2023

Townsville Airport Master Plan

Preliminary Draft

TSV Townsville Airport

Acknowledgement of Country

Townsville Airport Pty Ltd respectfully acknowledges the Traditional Custodians of the cultural landscape in which Townsville Airport is situated – the Wulgurukaba of Gurambilbarra and Yunbenun, Bindal, Gugu Badhun and Nywaigi people.

We recognise their continued connection to the lands, seas and skies upon which Townsville Airport operates within and across, and pay respect to their elders past, present and emerging.

The Townsville Airport Master Plan 2023 has been prepared by Queensland Airports Limited (QAL). QAL updates the plan as frequently as is required by the *Airports Act 1996 (Cth)*, but is not responsible to update it more frequently, or ensure users are aware of such updates. While all care has been taken in preparing this Master Plan, QAL accepts no liability whatsoever to any person who in any way relies on any information contained in this Master Plan.

TSV Townsville Airport

Contents

TSV Townsville Airport

Foreword

I am proud to present the Townsville Airport 2023 Master Plan which outlines the strategic vision and growth objectives of the Airport over the next 20 years, with a more detailed focus on the initial eight years.

Townsville Airport has long been recognised as a crucial gateway for trade and tourism, facilitating significant economic and social growth for the North Queensland region.

The Townsville Airport 2023 Master Plan builds on this strong foundation, putting the Airport's ambitions into action and supporting existing Commonwealth and state initiatives to position Townsville as a critical gateway for Northern Australia.

The fast rebound in passenger numbers after the COVID-19 travel restrictions were lifted indicates the appetite and demand in business and leisure travellers to access Townsville and beyond.

Currently, 1.5 million people pass through the terminal each year, and these numbers are set to more than double in 20 years to an estimated 3.8 million.

In addition, the Airport is planning for a return of international services in the medium-term, with forecast passenger numbers at 64,000 in 2025 growing to 122,500 per year by 2043.

To support this growth, the Master Plan sets out a roadmap of future expansion opportunities, including significant investment in infrastructure projects that deliver innovative and contemporary facilities, as well as exceptional experiences to meet the future needs of Townsville and its surrounds.

Terminal improvements have recently commenced, with ~$18m invested in upgrades over the past two years. Most notably, through the support of a Federal Government grant, state-of-the-art technology was installed in the security screening zone to streamline the passenger screening process and enhance security service outcomes.

Check-in facilities, retail spaces and landside amenities have also all been refurbished, including the addition of a striking 150m^2 artwork, by local artist Brenda Stone, that draws on the colours and contrasts of the iconic local environment.

Responsible environmental management remains at the forefront of the Master Plan, with sustainability principles embedded into all airport operations and development projects.

Our aspiration is always to be a good neighbour, an involved community member, and to provide an Airport that not only supports jobs and economic growth, but is also one that makes locals feel proud. We remain committed to engaging with our stakeholder communities and supporting local initiatives in our region.

Amelia Evans

Chief Executive Officer
Queensland Airports Limited

List of Figures

TSV Townsville Airport

List of Tables

Abbreviations

ABC	Airport Building Controller
ACA	Airport Carbon Accreditation
AEO	Airport Environment Officer
AEPR	*Airports (Environment Protection) Regulations 1997 (Cth)*
AER	Annual Environment Report
AES	Airport Environment Strategy
Airports Act	*Airports Act 1996 (Cth)*
ALC	Airport-lessee Company
ANEC	Australian Noise Exposure Concept
ANEF	Australian Noise Exposure Forecast
ARFFS	Aviation Rescue Fire Fighting Service
BMS	Building Management System
CACG	Community Aviation Consultation Group
CEMP	Construction Environmental Management Plan
City Plan	Townsville City Plan
CNS	Communications, Navigation and Surveillance
DITRDCA	Department of Infrastructure, Transport, Regional Development, Communications and the Arts
DoD	Department of Defence
EMS	Environmental Management System
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999 (Cth)*
ESR	Environmental Site Register
Federal Minister	Minister for Infrastructure, Transport, Regional Development and Local Government
FTE	Full-time equivalent
GA	General Aviation
GFA	Gross Floor Area
GRP	Gross Regional Product
ILS	Instrument Landing System
I-O	Input-Output Modelling
MDP	Major Development Plan
NAACEX	Northern Australian Aerospace Centre of Excellence
NASAG	National Airports Safeguarding Advisory Group
NASF	National Airport Safeguarding Framework
NEMP	National Environmental Management Plan
NQRP	North Queensland Regional Plan
OEMP	Operational Environmental Management Plan
OLS	Obstacle Limitation Surfaces
PANS-OPS	Procedures for Air Navigation Services – Aircraft Operations
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
PSA	Public Safety Area
QAL	Queensland Airports Limited
RAAF	Royal Australian Air Force
RPT	Regular Public Transport
SPP	*State Planning Policy 2016 (Qld)*
TAPL	Townsville Airport Pty Ltd
TCC	Townsville City Council

TSV Townsville Airport

Part 1

About Townsville Airport

Townsville Airport is a well-established and important travel and freight hub for North Queensland, serving a growing population of more than 235,000 people.

Each year, more than 1.5 million people travel through Townsville Airport, travelling on one of around 400 weekly flights to destinations including Australia's largest cities – Brisbane, Sydney, Melbourne, Adelaide and Darwin – and a range of destinations across regional Queensland.

TSV Townsville Airport

1.1 The City of Townsville

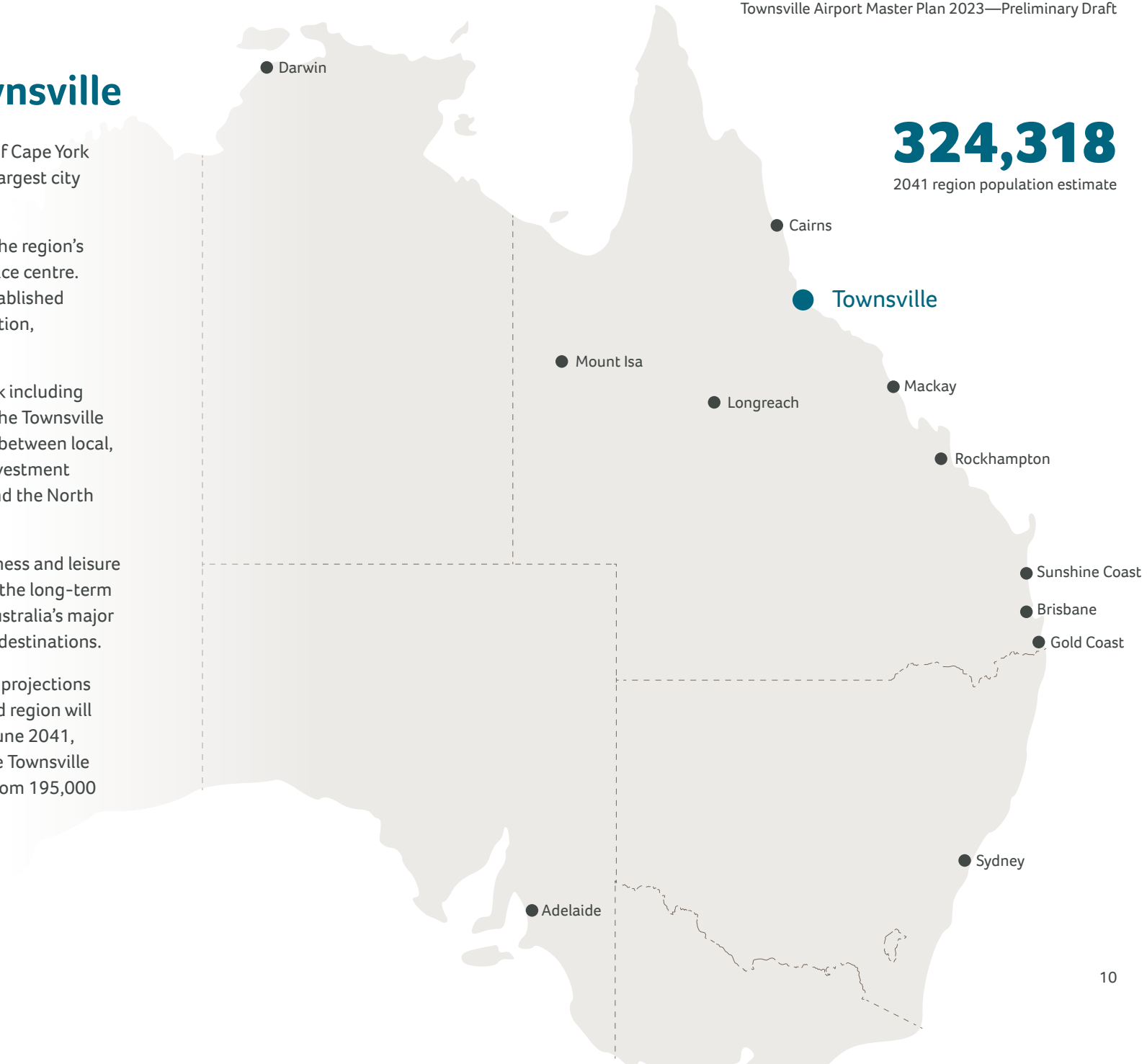
Located roughly halfway between the tip of Cape York and the city of Brisbane, Townsville is the largest city in northern Australia.

Townsville performs an important role as the region's main administrative, commercial and service centre. Townsville's local economy is driven by established mining, defence, manufacturing, construction, education and health service industries.

Townsville is targeted by recent policy work including the North Queensland Regional Plan and the Townsville City Deal, the latter being a joint initiative between local, State and Federal Government to boost investment and deliver infrastructure for Townsville and the North Queensland region.

As a major regional transport hub for business and leisure travellers, Townsville Airport is intrinsic to the long-term success of the region, linking the city to Australia's major cities and regions, as well as international destinations.

The most recent Queensland Government projections show the Townsville and North Queensland region will reach a population of almost 325,000 by June 2041, growing from 235,000 people in 2021. The Townsville City Council area is expected to increase from 195,000 people in 2021 to over 280,000 by 2041.



324,318

2041 region population estimate

1.2 History and About Townsville Airport

In the 80 years since a provisional licence was granted to operate an airport from the present site, Townsville Airport has become an essential hub connecting Townsville and North Queensland to Australia and the rest of the world.

1.2.1 TOWNSVILLE AIRPORT HISTORY

1920s

Opening of the first Townsville Airport south of the Ross River

1939

Official relocation and opening of Townsville Airport in its current location

Royal Australian Air Force (RAAF) base established in response to WWII

1940

Townsville Airport acquired by Department of Air, and continues to serve as an RAAF base to this day

Post-WWII

Gradual increases in civilian flights and destinations serviced by airlines such as Ansett, Qantas and Australian National Airways

1958

Main runway (01/19) completed

1960s

Accelerating passenger demand and frequency of services

1980

Qantas request approval for international services to the United States and New Zealand

1983

New international terminal opened, and Townsville became the first regional Australian airport to offer direct long-distance international flights

1989

Federal Airports Corporation assumed responsibility for the civil aviation area and operations

1998

Townsville Airport leased to Townsville Airport Pty Ltd (TAPL) for 50 years, with an option for a further 49 years

2003

Upgrade works on Townsville Airport, including new departures and arrivals lounge, Qantas Club, retail stores and mezzanine level for departures

2007

Main runway (01/19) resurfaced and terminal refurbishment works completed

Launch of the Northern Australian Aerospace Centre of Excellence (NAACEX), being the first facility of its kind in Queensland

2015

International passenger flights recommence (until 2018)

2018

Commencement of extension of Meenan Street and closure of Halifax Street access to airport

2019

Sewer, Water and Fire infrastructure upgrade project commenced (and resumed in 2021 post-COVID-19)

2019-2022

Terminal works, including security screening upgrade, roof works, amenities and lounge improvements

2023

Terminal works ongoing, including escalator and access upgrades within Departure Lounge

1.2.2 TOWNSVILLE AIRPORT TODAY

Australia's 11th busiest airport, Townsville Airport is situated less than 10 minutes from the Townsville CBD, with a local catchment area extending from Tully to the north, Charters Towers to the west, and Bowen to the south.

With around 400 flights per week, including frequent daily services to Brisbane, Sydney, Melbourne and Darwin, Townsville Airport is a crucial gateway for the region's tourism, mining and defence sectors, and directly links to the fly-in fly-out employment opportunities available in the North East and North West minerals provinces.

In 2019 and prior to COVID-19 disruptions, more than 1.6 million passengers travelled through Townsville Airport, representing a 7% increase since publication of the Townsville Airport Master Plan 2016.

As shown in **Figure 1.2.2**, Townsville Airport comprises three management areas, including:

- The Royal Australian Air Force (RAAF) Base Townsville;
- Townsville's civilian airport; and
- The Joint User Area (runways and taxiways).

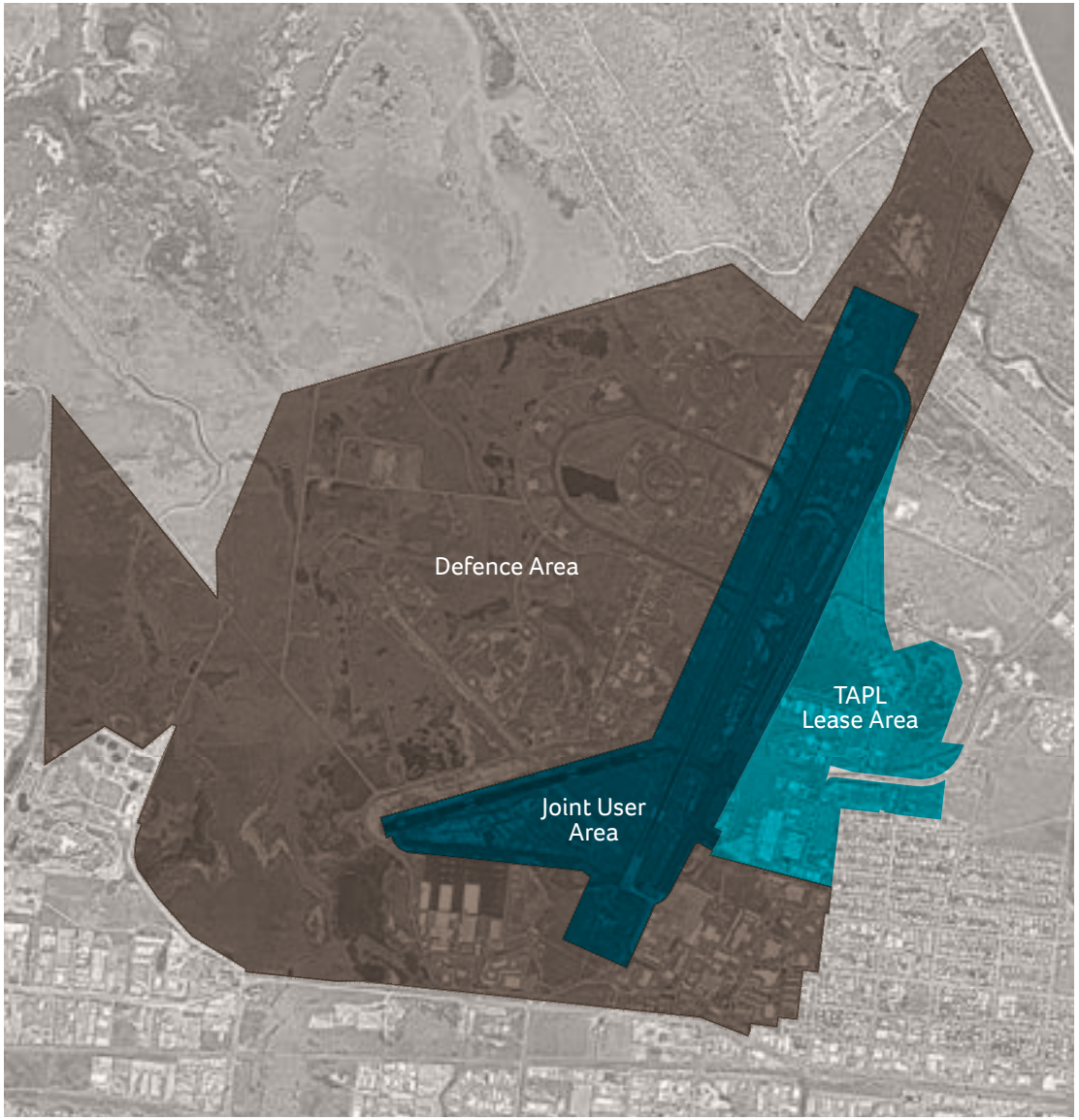


Figure 1.2.2 — Joint User Management Area

Townsville Airport is operated by Townsville Airport Pty Ltd (TAPL) in a Joint User Agreement with the Commonwealth Department of Defence (DoD). TAPL manages an area of 81 hectares for civilian operations at Townsville Airport under a 50-year lease from the Commonwealth of Australia, granted in 1998 with an option to renew.

The DoD exclusively manages 880 hectares of Townsville Airport as RAAF Base Townsville, and controls the Joint User Area as part of a joint user aerodrome for military and civil use.

Townsville is a critical strategic location for the defence of Australia due to its close proximity to the Coral Sea and South Pacific. RAAF Base Townsville operates as a permanent main airbase that supports resident, forward-based and transiting Australian Defence Force units and aircraft. The RAAF Base operates at a high tempo with a continuous exercise program and frequent support to Defence operations.

The operational responsibilities of the DoD, in relation to Townsville Airport, include:

- Operation of Air Traffic Control services, including system maintenance;
- Management and definition of all Obstacle Limitation Surfaces;
- Maintenance of the Joint User Area, specifically the airfield, runway and associated taxiway systems;
- Producing a military Australian Noise Exposure Concept (ANEC) and the joint Australian Noise Exposure Forecast (ANEF) for civilian and military uses in partnership with TAPL; and
- Defence estate base planning and development.

1.3 Economic Contribution

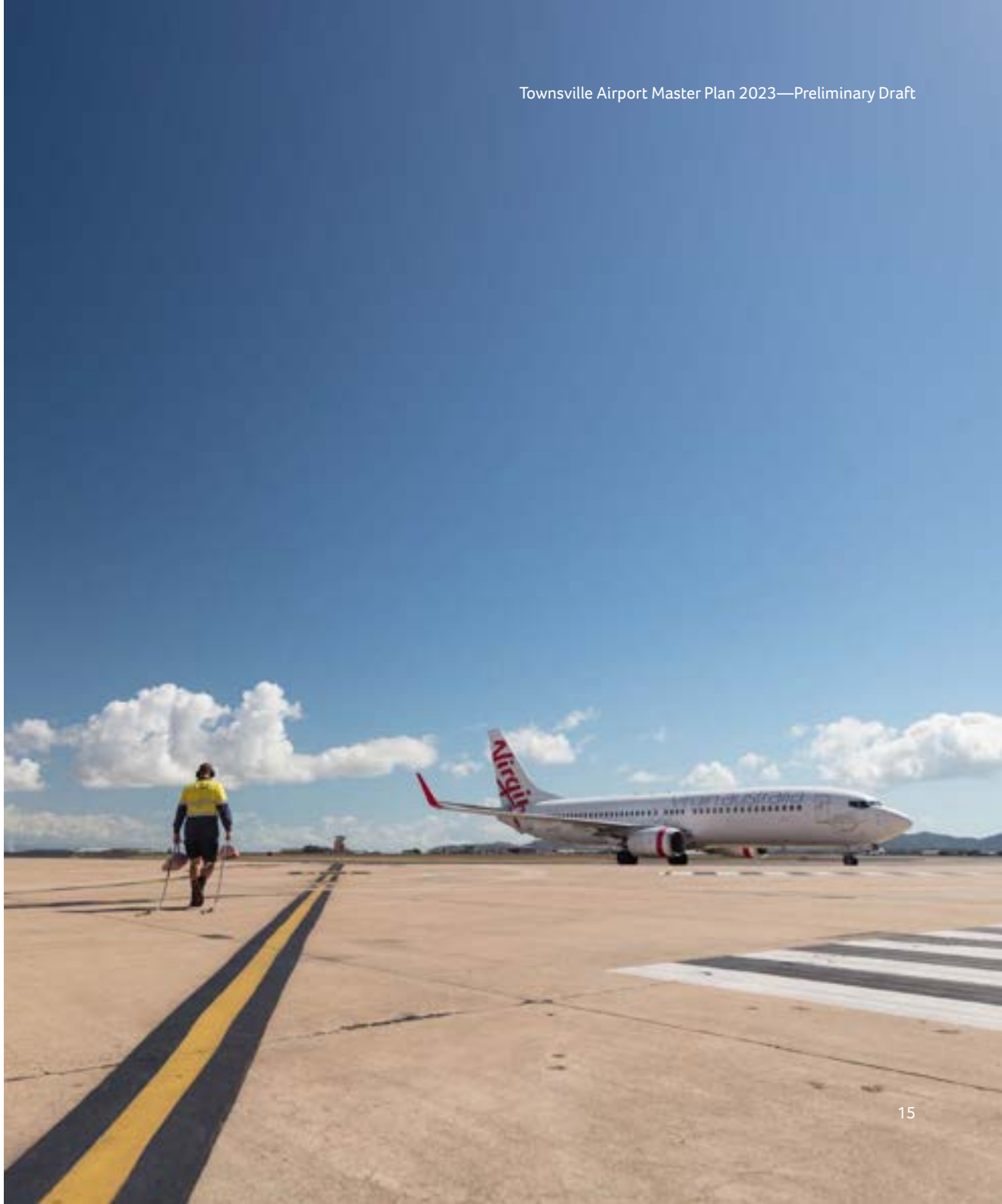
Reliable and regular air access to major Australian and international destinations from Townsville Airport is vital to supporting resident lifestyles and North Queensland's key industry sectors, including the defence, resources, agriculture, education, health and community services, government services, and tourism sectors. This support makes Townsville Airport one of the most critical strategic economic development assets of North Queensland.

In 2022, almost 1.5 million passengers and over 6,000 tonnes of air freight travelled through Townsville Airport.

Annually, Townsville Airport currently generates over $800 million in output, which translates to approximately $400 million in contribution to Gross Regional Product (GRP) and 2,500 full-time jobs, including 1,400 jobs generated directly by Townsville Airport.

With a growing population, tight labour market, and significant project pipeline, Townsville Airport plays a critical role in facilitating future growth for the largest city in Northern Australia and the broader surrounding region.

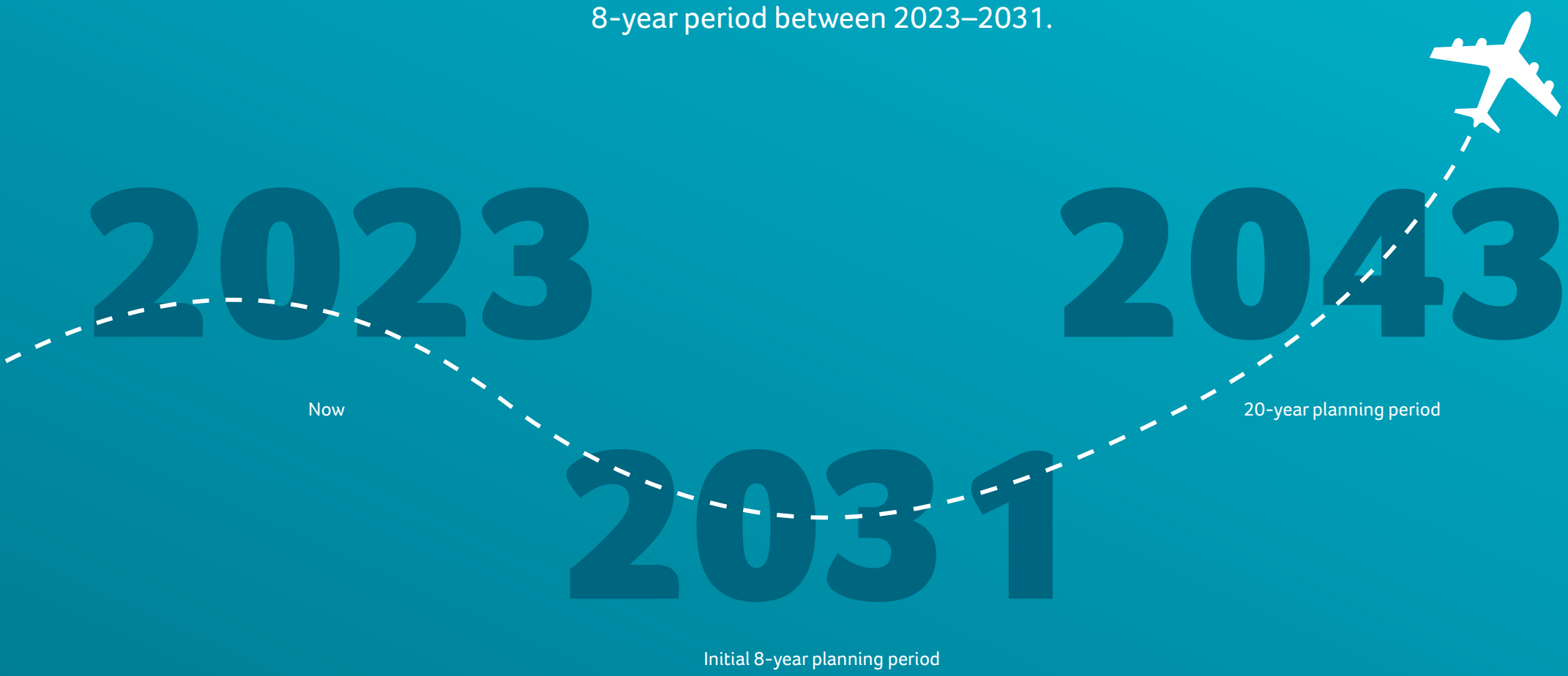
TSV Townsville Airport



Part 2

How Townsville Airport is Planned

The Townsville Airport Master Plan 2023 guides development of the Airport over a 20-year planning period, with an initial 8-year period between 2023–2031.



2.1 Planning and Development Framework

The Commonwealth Government, as owner of the land on which Townsville Airport is situated, has jurisdiction for land use planning and development regulation of Townsville Airport in accordance with the *Airports Act 1996 (Cth)* (Airports Act). State and local government planning frameworks do not regulate development on Commonwealth airport-leased land. *Townsville Airport Pty Ltd* (TAPL), as the airport-lessee company (ALC), is responsible for the planning and development of the civil use area of the Airport.

2.1.1 AIRPORTS ACT 1996 (CTH)

The process of development under the Airports Act is illustrated in **Figure 2.1.1**.

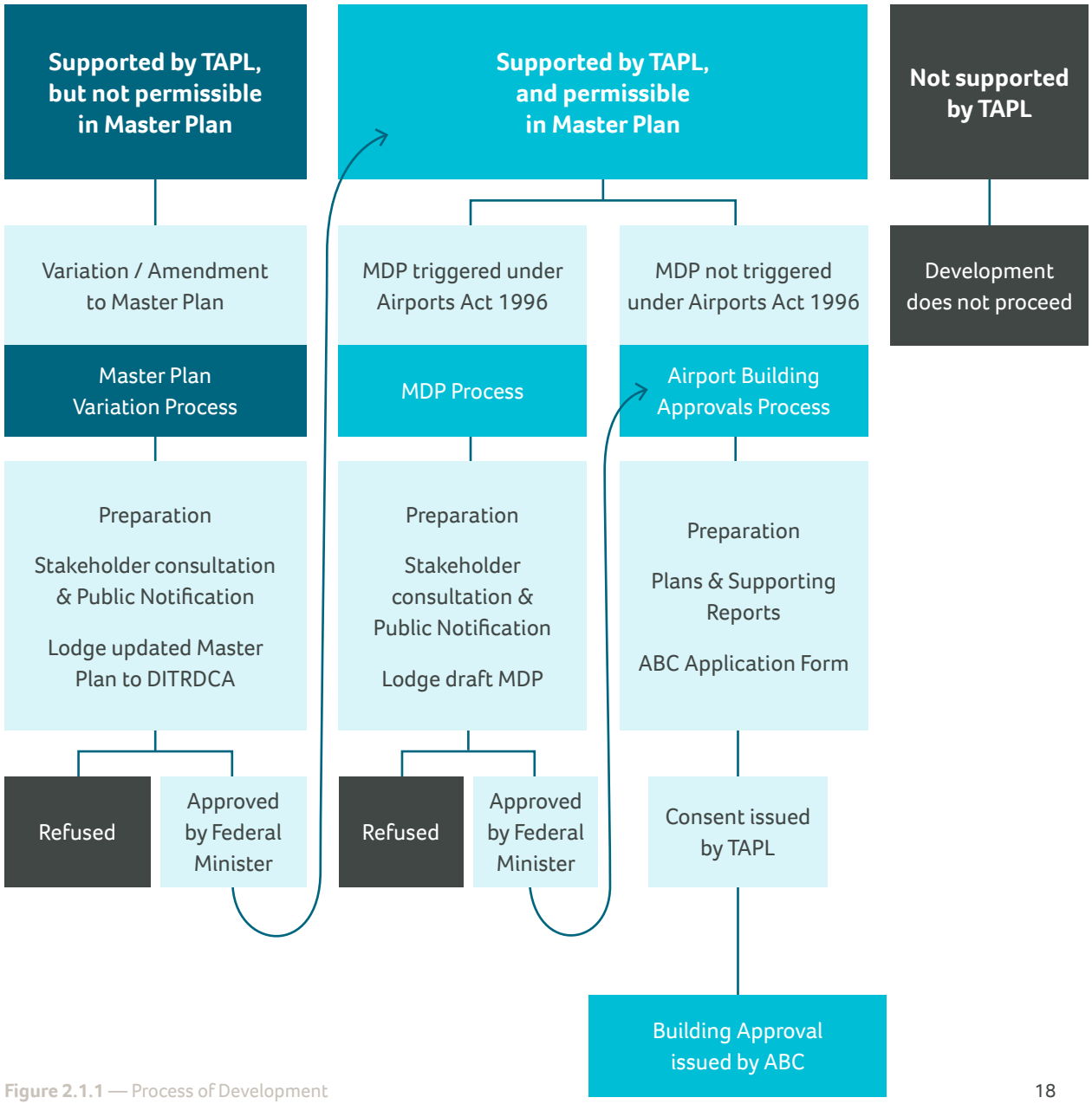


Figure 2.1.1 — Process of Development

2.1.1.1 AIRPORT MASTER PLANS

Master planning for the Civil Area of Townsville Airport has been undertaken in accordance with the Airports Act since the Airport's privatisation in 1998, with four master plans previously approved in 1999, 2004, 2011 and 2016.

Under Section 72 of the Airports Act, a master plan for Townsville Airport must cover a 20-year period and include detailed information on development targets for the initial 8-year period (previously a 5-year period). The Townsville Airport Master Plan 2023 will have effect until not later than eight years after its approval by the Federal Minister for Infrastructure, Transport, Regional Development and Local Government (Federal Minister).

The Airports Act requires that master plans for joint-user airports contain a joint Australian Noise Exposure Forecast (ANEF) for civilian and military air traffic, as endorsed by Airservices Australia. The Airports Act also requires master plans to outline the intended development of the civil use area (both airside and landside), and include a Ground Transport Plan and Environment Strategy, with a focus on the initial 8-year planning period.

The Airports Act also prescribes the public consultation processes required for draft master plans, prior to submission to the Federal Minister.

