Still-Air Distances" (ESAD) corrected for seasonal winds, altitude and cruise speed as mentioned in the mission rules. The ESAD provides an "equivalent" distance that the aircraft would be flying under a "zero wind" condition. This is evident in the skewed effect of the range circles.

The ESAD is further corrected to include a 2% factor to allow for airway corrections. Airways have not been evaluated, as no defined destinations from Coffs Harbour were specified.

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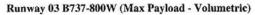
Runway 03 B737-800W (Max Pax)

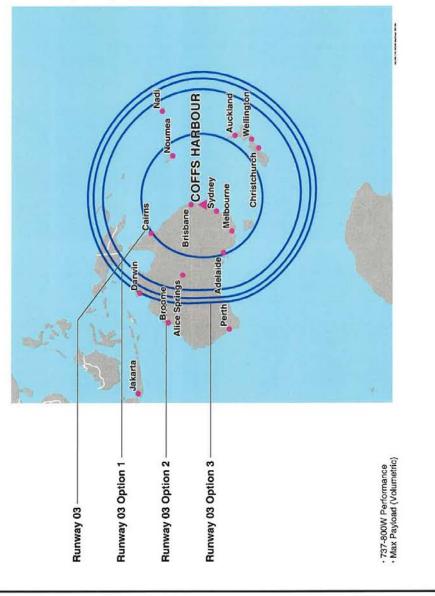


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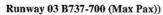


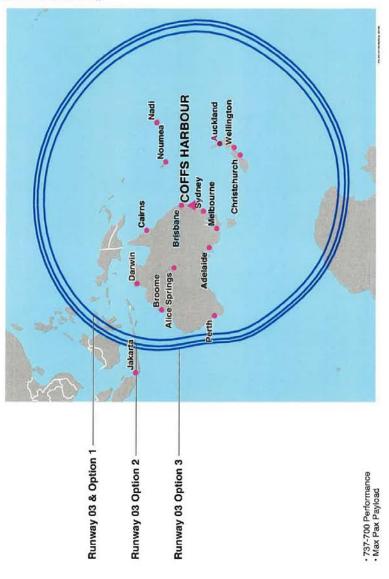




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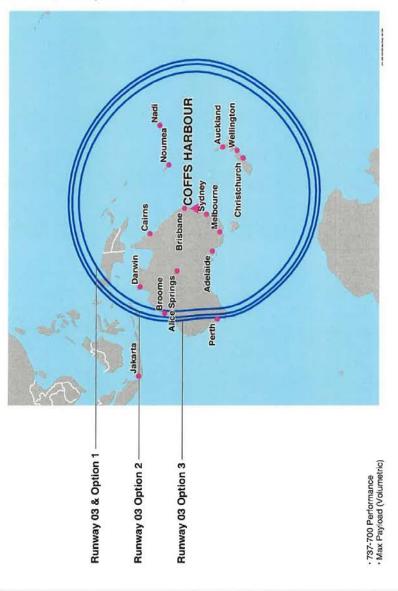




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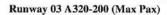


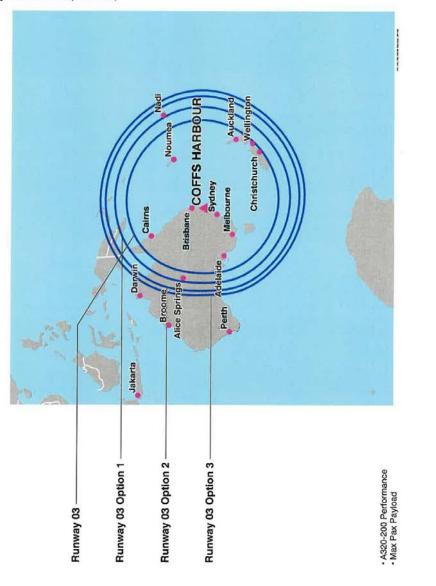
Runway 03 B737-700 (Max Payload - Volumetric)