2.1.1.2 MAJOR DEVELOPMENT PLANS

Under the Airports Act, the need for a Major Development Plan (MDP) is triggered by the scale of the proposed works. All MDPs are required to undertake stakeholder consultation and a period of public notification, prior to their submission and consideration by the Federal Minister.

All building and development activities must be consistent with the Master Plan in effect for Townsville Airport. Any building and development activities outside the scope of the Master Plan may trigger a variation to the Master Plan, as shown in **Figure 2.1.1**.

TSV Townsville Airport

2.1.1.3 BUILDING APPROVALS

All developments are subject to formal building approval in accordance with the *Airports (Building Control) Regulations 1996* and the *Airports (Environment Protection) Regulations 1997*.

TAPL, as the ALC for Townsville Airport, is required to consent to the lodgment of building applications. As displayed in **Figure 2.1.1**, once TAPL consent is granted for an application, building approval is obtained from the Airport Building Controller (ABC) and Airport Environment Officer (AEO). The ABC and AEO are appointed by DITRDCA and administer on-site compliance with Parts 5 and 6 of the Airports Act, the Building Code of Australia and other regulations.

2.1.1.4 SENSITIVE DEVELOPMENT

Section 71A of the Airports Act requires that any sensitive development proposed on Commonwealth land must be identified within the Master Plan. The Airports Act defines sensitive development as a development or redevelopment that increases the capacity of the following:

- Residential dwellings;
- Community care facility;
- Pre-school;
- Primary, secondary, tertiary or other educational institution, with the exception of aviation training and educational facilities; and
- Hospital.

This Master Plan does not include any proposals for sensitive development.

2.1.2 STATE, REGIONAL AND LOCAL PLANNING FRAMEWORK

Although State and local government planning frameworks do not regulate the development of Townsville Airport, the Airports Act does require all Master Plans to demonstrate alignment and consistency with local planning regulations and guidelines.

In Queensland, the planning framework is established by the *Planning Act 2016* and associated *Planning Regulation 2017*. Through the *Planning Act 2016*, other State, regional and local plans and policies are given effect. The following are of relevance to the planning and development of Townsville Airport:

- *Queensland State Planning Policy* (SPP);
- *North Queensland Regional Plan* (NQRP); and
- *Townsville City Plan* (City Plan).

2.1.2.1 STATE PLANNING POLICY

The State Planning Policy (SPP) ensures State-significant planning interests are protected, delivered and integrated within Local Planning Schemes across Queensland. As illustrated in **Figure 2.1.2.1**, the SPP identifies 17 State interests, including a specific 'Strategic airports and aviation facilities' interest. The purpose of this interest is to protect the operation of strategic airports and facilitate the continued growth and development of Queensland's aviation industry. The SPP identifies Townsville Airport / RAAF Base Townsville as a 'Strategic Airport'.

The Townsville City Plan, being the Local Planning Scheme relevant to Townsville Airport, has codified all provisions of the SPP pertaining to Strategic Airports. These provisions regulate development in the vicinity of Townsville Airport and ensure:

- Development does not create incompatible intrusions or compromise aircraft safety;
- Development avoids increasing any risk to public safety in public safety areas;
- Development mitigates adverse impacts of aircraft noise and is compatible with forecast levels within the 20 ANEF contour or greater;
- Development within building restricted areas does not affect airport operations;
- Key transport corridors, including passenger and freight links, are identified and protected; and
- Development complements and enhances the economic opportunities associated with proximity to Townsville Airport.

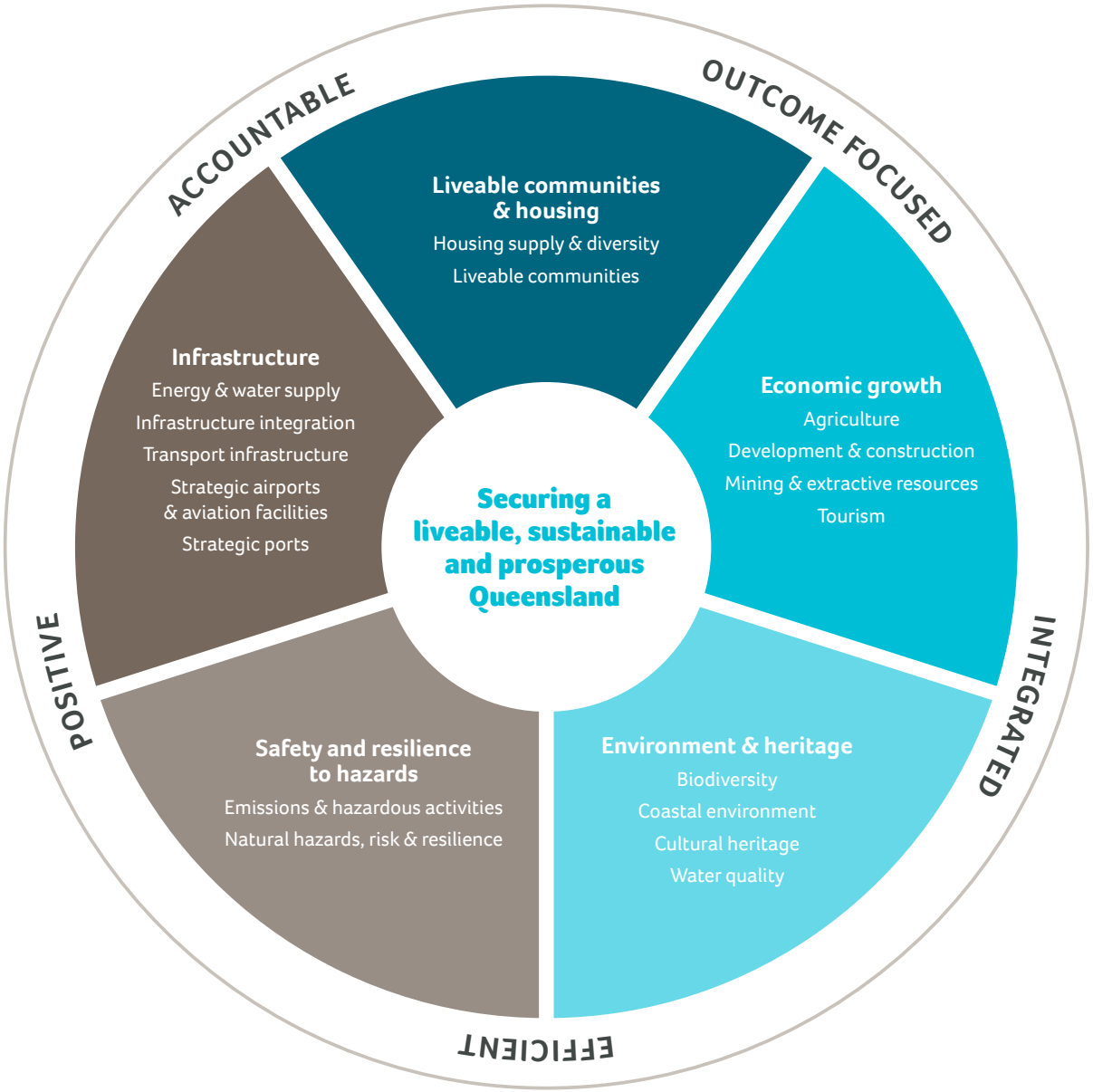


Figure 2.1.2.1 — State Interests (Queensland Government 2017)

2.1.2.2 NORTH QUEENSLAND REGIONAL PLAN

Published in March 2020 with a 25-year planning horizon, the North Queensland Regional Plan (NQRP) includes a Vision set around Townsville as the 'capital of northern Australia', and supported by four Regional Goals:

- North Queensland be a leading economy in regional Australia
- The region maintains a rich and healthy natural environment
- Create liveable, sustainable and resilient communities that promote living in the tropics
- Infrastructure networks support a safe, connected and efficient North Queensland.

The NQRP facilitates integration across local governments, and with community and industry, to achieve these goals.

The NQRP recognises Townsville Airport and its surrounds as an area of regional economic significance and highlights the Airport's significance as a hub for tourism, defence and aviation industries. The NQRP also lists increasing the capacity of Townsville Airport's landside and airside facilities, including expansion of the passenger terminal building, as a regional priority.

North Queensland thrives as a diverse, liveable and progressive region in the tropics, set around the capital of northern Australia.

TSV Townsville Airport

2.1.2.3 TOWNSVILLE CITY PLAN

The Townsville City Plan (City Plan) is administered by Townsville City Council and applies to all land and waterways within the local government area, with the exception of Townsville Airport and other specialist facilities (e.g. Port of Townsville). Although the provisions of the City Plan do not statutorily apply to Townsville Airport, they do provide useful context when considering the role and development of the Airport within Townsville and the broader region. The City Plan also details specific provisions, consistent with the SPP outlined above, to manage potential land use conflicts with the Airport.

At a high level, the City Plan identifies Townsville as the 'second capital of Queensland', while at a site-specific level, the Townsville Airport site is designated within the Specialised Centre Zone (Townsville Airport Precinct). The purpose of this Precinct is to support:

> "The long-term operation and expansion of the Townsville Airport…for both Department of Defence purposes, and to satisfy the primary air transport needs of the Townsville and North Queensland regions."

Consistent with this purpose, the Townsville Airport Master Plan 2023 outlines the future development of core airport functions, as well as supporting facilities, including industrial, commercial, tourism and retail development, to ensure Townsville Airport continues its important role as an enabler for continued economic growth and as a gateway into Townsville and the broader northern Queensland region.

TSV Townsville Airport

2.1.3 OTHER REGULATORY INSTRUMENTS

The *Airports Act 1996* is the primary Commonwealth legislation that regulates the planning, land use and development control of Townsville Airport. However, the following lists other legislation applicable and considered in preparation of this Master Plan:

- *Airspace Act 2007*
- *Aviation Transport Security Act 2004*
- *Civil Aviation Act 1988*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Airports Regulations 1997*
- *Airports (Building Control) Regulations 1996*
- *Airports (Control of On-Airport Activities) Regulations 1997*
- *Airports (Environment Protection) Regulations 1997*
- *Airports (Protection of Airspace) Regulations 1996*
- *Air Services Act 1995*
- *Civil Aviation Regulations 1988*
- *Civil Aviation Safety Regulations 1998*
- Defence Aviation Areas, under *Defence Regulation 2016*
- *Environment Protection and Biodiversity Conservation Regulations 2000*

TSV Townsville Airport

2.2 Aviation Forecasts

Aviation forecasts are the foundation for any airport Master Plan. They seek to forecast projected levels of growth and therefore guide the future development and provision of airport facilities to ensure the needs of present and future customers and operators are met.

The Townsville Airport Master Plan 2023 includes passenger and aircraft movement forecasts to 2043; being the 20-year planning period applicable to this Master Plan. These forecasts have guided the development of the Land Use Plan, Aviation Plan and Ground Transport Plan, which are outlined in greater detail in **Part 3** and **Part 4**.

2.2.1 THE LAST 10 YEARS

Over the last 10 years, Townsville Airport has hosted both domestic and international passengers, General Aviation (GA) activities and freight services. Data from the last three years portrays the significant disruption caused by the onset and enduring effects of the COVID-19 pandemic.

Domestic

Townsville Airport has maintained a consistent domestic passenger base of 1.5 to 1.6 million passengers and around 26,000 aircraft movements annually from 2012 to 2019, prior to the onset of the COVID-19 pandemic. As shown in **Figure 2.2.1.1**, annual passengers dipped to 758,000 in 2020, but have since increased back up to almost 1.5 million passengers in 2022.

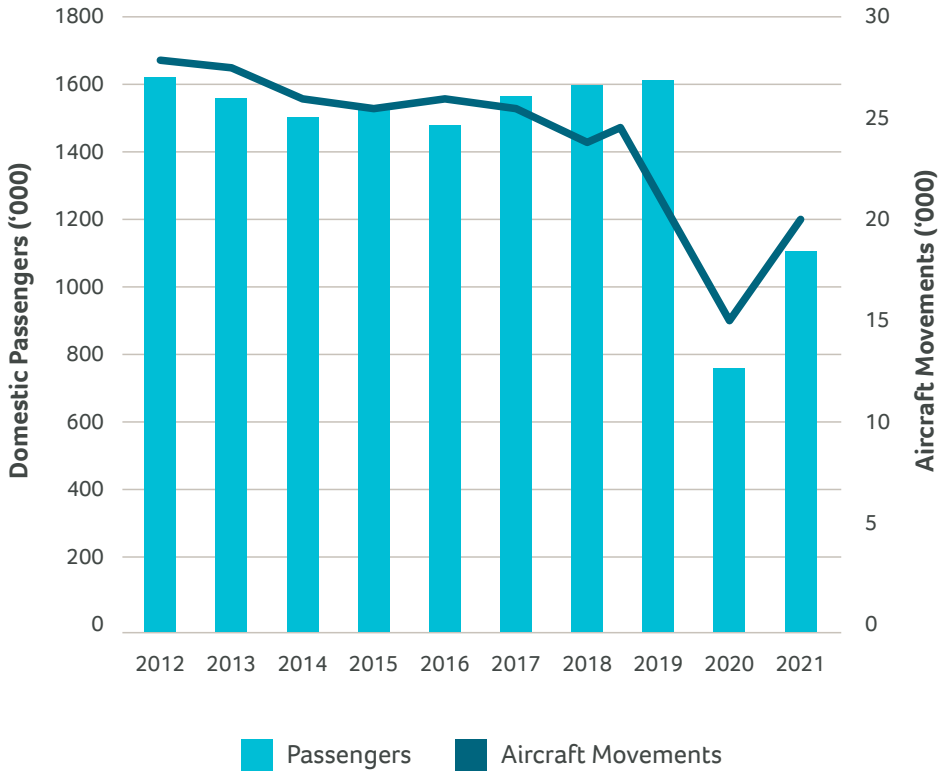


Figure 2.2.1.1 — Domestic Passenger and Aircraft Movements

International

Between 2015 and 2018, flights operated from Townsville Airport to international destinations including Indonesia and Papua New Guinea. International passenger movements peaked at almost 50,000 passengers and 450 aircraft movements in 2017, as shown in **Figure 2.2.1.2**.

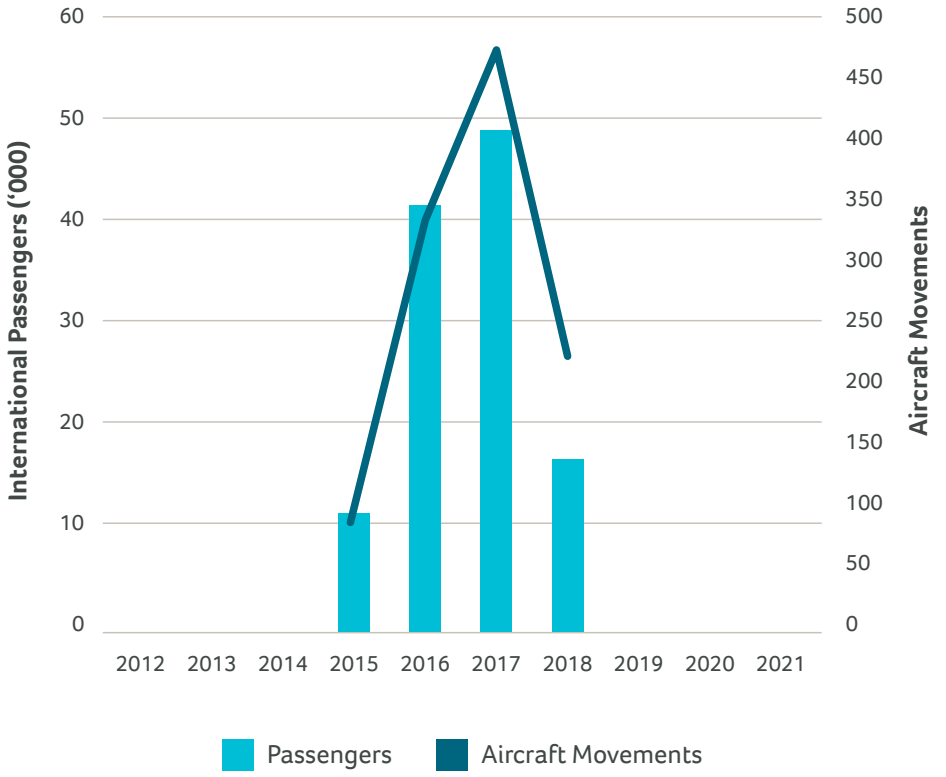


Figure 2.2.1.2 — International Passenger and Aircraft Movements

General Aviation

General Aviation (GA) aircraft movements have remained strong at Townsville Airport. Between FY13-16, Townsville Airport serviced approximately 10,000 aircraft movements annually. GA movements dropped to around 8,000 movements per annum between FY17-FY20, before a renewed upsurge to approximately 9,000 GA aircraft movements in 2021, as shown in **Figure 2.2.1.3** below. When comparing **Figure 2.2.1.1** and **Figure 2.2.1.3**, GA aircraft movements remained steadier through the COVID-19 period of 2020 and 2021 compared to domestic RPT services.

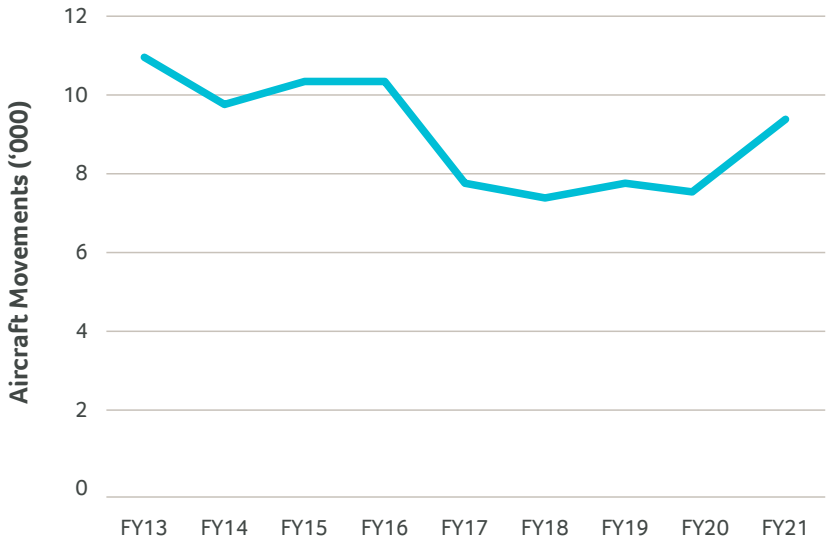


Figure 2.2.1.3 — General Aviation Aircraft Movements

Freight

In 2022, Townsville Airport processed over 6,000 tonnes of freight, of which 66% was inbound with the remaining 34% outbound from Townsville Airport. Freight through Townsville Airport is largely moved by dedicated freight services (66%), while the remaining 34% is carried in the hold of RPT aircraft.

Of inbound freight, approximately 92% originated from Brisbane. By comparison, outbound freight from Townsville Airport was more widely distributed with 60% to Cairns, 27% to Brisbane, 5% to Melbourne, 4% to Sydney and 2% to Mackay. While the greatest quantities flow between Townsville and the major cities along Australia's eastern seaboard, Townsville also services essential freight flows between regional centres, such as Mt Isa, Cloncurry and Moranbah.

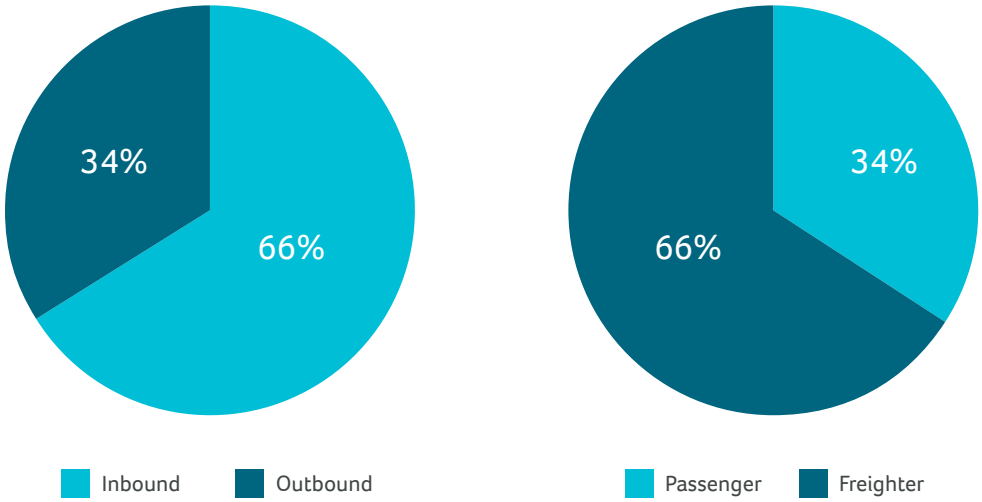


Figure 2.2.1.4 — Freight Distribution

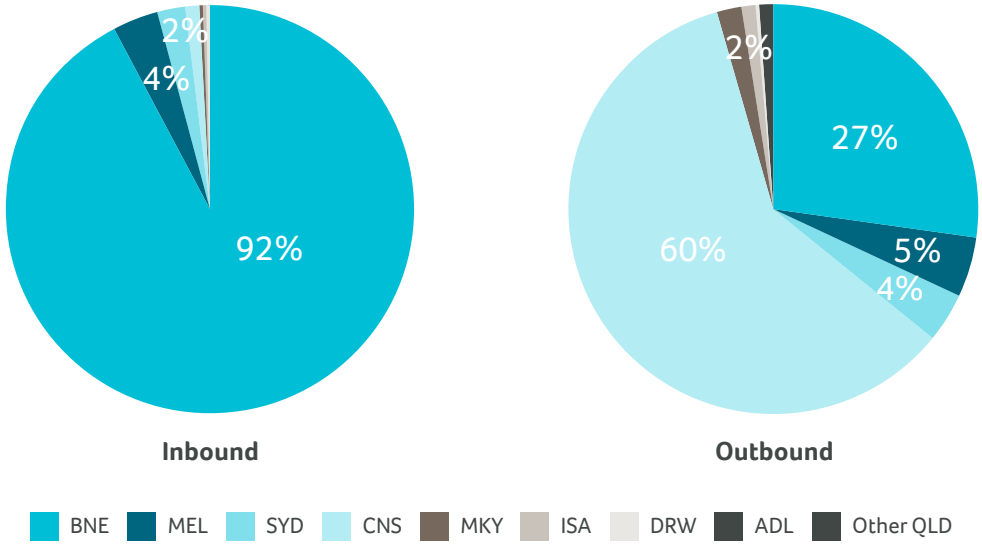


Figure 2.2.1.5 — Freight Origins and Destinations

2.2.2 FORECAST METHODOLOGY

The aviation forecasting method applied to Townsville Airport can be divided into two broad categories: supply-driven and demand-driven. The supply-driven method produces short-term forecasts covering the first five years, which are then transitioned to demand-driven, long-term forecasts to provide a continuous 20-year passenger forecast to 2043.

Short-term Forecasts

Supply-driven, short-term forecasts are based on a 'bottom-up' approach. They use seat capacity and load factor assumptions, which are informed by airline agreements, industry experience and market intelligence of airline fleet orders and demand conditions.

Long-term Forecasts

Demand-driven, long-term forecasts use a 'top down' method to understand how demographic and macroeconomic factors influence the demand for air travel. Broadly grouped, the demand for air travel to and from Townsville Airport is generated by:

- The people who live within the demand catchment;
- Domestic visitors travelling to/from the demand catchment; and
- Overseas visitors travelling to/from the demand catchment.

Long-term forecasts therefore rely upon identifying correlations between historical passenger demand and key demand drivers, and then projecting these relationships forward.

Forecasting Approach and COVID-19

While the onset and enduring effects of the COVID-19 pandemic have caused significant disruption to airports and the aviation industry more generally, global air travel is expected to recover to 2019 (ie. Pre-COVID-19) levels by 2024, with domestic air travel recovering earlier.

The long-term forecasts used within this Master Plan have therefore opted to use reliable data developed within 'normal' market conditions. This approach is based on the premise that the impacts of COVID-19 will continue to diminish and allow the aviation market to revert to its long-run equilibrium growth path.

Historical data supports this approach and shows that domestic passenger movements in Queensland, and Australia more broadly, recover quickly following major shocks.

Managing Forecast Risk

Each forecast approach and associated assumptions carry risks when using and interpreting the forecast outputs. These risks are managed through using realistic variance to provide a feasible range of outcomes bounded by a low and a high scenario. Passenger and aircraft movements in each year are expected to lie within this range.

The Forecast Outputs presented in **Part 2.2.3** are high-case forecasts. The high-case forecast scenario has informed the Aviation Development Plan (**Part 3.2**) and Ground Transport Plan (**Part 3.3**) to ensure planning for terminal, airfield and ground transport upgrades accommodate the maximum growth forecast applicable to the planning periods of this Master Plan.

2.2.3 FORECAST OUTPUTS

Domestic

The forecast for domestic passenger movements at Townsville Airport shows a long-term annual average growth rate of 4.1% per annum relative to pre-COVID (FY19) levels, resulting in a forecast 3.7 million passengers through Townsville Airport in 2043.

The forecast domestic growth at Townsville Airport is influenced by some key external factors:

- Qantas and Virgin Australia's entry onto several new routes, including Melbourne, Sydney, Adelaide and Darwin, with others to follow;
- Bonza Airline's entry into the market;
- Growth in the resources industry, particularly resources that can reduce carbon emissions, e.g. hydrogen and rare earth materials; and
- A general increase in defence expenditure, and activity related to the Australia-Singapore Military Training Initiative.

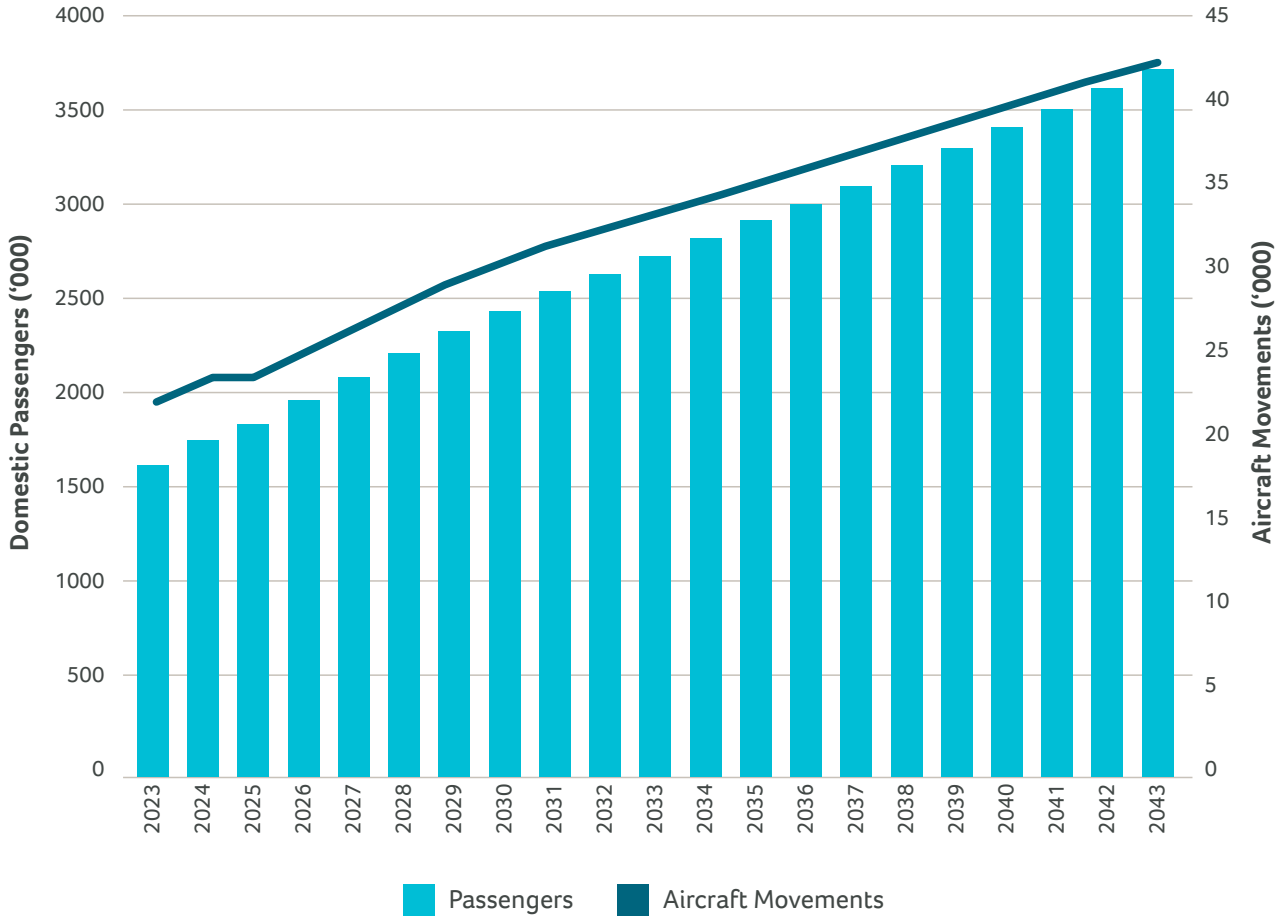


Figure 2.2.3.1 — Domestic Passenger and Aircraft Forecast

International

Townsville Airport is planning for the return of international passenger services, with works to facilitate international services forecast to be required from 2025. For the purposes of the Master Plan, international passenger traffic has been forecast at 62,000 passengers in 2025, growing by up to 122,500 passengers annually by 2043. The international forecast has been based on the following timeline and assumptions:

- 2025 – Commence service using narrow-body aircraft operating 4-day per week at 70% load;
- 2031 – Increase service to 5-day per week;
- 2037 – Increase service to 6-day per week, with increase to 75% load; and
- 2043 – Increase service to 7-day per week, with increase to 80% load.

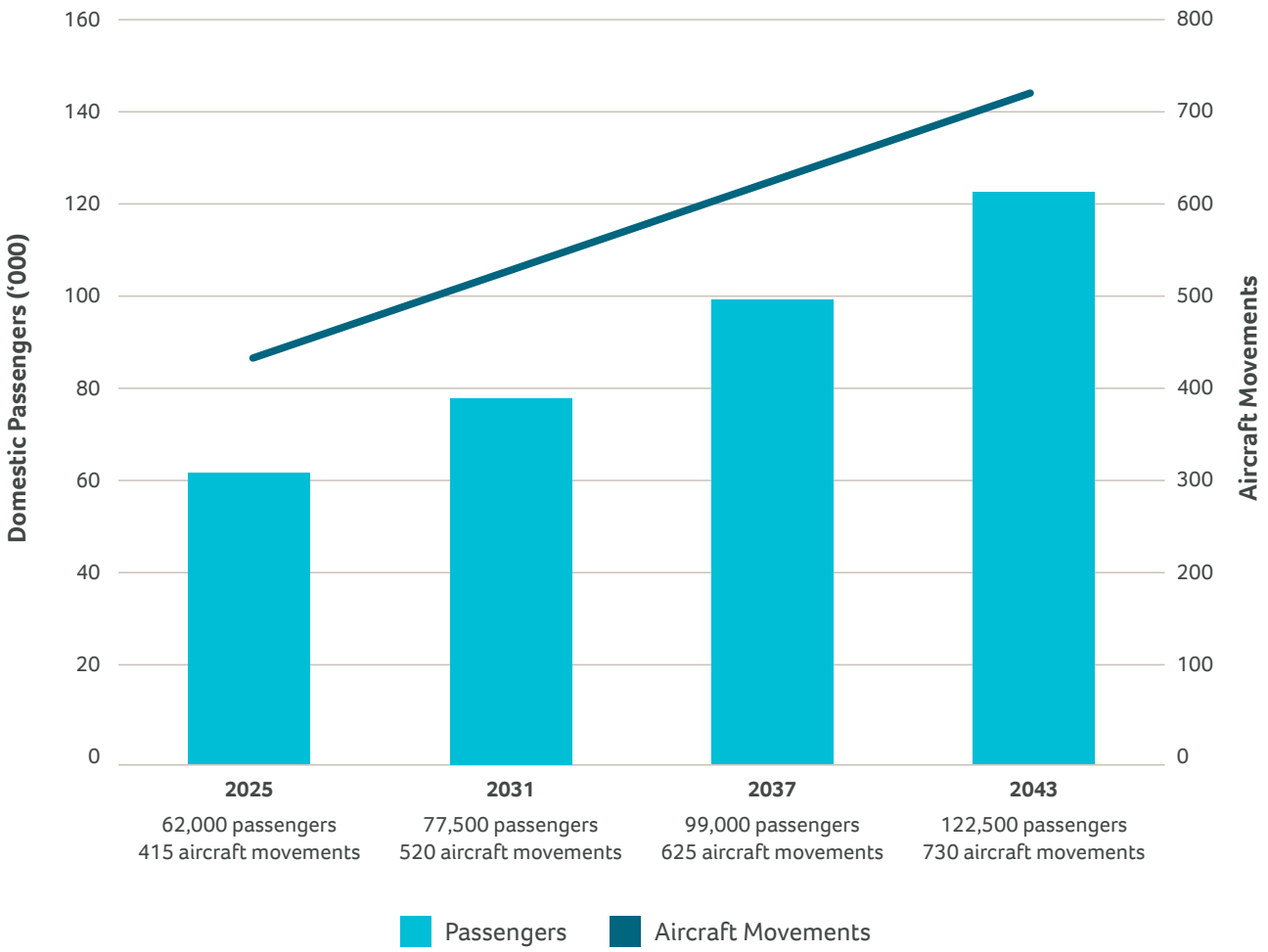


Figure 2.2.3.2 — International Passenger and Aircraft Forecast

General Aviation

General Aviation (GA) at Townsville Airport includes emergency, health and rescue operations, mail and air cargo services and private aircraft and helicopter flights. GA activity is expected to continue a similar growth trajectory to passenger aircraft movements with a growth rate of 3% per annum.

Freight

Historical data and trends for freight movements from Townsville Airport have historically been limited. It has therefore been difficult to forecast future dedicated freight activity, but data has recently become more available. Freight carried in the hold of passenger aircraft is forecast to increase consistent with the expected growth in passenger aircraft movements, and broader demographic and economic trends.

Townsville Airport will continue to monitor freight movements at the Airport and trends in the freight industry, in order to better understand the requirements and demands for freight facilities at Townsville Airport into the future.

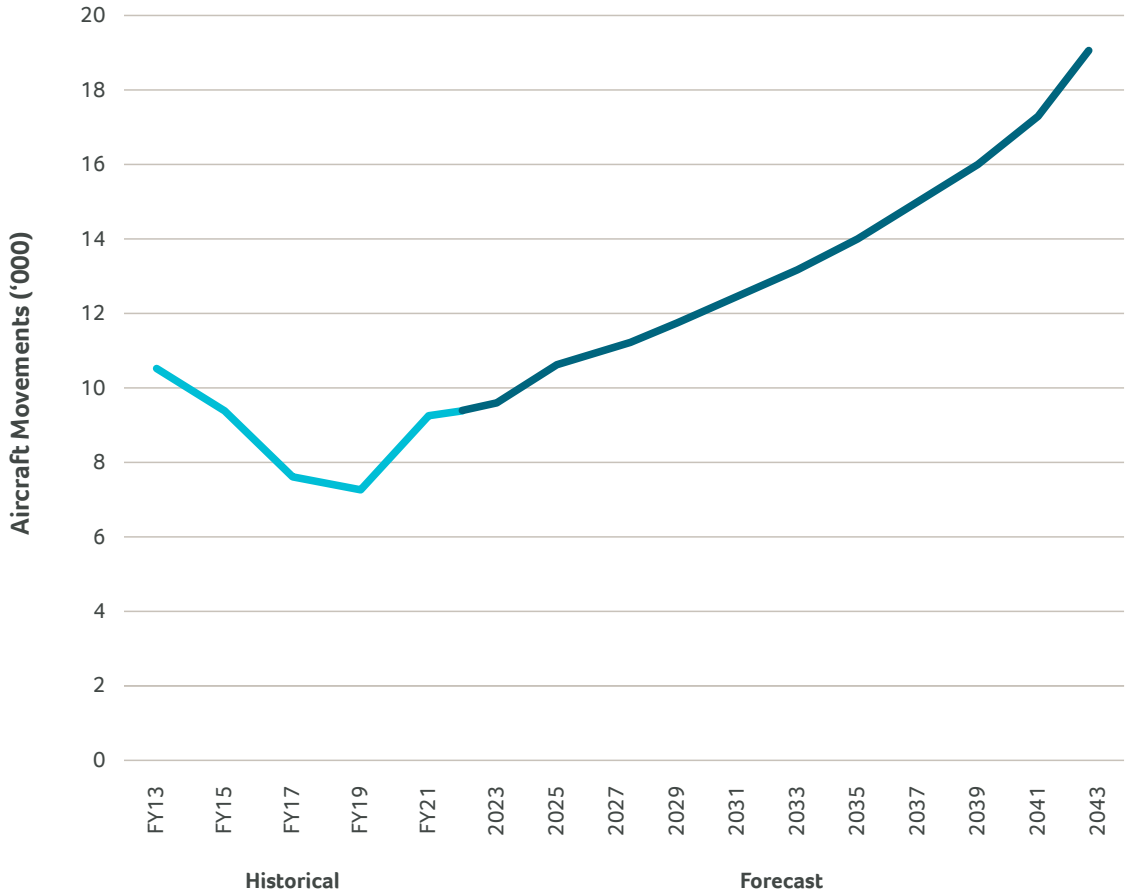


Figure 2.2.3.3 — General Aviation Forecast

2.2.4 BUSY HOUR FORECASTS

Busy hour forecasts and aircraft mix predictions are key metrics used to inform terminal and airfield planning – ensuring future facilities are appropriately sized and provisioned to maintain the required level of service for passengers of Townsville Airport.

As with the Forecast Outputs in **Part 2.2.3**, the busy hour forecasts in **Table 2.2.4.1** have been generated using data from 2018/19, prior to the onset of the COVID-19 pandemic. The forecasts show an increase from 950 to almost 2,500 busy hour passengers in 2043, which reflects an increase from 10 to 23 busy hour aircraft movements.

With regard to the future aircraft mix outlined in **Table 2.2.4.2**, the key assumptions are:

- The largest RPT aircraft at Townsville Airport is to remain a Code C jet, but with flexibility to accommodate some use of Code E aircraft; and
- Townsville Airport will continue to support Code C turboprop aircraft servicing regional Queensland, however flexibility is maintained to accommodate any potential upgrade to Code C jets.

Table 2.2.4.1 — Future Busy Hours

		Actual		Forecast		
		2018	2019	2031	2037	2043
Domestic						
Passengers	Combined	894	950	1770	2108	2476
	Arrivals	561	575	891	1083	1296
	Departures	570	650	1001	1217	1455
Aircraft Movements	Combined	6	10	18	20	23
	Arrivals	6	6	10	12	14
	Departures	6	6	10	12	14
International						
Passengers	Combined			298	318	336
	Arrivals			149	159	168
	Departures			149	159	168
Aircraft Movements	Combined			2	2	2
	Arrivals			1	1	1
	Departures			1	1	1

Table 2.2.4.2 — Future Aircraft Mix

Aircraft type	Location	Actual	Forecast		
		2022	2031	2037	2043
Code C Jet	Contract	5	8	9	11
Code C Jet	Remote	2	5	6	6
Code C Turboprop	Remote	5	3	3	3
Total		12	16	18	20

2.3 Townsville Airport Vision

2.3.1 OUR SETTING

Townsville Airport is the gateway to North Queensland. Townsville Airport's catchment area extends from Tully to the north, Charters Towers to the west, and Bowen to the south.

As a regional hub for northern Australia, Townsville is also a key transit and destination port servicing inland cities such as Mount Isa and the mining and residential communities of the Gulf of Carpentaria. The regional catchment area draws from a population of around 235,000, with 195,000 people living in the Townsville urban area.

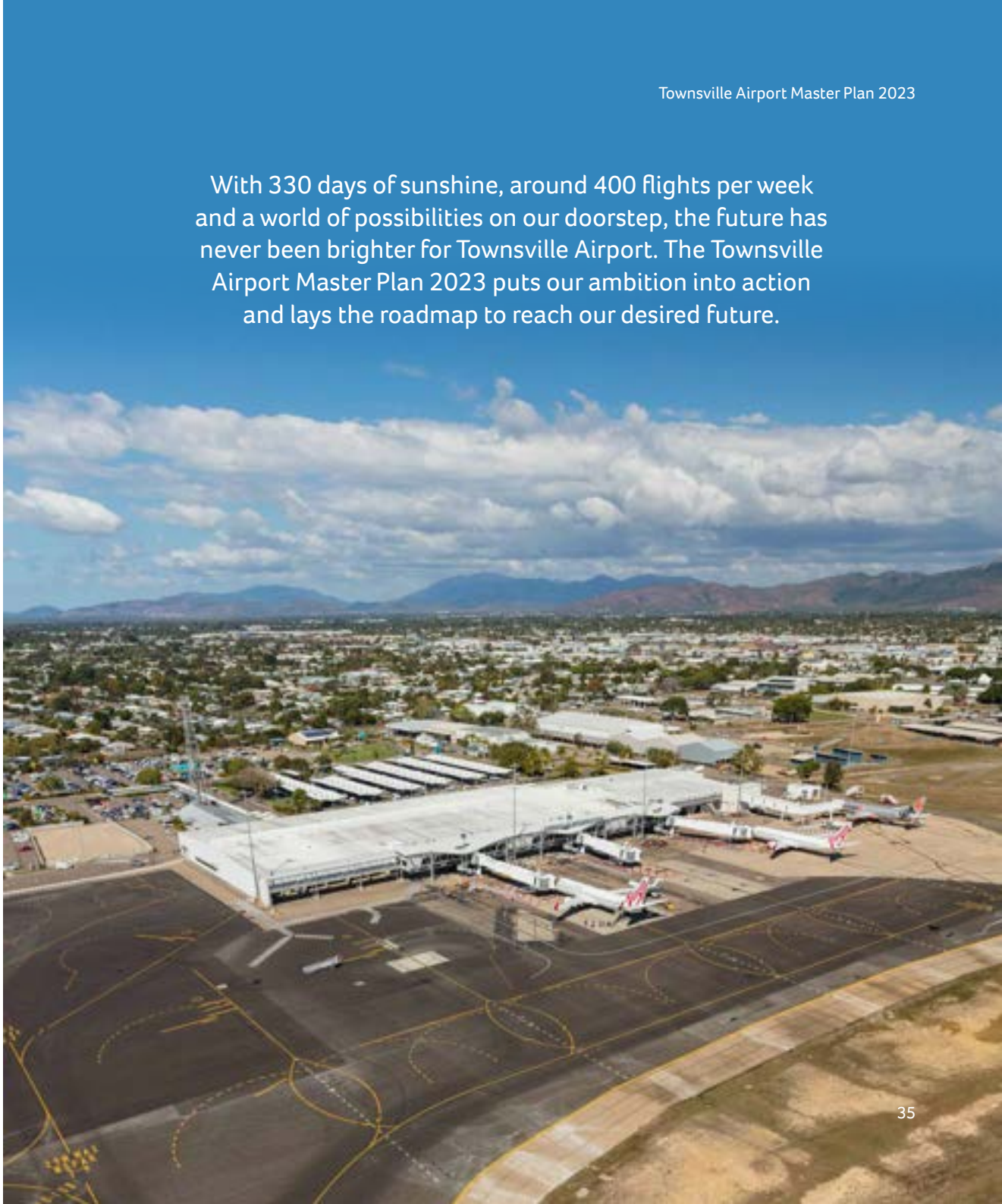
Townsville Airport operates under a Joint User Agreement with the Department of Defence, with Townsville Airport leasing an area of 81 hectares for civil aviation purposes. As a joint user facility, the responsibility for planning and development of the Airport is shared by both the Department of Defence and Townsville Airport.

Townsville Airport is situated on a coastal plain between Rowes Bay and the Bohle River, 5km west of the city centre. The northern end of the main runway is only 1km from the coast, whilst the terminal and administration building area is approximately 2.6km inland.

Townsville Airport is 100 per cent owned and operated by Queensland Airports Limited (QAL) via Townsville Airport Pty Ltd (TAPL) as the airport-lessee company (ALC).

TSV Townsville Airport

With 330 days of sunshine, around 400 flights per week and a world of possibilities on our doorstep, the future has never been brighter for Townsville Airport. The Townsville Airport Master Plan 2023 puts our ambition into action and lays the roadmap to reach our desired future.



2.3.2 OUR VISION

Queensland Airports Limited (QAL), as parent company and operator of Townsville Airport, expresses its vision for Townsville Airport as:

"Engaging customers, connecting communities, exceptional experiences."

Townsville Airport fulfills this Vision by:

- Growing our Airport through collaboration with our partners
- Providing seamless, high quality experiences for our customers
- Connecting, and being connected to, the community in which we operate
- Fostering growth within our community
- Investing in our people and empowering them to help achieve our vision
- Elevating and setting the industry standard through innovation and creative thinking

2.3.3 STRATEGIC THEMES

The Townsville Airport Master Plan 2023 is guided by three Strategic Themes:

Economic Growth

Aviation Operations

Environment, Sustainability & Community

2.3.4 MASTER PLAN DEVELOPMENT OBJECTIVES

The Vision for Townsville Airport will be achieved through a series of Development Objectives, grouped under the three Strategic Themes:

Economic Growth

Enhance Townsville Airport's role as North Queensland's gateway between major cities, regional communities and internationally, for both passengers and freight.

Enhance Townsville Airport's contribution to North Queensland's economic growth through flexibly-planned and efficient development.

Harness and grow the opportunities presented by the Northern Australian Aerospace Centre of Excellence facility, Defence industries, GA operations and aeromedical functions of Townsville Airport.

Aviation Operations

Uphold the joint-user arrangement for collaborative and mutually-beneficial relationships between the civilian and Defence operations on-airport.

Facilitate our forecast passenger growth and deliver an optimal level of service and experience for customers.

Safeguard our site and continue to ensure a safe, secure and efficient airport operating environment.

Environment, Sustainability & Community

Embrace innovation and embed sustainability principles into all airport operations and development of airport infrastructure.

Manage the environmental and operational impacts of Townsville Airport.

Uphold our social licence to operate by engaging with our stakeholders and supporting our local communities.

Part 3

The Master Plan 2023 to 2043

The Townsville Airport Master Plan 2023 guides the future development of civilian aviation operations, services, and airside and landside land uses at Townsville Airport.

The development of the Airport is set out through the following elements:

Land Use Strategy
Part 3.1

Aviation Development Plan
Part 3.2

Ground Transport Plan
Part 3.3

Environment Strategy
Part 5.5.3

This Master Plan builds on preceding Townsville Airport Master Plans and responds to changes in economic opportunities and community and stakeholder expectations.

Figure 3.1 — Land Use Strategy: Precinct Map

3.1 Land Use Strategy

The development of this Land Use Strategy, and each Precinct identified herein, has been guided by the following overarching principles:

- Ensure land use planning aligns with the long-term strategic direction of Townsville Airport;
- Achieve compatibility between civil airport land uses and external land uses;
- Maintain development standards aligned to statutory requirements, with due consideration of reasonable community and business expectations; and
- Reserve an adequate future supply of land for essential aviation support services, such as maintenance activities, emergency services, fuelling, etc.

Additionally, all development of Townsville Airport and surrounds must ensure the unimpeded operation of aviation services at all times.

As shown in **Figure 3.1**, the Land Use Strategy divides the civil aviation area of Townsville Airport into four precincts:

- Gateway Precinct
- Enterprise and Innovation Precinct
- Aviation and Terminal Precinct
- General Aviation and Aerospace Precinct

Each Precinct has a unique Precinct Intent and Development Objectives to guide its development, which also corresponds to the supporting land uses identified in **Appendix B** for each Precinct.

3.1.1 GATEWAY PRECINCT

Precinct Intent

The Gateway Precinct creates a sense of arrival on the approach to Townsville Airport along John Melton Black Drive. The Precinct is activated, connected and accessible, and accommodates a range of modern retail, food and beverage offerings to serve visitors, staff and nearby residents to Townsville Airport.

Development Objectives

- The Gateway Precinct delivers a distinct sense of arrival to Townsville Airport through high-quality built form, people-oriented streetscape and landscaping outcomes
- The Precinct drives activity through a range of development opportunities, such as an integrated service centre offering, short-term accommodation and associated supporting services
- Development integrates with the public realm through active street frontages, permeable boundaries and interfaces between private and public spaces
- Buildings are low- to medium-rise and are responsively designed to reflect the tropical climate of Townsville
- Car parking areas are landscaped or screened behind built form to avoid undue prominence
- Plant species, landscaping materials and surface treatments are attractive, climate-sensitive, fit-for-purpose and cost-effective to maintain over the long-term

Supporting Land Uses

Land uses which support the Precinct Intent and Development Objectives of the Gateway Precinct are identified in **Appendix B**.

Figure 3.1.1 — Gateway Precinct Map

3.1.2 ENTERPRISE AND INNOVATION PRECINCT

Precinct Intent

The Enterprise and Innovation Precinct is a destination of choice for dynamic and innovative industry and business ventures. The Precinct offers unrivalled proximity to aviation facilities and services, and caters for advanced office, commercial and warehouse developments to support Townsville Airport's role as a major transport, employment and economic hub.

Development Objectives

- Built form is low-to-medium-rise and designs are high-quality, innovative, adaptable and maintain flexibility for a variety of future uses
- Development employs green technology to ensure the siting, design, materials, construction and systems used to run and maintain operations are as sustainable and energy efficient as possible
- Landscape elements are used to create a legible, attractive and consistent character, which responds to Townsville's tropical climate
- Screening, through landscaping or fencing, is used to soften the appearance of the built form and car parking areas, thereby mitigating adverse aesthetic impacts and providing privacy
- Plant species, landscaping materials and surface treatments are attractive, climate-sensitive, fit-for-purpose and cost-effective to maintain over the long-term

Supporting Land Uses

Land uses which support the Precinct Intent and Development Objectives of the Enterprise and Innovation Precinct are identified in **Appendix B**.

Figure 3.1.2 — Enterprise and Innovation Precinct Map

3.1.3 AVIATION AND TERMINAL PRECINCT

Precinct Intent

The Aviation and Terminal Precinct accommodates core passenger air services, business and personal travel needs for all domestic and international customers. The Precinct contains a range of retail, food and beverage outlets, seamless transport connections, essential security and safety facilities and supports logistics and freight movements.

Development Objectives

- Built form features high-quality architectural and urban design to enhance the amenity of the Precinct
- Spaces are designed with inherent flexibility to facilitate reconfiguration and expansions aligned to forecast passenger growth and changing technologies
- The Terminal interface and pedestrian environments feature an attractive and consistent character, which responds to Townsville's tropical climate
- The road and pedestrian network within and connecting to the Precinct is functional, safe, efficient and accessible
- Signage and wayfinding enhance legibility and reduce conflict to ensure a seamless user-experience
- All development upholds the highest levels of safety and security

Supporting Land Uses

Land uses which support the Precinct Intent and Development Objectives of the Aviation and Terminal Precinct are identified in **Appendix B**.

Figure 3.1.3 — Aviation and Terminal Precinct Map

3.1.4 GENERAL AVIATION AND AEROSPACE PRECINCT

Precinct Intent

The General Aviation and Aerospace Precinct is highly integrated with all other Precincts to facilitate the easy and secure interchange of passengers and services. The Precinct contains General Aviation and regionally significant aircraft maintenance and specialist aviation services, such as Search and Rescue and Medivac operations.

Development Objectives

- Built form involves simple building masses, which are low-to-medium-rise and consistent in height with surrounding built form to ensure development does not impact airside and aviation activities
- Building entries are clearly visible from the street and provide intuitive wayfinding for visitors
- Service, plant and storage areas are screened from the street by the built form, fencing or landscaping elements
- Landscaping and hardstand areas create a strong sense of place and respond to Townsville's tropical climate, including use of appropriate thermal and solar efficiency measures

Supporting Land Uses

Land uses which support the Precinct Intent and Development Objectives of the General Aviation and Aerospace Precinct are identified in **Appendix B**.

Figure 3.1.4 — General Aviation and Aerospace Precinct Map

3.2 Aviation Development Plan

The Aviation Development Plan guides the future development of Townsville Airport's civilian airfield and passenger terminal to support the forecast levels of passenger growth and ensure the needs of passengers and operators are met now and into the future.

This Part should be viewed in conjunction with the Aviation Forecasts (**Part 2.2**) and the Implementation Plans in **Part 4**.

3.2.1 AIRFIELD DEVELOPMENT

The airfield includes areas of an airport used to support the movement of aircraft, including runways, taxiways, aprons and support services. At Townsville Airport, airfield development also encompasses General Aviation (GA) facilities and the Northern Australian Aerospace Centre of Excellence (NAACEX) Precinct.

Given the joint-user arrangement applicable to Townsville Airport, the scope of this Part is limited to only those facilities used by civilian aircraft at Townsville Airport and under the management of Townsville Airport Pty Ltd (TAPL).

Runways

Townsville Airport has two runways, which are shared by Defence and civil aircraft movements:

- Runway 01/19 is Townsville Airport's main runway at 2,438 metres long and 45 metres wide. Runway 01 is a Code 4 instrument precision runway and Runway 19 is a Code 4 non-precision runway.
- Runway 07/25 is Townsville Airport's secondary or cross runway, suitable for use by light aircraft. At 1,100 metres long and 30 metres wide, Runway 07/25 is a Code 2 non-precision runway.

Taxiways

As shown in **Figure 3.2.1.1**, a network of taxiways provide access for a range of aircraft sizes at Townsville Airport. Taxiways A1, A2, A3, D and K provide taxiway access for wide-body aircraft to the main apron, while the remainder of Taxiway A and other taxiways support narrow-body aircraft access.

Taxiway A is the main parallel taxiway to Runway 01/19. It runs the full length of the runway, but varies in width. Any upgrades to Taxiway A would prompt the redevelopment of the full taxiway extent to meet revised standards.

Aprons

Townsville Airport's main apron is located adjacent to the passenger terminal building and provides aircraft parking for civil Regular Passenger Transport (RPT) and charter operations. The main apron has ten bays comprising four full-contact Code C jet aircraft bays with aerobridges, including one suitable for Code E aircraft, plus six remote bays accommodating a range of Code C aircraft, including both push-back and power-in, power-out operations. Additional apron space is provided for parking of light aircraft, including two helicopter parking positions.

The GA apron is located north of the main apron, adjoining Taxilanes GA1 and GA2. Aircraft parking for light aircraft is provided adjacent to the existing GA hangars and other facilities within the GA Precinct.

Aviation Support Facilities

The following support facilities are available at Townsville Airport:

- A range of navigational aids, including a Precision Approach Path Indicator (PAPI) on Runway 01/19, DME (Distance Measuring Equipment), ILS (Instrument Landing System), LOC (Localiser), VOR (VHF Omnidirectional Range), NDB (Non-Directional Beacon) and TAC (Tactical Air Navigation beacon);
- Defence Air Traffic Control Tower, which is located west of Runway 01/19 within the Defence area;
- Aviation Rescue Fire Fighting Service (ARFFS) Facility, which is also located in the Defence area;
- AVGAS and Jet A1 fuel is provided via a bowser facility in the GA Precinct, with an additional Jet A1 fuel facility located landside; and
- Freight facilities, located landside to the southeast of the passenger terminal.

GA Precinct

The GA Precinct at Townsville Airport is approximately 30 hectares and accommodates a range of tenants within hangars and support buildings adjacent to the GA Apron. The GA Precinct supports tenants including aeromedical, emergency services, helicopter and charter flight operators.

NAACEX Precinct

The Northern Australian Aerospace Centre of Excellence (NAACEX) Precinct includes four hangars, which are sized to accommodate Code C aircraft. The NAACEX Precinct and hangars have Code C taxilane access.

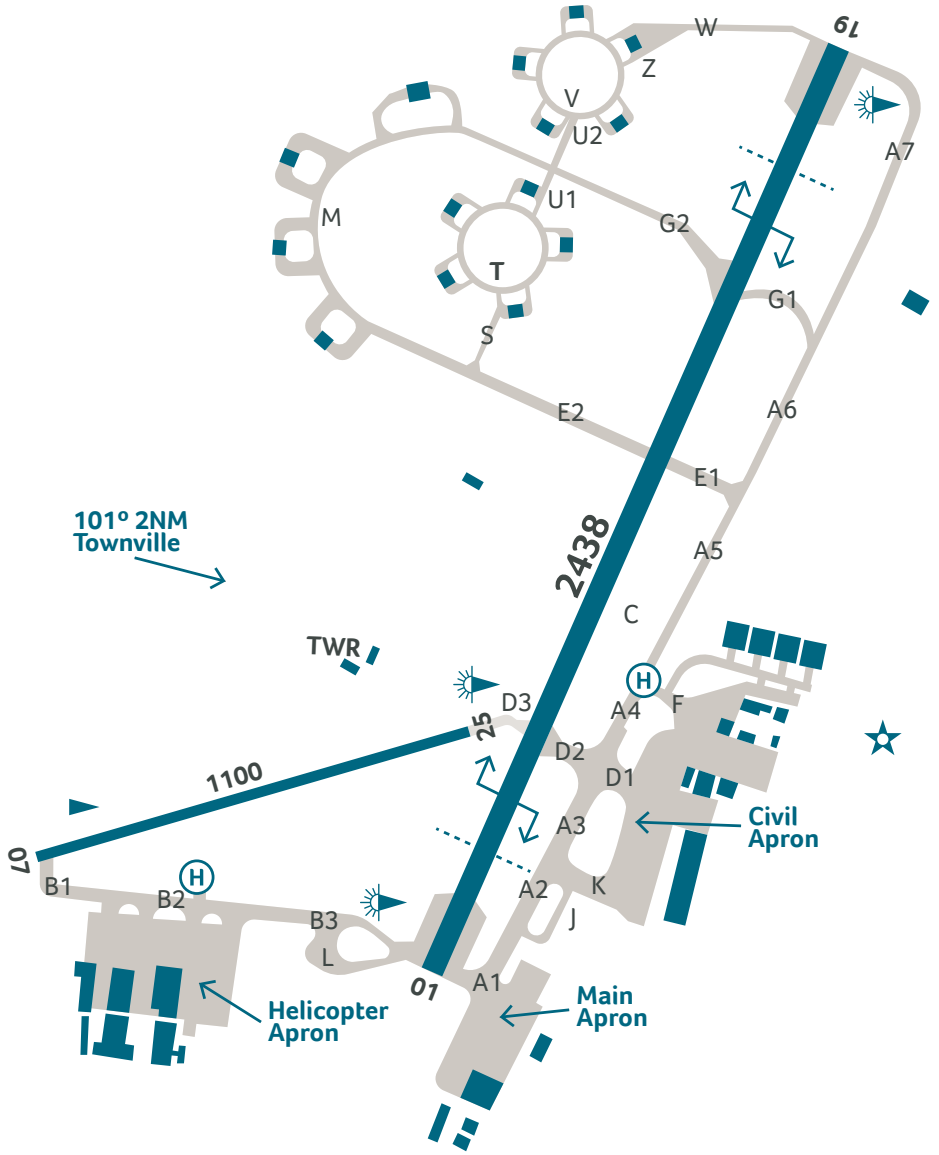


Figure 3.2.1.1 — Aerodrome Chart (Airservices Australia 2022)

3.2.1.2 PROPOSED AIRFIELD DEVELOPMENT

Airfield development over the 20-year span of this Master Plan reflects the forecast demand for airfield infrastructure, including new full-contact and remote aircraft bays, new taxiways, expanded aprons and NAACEX Precinct, and relocated GA activities and support facilities.

Significant airfield development would likely be subject to a Major Development Plan (MDP), in accordance with the requirements of the Airports Act.

Apron Expansion

The RPT apron is proposed to extend north and east around the expanded passenger terminal to increase Townsville's existing 10 aircraft bays (4 contact, 6 walkable, 2 remote) to a total of 20 aircraft bays, noting the redistribution to 11 full-contact bays serviced by aerobridges.

The number of full-contact bays is driven by the busy hour departing aircraft demand (refer **Part 2.2.4**) and underpinned by the assumption that all busy hour departing and arriving aircraft shall be serviced by full-contact bays with aerobridges. Long-stay aircraft will be accommodated on remote bays.

All bays will accommodate Code C jet or turboprop aircraft, plus one dedicated Code E bay and a flexible bay for use by a single Code E or two Code C jets. This flexibility allows for upgraded aircraft on domestic or international routes.

The expanded apron will ensure all bays shall have a minimum 7.5 metre wingtip clearance and sufficient depth to accommodate a tail-of-stand and head-of-stand road. Pavement strength will be reviewed as required, particularly for Code E operations, with all new aprons constructed to an appropriate strength.