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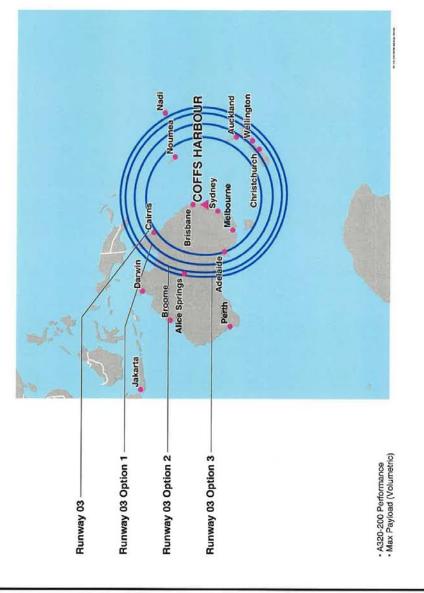




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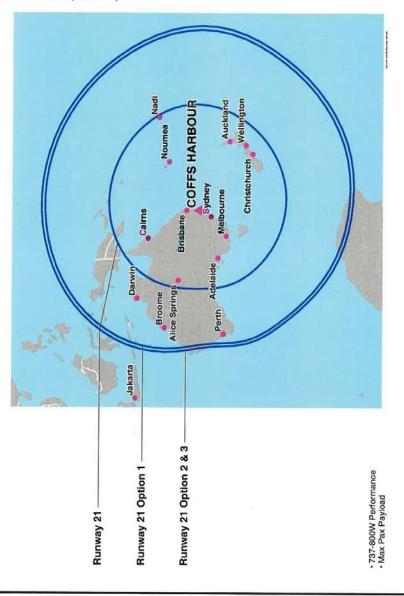
Runway 03 A320-200 (Max Payload - Volumetric)



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Runway 21 B737-800W (Max Pax)

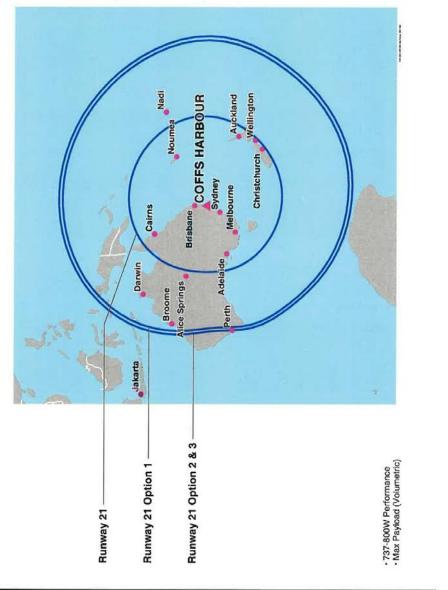


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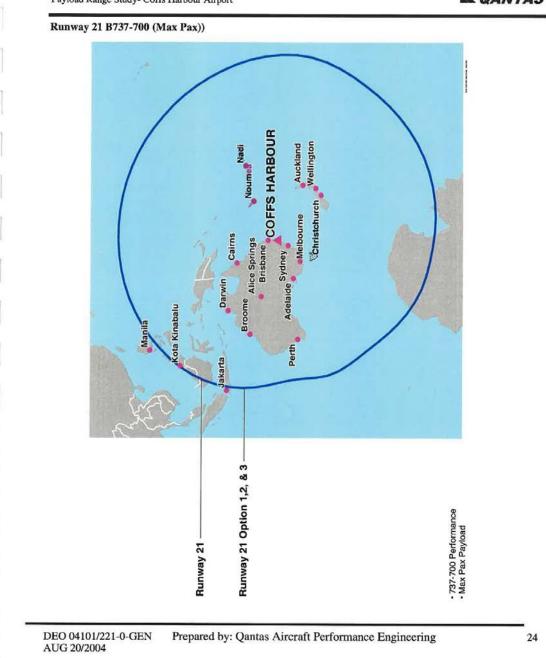






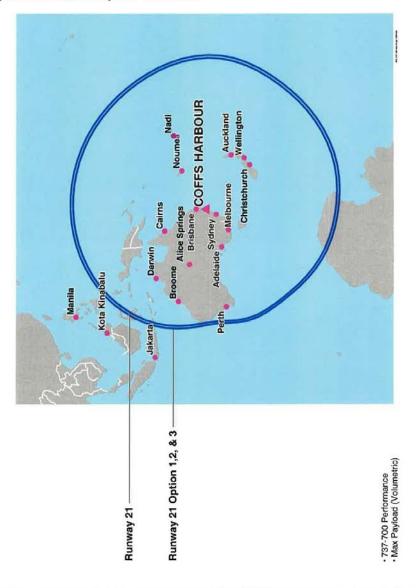
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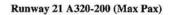
COFFS HARBOUR AIRPORT - MASTER PLAN UPDATE 2019