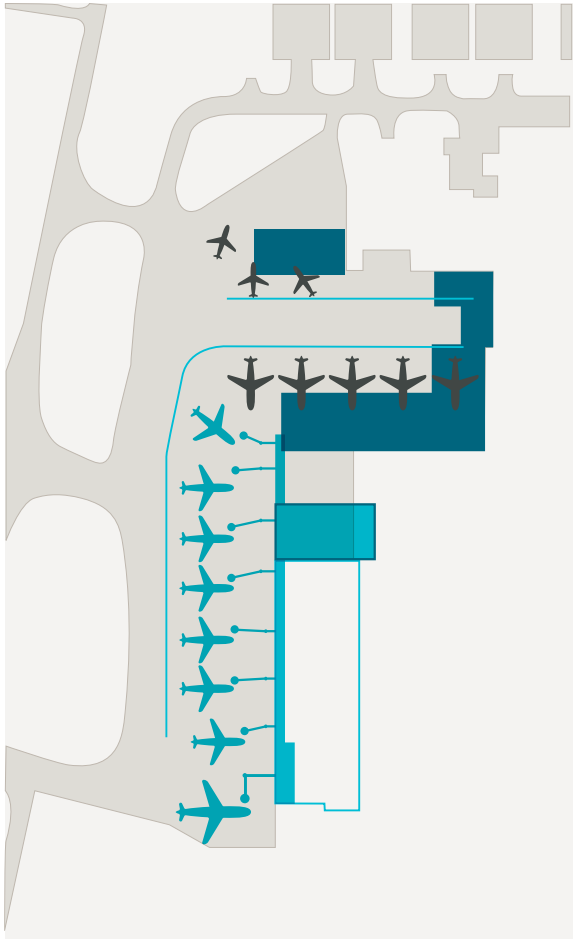


Figure 3.2.1.2
— Initial (8-yr) RPT Apron Development

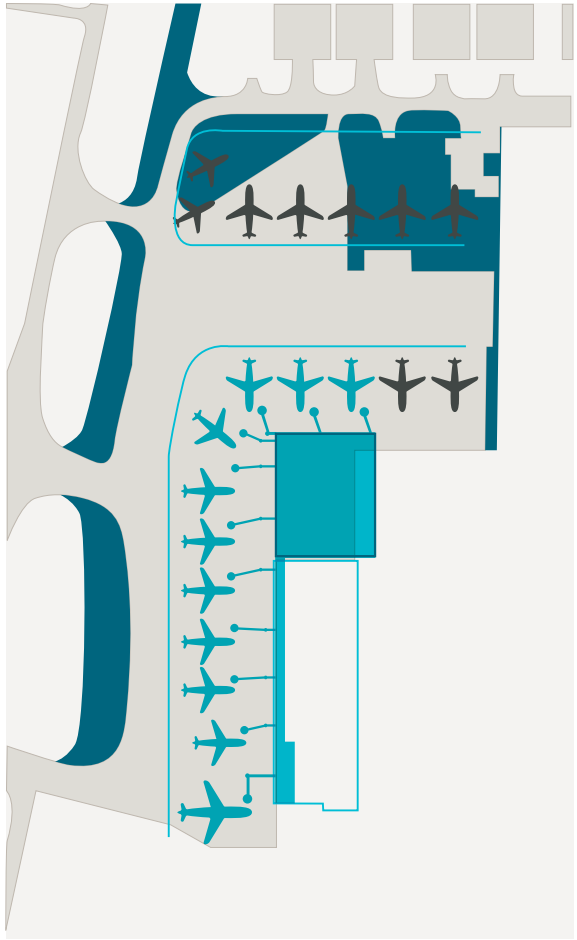


Figure 3.2.1.3
— Ultimate (20-yr) RPT Apron Development

Runway 01/19 Extension

While the existing runway length is sufficient for civil operations at Townsville Airport, Runway 01/19 is proposed to be extended by just over 550 metres to support Defence operations. The extension is required due to safety requirements for new Defence aircraft departing from Townville Airport and will be constructed by Defence within the next 1-2 years.

New Taxiways

To reflect the proposed apron expansion and increase in aircraft bays, two new taxilanes are proposed:

- New dual Code C taxilane on the RPT apron to provide access to new contact and remote bays; and
- New Code E taxilane to the rear of the RPT apron to provide sufficient push back for ad-hoc Code E operations.

A new Code C taxiway is also proposed to connect the RPT apron with the expanded NAACEX Precinct. Taxiway A, being the main parallel taxiway to Runway 01/19, may be realigned and extended by Defence to service the extended Runway 01/19, and potentially serve as an emergency runway to support Defence operations.

GA Precinct Relocation

The GA Precinct is proposed to be relocated to the north of Townsville Airport's civil area. The new location will support the forecast growth of GA activities, such as aeromedical, flight training, freight and other uses, and permit the expansion of the RPT apron north of the passenger terminal.

NAACEX Precinct Expansion

The NAACEX Precinct is proposed to expand to the east and north, providing additional hangar support for Code C aircraft activities. These activities could include Licensed Aircraft Maintenance Engineers (LAMEs), aircraft painting, freight forwarders and other comparable uses.

Aviation Support Facility Relocations

The following support facilities are to be investigated:

- The airside fuel facilities could be relocated to the new GA Precinct, as its current location will be absorbed into the proposed RPT apron expansion. The landside fuel facility is to remain in its current location. Fuel facilities at Townsville Airport have the capacity to expand and support increasing aircraft movements, as well as the introduction of sustainable aviation fuels.
- Landside freight facilities are intended to be relocated to the NAACEX Precinct, thereby freeing up land closer to the passenger terminal to accommodate car parking and ground transport upgrades.

Figure 3.2.1.4 — Initial (8–yr) Airfield Development

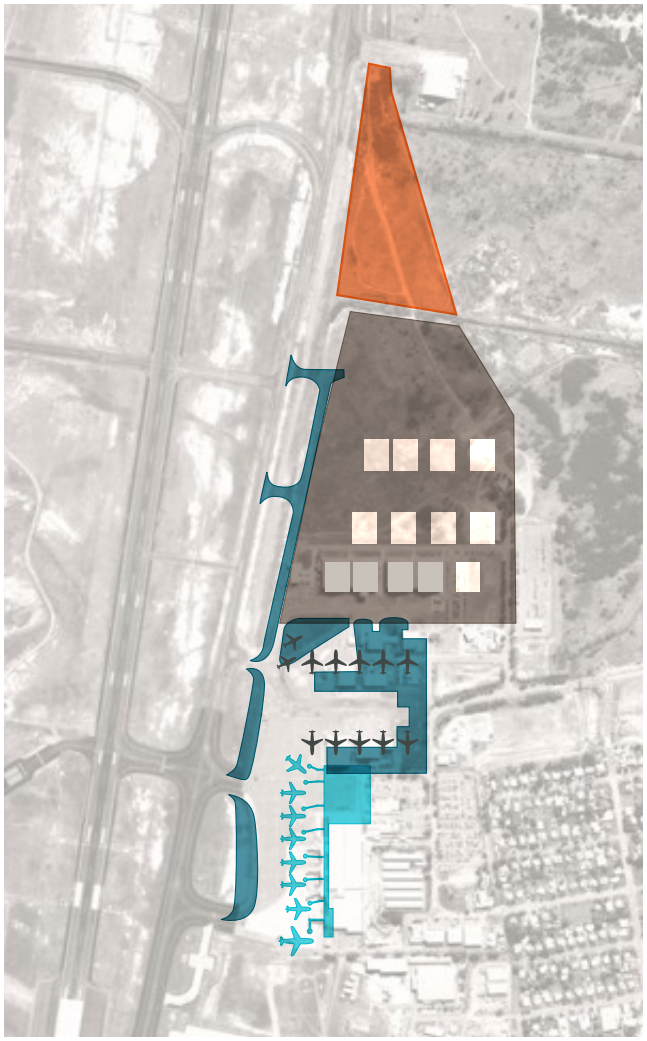


Figure 3.2.1.5 — Ultimate (20–yr) Airfield Development

Terminal expansion

Pavement expansion

GA Precinct

NAACEX Precinct

3.2.2 Terminal Development

Terminal development includes all facilities and services internal to the passenger terminal. At Townsville Airport, terminal development includes check-in, baggage make-up, domestic and international security, departure and airline lounges, boarding gates, arrivals hall, baggage reclaim and back-of-house services and office spaces.

TSV Townsville Airport

3.2.2.1 EXISTING TERMINAL DEVELOPMENT

The existing passenger terminal at Townsville Airport has a Gross Floor Area (GFA) of approximately 13,000m^2, spread across Ground and Mezzanine floor levels.

Townsville Airport's aircraft bays are serviced by six passenger boarding gates:

- Gate 1 is a swing international gate, located at the southern end of the passenger terminal.
- The Mezzanine level provides boarding gate access to Bays 1 to 4, with aircraft boarding via aerobridges for Domestic services. At less than six metres wide, the Mezzanine level has limited space for passenger waiting areas, boarding queues and general circulation.
- The remaining boarding gates are located at Ground level and comprise walk-in, walk-out gates. These gates service the turboprop-aircraft parking bays on the apron north of the passenger terminal building.

Townsville Airport's passenger terminal has recently undergone a series of internal works, which are delivering a more efficient and enhanced customer experience at Townsville Airport. The works include:

- Upgraded baggage check-in infrastructure, as part of a Regional Airports Screening Infrastructure (RASI) scheme;
- Subsequent reconfiguration of check-in desks, relocation and upgraded passenger screening area;
- Expanded retail, food and beverage offerings within the departure lounge, plus a new food and beverage offering within the arrivals area;
- Upgraded amenities; and
- Vertical transport relocation and upgrades, to improve passenger flow to and around the Mezzanine level.

These works are delivering additional capacity and enhancing the look and feel of Townsville Airport's passenger terminal. Nonetheless, a large amount of back-of-house space remains, which retains flexibility for future upgrades and expansion.

3.2.2.2 PROPOSED TERMINAL DEVELOPMENT

Over the 20-year span of this Master Plan, Townsville Airport's passenger terminal is predicted to double in size from less than 13,000m^2 GFA to over 26,000m^2 GFA, in order to service the predicted passenger numbers through Townsville Airport.

This increase is proportionate to forecast passenger growth, which is also anticipated to more than double from 1.6 million passengers in 2019 to over 3.8 million passengers by 2043 (refer also to **Part 2.2.3**). This passenger growth places subsequent demands on terminal facilities, such as check-in, security, departure lounges and boarding gates, and their associated queuing spaces.

Terminal Development Principles

The development of Townsville Airport's passenger terminal will:

- Ensure alignment between terminal and airfield development;
- Ensure development layouts are suited to phased implementation, aligned with passenger growth and demand;
- Retain spatial flexibility for known and future innovation in passenger processing facilities;
- Realise operational efficiencies for passenger movement, by guiding passenger flows in a forward direction and eliminating passenger congestion points;
- Optimise existing facilities to avoid unnecessary construction; and
- Unlock existing expansion constraints and safeguard locations marked for longer-term terminal expansion, while minimising redundant works.

These development principles guide future terminal upgrades and expansion, while upholding best-practice security principles and retaining flexibility to respond to changing technology and passenger expectations over the lifetime of the Townsville Airport Master Plan 2023.

Terminal Development Works

Expansion areas, terminal upgrades and other terminal works within the 20-year scope of this Master Plan are planned to include:

- Expansion of the terminal building to the north, with new international arrivals facility and swing infrastructure to maximise capacity for domestic and international services, accommodating up to two international operations simultaneously;
- Expansion of the existing departures lounge to create a common departure lounge for domestic and international passengers, including a refurbished airline lounge and upgraded common security point;
- Redevelopment and expansion of mezzanine boarding areas;
- Development of a First-Floor level (within the existing terminal shell) for a relocated, expanded and upgraded airline lounge;
- Improved landside food and beverage, and retail offerings;
- Segregated regional arrivals corridor, to ensure compliance with security requirements owing to the differing security procedures for international, interstate and regional intrastate flights;
- Spatial allowance for operational changes and improvements to check-in and bag-drop processes; and
- Retention of existing facilities where possible, including the existing baggage make-up and reclaim.

As with the airfield development plan, terminal development will be staged as passenger demand increases.

While this Master Plan does not detail the specific internal placement or design of each terminal component, the spatial requirements for each component have been thoroughly modelled to ensure the proposed passenger terminal footprint and GFA expansions will meet the needs of future passengers through Townsville Airport.

Significant terminal expansion works would likely be subject to a Major Development Plan (MDP), in accordance with the requirements of the Airports Act.

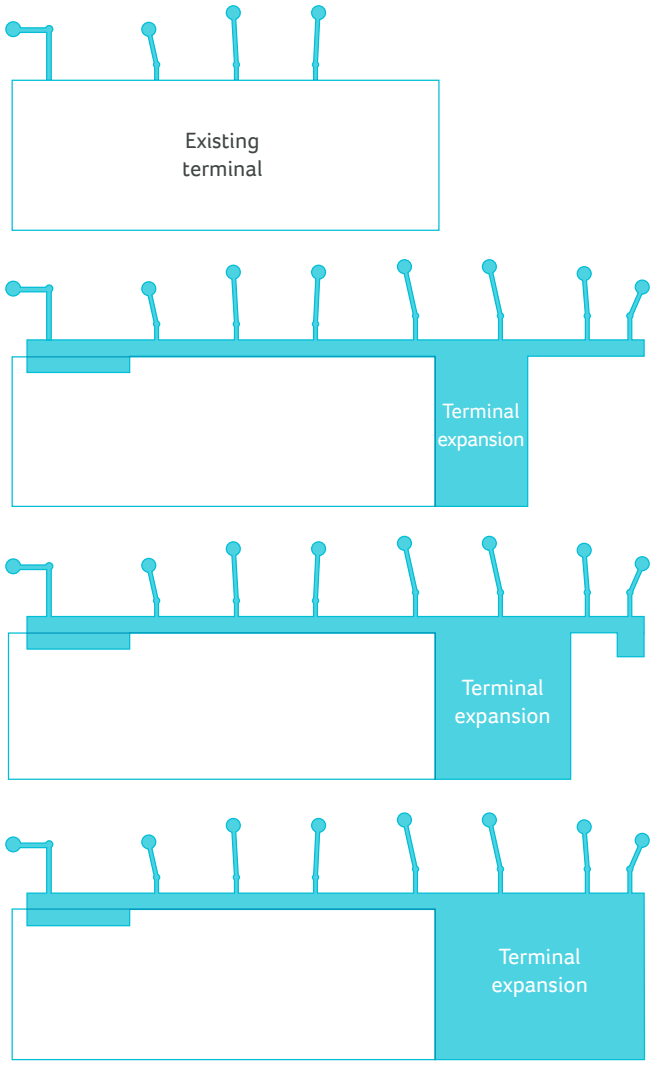


Figure 3.2.2.1 — Staged Terminal Development to 2043

3.3 Ground Transport Plan

The Ground Transport Plan guides the future development of Townsville Airport's ground transport network to support the predicted traffic demand, relative to forecast passenger growth and broader transport trends, to ensure the needs of passengers and operators are met now and into the future.

Developing the Ground Transport Plan involves reviewing existing ground transport operations and infrastructure, assessing likely changes in demand and needs, and then identifying solutions to accommodate the forecast demand in a safe, sustainable, accessible and affordable manner.

The Ground Transport Plan covers all landside transport infrastructure servicing Townsville Airport, such as road networks, car parking provision, taxi and rideshare facilities, active transport networks and freight routes.

This Part should be viewed in conjunction with the Aviation Forecasts (**Part 2.2**) and the Implementation Plans in **Part 4**.

External Road Network

The key roads connecting the external road network to Townsville Airport are:

- John Melton Black Drive;
- Meenan Street; and
- Dearness Street.

These roads are governed by Townsville City Council (TCC) and connect the Townsville Airport precinct to the external trunk road network.

The main access to Townsville Airport is via John Melton Black Drive, which connects the Airport to the Townsville CBD. Meenan Street connects the Airport to the southern and western regions of Townsville and is the preferred access route from surrounding regional towns. Dearness Street connects to Townsville's eastern suburbs and is an alternative route to the Airport from the CBD and southern suburbs.

In 2020, the extension of Meenan Street was completed by TAPL and TCC, connecting Meenan Street through to John Melton Black Drive and closing off access to Townsville Airport from Halifax Street. A recent traffic survey indicates that over 70% of total traffic to Townsville Airport travels via Meenan Street.

Internal Road Network

Townsville Airport's internal road network includes:

- Stinson Avenue;
- Coral Sea Drive;
- Halifax Street; and
- Avro Drive.

These roads connect the terminal to ground transport facilities such as passenger pick-up and drop-off areas, taxi and rideshare zones, short-term and long-term car parks, and rental car parks.

The internal road network that services the Enterprise and Innovation Precinct and the General Aviation and Aerospace Precinct to the north includes Wirraway Drive, Mustang Court, Gypsy Moth Court and Viscount Drive.

All roads within Townsville Airport's internal network are under the management of TAPL.

Figure 3.3.1 — Existing Ground Transport Infrastructure

1. Rental Parking

2. P Saver Long term uncovered parking

3. P Select Long term + short term covered parking

4. Townsville Airport Terminal

5. Taxi Holding Area

Car Parking

Within the Aviation and Terminal Precinct, there are approximately 750 car parking spaces total, divided among Select and Saver car park products for short-term and long-term car parking. Passenger pick-up and drop-off is permitted within dedicated zones along Coral Sea Drive and the Select car park.

Staff car parking is provided in designated areas throughout the broader Airport precinct.

Rental Cars

Seven rental companies operate from Townsville Airport. They collectively occupy approximately 250 rental car parking spaces within a designated location north-east of the passenger terminal.

Taxis and Rideshare

A dedicated taxi and commercial vehicle drop-off zone and taxi rank is located adjacent to the passenger terminal, along Coral Sea Drive.

A designated rideshare collection point is located within the Rental car park, which can accommodate up to 10 vehicles.

Coaches and Bus Shuttles

Two designated coach and bus parking bays are provided at the southern end of the existing passenger terminal in addition to the kerbside storage capacity, and are serviced by private operators and charter services.

Public Transport

There is currently no direct public transport connection to Townsville Airport. The closest public transport stop is a bus stop located on Meenan Street, which is approximately 1km from the passenger terminal.

Active Transport

Townsville Airport's pedestrian network is currently focused within the Aviation and Terminal Precinct and does not formally connect to the broader Townsville City Council network. While not extensive, the pedestrian network provides dedicated routes for passengers and staff between the passenger terminal, parking areas and pick-up / drop-off facilities via footpaths, covered walkways and zebra crossings.

Dedicated cycling infrastructure is currently limited into and around Townsville Airport.

Freight

Freight handling and operations are conducted from dedicated facilities located south of the passenger terminal, accessible from Halifax Street and Coral Sea Drive. Freight vehicle movements are unrestricted and use the same internal road network as all other vehicles.

3.3.2 TRAFFIC VOLUMES AND PATTERNS

In addition to existing infrastructure and facilities, the Ground Transport Plan is informed by understanding the current infrastructure capacity at Townsville Airport, which involves the analysis and forecast of traffic volumes, daily traffic patterns, mode choice and car park utilisation.

Current Traffic Volumes

To inform the Townsville Airport Master Plan 2023, traffic surveys were undertaken in April 2022. The surveys revealed Meenan Street as the busiest route to and from Townsville Airport, with a peak combined daily traffic volume of approximately 7,900 vehicles per day. This volume represents approximately 72% of total traffic to and from the Airport.

Traffic within the immediate vicinity of the passenger terminal is generated by the Select and Saver car parks, rental cars, taxis and ride-share, public passenger pick-up and drop-offs, coach operations and freight movements. All traffic within this area travels along Stinson Avenue, making Stinson Avenue the busiest road within the Townsville Airport precinct.

The highest traffic volumes at Townsville Airport are consistently observed during the morning peak period, for instance with an AM Peak of 961 vehicle movements compared to a PM Peak of 815 vehicle movements during the survey period.

Peak traffic volumes are used throughout the Ground Transport Plan to understand the current road capacity and peak demand for ground transport infrastructure into the future.

Predicted Future Traffic Volumes

There is a strong correlation between peak airport passenger numbers and peak traffic demands, which translates through to demand for car parking, pick-up and drop-off facilities and all other ground transport infrastructure. This established relationship between passenger volumes and peak traffic volumes can be applied to the future busy hour forecasts (refer **Part 2.2.4**) to estimate the future peak traffic volumes associated with civil aircraft operations at Townsville Airport.

Forecasts for future traffic volumes within the Townsville Airport precinct considered the following:

- Busy hour passenger growth forecasts, which correlate to traffic generation within the Aviation and Terminal Precinct;
- Traffic generation from development within the General Aviation and Aerospace Precinct; and
- Traffic generation from development of the Gateway Precinct.

Given the forecast increase in passengers through Townsville Airport and other development within the broader precinct, AM peak vehicle movements are predicted to increase approximately 200% relative to 2022 movements, to approximately 2,900 movements by 2043 (refer **Table 3.3.2**).

Table 3.3.2 — Peak Vehicle Movements 2022-2043

	2022	2031	2043
AM Peak	961	2168	2904
PM Peak	815	1879	2539

Daily Traffic Patterns

Daily traffic patterns at Townsville Airport are closely aligned to flight schedules and passenger numbers, with peak traffic volumes occurring just prior to the peak airport passenger demand in the morning and just after the peak airport passenger demand in the early evening (refer **Figure 3.3.2.1**).

Mode Choice

The most recent passenger travel mode choice survey was completed in 2018, prior to the onset of the COVID-19 pandemic. The survey indicated:

- 50% of passengers access Townsville Airport via private vehicle;
- 30% of passengers parked at or near the Airport, with over 90% parking in a TAPL-operated carpark; and
- The median travel party size was 1.4 passengers, down from 1.6 passengers in 2015.

The data confirms that transport to and from Townsville Airport is heavily focused on vehicles, whether private or rental vehicles, or via taxi and rideshare.

The reliance on light vehicles is creating operational issues for Townsville Airport's transport network, including congestion within pick-up and drop-off zones and temporary parking along key access roads, rather than in dedicated parking bays or holding areas.

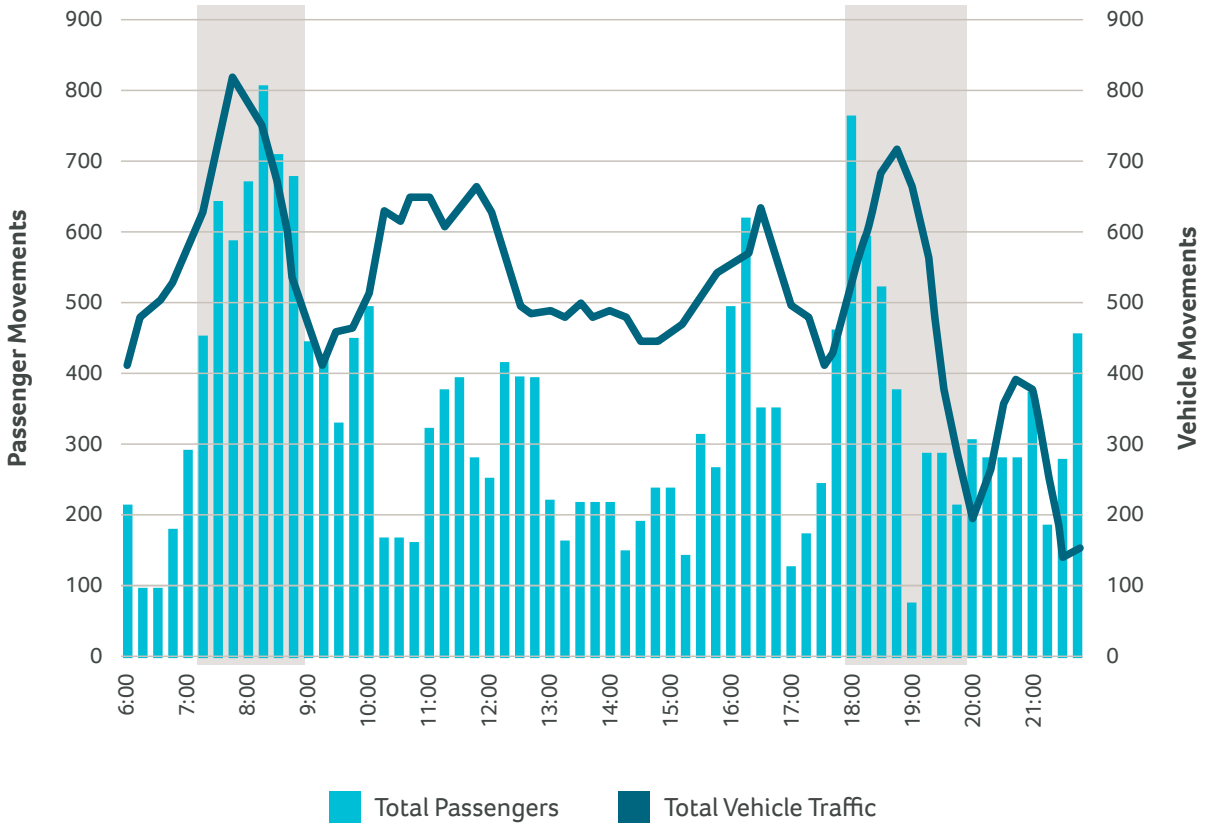


Figure 3.3.2.1 — Daily Traffic Pattern

Car Park Utilisation

The demand for and utilisation of the Select and Saver car park products is driven by different factors.

Demand for the Select car park is primarily driven by short-term parking needs and is therefore more dependent on flight schedules during busy hours. As such, car park usage within the Select car park fluctuates more readily to align with daily flight patterns. Demand for the Saver car park, and the premium long-term parking within the Select car park, is associated with longer travel durations, as well as the trip and passenger type.

Traffic surveys showed that utilisation of the Select car park peaked at just over 50%, with a short peak period of around 30 minutes in the mid-morning, while utilisation of the Saver car park peaked at approximately 75% and held its peak for around four hours from late afternoon until evening.

The average car park utilisation over an entire day was approximately 36% for the Select car park and 67% for the Saver car park.

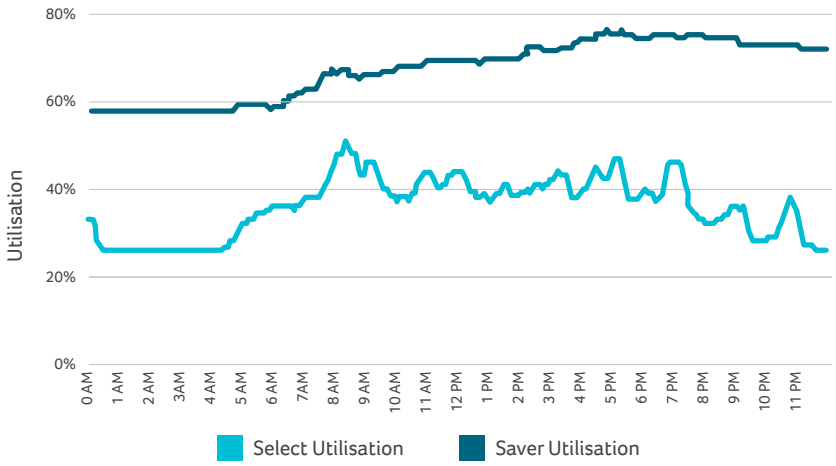


Figure 3.3.2.2 — Car Park Utilisation

TSV Townsville Airport

3.3.3 GROUND TRANSPORT DEVELOPMENT

Townsville Airport's ground transport infrastructure and capacity will need to be upgraded to accommodate the forecast increase in activity through the Townsville Airport precinct.

The Ground Transport Plan for Townsville Airport is informed by several considerations, including current and forecast road network capacities, car parking supply and management, airport security principles, pick-up and drop-off operations, pedestrian safety, public transport, accessibility, flexibility, adaptability and legibility.

Based upon these considerations, the implementation of Townsville Airport's Ground Transport Plan will be guided by the following overarching principles:

- Provide scalable, flexible and adaptable solutions to accommodate forecast future demand for ground transport infrastructure within the initial and ultimate planning periods;
- Maximise the use of existing infrastructure and minimise the redundancy of infrastructure between planning periods;
- Resolve existing road network capacity constraints, reduce redundant vehicle movements, and improve road network safety within the Townsville Airport precinct;
- Ensure ground transport reconfigurations improve and uphold best-practice security principles;
- Improve existing and provide new, attractive, practical, accessible and safe active transport linkages throughout the Townsville Airport precinct;
- Improve commercial attractiveness and opportunities within the Townsville Airport precinct;
- Support forecast demand for car parking, taxis, rideshare and public pick-up and drop-off zones; and
- Retain opportunity for a public transport service to Townsville Airport.

The Ground Transport Plan for Townsville Airport aims to deliver a safe, accessible and efficient ultimate ground transport solution.

Innovation and Trends

The Ground Transport Plan for Townsville Airport considers applicable trends and innovations, including both general transport trends and those specific to the aviation sector. Based upon the identified constraints within Townsville Airport's current network, key innovations and opportunities include, but are not limited to:

- Dynamic pricing to manage future car parking demand;
- Digital dispatch system for taxis to reduce queuing and wait times;
- Electric vehicle charging stations to accommodate the uptake of electric vehicles; and
- Mobility as a Service (MaaS) application to provide an integrated transport service offering.

Notwithstanding, the primary focus of this Ground Transport Plan is to design and guide the implementation of an efficient ground transport network, that meets the needs of Townsville Airport now and into the future.

3.3.4 PROPOSED INFRASTRUCTURE

External Road Network

Traffic capacity and flows to and from Townsville Airport are controlled by the capacity of the following intersections:

- Meenan Street / Ingham Road roundabout;
- Dearness Street / Bundock Street signalised intersection;
- Old Common Road / Bundock Street signalised intersection; and
- Meenan Street / John Melton Black Drive intersection.

The Meenan Street / John Melton Black Drive intersection is located within the Townsville Airport precinct. This intersection is predicted to continue operating within acceptable limits until at least 2031, but will require modification before 2043 to accommodate the forecast traffic growth. The remaining intersections are under management by Townsville City Council (TCC).

TAPL will work closely with TCC and the Queensland Government to inform and identify necessary road upgrades to improve capacity and safety of the road network surrounding Townsville Airport.

Internal Road Network

The internal road network servicing Townsville Airport's passenger terminal will require upgrades to accommodate the forecast growth in passenger numbers. Road and intersection capacities shall be closely monitored to ensure appropriate, staged upgrades are implemented in a timely manner.

As shown in **Figure 3.3.4.1** and **Figure 3.3.4.2**, future internal road network planning considers:

- Implementing roundabouts or signalisation at Stinson Avenue and the Wirraway Drive / John Melton Black Drive intersections, as an interim solution to accommodate increased traffic demand;
- Upgrading to two-lane, one-way circulating roads to accommodate increased traffic demand, reduce conflict points at intersections and improve wayfinding; and
- Separating movements within the internal road network – for example, car park entry and exit points, pick-up and drop-off areas, rideshare and taxi zones, and bus facilities – to improve legibility and reduce congestion.

The upgraded road network will be efficient and legible, with infrequent and simple decision points for motorists, while upholding best-practice security principles, such as:

- Adopting a one-way traffic circulation system towards and away from the passenger terminal;
- Ensuring appropriate stand-off distances (of approximately 30 metres) from the front-of-terminal to car parks, waiting areas and transport interchanges; and
- Considering transport routes for emergency services, ensuring access is maintained during peak-periods.

As outlined in **Part 3.3.2**, the Ground Transport Plan is based upon forecast vehicle movements, which have accounted for potential developments in the Gateway, Enterprise and Innovation, and General Aviation and Aerospace Precincts within the 20-year period of this Master Plan. Notwithstanding, individual developments within these Precincts will be subject to traffic impact assessments, as applicable to the proposed land use, and the road network will be augmented when required.

Car Parking and Rental Cars

Car parking requirements will be regularly assessed to ensure sufficient parking is available to meet passenger demand at Townsville Airport.

Future car parking provision will include the expansion and reallocation of existing car parking infrastructure. It will focus upon the efficient use of car parking areas, including reducing pedestrian and vehicle conflict points, and embracing innovations such as dynamic pricing to regulate and manage car parking demand during peak periods.

Dedicated rental car parking areas will continue to be provided and scaled according to demand.

Taxis and Rideshare

The commercial ground transport operator lane will continue to be located closest to the front of Townsville Airport's passenger terminal. The lane will be relocated slightly to improve the forecourt environment, achieve appropriate security separation and relieve pedestrian congestion along the terminal forecourt.

The commercial lane will have separate taxi and rideshare zones, and be fed via a new ground transport operator holding area.

Coaches and Bus Shuttles

A dedicated coach and bus shuttle loading area will be provided at the front of the passenger terminal, accessed from the commercial ground transport operator lane. Accompanying coach parking will increase the capacity from two to up to six bus bays, as demand requires.

All coach and bus shuttles will operate from the southern end of Townsville Airport's passenger terminal, thereby improving wayfinding and legibility of bus facilities.

Public Transport

TAPL understands from engagement with the Queensland Government that a public transport connection to Townsville Airport is not anticipated within the initial 8-year period. Notwithstanding, a location for public bus services has been retained, with the ultimate location to be relocated to Coral Sea Drive.

TAPL will continue engaging with the Queensland Government and TCC to investigate future opportunities for a public bus service, and in the interim, will continue to support coach and shuttle bus services to and from Townsville Airport.

Active Transport

Active transport facilities will be incorporated into road and car park upgrades, with a focus upon pedestrian connectivity, accessibility and consistent footpath provision throughout the Townsville Airport precinct. The pedestrian experience will be enhanced through suitable footpath widths and promenade areas to improve circulation and relieve pedestrian congestion points.

Freight

Freight facilities are intended to be relocated to the General Aviation and Aerospace Precinct, accessible from Wirraway Drive. This relocation would enable the possible long-term expansion of car parking into this area.

Freight vehicle movements will continue to be unrestricted and use the same internal road network as all other vehicles. However, the relocation of freight facilities to the General Aviation and Aerospace Precinct will remove the need for freight vehicles to circulate past the front-of-terminal, therefore reducing redundant vehicle movements and improving safety and security outcomes.

1. Required signalisation and right-turn lane extension
2. Intersection upgrade
3. New 2.5m shared footpath
4. Extended pick-up/drop-off through to Avro Drive
5. Existing GT to join pick-up/drop-off extension
6. Option to maintain Coral Sea Drive for pick-up/drop-off activities
7. Optional pick-up/drop-off facility
8. Option to bring forward one-way road system, with acoustic barrier and landscaping
9. Car rental booths
10. Interim car park option
11. Car Park
12. Airservices Building
13. Substation

Figure 3.3.4.1 — Initial (8–yr) Ground Transport Plan

1. Required signalisation and four-lane road

2. Possible 4-way signalised intersection for hotel/ commercial development

3. New one-way road system with acoustic barrier and landscaping. Road setback from residential properties ~18m – 20m

4. Formalised pedestrian crossing

5. Extended public pick-up/ drop-off and GT facility

6. Future public bus stop

7. Coach Parking

8. Relocate freight and logistics operations to GA Precinct

9. Relocated Airport Management Building

10. Car Park

11. Airservices Building

12. Substation

Figure 3.3.4.2 — Ultimate (20–yr) Ground Transport Plan

3.4 Utilities and Services

TAPL as operator of Townsville Airport, will appropriately monitor, upgrade and augment essential infrastructure to support development proposed under the Townsville Airport Master Plan 2023. Services and utilities capacities will be assessed in greater detail as part of further investigation and design of each phase of development proposed in the Master Plan.

Electricity

Electricity supply will continue to be obtained from the State electricity network. Internal reticulation will continue to be expanded and maintained by TAPL, as required in accordance with future airport development.

Telecommunications

Future growth of the Airport's telecommunications services, both wired and wireless, will be directed by TAPL to ensure fair and equitable access for all carriers, tenants and stakeholders.

Water Supply

Water supply services will continue to be obtained from the Townsville City Council (TCC) system. Internal reticulation will continue to be expanded and maintained by TAPL, as required in accordance with future airport development.

Stormwater and Flooding

Stormwater drainage will continue to be directed into existing drainage systems via drainage reserves and other channels within the Townsville Airport precinct. The internal drainage network will continue to be expanded and maintained by TAPL, as required in accordance with future airport development.

Sewerage and Waste Disposal

Sewerage services will continue to be provided from the TCC system. Internal reticulation will continue to be expanded and maintained by TAPL, as required in accordance with future airport development.

Solid waste, regulated waste and trade waste disposal, including recycling, is provided by private contractors, or in accordance with Townsville Airport's Trade Waste Approval with TCC.

Part 4

Implementation Plans

The Implementation Plans outlined in this Part ensure future development opportunities at Townsville Airport are safeguarded in a considered and staged manner.

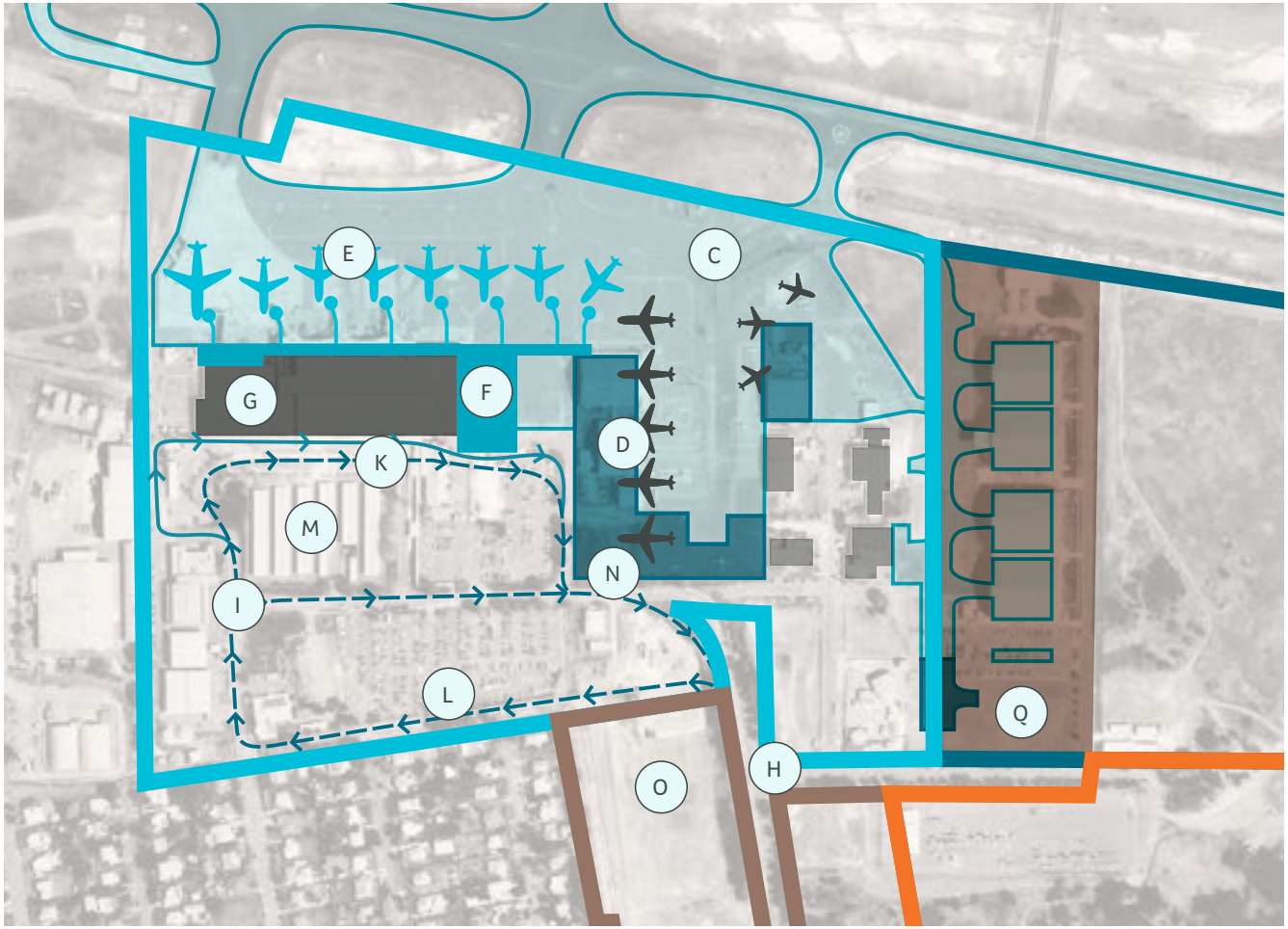
The Implementation Plans are the amalgamation of the inputs from **Part 3**, including the Land Use Strategy, Aviation Development Plan and Ground Transport Plan, which have all been based upon the aviation forecasts presented in **Part 2.2**. These forecasts and Plans ensure the Townsville Airport Master Plan 2023 safeguards the high-case development scenario applicable to the planning periods of this Master Plan.

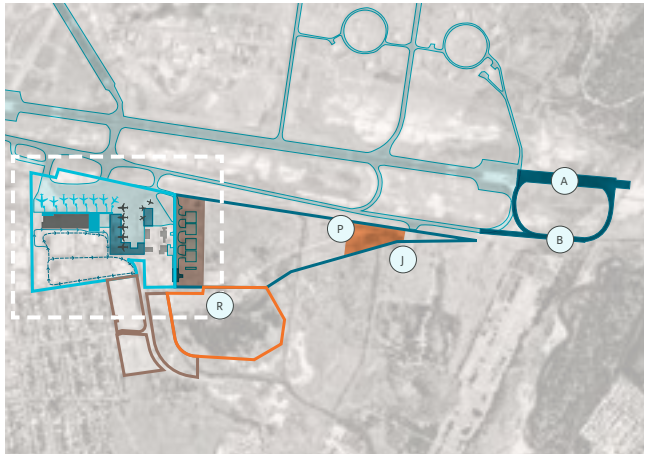
The Implementation Plans include 8-year and 20-year Plans and corresponding Works Schedules. The exact timing of development is subject to change based upon passenger numbers and market demands. Notwithstanding, the direction of development and packages of work will remain consistent with those presented in this Part.

4.1 8–year Plan and Schedule

Potential Development to 2031	
Airfield Development	
Runway	**A** Runway extension to the northern end of Runway 01/19, by Department of Defence (DoD)
Taxiway	**B** Taxiway A realignment and extension to provide a full parallel taxiway to the extended Runway 01/19 and potentially serve as an emergency runway, by DoD
	C Relocated taxilane consistent with apron expansion and bay positions
	Taxilane GA2 extension to provide full Code C access to expanding NAACEX Precinct
RPT Apron	**D** Development and infill of the apron to the east around the northern end of the terminal
	Stand development for 4 additional full contact bays, plus up to 8 additional remote bays for Code C jet (5 bays) and turboprop (3 bays) aircraft
	E Realignment and new line marking of bay positions to maintain appropriate wingtip clearances
	Potential for redevelopment of mezzanine gates and extension of the head-of-stand road
Terminal Development	
Terminal	**F** Refurbishment and expansion of the existing terminal up to approx. 20,000m^2 GFA, encompassing: • maximisation of underutilised floorspace to accommodate departure lounge expansion; • expansion of baggage make up and reclaim facilities; and • works to facilitate swing Domestic/International capability.
	Enhance customer experience through new retail offerings, airline lounge redevelopment and technology upgrades
	Redevelopment of mezzanine gate area, with expanded circulation and seating space
	G Re-establishment of existing international passenger facility

Potential Development to 2031	
Ground Transport	
Internal Road Network	**H** Signalisation of John Melton Black and Wirraway Drive intersection
	I Intersection upgrades along Stinson Avenue, via roundabouts and/or signalisation
	J New access road to relocated GA activities
	K Extension and reconfiguration of passenger pick-up drop-off facility on Coral Sea Drive
	Potential to establish an additional passenger pick-up drop-off facility along the western-side of Stinson Avenue
	L Potential to bring forward works for the ultimate one-way circulating internal road layout
Car Parking	**M** Car park reconfiguration and increase to approx. 1,300 car parking spaces
Active Transport	**N** New 2.5m shared path along northern-side of John Melton Black and western-side of Stinson Avenue
Land Use Precincts	
Gateway Precinct	**O** Potential development of Airport hotel and/or convenience retail/ service station offering
General Aviation and Aerospace Precinct	**P** Commence relocation of GA Precinct to the north, including relocation of airside fuel facility, with access taken from Old Common Road
	Q NAACEX Precinct expansion of one hangar, with potential to bring forward further NAACEX development depending on market demand
Enterprise and Innovation Precinct	**R** Potential development of office, commercial or warehouse use, depending on market demand



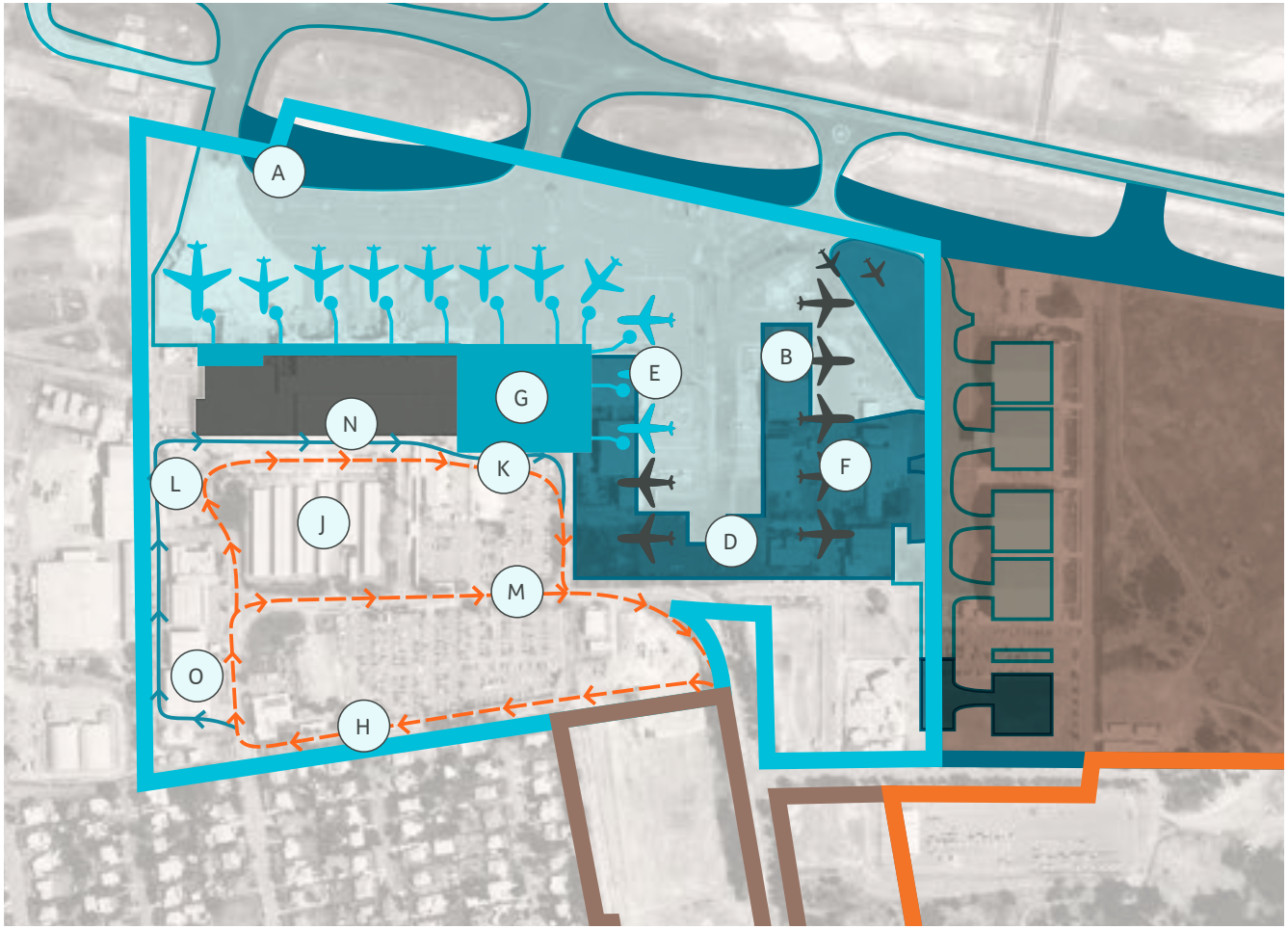


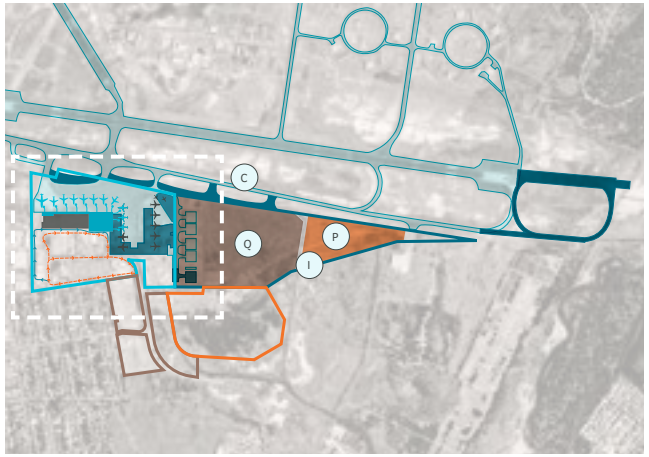
- Terminal expansion
- Pavement expansion
- GA Precinct
- NAACEX Precinct
- Gateway Precinct
- Aviation & Terminal Precinct
- Enterprise & Innovation Precinct
- General Aviation & Aerospace Precinct

4.2 20–year Plan and Schedule

Potential Development to 2043	
Airfield Development	
Taxiway	**A** New Code E taxilane to rear of the RPT apron
	B New dual Code C taxilane to replace current Taxilane GA1
	C Potential new Code C taxiway/s to expanded NAACEX Precinct
RPT Apron	**D** Development and infill of the apron, continuing to extend the apron north of the terminal
	E Stand development for 3 additional full contact bays, via conversion of existing remote bays
	F Stand development for up to 5 new remote bays for Code C jet and 2 remote bays for Code C turboprop aircraft
Terminal Development	
Terminal	**G** Expansion of the existing terminal up to approx. 26,000m^2 GFA, encompassing: • relocation of security screening; • expansion of baggage make up and reclaim facilities; and • relocation of international arrivals facility.
	Potential establishment of a Common Departure Lounge and expansion of swing Domestic/International facilities
	Expansion of mezzanine gates, reflective of bay development
	Relocation of Airline lounge to First Floor level

Potential Development to 2043	
Ground Transport	
Internal Road Network	**H** Internal Roadway reconfiguration to one-way, two-lane roads throughout the Airport precinct
	I Extension and formalisation of road network connecting to the General Aviation and Aerospace Precinct, including potential connection of Wirraway Drive to Old Common Road
Car Parking	**J** Car park reconfiguration and increase to approx. 1,400 car parking spaces
Ground Transport Operators	**K** Extension of ground transport lane along the front of terminal, providing increased capacity for pick-up drop-off activities, taxis, rideshare and coaches
	L Expansion and establishment of new ground transport holding facility
	Designated coach parking and loading facilities
Public Transport	**M** Establish new potential location for future public bus services
Active Transport	**N** Continued provision of shared pathways, connecting to the front-of-terminal
	Widened concourse at the front-of-terminal, to increase capacity and enhance passenger experience
Land Use Precincts	
Aviation and Terminal Precinct	**O** Relocation of Airport Management Office, to allow for internal road reconfiguration and car parking expansion
General Aviation and Aerospace Precinct	**P** Complete relocation of GA activities, and continue expanding new GA Precinct
	Q Potential further expansion of the NAACEX Precinct, depending on market demand
	Relocation of freight facilities to the General Aviation and Aerospace Precinct to allow for the proposed Ground Transport developments





- Terminal expansion
- Pavement expansion
- GA Precinct
- NAACEX Precinct
- Gateway Precinct
- Aviation & Terminal Precinct
- Enterprise & Innovation Precinct
- General Aviation & Aerospace Precinct

Part 5

Sustainability

This part outlines the economic, social and environmental contributions of Townsville Airport. It evaluates the developments in the Townsville Airport Master Plan 2023 and identifies measures to enhance the benefits and mitigate the impacts of development proposed by this Master Plan.

This part also summarises the airport safeguarding principles under the National Airports Safeguarding Framework (NASF) and contains the joint Aircraft Noise Exposure Forecast (ANEF) for Townsville Airport.

Increasing political understanding of the potential and importance of developing Northern Australia will likely drive a new wave of economic growth over the coming years. Townsville Airport will play an be important role supporting Federal Government priorities and State Government policies, focused on industries such as natural resources, agriculture, manufacturing, supply chain infrastructure, healthcare and tourism.

5.1 Economic

Airports act as catalytic pieces of infrastructure for regional economic growth. Economic growth and airport patronage share a symbiotic relationship, whereby increasing economic activity may lead to increasing air transport, and vice-versa.

The North Queensland region has some of the strongest long-term economic development potential in Australia. Reliable and regular air access to major Australian and international destinations is a key consideration for business investment, lifestyle attraction, and tourism and events potential. As such, Townsville Airport represents one of the most important strategic economic development assets of North Queensland.

Townsville Airport already plays an essential role in supporting a number of North Queensland's key industry sectors, including:

- Defence;
- Resources;
- Agriculture;
- Education;
- Health and Community Services;
- Government Services; and
- Tourism.

Additionally, Townsville Airport naturally contributes to the diversity of employment opportunities within Townsville and the broader region.

Increasing political understanding of the potential and importance of developing Northern Australia will likely drive a new wave of economic growth over the coming years. Townsville Airport will play an important role supporting Federal Government priorities and State Government policies, focused on industries such as natural resources, agriculture, manufacturing, supply chain infrastructure, healthcare and tourism. These industry focus areas have the potential to substantially increase passenger and freight movements through Townsville Airport.

5.1.1 ASSESSMENT METHODOLOGY

The Townsville Airport Master Plan 2023 has applied Input-Output (I-O) modelling to estimate the economic contribution of Townsville Airport through:

- The direct activities of businesses operating within the Townsville Airport precinct;
- Facilitating visitation to North Queensland and associated tourism expenditure; and
- Construction activities proposed within this Master Plan to facilitate the growth and operation of Townsville Airport over the coming 20 years to 2043.

Direct Activity

Estimates of direct operational activity are based on employment data, with growth in direct activity to be driven by:

1. Recovery in visitation to pre-COVID-19 levels; and
2. Development of additional employment lands within the Airport precinct.

Visitation levels are expected to recover within the initial 8-year planning period of the Master Plan.

Facilitated Visitation

Visitation is estimated at 56% of inbound passengers through Townsville Airport and is projected to grow in line with the aviation forecasts (refer **Part 2.2**). International visitation is also expected to resume within the initial 8-year planning period, representing around 5% of total visitation numbers. For 2022-23, the average spend per visitor is estimated as:

- Domestic Overnight Visitor – $718
- Domestic Day Trip Visitor – $144
- International Visitor – $870

Economic Contribution Assessment

I-O modelling describes economic activity through the examination of four types of impacts, as defined in **Table 5.1.1**.

I-O modelling estimates include both Production-induced and Consumption-induced impacts:

- **Production-induced impacts** estimate the industrial support effects of additional activities undertaken by supply chain industries increasing their production in response to the direct and subsequent rounds of spending.
- **Consumption-induced impacts** estimate the re-circulation of labour income earned as a result of the initial spending, through other industry impacts, or impacts from increased household consumption.

Table 5.1.1 — Economic Indicators

Indicator	Description
Output	The gross value of goods and services transacted, including the cost of goods and services used in the development and provision of the final product.
Gross Product	The value of output after deducting the cost of goods and services inputs in the production process. Gross product (e.g. Gross Regional Product (GRP)) defines the net contribution to economic activity.
Incomes	The wages and salaries paid to employees as a result of Townsville Airport, either directly or indirectly.
Employment	Employment positions generated by Townsville Airport (either full time or part time, directly or indirectly). Employment is reported in terms of Full-Time Equivalent (FTE) positions (i.e. full-time person-years).

5.1.2 FUTURE ECONOMIC CONTRIBUTION AND EMPLOYMENT LEVELS

2022

In 2022, the annual economic contribution of Townsville Airport is estimated at:

- $815.2 million in output (including $416.0 million directly);
- A $400.2 million contribution to GRP ($191.9 million direct GRP);
- $218.1 million in incomes and salaries paid to local households ($117.9 million directly); and

2,520 FTE jobs
(including 1,428 direct FTE)

2031

By 2031, the annual economic contribution of Townsville Airport is estimated to increase to:

- $1.6 billion in output (including $0.8 billion directly);
- An $820.8 million contribution to GRP ($400.0 million direct GRP);
- $453.8 million in incomes and salaries paid to local households ($252.2 million directly); and

5,412 FTE jobs
(including 3,197 direct FTE)

2043

Growth is projected to continue to 2043, with an estimated annual economic contribution of:

- $2.2 billion in output (including $1.1 billion directly);
- A $1.1 billion contribution to GRP ($526 million direct GRP);
- $594.1 million in incomes and salaries paid to local households ($329.3 million directly); and

Around 7,026 FTE jobs
(including 4,118 direct FTE)

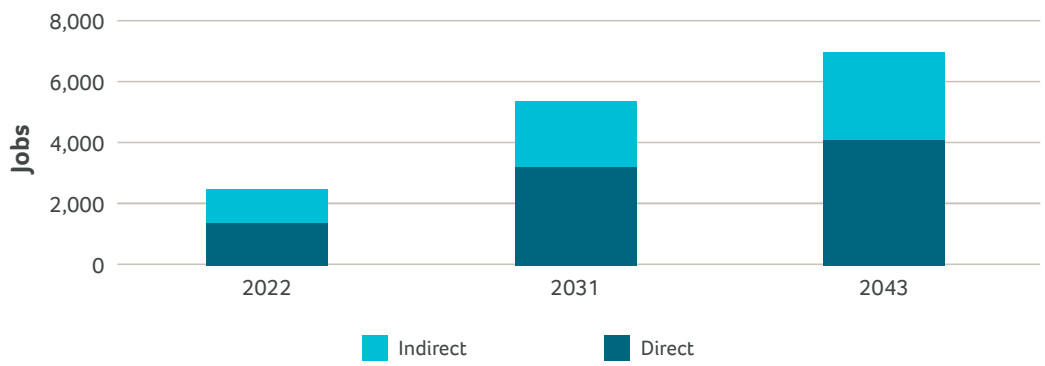


Figure 5.1.2 — Employment Levels – Number of Jobs

Construction Activity Impacts

In addition to the substantial ongoing economic activity supported by Townsville Airport, construction activities and developments within the Master Plan will generate significant one-off economic activity for the North Queensland region.

Over the initial 8-year period of the Master Plan to 2031, construction activities at Townsville Airport are estimated to generate*:

- $556.4 million in output (including $272.2 million directly);
- A $222.1 million contribution to GRP ($85.2 million direct GRP);
- $118.0 million in incomes and salaries paid to local households ($48.1 million directly); and
- Approximately 1,244 FTE jobs (including 470 direct FTE).

From 2032-43, total construction activity facilitated through the Master Plan is estimated at:

- $637.4 million in output (including $316.4 million directly);
- A $267.6 million contribution to GRP ($110.7 million direct GRP);
- $142.3 million in incomes and salaries paid to local households ($62.1 million directly); and
- Approximately 1,436 FTE jobs (including 555 direct FTE).

*Based on an estimated 75% average local construction content.

5.1.3 TOWNSVILLE CITY PLAN ALIGNMENT

The Townsville Airport Master Plan 2023 and associated Land Use Strategy aligns with the Townsville City Plan, being the local planning scheme applicable to Townsville Airport and its surrounds.

Aside from the aviation components of the Land Use Strategy (**Part 3.1**), development is primarily to accommodate industrial and enterprise-related activities. These activities complement the large extent of industrial-zoned land around Townsville Airport.

Development within the Gateway Precinct (**Part 3.1.1**) may include retail and other service offerings. While the overall quantum of proposed development within the Gateway Precinct is notable (just over 6 ha land area), development is spread across three sites, a broad range of proposed commercial uses, and a 10-year plus development window. The Gateway Precinct aims to capture the opportunity to provide airport passengers, employees and businesses, precinct visitors, and the local resident population with convenient services and appropriate facilities which meet the needs and expectations of modern travellers and to showcase Townsville's position as a major destination and the capital of Northern Australia. This Precinct is not intended to accommodate large-scale commercial activities, and as such, the Precinct shall not compete directly with the Townsville CBD or other significant commercial activity precincts.

Overall, this Master Plan does not introduce any incompatible uses nor undermine the viability of surrounding land uses.

5.2 Community

Townsville Airport facilitates the fastest and most reliable way to travel to and from the North Queensland region. It is vital for the connectivity of people in Townsville and surrounding regions for business and tourism, as well as for the broader liveability and lifestyle attraction of the area.

The Airport is an integral piece of community infrastructure – a major national and international connection point for Townsville and the remote and regional communities to the west. Townsville Airport delivers employment opportunities to the community within Northern Queensland directly and indirectly, as well as facilitating the operations of critical organisations, such as LifeFlight and the Royal Flying Doctor Service, which deliver crucial health care and medevac services.

Quality air transport services, such as those enabled by Townsville Airport, are strongly aligned to quality of life and more resilient social outcomes, while increases to Townsville Airport's capacity to keep pace with flight demand will result in greater economic activity and prosperity for both local and regional communities.

Townsville Airport is a dedicated supporter of local charity, community, tourism, arts and sporting organisations, having committed more than $350,000 in sponsorship over the last five years to key initiatives such as Townsville Running Festival, Magnetic Island Race Week, North Queensland Tourism Awards, Glendi Festival, and Legacy Townsville.

In addition, the QAL Community Benefit Fund, which was first established in 2016, provides financial assistance to grassroots community-based initiatives. Successful Townsville-based applicants which each received a $1,000 grant include: Hope and Healing Committee, Joyful Foundation Fund, Straws No More, North Barrier Branch Surf Life Saving Club, Ronald McDonald House Charities North Queensland, Townsville Picnic Bay Surf Life Saving Club, Cootharinga North Queensland, and House with No Steps.

The Townsville Airport team are active and involved members of the local community, who lend their support to numerous charitable initiatives each year, such as book donations to Ronald McDonald House North Queensland, team volunteer days undertaking backyard clean ups of the Ozcare Day Respite Centre, and even Krispy Kreme doughnut fundraising drives for the Tropical Cyclone Debbie flood appeal.

Townsville Airport, through QAL, also holds a long-standing membership with Townsville Enterprise Ltd; the peak economic development and tourism body for North Queensland. Through Townsville Enterprise, Townsville Airport supports a range of events and community initiatives, as well as tourism and economic development outcomes.

TSV Townsville Airport

Consultation and Stakeholder Engagement

Townsville Airport has an established Community Aviation Consultation Group (CACG), which facilitates greater community consultation on planning and development activities at Townsville Airport. Through the CACG, Townsville Airport remains committed to working proactively with the local community, as well as Local, State and Federal Government representatives and authorities.

Townsville Airport is also in the process of re-establishing an Indigenous Working Group, which will include representatives of the Bindal Gugu Badhun, Nywaigi, and Wulgurukaba of Gurambilbarra people. The Indigenous Working Group will provide advice to TAPL on cultural heritage matters and reflects Townsville Airport's ongoing commitment to collaborating with Aboriginal and Torres Strait Islander communities.

5.3 Airport Safeguarding

With the population of Townsville forecast to grow by almost 50% over the life of the Master Plan, the number of people living and working in the vicinity of, and the demand for flight services from Townsville Airport, will continue to increase.

Long-term and effective safeguarding of Townsville Airport is therefore critically important, and will ensure the ongoing safety and viability of aviation operations are not impacted by land uses and other activities on land surrounding the Airport.

Mechanisms to protect operations and airspace around airports include the *Airports (Protection of Airspace) Regulations 1996* and the National Airports Safeguarding Framework.

5.3.1 NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK

The Townsville Airport Master Plan 2023 aligns with the National Airports Safeguarding Framework (NASF), which was developed to enhance the current and future safety, viability and growth of aviation operations at Australian airports.

The NASF applies to all Australian airports and provides a national approach to improve land use planning and development 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 NASF comprises seven principles and nine guidelines, which are designed to assist land use planners and airport operators to implement best-practice in relation to land use assessment, planning and development processes related to airport safeguarding matters.