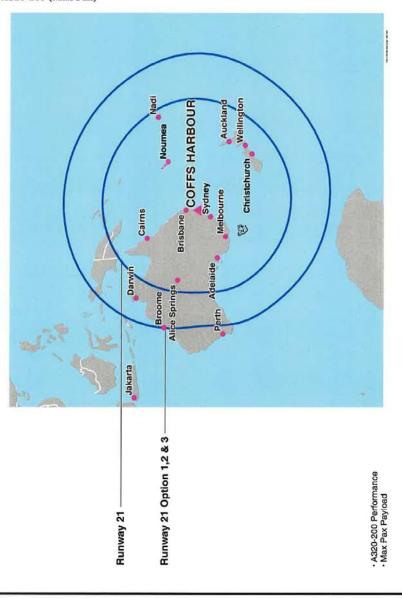
Runway 21 B737-700 (Max Payload - Volumetric)



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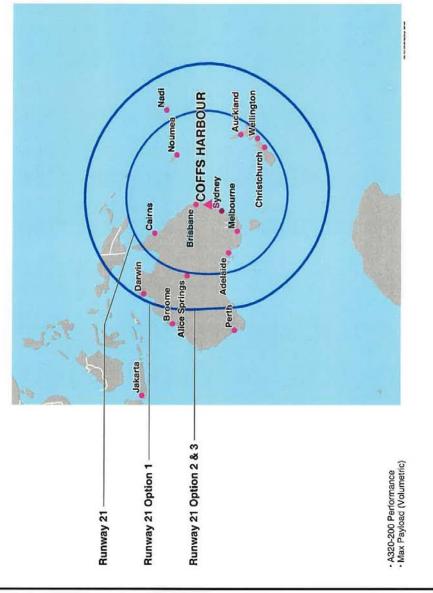


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OBSERVATIONS

In an analysis of any range capability, the requirement is that the aircraft be capable of departing the origin airport with sufficient onboard fuel to fly to a destination, comply with the company reserve fuel requirements, carry the required payload and land at the destination airport.

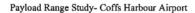
Given the physical and environmental characteristics of Coffs Harbour airport with the performance capabilities of the noted aircraft, the mission in the majority of the cases is limited by structural or performance limited takeoff weight.

The existing runway length and proposed extensions are summarised in Table 9 below. The best runway at nil wind is evaluated for each extension option including the existing runway length for the noted aircraft types.

Range Capability	737-800W	737-700	A320-200
Existing Runway	Max pax capability for Tasman and Australian East Coast operations extending to Adelaide.	Max pax capability to all Domestic, Tasman and lower South East Asia markets. Aircraft Operating near the maximum takeoff weight.	Max pax capability for Tasman and Australian East Coast operations extending to Alice Springs.
Option 1	Expands max pax capability to include all Domestic operations	No additional benefit, aircraft exceeds maximum takeoff weight.	Expanded max pax capability to Broome. Aircraft operating at maximum takeoff weight.
Option 2	No additional Max pax benefit. Additional takeoff performance gain is marginal.	No additional benefit, aircraft exceeds maximum takeoff weight.	No additional range benefit, aircraft exceeds maximum takeoff weight.
Option 3	 No additional Max pax benefit. Additional takeoff performance gain is marginal. 	 No additional benefit, aircraft exceeds maxi- mum takeoff weight. 	 No additional range benefit, aircraft exceeds maximum takeoff weight.

Table 9: Payload Range Summary

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The assumption of a 100% load factor or maximum payload being carried every flight does not reflect the commercial reality of airline operations. A load factor of 70% or the carriage of maximum passengers only is representative of an airline operation.

The max payload range (volumetric) capability of each aircraft type is similar to that of the max pax capability, the difference being the range is further limited due to a trade off between fuel and payload.

From the existing runway lengths, particularly in the 21 direction, reasonable aircraft performance is achieved. The 450 metre extension to the north (brakes release end) as per Option 1 provides additional performance in the 21 direction allowing the aircraft to operate at or near the structural takeoff weights. The additional 150 and 240 metres extension as per Option 2 and 3 to the south (lift off end) provide no additional performance to the 21 direction. The takeoff is obstacle limited and the additional length is not utilised during the takeoff.