The Queensland Government contributed to developing the NASF with the Federal Government through the National Airports Safeguarding Advisory Group (NASAG). In Queensland, the NASF is implemented through the State Planning Policy (SPP) (refer **Part 2.1.2.1**) and appropriately integrated into the Townsville City Plan through the Airport Environs Overlay Code and supporting overlay maps.

The following summarises the nine NASF Guidelines and how each applies to Townsville Airport.

Guideline A
Managing Aircraft Noise

Provides advice on the use of a supplementary suite of noise metrics, including the Australian Noise Exposure Forecast (ANEF) system and frequency-based noise metrics, to inform planning and provide communities with comprehensive and understandable information about aircraft noise.

The draft Joint ANEF for Townsville Airport is detailed in **Part 5.4**, with N60 and N70 contours provided in **Figure 5.4.3.2** and **Figure 5.4.3.3** respectively.

Guideline B
Managing Building Generated Windshear and Turbulence

Presents a layered risk approach to the siting and design of buildings near airport runways to assist land use planners and airport operators to reduce the risk of building generated windshear and turbulence.

The SPP and the Townsville City Plan do not contain specific provisions relating to windshear or turbulence. Notwithstanding, TAPL considers windshear and turbulence risks from new development on Townsville Airport land through the existing Townsville Airport Development Guidelines, which are to be updated subsequent to the completion of this Master Plan.

Guideline C
Managing Wildlife Strike Risk

Provides advice to help protect against wildlife hazards originating off-airport. Many existing airports are surrounded by areas that are attractive to wildlife, especially birds, but appropriate land use planning decisions and the way in which existing land use is managed in the vicinity of airports can significantly reduce the risk of wildlife hazards.

Wildlife hazard buffer zone areas within three, eight and 13 kilometre radii of Townsville Airport are identified in **Figure 5.3.1.1**, taken from the Townsville City Plan.

Guideline D
Managing Wind Turbine Risk to Aircraft

Provides advice on the location and safety management of wind turbines and other similar structures. Wind turbines can constitute a risk to low-flying aviation operations and affect the performance of Communications, Navigation and Surveillance (CNS) equipment operated by Airservices Australia and the Department of Defence.

The *Queensland Planning Regulation 2017* requires all wind farm developments to be assessed against State Code 23: Wind farm development. State Code 23 includes provisions to ensure wind farm development does not interfere with the safety, operational integrity or efficiency of air services and aircraft operations.

Guideline E
Managing Pilot Lighting Distraction

Advises of the risks of lighting distractions and how these can be minimised or avoided. Pilots are reliant on specific patterns of aeronautical ground lights during inclement weather and outside daylight hours, and it is therefore important that lighting in the vicinity of airports is not configured such that it could be distracting to or mistaken by pilots approaching the airport.

Lighting area buffer zones regulate light sources and intensity within six kilometres of Townsville Airport, as shown in **Figure 5.3.1.2**, taken from the Townsville City Plan.

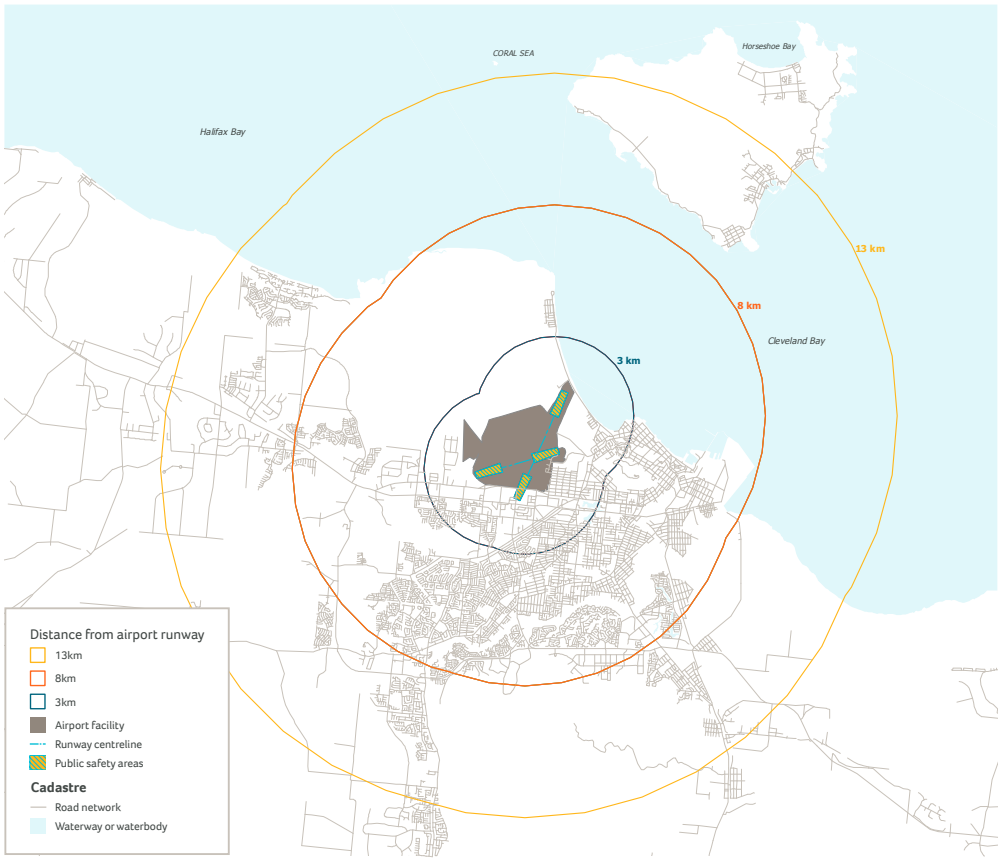


Figure 5.3.1.1 — Wildlife Hazard Buffer Zones and Public Safety Areas OM-01.2 (Townsville City Plan)

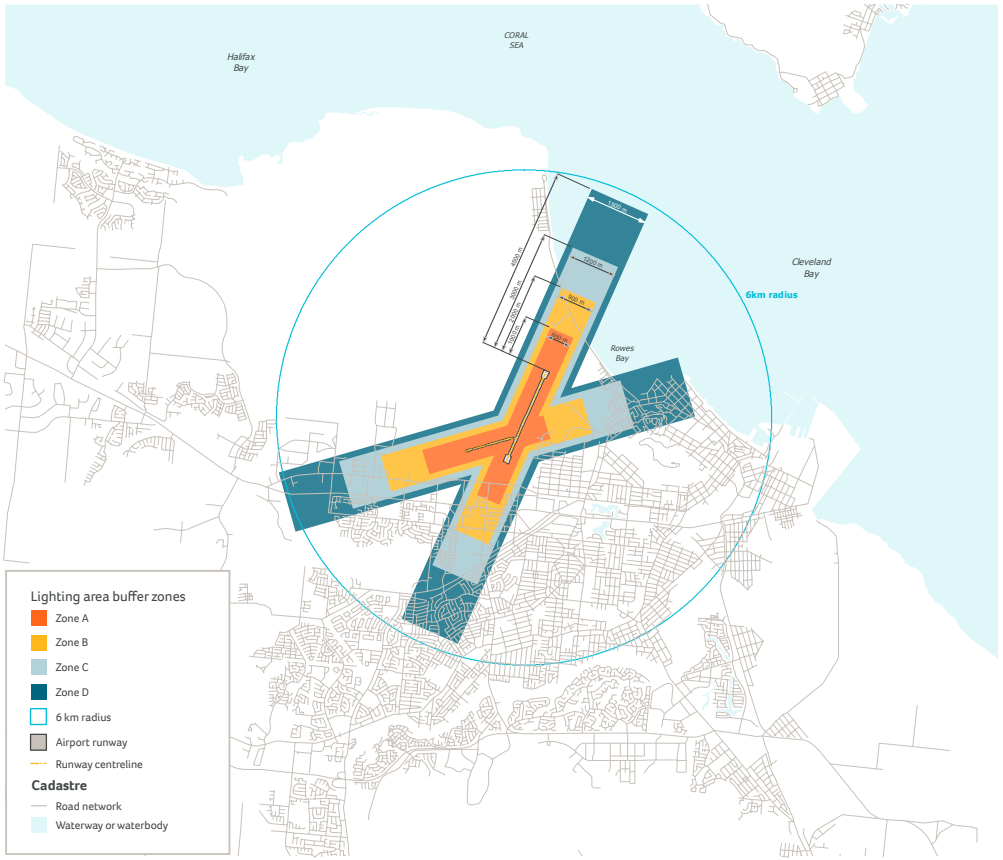


Figure 5.3.1.2 — Lighting Area Buffer Zones OM-01.5 (Townsville City Plan)

Guideline F

Managing Protected Airspace Intrusions

Provides advice for working within and around protected airspace, including intrusions into Obstacle Limitation Surfaces (OLS) and Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) surfaces. These surfaces aim to protect aircraft from obstacles or activities that could be a threat to safety—for example, high-rise buildings.

The OLS and PANS-OPS for Townsville Airport are developed and regularly reviewed by both TAPL and the Department of Defence. The Townsville City Plan includes an Operational airspace overlay map to guide the assessment and height of buildings and structures within proximity of Townsville Airport, as shown in **Figure 5.3.1.3**.

Guideline G

Communications, Navigation and Surveillance

Assists planners to consider Communications, Navigation and Surveillance (CNS) facilities when assessing development proposals. CNS facilities are crucial to the safe and efficient operation of aircraft. While such facilities are generally associated with airports, some are located offsite and at potentially significant distances from airports.

Building Restricted Areas (BRAs) are implemented around the CNS facilities to ensure development does not interfere with the facilities shown on the Aviation Facilities map in **Figure 5.3.1.4**.

Guideline H

Protecting Strategically Important Helicopter Landing Sites

Seeks to provide a consistent national approach for land use planning in the vicinity of strategically important helicopter landing sites (HLS), such as those associated with hospitals.

This Guideline does not apply to helicopter landing sites within an airport or aerodrome, and is therefore not applicable to this Master Plan.

Guideline I

Managing the Risk in Public Safety Areas at the Ends of Runways

Seeks to mitigate the risk of on-ground fatalities from an aircraft incident, by informing a consistent approach to land use at the end of Australian airport runways. This approach involves identifying Public Safety Areas (PSAs), within which certain planning restrictions may apply, for example restricting the use or storage of hazardous, explosive or flammable materials and limiting significant increases in people living, working or congregating within PSAs.

The PSAs for Townsville Airport are shown in **Figure 5.3.1.1**, taken from the Townsville City Plan.

The PSAs for RAAF Base Townsville and Townsville Airport are currently under investigation by the Department of Defence.

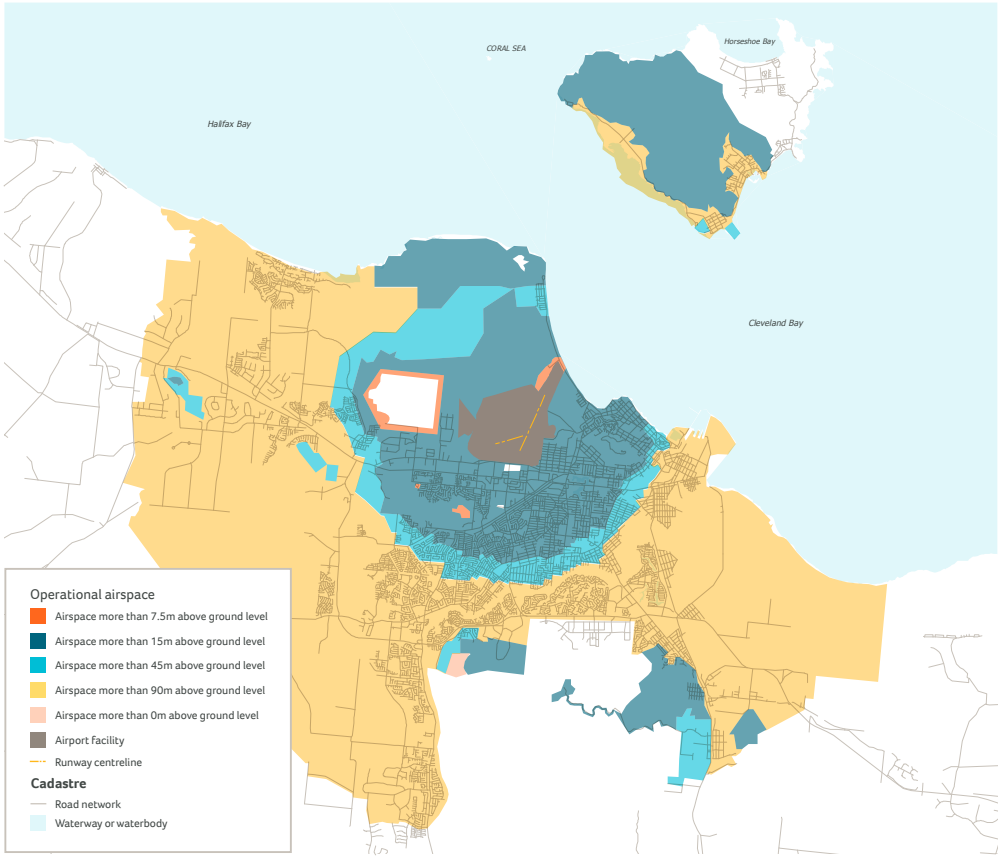


Figure 5.3.1.3 — Operational Airspace OM-01.1
(Townsville City Plan)

Figure 5.3.1.4 — Aviation Facilities OM-01.3
(Townsville City Plan)

5.4 Aircraft Noise

In Australia, land use planning in the vicinity of an airport takes into consideration aircraft operations and flight paths to prevent unsuitable development in areas subject to aircraft noise impacts. The primary method for predicting aircraft noise impacts and developing a planning response is the Australian Noise Exposure Forecast system, described in AS2021:2015 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction.

5.4.1 AUSTRALIAN NOISE EXPOSURE FORECAST

In accordance with the Airports Act, most Australian airports are required to produce an Australian Noise Exposure Forecast (ANEF) as part of their master plan. The ANEF provides an indication of the predicted noise exposure around an airport for the 20-year planning horizon.

The ANEF system is defined in AS2021:2015 and is the primary tool used for assessing and communicating aircraft noise impacts in Australia. AS2021:2015 contains land use compatibility advice for areas impacted by aircraft noise, and describes types of development permitted within each ANEF contour.

Joint ANEF

As a joint user facility, the Department of Defence (DoD) is responsible for producing the joint civil-military ANEF (the joint ANEF). Under the Airports Act, TAPL is responsible for including the joint ANEF in its master plan.

The ANEF produced for this Master Plan has been developed considering the previous ANEF published in the Townsville Airport Master Plan 2016, and updated to reflect changes in forecast airport traffic volumes, updated fleet mix and other inputs developed in consultation with TAPL, DoD, and local General Aviation (GA) operators.

ANEF Endorsement Process

As a joint user facility, Airservices Australia will review the civil data for technical accuracy and then proceed to endorse the joint ANEF as a combination of both civil and military components. Prior to endorsement by Airservices Australia, an ANEF is denoted as an Australian Noise Exposure Concept (ANEC).

The DoD undertook consultation of the military activity ANEC in February 2023 and any feedback received was considered in finalising the joint ANEC submitted to Airservices Australia.

5.4.2 METHODOLOGY AND ASSUMPTIONS

The ANEF for Townsville Airport has been developed with regard to AS2021:2015 and produced in accordance with the Airservices Australia Guidelines for the Production of Noise Contours for Australian Airports, with the contours calculated using the US Federal Aviation Administration's Aircraft Environmental Design Tool (Version 3e).

The 2043 ANEF is based upon the forecast RPT traffic and busy day schedule for 2043, as presented in **Part 2.2**, and supplemented with Defence flight movements provided by the DoD.

Compared to the 2036 ANEF, the 2043 ANEF assumes further changes and improvements in the civil aircraft fleet mix by 2043, particularly an increased proportion of more modern, quieter aircraft. Another notable difference is an expected decrease in the number of visual approaches (i.e. aircraft approaches not following a defined track), owing to the implementation of a traffic management plan by Air Traffic Control. Both these elements refine the extent of the ANEF contours.

Flight Tracks

The ANEF modelling also considers the flight tracks used by civil jets, civil (GA) helicopters and Defence aircraft, as well as operational characteristics of aircraft using the Airport, standard visual and instrument flying procedures.

Flight track location and usage has been developed and confirmed with the DoD and will be confirmed with Airservices Australia through the ANEF endorsement process. **Figure 5.4.2.1**, **Figure 5.4.2.2** and **Figure 5.4.2.3** show the flight tracks adopted into the model.

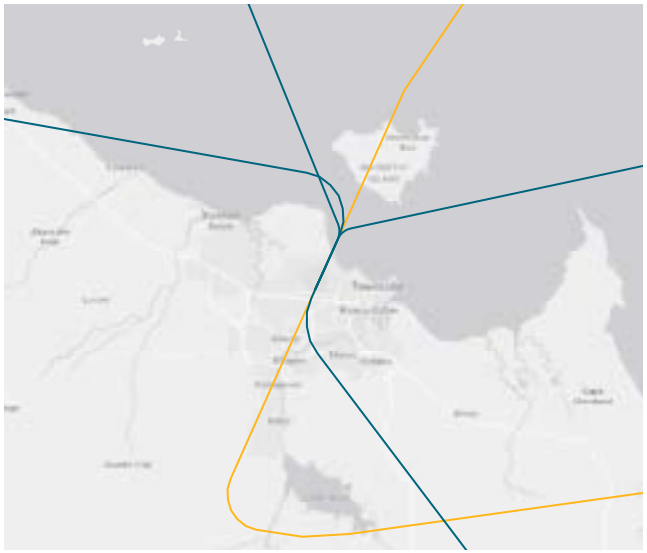


Figure 5.4.2.1 — Modelled Flight Tracks – Civil Jet Operations

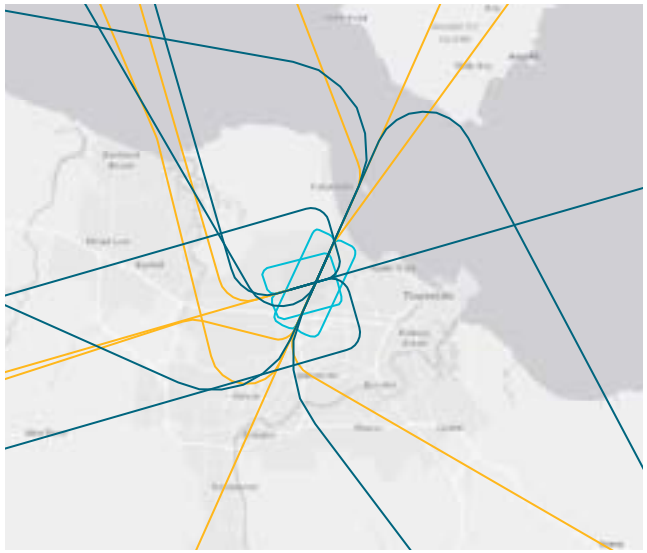


Figure 5.4.2.2 — Modelled Flight Tracks – Fixed Wing GA Operations

Figure 5.4.2.3 — Modelled Flight Tracks – Helicopter GA Operations

5.4.3 NOISE CONTOURS

2043 ANEF Contours

Under the Airports Act, an endorsed joint ANEF must be provided in the final Master Plan. The Townsville Airport 2043 ANEF chart has been produced and, once endorsed by Airservices Australia, will supersede the 2036 ANEF. The draft joint 2043 ANEF contours for Townsville Airport are shown in **Figure 5.4.3.2**.

Number Above Contours

In addition to ANEF contours, 'Number Above' or 'N-contours' are commonly used in Australia to indicate aircraft noise impacts. N-contours display the number of events predicted to exceed a certain noise level in an average 24-hour period. The N60 and N70 contours, representing the number of events above 60 and 70 decibels respectively, are shown in **Figure 5.4.3.3** and **Figure 5.4.3.4**. Common noise sources, and their corresponding decibel levels, are shown in **Figure 5.4.3.1**.

Comparison to 2036 ANEF

To the north, the orientation of Runway 01/19 means that landing and departure flight paths are predominantly over the water of Rowes Bay, rather than residential areas. However, owing to changes in the operation of Defence aircraft, the northern suburb of Pallarenda is now largely within the ANEF 20 contour.

To the south of Townsville Airport, the ANEF 20 contour does not impact any additional residential areas, with the ANEF 20 contour showing a minor reduction in area compared to the 2036 ANEF.

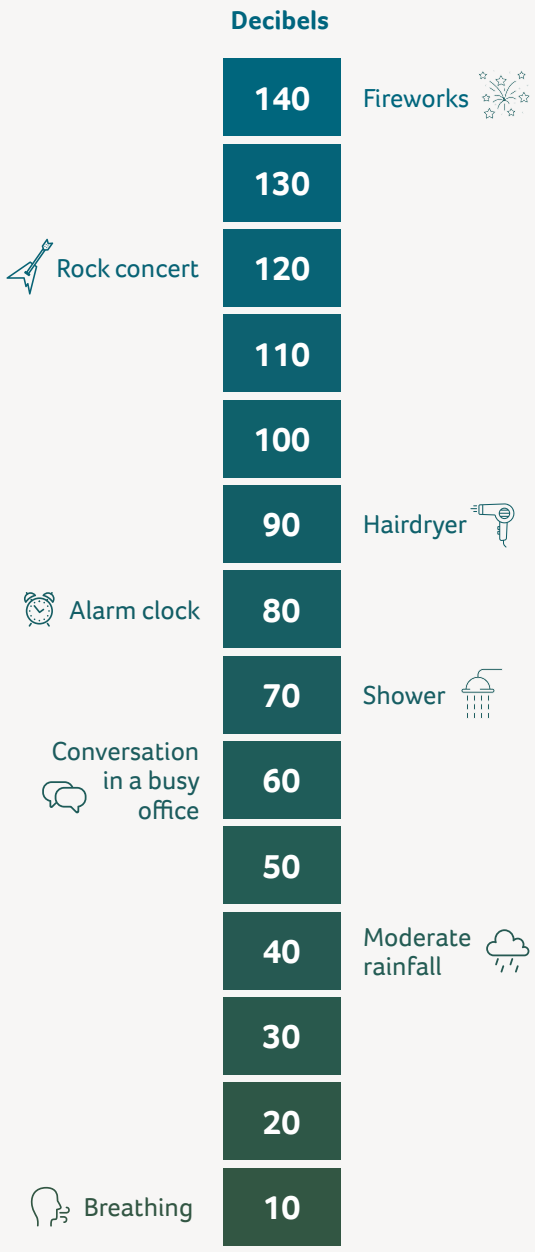


Figure 5.4.3.1 — Example Noise Levels (Airservices Australia 2023)

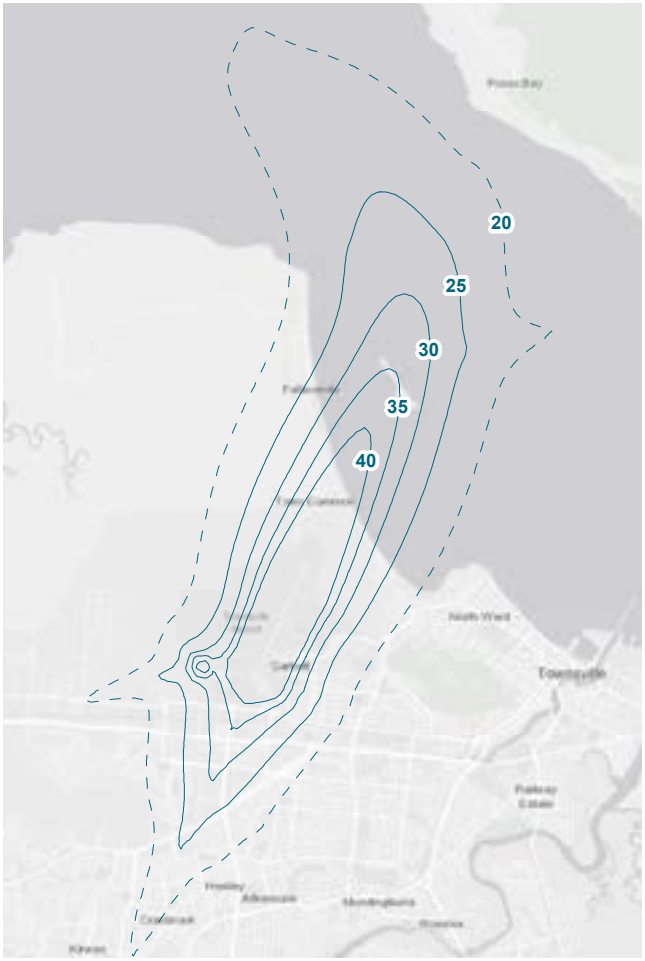


Figure 5.4.3.1 — Draft Joint ANEF Contours
– Civil and Military Operations

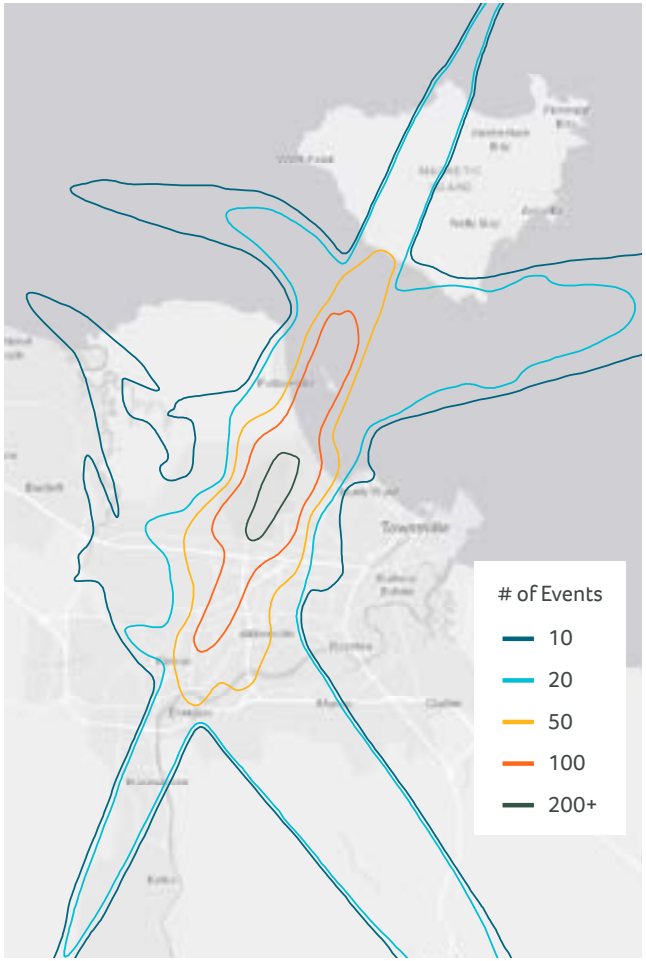


Figure 5.4.3.2 — Draft N60 Contours
– Civil and Military Operations

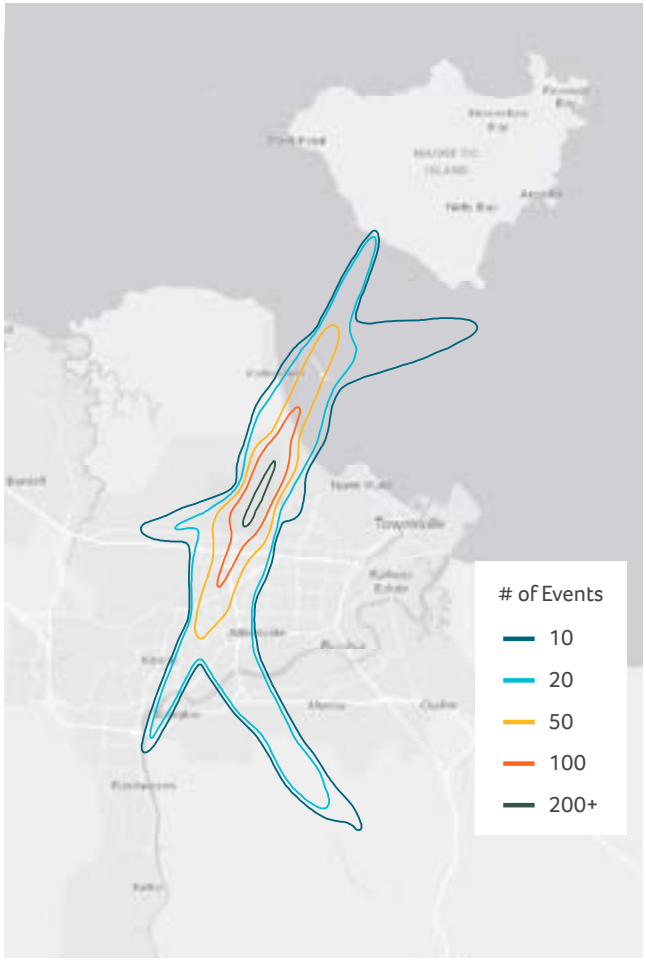


Figure 5.4.3.3 — Draft N70 Contours
– Civil and Military Operations

5.4.4 NOISE MANAGEMENT

Monitoring and management of noise associated with aircraft operations at Townsville Airport is essential to minimising disruption and limiting noise impacts and annoyance to the surrounding community. The level of annoyance caused by aircraft noise is highly subjective and varies significantly between individuals.

Various parties play a role in the management of aircraft noise at Townsville Airport, including:

- TAPL;
- DoD;
- Airservices Australia; and
- Townsville Airport CACG.

The Airports Act defines an airport's responsibilities in relation to noise generated by aircraft operations. At Townsville Airport, TAPL manages civilian ground-based noise, as detailed in **Part 5.5.3** and **Appendix C**. Airservices Australia carries out activities to protect the environment from the effects of, and the effects associated with aircraft operations, including the noise generated by civilian aircraft operations during flight, taxi, take-off and landing. The DoD is responsible for managing all ground-based and aircraft noise generated by military activities at RAAF Base Townsville.

Townsville Airport sits within the ANEF 30 to ANEF 40 contours. As a result and in accordance with AS2021, all development at Townsville Airport shall include measures to appropriately attenuate noise. The Land Use Plan (refer **Part 3.1**) has also been prepared with regard to the acceptability criteria in AS2021:2015 Table 2.1; limiting the development of sensitive land uses within the relevant ANEF contours.

Additionally, Townsville City Council, via the Townsville City Plan, limits the development of sensitive land uses within particular ANEF contours and requires the siting and design of buildings to be in accordance with AS2021.

The ANEF 30 contour, which represents significant aircraft noise intrusion, encompasses Townsville Airport, RAAF Base Townsville, undeveloped habitat to the north and a relatively small area of established industrial activities to the south. Under AS2021:2015, industrial uses are acceptable within the ANEF 30 contour. Notwithstanding, TAPL, as the operator of Townsville Airport, is committed to ongoing engagement with Airservices Australia, Defence, Townsville City Council, airlines and other relevant stakeholders to manage significant aircraft noise intrusion generated by Townsville Airport and associated impacts on the local community.

Noise Abatement Procedures

Aircraft noise abatement procedures apply to all aircraft arriving and departing Townsville Airport, where deemed appropriate. The procedures specify preferred runways for landings and departures, as well as preferred flight paths for each flight operation.

The aircraft noise abatement procedures are contained in the Townsville Airport Aeronautical Information Package, as published by Airservices Australia. Additional information for training aircraft is available in the En-Route Supplement Australia.