In all cases runway 03 is the most limiting. The runway extension options 1,2 & 3, only provide marginal performance and range gains.

For additional market opportunities in South East Asia and the Pacific, it is suggested that the 767, 777 and A330 aircraft be evaluated for the noted extensions.

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Appendix C1 – State Environmental Planning Policy (Coastal Management) 2018 Part 2 Development controls for coastal management areas

Division 1 Coastal wetlands and littoral rainforests area

(Note there are no littoral rainforest areas on the Airport)

- 10 Development on certain land within coastal wetlands and littoral rainforests area
- (1) The following may be carried out on land identified as "coastal wetlands" or "littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map only with development consent:
- (a) the clearing of native vegetation within the meaning of Part 5A of the *Local Land Services Act* 2013.
- (b) the harm of marine vegetation within the meaning of Division 4 of Part 7 of the *Fisheries Management Act 1994*,
- (c) the carrying out of any of the following:
- (i) earthworks (including the depositing of material on land),
- (ii) constructing a levee,
- (iii) draining the land,
- (iv) environmental protection works,
- (d) any other development.

Note.

Clause 17 provides that, for the avoidance of doubt, nothing in this Part:

- (a) permits the carrying out of development that is prohibited development under another environmental planning instrument, or
- (b) permits the carrying out of development without development consent where another environmental planning instrument provides that the development may be carried out only with development consent.
- (2) Development for which consent is required by subclause (1), other than development for the purpose of environmental protection works, is declared to be designated development for the purposes of the Act.
- (3) Despite subclause (1), development for the purpose of environmental protection works on land identified as "coastal wetlands" or "littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map may be carried out by or on behalf of a public authority without development consent if the development is identified in:
- (a) the relevant certified coastal management program, or
- (b) a plan of management prepared and adopted under Division 2 of Part 2 of Chapter 6 of the *Local Government Act 1993*, or
- (c) a plan of management approved and in force under Division 6 of Part 5 of the *Crown Lands Act* 1989.

- (4) A consent authority must not grant consent for development referred to in subclause (1) unless the consent authority is satisfied that sufficient measures have been, or will be, taken to protect, and where possible enhance, the biophysical, hydrological and ecological integrity of the coastal wetland or littoral rainforest.
- (5) Nothing in this clause requires consent for the damage or removal of a priority weed within the meaning of clause 32 of Schedule 7 to the *Biosecurity Act 2015*.
- (6) This clause does not apply to the carrying out of development on land reserved under the *National Parks and Wildlife Act 1974* if the proposed development is consistent with a plan of management prepared under that Act for the land concerned.
- 11 Development on land in proximity to coastal wetlands or littoral rainforest (Note there is no littoral rainforest on the Airport.)

The Coastal Wetlands and Littoral Rainforests Area Map identifies certain land that is inside the coastal wetlands and littoral rainforests area as "proximity area for coastal wetlands" or "proximity area for littoral rainforest" or both.

- (1) Development consent must not be granted to development on land identified as "proximity area for coastal wetlands" or "proximity area for littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on:
- (a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or
- (b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.
- (2) This clause does not apply to land that is identified as "coastal wetlands" or "littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map.

Source: https://www.legislation.nsw.gov.au/#/view/EPI/2018/106/part2

Appendix C2 - State Environmental Planning Policy (Coastal Management) 2018 Part 2 Development controls for coastal management areas

Division 3 Coastal environment area

- 13 Development on land within the coastal environment area
- (1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:
- (a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,
- (b) coastal environmental values and natural coastal processes,
- (c) the water quality of the marine estate (within the meaning of the *Marine Estate Management Act 2014*), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,
- (d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,
- (e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,
- (f) Aboriginal cultural heritage, practices and places,
- (g) the use of the surf zone.
- (2) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:
- (a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subclause (1), or
- (b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
- (c) if that impact cannot be minimised—the development will be managed to mitigate that impact.
- (3) This clause does not apply to land within the Foreshores and Waterways Area within the meaning of *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*.