Noise Monitoring and Complaints

TAPL and the DoD undertake routine aircraft noise monitoring, including reporting on perceived noise levels at various locations.

The DoD manages a toll-free noise inquiry hotline for community complaints relating to military aircraft operations, and Airservices Australia manages a similar hotline for complaints and inquiries relating to noise from civil aircraft operations. Aircraft noise complaints received by TAPL are forwarded to Airservices Australia to respond accordingly. TAPL and Defence work in partnership to respond to community concerns pertaining to aircraft noise, with concerns also addressed through the Townsville Airport CACG.

5.5 Environment

TAPL, as the ALC of Townsville Airport, is committed to the responsible environmental management of the Civil Area of Townsville Airport, including reducing environmental impacts and the efficient use of resources.

This section outlines QAL's Net Zero Strategy, the environmental impacts of development proposed by the Master Plan, and the Environment Strategy and Action Plans to inform the day-to-day management of environmental matters at Townsville Airport.

5.5.1 QAL NET ZERO STRATEGY

QAL is committed to achieving Net Zero for Scope 1 and Scope 2 greenhouse gas (GHG) emissions by 2030, relative to 2019 (pre-COVID-19) emissions. Townsville Airport, owned by TAPL as a subsidiary of QAL, will therefore contribute to QAL's achievement of its Net Zero target.

QAL has developed a Net Zero Implementation Plan to facilitate the achievement of Net Zero, through a combination of reducing emissions and purchasing offsets; focussing predominantly on the use of renewable power production. The Implementation Plan includes 18 initiatives under six workstreams to enable a reduction in emissions across all areas of the business. Initiatives include, but are not limited to, an emissions monitoring program, procuring renewable energy, improving equipment efficiencies, electrifying vehicle fleets and ongoing stakeholder engagement.

QAL's Net Zero target and Implementation Plan are aligned with the Airport Carbon Accreditation (ACA) framework and Science Based Targets Initiatives (SBTi) accreditation schemes.

TSV Townsville Airport

"Queensland Airports Limited has committed to Net Zero Scope 1 and 2 by 2030"

Scope 1 and Scope 2 emissions represent those emissions QAL has the most direct control over:

Scope 1

Direct GHG emissions, released from sources owned or controlled by QAL, such as vehicle emissions and GHG-emitting chemicals.

Scope 2

Indirect GHG emissions, resulting from the generation of purchased energy, such as electricity purchased from the grid.

Scope 3

Other indirect GHG emissions resulting from business activities, such as employee travel, tenant, contractor and construction emissions and aircraft emissions.

5.5.2 MASTER PLAN IMPLEMENTATION

The Townsville Airport Masterplan 2023 has been prepared with consideration of the social, economic and environmental impacts that might reasonably be expected to be associated with the implementation of the Master Plan. The environmental issues are identified and addressed through the Townsville Airport Environment Strategy (refer **Part 5.5.3**) and the accompanying Environmental Action Plans (refer **Appendix C**).

Sources of environmental impacts associated with implementation of the Master Plan, as well as civil airport operations and the measures to prevent, control or reduce these impacts, are included in the Environmental Action Plans. Each of the nine individual Action Plans addresses a different environmental aspect, such as water quality, soil management, hazardous materials, waste management or biodiversity (refer **Part 5.5.3** and **Appendix C** for further details).

The Master Plan anticipates development of additional NAACEX hangars and relocation of General Aviation (GA) activities to the north. Whilst historically a landfill site, the proposed GA area contains general ecological values, however is not considered environmentally significant in accordance with the *Airports (Environment Protection) Regulations 1997 (Cth)* (AEPR) 5.02A, due to its relatively small size and the proximate availability of suitable alternative habitat.

Development proposals described within this Master Plan may trigger the preparation and required approval of a Major Development Plan (MDP), in accordance with s5 of the Airports Act. An MDP would detail potential impacts and specific mitigation measures for the proposed development.

Projects at Townsville Airport, regardless of their triggering of an MDP, will have a construction environmental management plan (CEMP). Each CEMP will include measures to minimise potential adverse impacts on the nine environmental aspects, as well as indigenous or built heritage aspects, as required under s71(3)(f) and (g) of the Airports Act.

TAPL undertakes environmental monitoring on an ongoing basis to monitor compliance with relevant management plans, including CEMPs. This environmental monitoring also identifies potential impacts associated with civil aviation activities or implementation of the Master Plan, and ensures control measures within the Action Plans are being implemented to appropriately prevent, control or reduce environmental impacts.

5.5.3 ENVIRONMENT STRATEGY

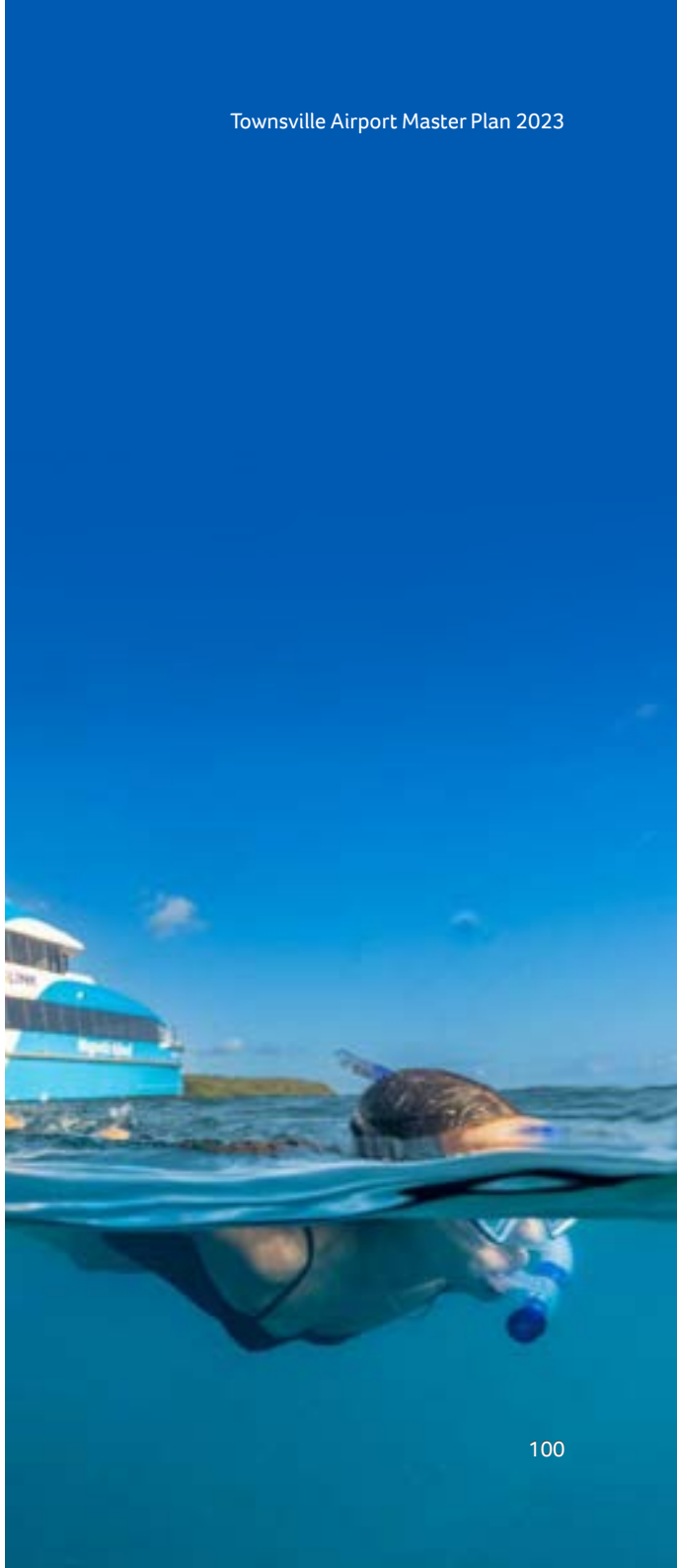
The Townsville Airport Environment Strategy (AES) provides the framework for the environmental management of Townsville Airport for the initial eight-year planning period (2023 to 2031) of the Townsville Airport Master Plan 2023. The AES is the fifth environment strategy prepared for the Civil Area since Townsville Airport was leased from the Commonwealth Government in 1998.

The AES addresses the requirements of the Airports Act by identifying environmental issues that might reasonably be expected to be associated with the implementation of the Master Plan, including plans for ameliorating or preventing environmental impacts (Section 71 (3)(f)(g)). It also serves to guide Townsville Airport, airport tenants and contractors in the environmental management of the Airport and the sources of environmental impact associated with civil aviation operations (Section 71 (3)(h)). This includes the monitoring and measures to be carried out for the purposes of preventing, controlling or reducing environmental impacts associated with civil aviation operations at Townsville Airport (Section 71 (3)(h)(vi)).

This AES has been developed through discussions with internal and external Townsville Airport stakeholders, including regulators and airport tenants, via a series of formal and informal meetings, workshops and an online survey (refer **Table 5.5.3.1**). The contents of this AES reflect the views and feedback provided throughout that program of engagement.

Table 5.5.3.1 — AES Stakeholder Engagement

Engagement	Attendees / Focus
Online Environmental Strategy review survey (open 6-24 June 2022)	55 Townsville Airport vendor stakeholders
AEO Meeting (16 June 2022)	AES consultant, AEO, Townsville Airport Environment Advisor
Project Steering Committee (Ongoing)	Review and input provided by QAL Project Steering Committee for the TSV Master Plan
Technical Review – QAL Environment team (September-December 2022)	Workshopping, input and review undertaken by QAL Environment team
Technical Review – QAL Projects & Infrastructure team (December 2022)	Technical review undertaken by QAL contractors in projects and infrastructure delivery
AEO Meeting (9 February 2023)	AEO, TAPL/QAL team



5.5.3.1 ENVIRONMENTAL MANAGEMENT AT TOWNSVILLE AIRPORT

The Civil Area of Townsville Airport is mostly a highly modified environment, characterised by sealed movement areas including runways, taxiways and apron, landscaped gardens, roads, buildings and undeveloped land.

Some areas of general ecological value exist in undeveloped land to the north-east of the terminal, however these are not considered to be environmentally significant in accordance with the AEPR 5.02A. Areas of environmental significance exist in the surrounding vicinity of the Civil Area, including the Townsville Town Common to the north and Great Barrier Reef Marine Park and World Heritage Area to the east.

Townsville Airport is committed to respecting and protecting the surrounding environment and ensuring compliance with relevant legislative requirements.

Sources of potential environmental impacts associated with civil aviation operations and measures to prevent, control or reduce these impacts have been assessed and included in individual action plans (refer **Appendix C**) for nine environmental aspects, being:

- Water Quality – surface and groundwater
- Soil Management
- Hazardous Materials
- Ground-Based Noise
- Local Air Quality
- Energy Efficiency
- Water Efficiency
- Waste Management
- Biodiversity.

The protection of Indigenous and European cultural heritage values is also managed in a Heritage Action Plan (**Appendix C**). Previous studies have indicated that there are no known sites of indigenous significance recorded within the TAPL lease area (Cultural Heritage Desktop Assessment, AECOM 2015).

The area has been heavily disturbed through historic land use activities, minimising the potential for intact sites of indigenous significance to exist.

Together, the Environmental and Heritage Action Plans (refer **Appendix C**) combine to ensure that the AES meets the applicable legislative requirements.

5.5.3.2 ACHIEVEMENTS IN ENVIRONMENTAL MANAGEMENT 2016-2022

The Environment Strategy contained in the Townsville Airport Master Plan 2016-2036 included various targets as part of an overall management program, addressing each area of potential environmental impact at Townsville Airport. Of the 2016 targets, 82% were completed, 15% were discontinued and 3% remain under review.

It also detailed a monitoring program, made up of more than 30 regular audits and reviews carried out either monthly, quarterly or annually as required. Since the publication of the Master Plan in 2016, Townsville Airport's environmental achievements demonstrate a commitment to an ongoing programme of continuous improvement in environmental performance.

Townsville Airport's parent company QAL has participated in the Global Real Estate Sustainability Benchmark asset assessments for Environmental, Social and Governance for four years, most recently receiving a score of 93 out of 100 in 2022.

In October 2017, Townsville Airport achieved Level 2 accreditation under the Airports Council International, Airport Carbon Accreditation (ACA) program. The ACA program is the only independent global standard for carbon management, which recognises and accredits the efforts of airports to manage and reduce their carbon emissions.

Level 2 'Reduction' requires an airport to map its carbon footprint, provide evidence of effective carbon management and outline future efforts to continue reducing this footprint. Townsville Airport is committed to ongoing participation in Airport Council International's ACA Program.

As part of meeting the ACA program requirements, Townsville Airport has developed a carbon management plan with procedures for monitoring and managing/ reducing carbon emissions. This plan includes a register of reduction initiatives and a Carbon Management Committee tasked with implementing the carbon management plan and identifying future reduction initiatives.

QAL has recently set an emissions reduction target of Net Zero for Scope 1 and 2 emissions by 2030. This will be reflected in Townsville Airport's carbon management plan, and will help drive further initiatives and enable higher levels of accreditation under the ACA program.

New initiatives aimed at reducing emissions include the replacement of terminal lighting with LED fixtures that are 58% more energy efficient, installation of a 30kW solar panel system on the airport's administration building, purchasing of fuel-efficient and electric vehicles (where available), and upgrading street and car park lighting to low energy streetlights.

Notable achievements in environmental management since 2016 include:

- A Vector Control Program to control disease vectors, particularly mosquitos, at Townsville Airport. Developed in 2019, Townsville Airport now monitors over 100 sites, executing control measures when required. Monthly reporting of the monitoring activities allows Townsville Airport to continually assess the effectiveness of the measures employed.
- Soil remediation of the former Joint User Hydrant Infrastructure refuelling depot was conducted in 2018, including the excavation of hydrocarbon and asbestos impacted soils for remediation and backfilling. Soil was excavated, stockpiled and backfilled during the infrastructure removal, in accordance with the Remediation Plan (ERM 2019).
- Townsville Airport has partnered with Townsville City Council to create a Water Quality Monitoring Program on and around the Civil Area. Annually, surface water is monitored during three wet and one dry season events, with one dry and one wet season event for groundwater. To further improve the monitoring, Townsville Airport uses the ESdat system, which is a centralised environmental data repository allowing QAL staff to review and analyse trends in data across all QAL operations.
- Townsville Airport consumed 5,063,542 MWh of electricity in 2019/20, compared to 5,396,188 MWh consumed in the previous reporting period (2018-2019), representing a 7% decrease in consumption.
- Installation of a real-time monitoring network for potable water, facilitating leak detection and identifying high use areas.
- Installation of a sewage flow meter at the discharge point to Council's network, facilitating understanding of water throughput.

5.5.3.3 LEGISLATIVE FRAMEWORK

As a core regulated airport operating on land leased from the Federal Government, Townsville Airport is required to comply with the *Airports Act 1996* (Airports Act), *Airports (Environment Protection) Regulations 1997* (AEPR) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), all of which are Commonwealth legislation.

The Airports Act requires that Townsville Airport develop and implement an Environment Strategy, outlining how potential environmental impacts associated with airport operations within the Civil Area will be prevented, controlled or mitigated. QAL and TAPL, as the operators of Townsville Airport, are committed to working with airlines and other stakeholders to reduce the environmental impact of airport operations.

In addition, the EPBC Act governs the management of matters of national environmental significance (NES), including but not limited to threatened flora and fauna species, with specific requirements for approval of activities involving Commonwealth land or activities by Commonwealth agencies. Where no Commonwealth legislation applies to particular environmental aspects, state legislation is applied or used for guidance, where relevant.

Pursuant to the Airports Act and regulations, each Action Plan (**Appendix C**) identifies sources of environmental impact arising from airport activities and includes details of active measures in place to manage or prevent, control or reduce those environmental impacts, including timeframes as appropriate.

Townsville Airport provides regular updates to the Airport Environmental Officer (AEO) from the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) on measures in place to meet requirements of this strategy and submits an annual environment report detailing:

- results of monitoring activities;
- details of environmental incidents or other environmental issues identified, and associated corrective actions; and
- progress in meeting strategy targets.

5.5.3.4 TOWNSVILLE AIRPORT'S GOVERNING ENVIRONMENT FRAMEWORK

QAL's Environment Policy forms the foundation for Townsville Airport's AES, implemented through TAPL's Environmental Management System (EMS).

The QAL Environment Policy aligns with AS/NZS ISO 14001:2016 and the EMS is aligned with ISO 14001:2015 and both are regularly reviewed and refined. The current version of the Policy is available on the Townsville Airport website (www.townsvilleairport.com.au).

The EMS is designed to ensure environmental aspects and impacts associated with civil aviation operations are identified and managed. Performance against requirements of the EMS are monitored and continually improved. The EMS includes regular engagement with relevant stakeholders, including airport operators, to ensure they are aware and compliant with their environmental responsibilities.

The environment team at Townsville Airport, supported by QAL, are responsible for ensuring that the monitoring program is followed, with the team also providing environmental advice and leadership across the organisation.

Responsibilities of the Airport Environment Officer

Airport Environment Officers (AEOs) are appointed by DITRDCA to assist with the administration of the AEPR. AEOs have a number of specific statutory functions under the Airports Act and the AEPR, including monitoring compliance with environmental management practices within the Civil Area at Townsville Airport.

Responsibilities of the Department of Defence

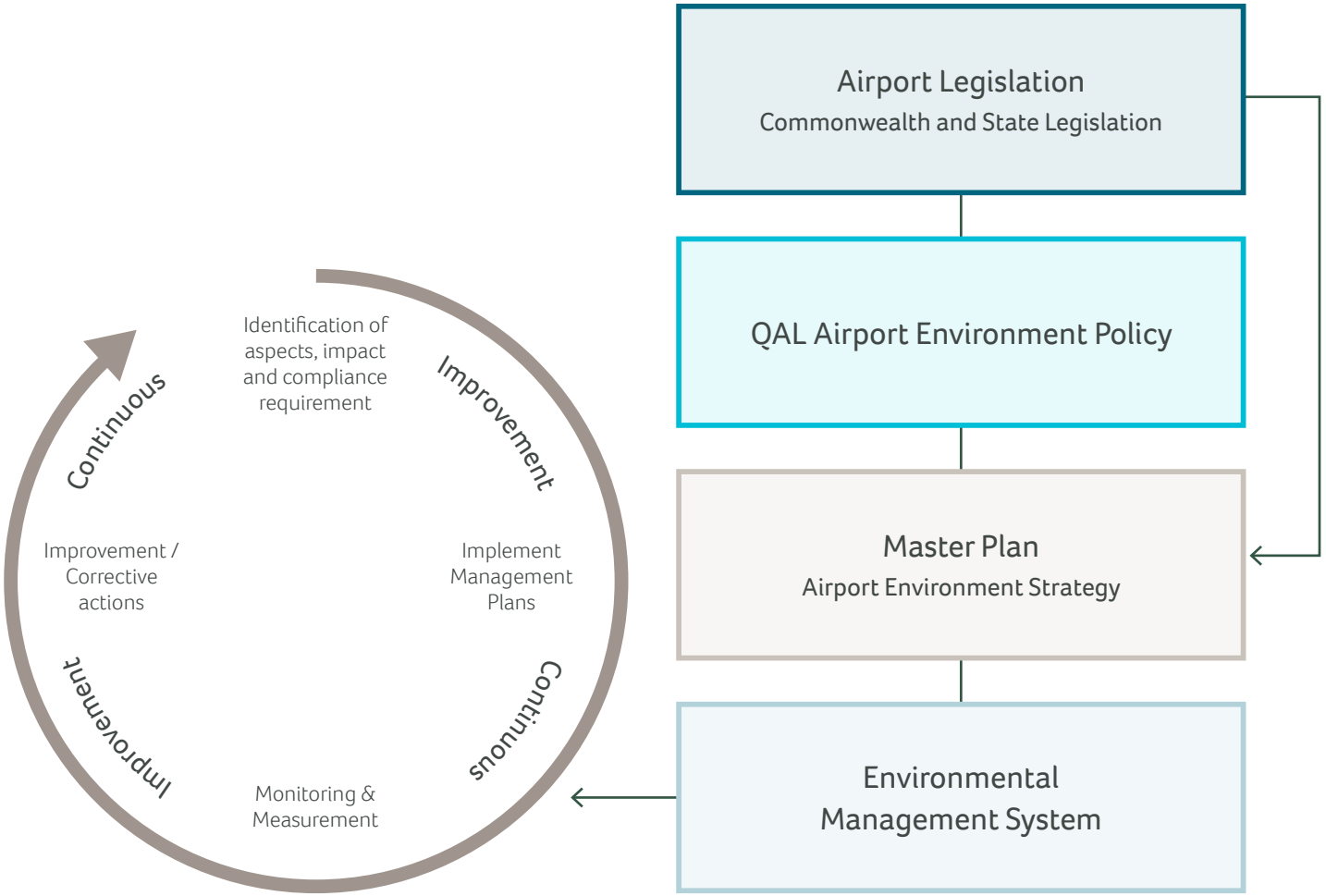
The Department of Defence (DoD) is responsible for the environmental management of the Military and Joint User Areas at Townsville Airport. TAPL works in partnership with the DoD to facilitate an integrated environmental management approach, particularly with regard to Joint User Areas.

Responsibilities of TAPL

As the airport-lessee company, TAPL oversees all facets of airport operations including airside, terminal, security, major projects and maintenance operations. This also includes ensuring that the monitoring and management of all environmental attributes is completed and reported on in the Annual Environmental Report (AER) and submitted to the AEO. TAPL is also responsible for auditing tenant and other airport operators' compliance with this section of the Master Plan and reviewing and/or approving tenant, contractors and operators' environmental management plans (OEMPs) and construction environmental management plans (CEMPs).

Responsibilities of Airport Tenants and Operators

A variety of tenants, contractors and other operators work onsite at Townsville Airport. Each are obligated to comply with the requirements of the applicable legislation and this AES to prevent or minimise the environmental harm arising from their operations, including ensuring appropriate OEMPs and/or CEMPs are prepared and implemented to manage environmental risk.



Federal

- *Airports Act 1996*
- *Airports Regulations 1997*
- *Airports (Environmental Protection) Regulation 1997*
- *Environmental Protection and Biodiversity Conservation Act 1999*

State

- *Environmental Protection Act 1994*
- *Biosecurity Act 2014*
- *Planning Act 2016*
- State Planning Policy

Applies to:

- QAL Group, TAPL tenants, other stakeholders
- AS/NZS ISO14001:2016 EMS

Responsibilities:

- AEO ensures compliance with legislation
- TAPL oversees all airport operations and major projects, liaise with AEO
- Airport tenants and operators to comply with AES

Figure 5.5.3.1 — Townsville Airport Governing Framework

5.5.3.5 AREAS OF ENVIRONMENTAL SIGNIFICANCE

Townsville Airport has areas of general ecological value that exist in undeveloped land to the north-east of the terminal; however, this area is not considered environmentally significant in accordance with the AEPR 5.02A due to its relatively small size and the availability of suitable alternative habitat nearby.

Historically a landfill area, the area of greatest ecological value comprises remnant vegetation and palustrine wetland (refer **Figure 5.5.3.2**; **Figure 5.5.3.3**). The area is also periodically utilised by migratory bird species. These and other ecological values are further detailed in the Biodiversity Action Plan (**Appendix C**).

Areas of environmental significance that exist outside the Civil Area and within close proximity include the Townsville Town Common to the north and Great Barrier Reef Marine Park and World Heritage Area to the east. Townsville Town Common is within five kilometres of the Civil Area and is home to 66 threatened and migratory bird species, four threatened mammal species and four threatened reptiles (Queensland Government 2022).

The internal drainage network within the Civil Area of Townsville Airport flows away from the Townsville Town Common and through a network of constructed channels, eventually flowing into the Rowes Bay outlet, part of the Great Barrier Reef Marine Park and World Heritage Area. Stormwater within the Civil Area is managed through the TAPL Water Quality Management Plan. Stormwater quality is monitored at sites within the internal drainage network and stormwater retention basin, as well as along Mundy Creek downstream of the Civil Area (refer **Appendix C**).

Figure 5.5.3.2 — Palustrine wetland habitat in the north-east of the Civil Area

Civil Area
Least Concern Regional Ecosystems
Essential Habitat
MSES (GBRMP and Town Common)
Wetlands Mapping
Waterways

Figure 5.5.3.3 — Ecological Values onsite and surrounding Townsville Airport

5.5.3.6 ENVIRONMENTAL MONITORING, AUDITING AND REPORTING

Environmental monitoring is undertaken at Townsville Airport to ensure compliance with relevant management plans and to identify potential impacts associated with civil aviation operations.

Monitoring also serves to enhance awareness and understanding of environmental responsibility for all airport staff, tenants and stakeholders. Monitoring (**Table 5.5.3.2**) is undertaken by a suitably qualified person, with any laboratory analyses conducted at National Association of Testing Authorities accredited facilities.

The systems of testing, measuring and sampling are outlined within guiding management plans specific to each area of environmental responsibility. These guiding plans are to be regularly reviewed and updated so that they remain suitable and relevant to the objectives of the current AES. Since monitoring programs are adaptive, frequency of monitoring may change as management plans are updated, in accordance with post-construction requirements or as new risks are identified. For these reasons and acknowledging that the life of this AES is eight years, specifics of monitoring programs are contained in management plans, and reported on in a consolidated manner in the AER. The frequency of management plan revisions and updates is outlined in the AES Monitoring Schedule (**Appendix C**) and maintained through the EMS.

In consultation with the AEO, Townsville Airport analyses the results of the monitoring activities and provides an annual summary to DITRDCA in the form of the AER. In instances where potential or actual non-compliance(s) are identified, corrective actions are implemented to improve performance.

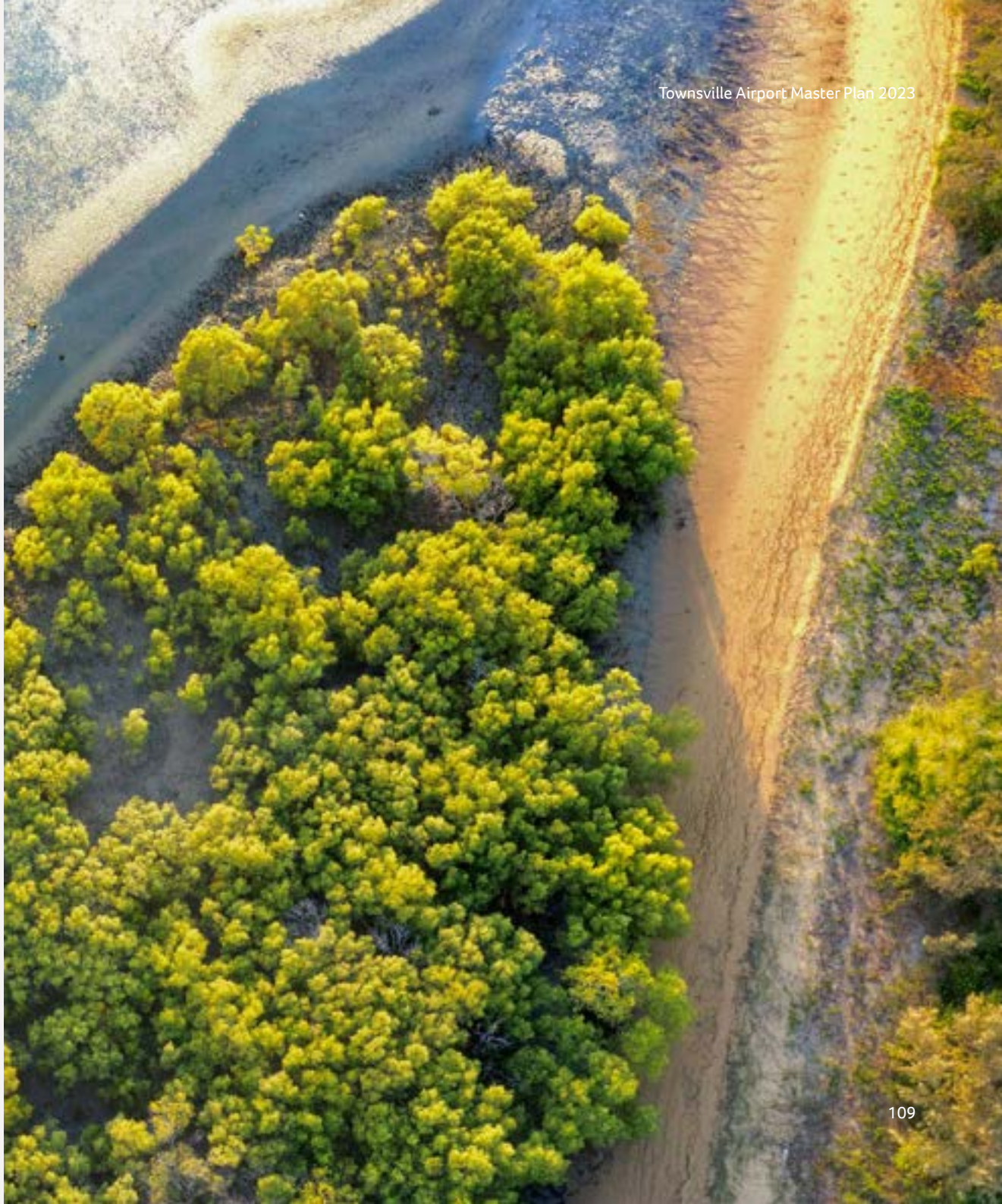


Table 5.5.3.2 — Environmental Monitoring Programs

Attribute	Townsville Airport Guiding Document	Technical Reference
Water quality	Water Quality & Trade Waste Management Plan (Townsville Airport 2021)	*Airports (Environmental Protection) Regulation 1997* – Schedule 2 Water pollution – accepted limits PFAS National Environmental Management Plan (NEMP)
Soil quality		*Airports (Environmental Protection) Regulation 1997* – Schedule 3 Soil pollution – accepted limits PFAS NEMP
Hazardous material	Townsville Airport Spill Management Procedure Aerodrome Emergency Plan	
Ground-based noise		*Airports (Environmental Protection) Regulation 1997* – Schedule 4 Excessive Noise – guidelines
Local air quality		*Airports (Environmental Protection) Regulation 1997* – Schedule 1 Air pollution – accepted limits AS 1055
Energy efficiency	Townsville Airport ESG Strategy	
Water efficiency (including potable water)	Water Quality & Trade Waste Management Plan (Townsville Airport 2021) Townsville Airport Development Guidelines (December 2016)	
Waste	Water Quality & Trade Waste Management Plan (Townsville Airport 2021)	
Biodiversity	Weed Management Plan (NRA 2016) Wildlife Hazard Management Plan v8 (Townsville Airport 2020) Vector Management Plan (Townsville Airport 2019)	*Nature Conservation (Wildlife Management) Regulation 2006* *Pest Management Regulation 2003*

TAPL, as operator of the Civil Area of Townsville Airport, works closely with all airport tenants and contractors to ensure compliance with governing legislation and the AES. TAPL assesses all tenants for environmental risk, using the environmental risk categories shown below (**Table 5.5.3.3**). Tenants and operators are required to demonstrate compliance with the environmental management requirements relevant to their risk category. Airport tenants, contractors and operators are required to comply with tenant environmental management guidelines and have procedures in place to manage specific environmental risks associated with their activities.