Source: https://www.legislation.nsw.gov.au/#/view/EPI/2018/106/part2

Appendix C3 - State Environmental Planning Policy (Coastal Management) 2018 Part 2 Development controls for coastal management areas

Division 4 Coastal use area

- 14 Development on land within the coastal use area
- (1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority:
- (a) has considered whether the proposed development is likely to cause an adverse impact on the following:
- (i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,
- (ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,
- (iii) the visual amenity and scenic qualities of the coast, including coastal headlands,
- (iv) Aboriginal cultural heritage, practices and places,
- (v) cultural and built environment heritage, and
- (b) is satisfied that:
- (i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or
- (ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
- (iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and
- (c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.
- (2) This clause does not apply to land within the Foreshores and Waterways Area within the meaning of *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*.

Source: https://www.legislation.nsw.gov.au/#/view/EPI/2018/106/part2

Appendix C4 - State Environmental Planning Policy No. 44 Koala Habitat Protection 2016

Part 2 Development control of koala habitats

6 Land to which this Part applies

This Part applies to land:

- (a) that is land to which this Policy applies, and
- (b) that is land in relation to which a development application has been made, and
- (c) that:
- (i) has an area of more than 1 hectare, or
- (ii) has, together with any adjoining land in the same ownership, an area of more than 1 hectare, whether or not the development application applies to the whole, or only part, of the land.
- 7 Step 1—Is the land potential koala habitat?
- (1) Before a council may grant consent to an application for consent to carry out development on land to which this Part applies, it must satisfy itself whether or not the land is a potential koala habitat.
- (2) A council may satisfy itself as to whether or not land is a potential koala habitat only on information obtained by it, or by the applicant, from a person who is qualified and experienced in tree identification.
- (3) If the council is satisfied:
- (a) that the land is not a potential koala habitat, it is not prevented, because of this Policy, from granting consent to the development application, or
- (b) that the land is a potential koala habitat, it must comply with clause 8.
- 8 Step 2—Is the land core koala habitat?
- (1) Before a council may grant consent to an application for consent to carry out development on land to which this Part applies that it is satisfied is a potential koala habitat, it must satisfy itself whether or not the land is a core koala habitat.
- (2) A council may satisfy itself as to whether or not land is a core koala habitat only on information obtained by it, or by the applicant, from a person with appropriate qualifications and experience in biological science and fauna survey and management.
- (3) If the council is satisfied:
- (a) that the land is not a core koala habitat, it is not prevented, because of this Policy, from granting consent to the development application, or
- (b) that the land is a core koala habitat, it must comply with clause 9.
- 9 Step 3—Can development consent be granted in relation to core koala habitat?
- (1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a core koala habitat, there must be a plan of management prepared in accordance with Part 3 that applies to the land.

- (2) The council's determination of the development application must not be inconsistent with the plan of management.
- 10 Guidelines—matters for consideration
 Without limiting clause 17, a council must take the guidelines into consideration in determining an application for consent to carry out development on land to which this Part applies.

Source: https://www.legislation.nsw.gov.au/#/view/EPI/1995/5/part2



Coffs Harbour & District Local Aboriginal Land Council

Cnr Pacific Highway & Arthur Street, Coffs Harbour 2450 PO Box 6150, Coffs Harbour Plaza NSW 2450

Phone: (02) 6652 8740

Fax: (02) 6652 5923

16th December 2008

Attention: Mr John Appleton

Archaeological Surveys and Reports 16 Curtis Street Armidale NSW 2350

Re: Cultural Heritage Assessment - Coffs Harbour Airport.

Dear Mr Appleton,

The Coffs Harbour and District Local Aboriginal Land Council's Senior Cultural Heritage Officer, Mr Mark Flanders undertook a Cultural Heritage assessment of the Coffs Harbour Airport to ascertain if any Cultural Heritage constraints exist for the proposed development.

After reviewing key indicators in relation to potential Cultural Heritage constraints it has been determined that this activity would have no constraints from a Cultural Heritage perspective.

In summary the Coffs Harbour and District Local Aboriginal Land Council holds no objections for works commencing, however please note that should any material suspected to be of Aboriginal origin be uncovered during disturbance activities, all works must cease immediately in the vicinity of the find and registered Aboriginal stakeholder groups be notified immediately for inspection of the material/s and clearance given for works to recommence.

If you have any questions in relation to this matter please do not hesitate to contact the undersigned on the number listed above.

Yours truly

Chris Spencer

CEO

e-mail: coffs.harbour.lalc@bigpond.com