High risk airport tenants, contractors and operators are required to prepare and implement a relevant CEMP or OEMP, which outlines measures and responsibilities for reducing and managing this risk. An OEMP sets performance criteria and outlines appropriate monitoring, annual reporting and corrective actions to be undertaken in response to any potential environmental impacts. Medium risk operators require a management framework commensurate with their activities, which requires them to submit annual returns or undertake monitoring every three years.

Townsville Airport regularly reviews all OEMPs and CEMPs arising from construction or demolition activities.

Category One (Low risk)	Activities or operators with the potential to cause environmental nuisance	Monitor as required
Category Two (Medium risk)	Activities or operators with the potential to cause environmental harm	Monitor 3 yearly or complete annual returns each year
Category Three (High risk)	Activities or operators with the potential to cause serious or long-term environmental harm	Monitor annually

Table 5.5.3.3 — Tenant risk categories and monitoring frequency

TSV Townsville Airport

Communication, training and induction programs

Townsville Airport aims to create a positive environmental culture through stakeholder participation and shared ownership, with a series of education and training programs available for airport staff, tenants and contractors.

TAPL helps to facilitate airport tenants, operators and contractors' fulfilment of the AES and governing regulations. Airport tenants and contractors are required to take all reasonable and practicable steps to comply with the AES.

All environment staff and/or contractors at Townsville Airport are suitably qualified to undertake monitoring activities, with any laboratory analyses conducted at National Association of Testing Authorities accredited facilities. Environmental awareness for staff and contractors is also promoted through site induction programs, with training provided as required in subjects including environmental awareness, management, spill response and awareness of legislative responsibilities.

Environmental management issues are communicated to external stakeholders through committees and forums including the Townsville Airport Community Aviation Consultation Group (CACG), Runway Safety Committee and Wildlife Hazard Management Committee.

Environmental Site Register

For the Civil Area of Townsville Airport, TAPL maintains an Environmental Site Register (ESR) that aggregates information from all environmental areas of management (i.e. water, contaminated land, hazardous materials, noise, air).

The Contaminated Site Register is a subset of the ESR. It specifically identifies the location of sites that have the potential to be a source of environmental impact, who the responsible party is for monitoring and reporting, and when environmental monitoring and auditing is required. For each location, the ESR details previous environmental site assessments, monitoring results and ensuing remedial actions.

Part 6

Supporting Materials

Appendices

This Part contains:

Appendix A — Legislative Compliance

Appendix B — Permissible Land Use Definitions

Appendix C — AES Supporting Documents

- Environmental Action Plans;
- Heritage Action Plan; and
- AES Monitoring Schedule

Appendix D — Glossary

Appendix A
Legislative Compliance

This document, the Townsville Airport Master Plan 2023, has been prepared in accordance with the requirements of the Airports Act and associated Regulations. This Appendix lists where each element of the legislation has been addressed within this document.

Airports Act 1996 (Cth)

Requirements under Part 5, Division 3, Section 71		Response
(3) Contents of draft or final master plan – Joint-user airports		
(a)	the airport-lessee company's development objectives for civil use of the airport; and	**Part 2.3.4**
(b)	the airport-lessee company's assessment of the future needs of civil aviation users of the airport, and other civil users of the airport, for services and facilities relating to the area of the airport site leased to the company; and	**Part 2.2, Part 3**
(c)	the airport-lessee company's intentions for land use and related development of the area of the airport site leased to the company, where the uses and developments embrace: (i) in all cases—landside, surface access and land planning/zoning aspects; and (ii) if the leased area includes one or more runways or taxiways—airside aspects; and	**Part 3.1, Part 3.2**
(d)	an Australian Noise Exposure Forecast (in accordance with regulations, if any, made for the purpose of this paragraph) for the areas surrounding the airport; and	**Part 5.4**
(da)	flight paths (in accordance with regulations, if any, made for the purpose of this paragraph) at the airport; and	**Part 5.4.2**
(e)	the airport-lessee company's plans, developed following consultations with the airlines that use the airport, local government bodies in the vicinity of the airport and the Defence Department, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels; and	**Part 5.4.4**
(f)	the airport-lessee company's assessment of environmental issues that might reasonably be expected to be associated with the implementation of the plan; and	**Part 5.5.2, Part 5.5.3**
(g)	the airport-lessee company's plans for dealing with the environmental issues mentioned in paragraph (f) (including plans for ameliorating or preventing environmental impacts); and	**Part 5.5.3**
(ga)	in relation to the first 8 years of the master plan—a plan for a ground transport system on the landside of the airport that details: (i) a road network plan; and (ii) the facilities for moving people (employees, passengers and other airport users) and freight at the airport; and (iii) the linkages between those facilities, the road network and public transport system at the airport and the road network and public transport system outside the airport; and (iv) the arrangements for working with the State or local authorities or other bodies responsible for the road network and the public transport system; and (v) the capacity of the ground transport system at the airport to support operations and other activities at the airport; and (vi) the likely effect of the proposed developments in the master plan on the ground transport system and traffic flows at, and surrounding, the airport; and	**Part 3.3, Part 4.1**
(gb)	in relation to the first 8 years of the master plan—detailed information on the proposed developments in the master plan that are to be used for: (i) commercial, community, office or retail purposes; or (ii) for any other purpose that is not related to airport services; and	**Part 3.1, Part 4.1**

(gc)	in relation to the first 8 years of the master plan—the likely effect of the proposed developments in the master plan on: (i) employment levels at the airport; and (iii) the local and regional economy and community, including an analysis of how the proposed developments fit within the planning schemes for commercial and retail development in the area that is adjacent to the airport; and	**Part 5.1.2, Part 5.1.3**
(h)	in relation to the first 8 years of the master plan—an environment strategy that details: (i) the airport-lessee company's objectives for the environmental management of the airport; and (ii) the areas (if any) within the airport site which the airport-lessee company, in consultation with State and Federal conservation bodies, identifies as environmentally significant; and (iii) the sources of environmental impact associated with civil aviation operations at the airport; and (iv) the studies, reviews and monitoring to be carried out by the airport-lessee company in connection with the environmental impact associated with civil aviation operations at the airport; and (v) the time frames for completion of those studies and reviews and for reporting on that monitoring; and (vi) the specific measures to be carried out by the airport-lessee company for the purposes of preventing, controlling or reducing the environmental impact associated with civil aviation operations at the airport; and (vii) the time frames for completion of those specific measures; and (viii) details of the consultations undertaken in preparing the strategy (including the outcome of the consultations); and (ix) any other matters that are prescribed in the regulations; and (x) such other matters (if any) as are specified in the regulations.	**Part 5.5.3**

(6)	In specifying a particular objective or proposal covered by paragraph (2)(a), (c), (ga), (gb) or (gc) or (3)(a), (c), (ga), (gb) or (gc), a draft or final master plan must address: (i) the extent (if any) of consistency with planning schemes in force under a law of the State in which the airport is located; and (ii) if the draft or final master plan is not consistent with those planning schemes—the justification for the inconsistencies.	**Part 5.1.3**
(8)	In developing plans referred to in paragraph (2)(e) and (3)(e), an airport-lessee company must have regard to Australian Standard AS 2021—2000 ("Acoustics—Aircraft noise intrusion—Building siting and construction") as in force or existing at that time.	**Part 5.4**
71A Draft or final master plan must identify proposed sensitive developments		
(1)	A draft or final master plan must identify any proposed sensitive development in the plan.	**Part 2.1.1.3**

Airports Regulation 1997 (Cth)

Requirements under Part 5, Section 5.02 Contents of draft or final master plan – general		**Response**
(1)	For paragraphs 71(2)(j) and (3)(j) of the Act, the following matters are specified: (a) any change to the OLS or PANSOPS surfaces for the airport concerned that is likely to result if development proceeds in accordance with the master plan; (b) for an area of an airport where a change of use of a kind described in subregulation 6.07(2) of the Airports (Environment Protection) Regulations 1997 is proposed: (i) the contents of the report of any examination of the area carried out under regulation 6.09 of those Regulations; and (ii) the airport-lessee company's plans for dealing with any soil pollution referred to in the report.	**Not Applicable – No change proposed to OLS or PANS-OPS surfaces**

(2)	For section 71 of the Act, an airport master plan must, in relation to the landside part of the airport, where possible, describe proposals for land use and related planning, zoning or development in an amount of detail equivalent to that required by, and using terminology (including definitions) consistent with that applying in, land use planning, zoning and development legislation in force in the State or Territory in which the airport is located.	**Part 3.1, Part 5.1.3**
(3)	For subsection 71(5) of the Act, a draft or final master plan must: (a) address any obligation that has passed to the relevant airport-lessee company under subsection 22(2) of the Act or subsection 26(2) of the Transitional Act; and (b) address any interest to which the relevant airport lease is subject under subsection 22(3) of the Act, or subsection 26(3) of the Transitional Act.	**Not Applicable**

Requirements under Part 5, Section 5.02A Contents of draft or final master plan – matters to be specified in environment strategy		**Response**
(1)	For subparagraphs 71(2)(h)(ix) and (3)(h)(ix) of the Act, the matters in this regulation must be specified in an environment strategy.	**Part 5.5.3, Appendix D**
(2)	The environment strategy must specify any areas within the airport site to which the strategy applies that the airport-lessee company for the airport has identified as being a site of indigenous significance, following consultation with: (a) any relevant indigenous communities and organisations; and (b) any relevant Commonwealth or State body.	**Part 5.5.3, Appendix D**
(3)	The environment strategy must specify the airport-lessee company's strategy for environmental management of areas of the airport site that are, or could be, used for a purpose that is not connected with airport operations.	**Part 5.5.3**
(4)	The environment strategy must specify: (a) the training necessary for appropriate environment management by persons, or classes of persons, employed on the airport site by the airport-lessee company or by other major employers; and	**Part 5.5.3**
(4) cont.	(b) the training programs, of which the airport-lessee company is aware, that it considers would meet the training needs of a person mentioned in paragraph (a).	**Part 5.5.3**

Requirements under Part 5, Section 5.02B Contents of draft or final master plan – things to be addressed in environment strategy		**Response**
(1)	For subsection 71(5) of the Act, a draft or final master plan must address the things in this regulation.	**Per below**
(2)	In specifying its objectives for the airport under subparagraph 71(2)(h)(i) or (3)(h)(i) of the Act, an airport-lessee company must address its policies and targets for: (a) continuous improvement in the environmental consequences of activities at the airport; and (b) progressive reduction in extant pollution at the airport; and (c) development and adoption of a comprehensive environmental management system for the airport that maintains consistency with relevant Australian and international standards; and (d) identification, and conservation, by the airport-lessee company and other operators of undertakings at the airport, of objects and matters at the airport that have natural, indigenous or heritage value; and (e) involvement of the local community and airport users in development of any future strategy; and (f) dissemination of the strategy to sub-lessees, licensees, other airport users and the local community.	**Part 5.5.3**

(3)	In specifying under subparagraph 71(2)(h)(ii) or (3)(h)(ii) of the Act, the areas within the airport site it identifies as environmentally significant, an airport-lessee company must address: (a) any relevant recommendation of the Australian Heritage Council; and (b) any relevant recommendation of the Department of Environment regarding biota, habitat, heritage or similar matters; and (c) any relevant recommendation of a body established in the State in which the airport is located, having responsibilities in relation to conservation of biota, habitat, heritage or similar matters.	**Part 5.5.3, Appendix D**
(4)	In specifying the sources of environmental impact under subparagraph 71(2)(h)(iii) or (3)(h)(iii) of the Act, an airport-lessee company must address: (a) the quality of air at the airport site, and in so much of the regional airshed as is reasonably likely to be affected by airport activities; and (b) water quality, including potentially affected groundwater, estuarine waters and marine waters; and (c) soil quality, including that of land known to be already contaminated; and (d) release, into the air, of substances that deplete stratospheric ozone; and (e) generation and handling of hazardous waste and any other kind of waste; and (f) usage of natural resources (whether renewable or non-renewable); and (g) usage of energy the production of which generates emissions of gases known as 'greenhouse gases'; and (h) generation of noise.	**Part 5.5.3**
(5)	In specifying under subparagraph 71(2)(h)(iv) or (3)(h)(iv) of the Act the studies, reviews and monitoring that it plans to carry out, an airport-lessee company must address: (a) the matters mentioned in subregulation 5.02A(2) and subregulations 5.02B(3) and (4); and (b) the scope, identified by the airport-lessee company, for conservation of objects and matters at the airport that have natural, indigenous or heritage value; and (c) the approaches and measures identified by the airport-lessee company as its preferred conservation approaches and measures; and (d) the professional qualifications that must be held by a person carrying out the monitoring; and (e) the proposed systems of testing, measuring and sampling to be carried out for possible, or suspected, pollution or excessive noise; and (f) the proposed frequency of routine reporting of monitoring results to the airport environment officer (if any) for the airport, or to the Secretary.	**Part 5.5.3, Appendix D**
(6)	In specifying under subparagraph 71(2)(h)(vi) or(3)(h)(vi) of the Act, the measures that it plans to carry out for the purposes of preventing, controlling or reducing environmental impact, an airport-lessee company must address: (a) the matters mentioned in subregulations (2) to (4); and (b) the means by which it proposes to achieve the cooperation of other operators of undertakings at the airport in carrying out those plans.	**Part 5.5.3, Appendix D**
(7)	An airport-lessee company, in specifying the company's strategy for environmental management under subregulation 5.02A(3), must address the matters in subregulations (2) to (6).	**Part 5.5.3**

Appendix B
Permissible Land Use Definitions

This document, the Townsville Airport Master Plan 2023, uses land use definitions consistent with *Schedule 1 – Definitions of the Townsville City Plan (Version 2022/01)*. The below contains all land uses referenced within this document and their permissible Precinct locations to correspond with the Land Use Strategy (refer **Part 3.1**). Reference should also be made to **Part 5.4** and AS2021:2015 Table 2.1, which addresses building site acceptability relative to ANEF contours. Undefined land uses are considered permissible and subject to further assessment.

Land Use	Land Use Definition	Precinct			
		Gateway Precinct	Enterprise & Innovation Precinct	Aviation & Terminal Precinct	General Aviation & Aerospace Precinct
Advertising device	Any permanent structure, device, sign or the like intended for advertising purposes. It includes any framework, supporting structure or building feature that is provided exclusively or mainly as part of the advertisement.	✓	✓	✓	✓
Airservices	Premises used for any of the following: • the arrival and departure of aircraft; • the housing, servicing, refuelling, maintenance and repair of aircraft; • the assembly and dispersal of passengers or goods on or from an aircraft; • any ancillary activities directly serving the needs of passengers and visitors to the use;	✓	✓	✓	✓
Airservices cont.	• associated training and education facilities; • aviation facilities.	✓	✓	✓	✓
Animal keeping (Pet Motel)	Premises used for boarding, breeding or training of animals. The use may include ancillary temporary or permanent holding facilities on the same site and ancillary repair and servicing of machinery.	✓	✓		
Bar	Premises used primarily to sell liquor for consumption on the premises and that provides for a maximum capacity to seat sixty persons at any one time. The use may include ancillary sale of food consumption on the premises and entertainment activities.	✓		✓	
Car wash	Premises primarily used for commercially cleaning motor vehicles by an automatic or partly automatic process.	✓	✓		
Childcare centre	Premises used for minding, education and care, but not residence, of children.	✓	✓		
Club	Premises used by persons associated for social, literary, political, sporting, athletic or other similar purposes for social interaction or entertainment. The use may include the ancillary preparation and service of food and drink.	✓	✓		✓

Land Use	Land Use Definition	Precinct			
		Gateway Precinct	Enterprise & Innovation Precinct	Aviation & Terminal Precinct	General Aviation & Aerospace Precinct
Community use	Premises used for providing artistic, social or cultural facilities and community support services to the public and may include the ancillary preparation and provision of food and drink.	✓	✓		✓
Educational Establishment (Aviation Educational Facility)	Premises used for training and instruction designed to impart knowledge and develop skills. Under the Airports Act, an aviation educational facility means any of the following: • a flying training school; • an aircraft maintenance training school; • a facility that provides training in relation to air traffic control; • a facility that provides training for cabin crew; • any other facility with the primary purpose of providing training in relation to aviation related activities.	✓	✓		✓
Emergency services	Premises used by government bodies or community organisations to provide essential emergency services, disaster management services including management support facilities for the protection of persons, property and the environment.	✓	✓	✓	✓

Land Use	Land Use Definition	Precinct			
		Gateway Precinct	Enterprise & Innovation Precinct	Aviation & Terminal Precinct	General Aviation & Aerospace Precinct
Food and drink outlet	Premises used for preparation and sale of food and drink to the public for consumption on or off the site. The use may include the ancillary sale of liquor for consumption on site.	✓	✓	✓	✓
Function facility (Conference facilities)	Premises used for conducting receptions or functions that may include the preparation and provision of food and liquor for consumption on site.	✓	✓	✓	
Hardware and trade supplies	Premises used for the sale, display or hire of hardware and trade supplies including household fixtures, timber, tools, paint, wallpaper, plumbing supplies and the like.	✓	✓		
Health care services (Medical Centre)	Premises for medical, paramedical, alternative therapies and general health care and treatment of persons that involves no overnight accommodation.	✓			
Hotel	Premises used primarily to sell liquor for consumption. The use may include short-term accommodation, dining and entertainment activities and facilities.	✓	✓	✓	
Indoor sport and recreation	Premises used for leisure, sport or recreation conducted wholly or mainly indoors.	✓	✓		

Land Use	Land Use Definition	Precinct			
		Gateway Precinct	Enterprise & Innovation Precinct	Aviation & Terminal Precinct	General Aviation & Aerospace Precinct
Low impact industry	Premises used for industrial activities that include the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products and have one or more of the following attributes: • negligible impacts on sensitive land uses due to offsite emissions including aerosol, fume, particle, smoke, odour and noise; • minimal traffic generation and heavy-vehicle usage; • demands imposed upon the local infrastructure network consistent with surrounding uses; • the use generally operates during the day (e.g. 7am to 6pm); • offsite impacts from storage of dangerous goods are negligible; • the use is primarily undertaken indoors.	✓	✓		✓
Major sport, recreation & entertainment facility	Premises with large scale built facilities designed to cater for large scale events including major sporting, recreation, conference and entertainment events.	✓	✓		

Land Use	Land Use Definition	Precinct			
		Gateway Precinct	Enterprise & Innovation Precinct	Aviation & Terminal Precinct	General Aviation & Aerospace Precinct
Market	Premises used for the sale of goods to the public on a regular basis, where goods are primarily sold from temporary structures such as stalls, booths or trestle tables. The use may include entertainment provided for the enjoyment of customers.	✓	✓		
Medium impact industry	Premises used for industrial activities that include the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products and have one or more of the following attributes: • potential for noticeable impacts on sensitive land uses due to offsite emissions including aerosol, fume, particle, smoke, odour and noise; • potential for noticeable offsite impacts in the event of fire, explosion or toxic release; • generates high traffic flows in the context of the locality or the road network; • generates an elevated demand on the local infrastructure network; • onsite controls are required for emissions and dangerous goods risks; • the use is primarily undertaken indoors; • evening or night activities are undertaken indoors and not outdoors.	✓	✓		✓

Land Use	Land Use Definition	Precinct			
		Gateway Precinct	Enterprise & Innovation Precinct	Aviation & Terminal Precinct	General Aviation & Aerospace Precinct
Office	Premises used for an administrative, secretarial or management service or the practice of a profession, where no goods or materials are made, sold or hired and where the principal activity provides for one or more of the following: • business or professional advice; • service of goods that are not physically on the premises; • office based administrative functions of an organisation.	✓	✓	✓	✓
Outdoor sales	Premises used for the display, sale, hire or lease of products where the use is conducted wholly or predominantly outdoors and may include construction, industrial or farm plant and equipment, vehicles, boats and caravans. The use may include ancillary repair or servicing activities and sale or fitting of accessories.	✓	✓		✓
Outdoor sport and recreation	Premises used for a recreation or sport activity that is carried on outside a building and requires areas of open space and may include ancillary works necessary for safety and sustainability. The use may include ancillary food and drink outlet(s) and the provision of ancillary facilities or amenities conducted indoors such as changing rooms and storage facilities.	✓	✓		✓
Park	Premises accessible to the public generally for free sport, recreation and leisure, and may be used for community events or other community activities. Facilities may include children's playground equipment, informal sports fields and ancillary vehicle parking and other public conveniences.	✓	✓		✓
Parking station	Premises used for parking vehicles where the parking is not ancillary to another use.	✓	✓	✓	✓
Place of worship	Premises used by an organised group for worship and religious activities. The use may include ancillary facilities for social, educational and associated charitable activities.	✓			
Renewable energy facility	Premises used for the generation of electricity or energy from renewable (naturally reoccurring) sources.	✓	✓	✓	✓
Research and technology industry	Premises used for innovative and emerging technological industries involved in research design, manufacture, assembly, testing, maintenance and storage of machinery, equipment and components. The use may include emerging industries such as energy, aerospace, and biotechnology.	✓	✓	✓	✓

Land Use	Land Use Definition	Precinct			
		Gateway Precinct	Enterprise & Innovation Precinct	Aviation & Terminal Precinct	General Aviation & Aerospace Precinct
Service industry	Premises used for industrial activities that have no external air, noise or odour emissions from the site and can be suitably located with other non-industrial uses.	✓	✓	✓	✓
Service station	Premises used for the sale of fuel including petrol, liquid petroleum gas, automotive distillate and alternative fuels. The use may include, where ancillary, a shop, food and drink outlet, maintenance, repair servicing and washing of vehicles, the hire of trailers, and supply of compressed air.	✓	✓		
Shop	Premises used for the display, sale or hire of goods or the provision of personal services or betting to the public.	✓	✓	✓	✓
Shopping Centre	Premises comprising two or more individual tenancies that is comprised primarily of shops, and that function as an integrated complex.	✓			
Short-term accomm-odation	Premises used to provide short-term accommodation for tourists or travellers for a temporary period of time (typically not exceeding three consecutive months) and may be self-contained. The use may include a manager's residence and office and the provision of recreation facilities for the exclusive use of visitors.	✓		✓	
Showroom	Premises used primarily for the sale of goods of a related product line that are of a size, shape or weight that requires: • a large area for handling, display or storage; • direct vehicle access to the building by members of the public for loading and unloading items purchased or hired.	✓	✓		✓
Substation	Premises forming part of a transmission grid or supply network under the Electricity Act 1994, and used for: • converting or transforming electrical energy from one voltage to another; • regulating voltage in an electrical circuit; • controlling electrical circuits; • switching electrical current between circuits; • a switchyard; or • communication facilities for 'operating works' as defined under the Electricity Act 1994 or for workforce operational and safety communications.	✓	✓	✓	✓
Telecomm-unications facilities	Premises used for systems that carry communications and signals by means of radio, including guided or unguided electromagnetic energy, whether such facility is manned or remotely controlled.	✓	✓	✓	✓

Land Use	Land Use Definition	Precinct			
		Gateway Precinct	Enterprise & Innovation Precinct	Aviation & Terminal Precinct	General Aviation & Aerospace Precinct
Theatre	Premises used for presenting movies, live entertainment or music to the public and may include provision of food and liquor for consumption on the premises. The use may include the production of film or music, including associated ancillary facilities, which are associated with the production, such as sound stages, wardrobe and laundry facilities, makeup facilities, set construction workshops, editing and post-production facilities.	✓	✓		✓
Tourist attraction	Premises used for providing on-site entertainment, recreation or similar facilities for the general public. The use may include provision of food and drink for consumption on site.	✓	✓		✓
Transport depot	Premises used for the storage, for commercial or public purposes, of more than one motor vehicle. The use includes premises for the storage of taxis, buses, trucks, heavy machinery and uses of a like nature. The term may include the ancillary servicing, repair and cleaning of vehicles stored on the premises.	✓	✓	✓	✓
Utility installation	Premises used to provide the public with the following services: • supply or treatment of water, hydraulic power or gas; • sewerage, drainage or stormwater services; • transport services including road, rail or water; • waste management facilities; or • network infrastructure. The use includes maintenance and storage depots and other facilities for the operation of the use.	✓	✓	✓	✓
Veterinary services	Premises used for veterinary care, surgery and treatment of animals that may include provision for the short-term accommodation of the animals on the premises.	✓	✓		
Warehouse (including self-storage sheds)	Premises used for the storage and distribution of goods, whether or not in a building, including self-storage facilities or storage yards. The use may include sale of goods by wholesale where ancillary to storage. The use does not include retail sales from the premises or industrial uses.	✓	✓	✓	✓

Appendix C
AES Supporting Documents
Environmental Action Plans

1. WATER QUALITY MANAGEMENT ACTION PLAN – SURFACE AND GROUNDWATER

Objectives

- To prevent surface or groundwater contamination occurring as a result of civil airport activities; and
- To understand, minimise and mitigate impacts of airport activities on water quality or hydrological processes in waterways or downstream from the Civil Area.

Site Context and Potential Environmental Impacts

Townsville Airport is approximately two kilometres west of Rowes Bay, in the upper reaches of the Mundy Creek catchment. Rowes Bay forms part of the Great Barrier Reef Marine Park and World Heritage Area. A Palustrine (coastal saline swamp) wetland exists in the undeveloped land to the northeast of the terminal. No drainage is directed here from developed areas.

Stormwater enters the Civil Area from residential development and airport land under the management of the Department of Defence to the south and west. The majority is directed through an internal drainage network into the upper reaches of Mundy Creek, which discharges into Rowes Bay. Stormwater management is essential to maintain aquatic ecological health downstream and mitigate flood risk, however flood management is not a part of this Action Plan. The internal drainage network also plays an important role in flood mitigation within the local catchment.

Groundwater in this area is shallow and flows towards residential development in the south-east. Groundwater quality is monitored within areas with the potential for contamination and assessed with reference to Schedule 2 of the AEPR.

Civil airport activities with the potential to affect water quality at Townsville Airport include:

- Construction, earthworks and vegetation removal
- Use of pesticides and fertiliser
- Aircraft refuelling
- Plant and equipment refuelling
- Vehicle and aircraft washdown
- Aircraft, vehicle and mechanical plant and equipment maintenance
- Storage, handling, use and disposal of hazardous materials including underground fuel storage and liquid waste disposal storage tanks
- Historical land uses such as landfill and waste disposal
- Waste management infrastructure and storage

The above activities may lead to:

- Contamination from spillage, leakage or seepage into groundwater and/or surface/stormwater
- Contamination from disturbance of known and/or potential acid sulfate soils or contaminated sites
- Impacts from the erosion of disturbed areas and general maintenance activities, leading to the mobilisation of nutrients from mowing and garden upkeep, and inadequate maintenance of SQIDs

Measures to Prevent, Control or Reduce Environmental Impacts

Management measures to prevent, control or reduce potential impacts to water quality at Townsville Airport include:

- Implementation of the TAPL Water Quality Management Plan (WQMP). This Plan will consider the potential impacts identified above, and comprise at a minimum: objectives, legislative framework, responsibilities, monitoring program (method, parameters, frequency, locations) and analysis.
- Assessment of project design and potential construction impacts through regulatory approval process for TAPL and tenant developments.
- Considering and minimising water quality related impacts through the design and/or selection process for new infrastructure, construction methodology, plant and equipment, and reviewed as part of any ABC application and assessment.
- Construction environmental management plans (CEMPs) associated with construction activities or relevant new development will incorporate measures to minimise potential adverse impacts on surface and groundwater. (Note: Operational environmental management plans (OEMPs) or CEMPs may trigger amendments to the WQMP).
- Tenant and construction audits along with routine inspections of the Civil Area. Where activities have resulted in surface water or groundwater impacts, airport operators, contractors and tenants are required to undertake relevant measures to monitor, manage and/or remediate contamination caused by their operations.
- End of lease investigations, where applicable.
- Installation and maintenance of stormwater quality improvement devices.
- Spill response and reporting procedure.
- Waste handling procedure.
- Staff and tenant inductions and environmental awareness training.

Water Quality Management Targets (2023-2031)

Target	Timeframe
Completion of Water Quality & Trade Waste Management Plan review and update with consideration of changing factors influencing assessment of water quality at the Townsville Airport, such as amendments to legislation or new developments	5 yearly minimum or on changing factors
Completion of actions, identified in the WQMP, and documented in the Annual Environment Report (AER)	Annually
Completion of project (TAPL or tenant) design assessment for impacts on water quality included with regulatory approval applications	Per project
Assessment of construction impacts and approval of project CEMPs by TAPL and regulatory processes	Per project
Completion of project monitor for compliance with the approved CEMP	Per project

2. SOIL MANAGEMENT ACTION PLAN

Objective

- To minimise and mitigate impacts to soil through appropriate management and/or rehabilitation of contaminated sites.

Site Context and Potential Environmental Impacts

Townsville Airport is situated on sub-coastal land predominantly characterised by thin, sandy loam soils overlying heavy clay subsoils. These types of soils are poorly draining and highly dispersive with adverse chemical properties. These areas of acid sulfate soils have the potential to become acidic when exposed to air.

Townsville Airport has operated as an intensive military base and an international and domestic airport. The Airport overlies various depths of imported fill, and is a known location of historical use of PFAS-containing fire-fighting foam and resultant potential PFAS contamination. Potential PFAS contamination is the subject of a Detailed Site Investigation and subsequent management plan prepared by the Department of Defence. Notwithstanding, the bulk of current operations within the Civil Area take place on impervious surfaces, which reduces the likelihood of soil contamination.

Civil airport activities with the potential to impact soil at Townsville Airport include:

- Construction and earthworks
- Grounds maintenance, including vegetation removal and weed control
- Storage, handling, use and disposal of hazardous materials
- Aircraft refuelling and vehicle and aircraft washdown
- Aircraft, vehicle, and mechanical plant and electrical equipment maintenance
- Importation and placement of fill materials
- Waste management infrastructure, storage and disposal
- Demolition of buildings containing hazardous material

The above activities may lead to:

- Contamination from spillage, leakage or seepage or residual runoff from hardstand areas
- Water quality impacts and acidification from disturbance of actual and/or potential acid sulfate soils
- Contamination from imported materials
- Reuse of PFAS contaminated material within the Civil Area
- Erosion

Measures to Prevent, Control or Reduce Environmental Impacts

Management measures to prevent, control or reduce potential impacts to soil quality at Townsville Airport include:

- Assessment of project design and potential construction impacts through regulatory approval process for TAPL and tenant developments.
- Assessment of soil contamination and acid sulfate soil risk to inform planning, design and construction methodology.
- CEMPs associated with construction activities or relevant new development will incorporate measures to manage contaminated and/or acid sulfate soil, and mitigate erosion.
- Tenant and construction audits/routine inspections of the Civil Area. Where activities have resulted in soil contamination, airport operators, contractors and tenants are required to undertake relevant measures to monitor, manage or remediate contamination caused by their operations.
- Considering and minimising soil management related impacts through the design and/or selection process for new infrastructure, construction methodology, plant and equipment, and reviewed as part of any ABC application and assessment.
- Material imported to site shall be verified to be free from contaminants prior to importation to the Airport.
- End of lease investigations.
- Spill response and reporting procedure.
- Waste handling procedure.
- Vegetation removal and weed control procedure.
- Staff and tenant inductions and environmental awareness training.

Soil Management Targets (2023-2031)

Target	Timeframe
Ensure the Environmental Site Register (ESR) and Contaminated Site Register (CSR) are up to date	5 yearly or on changing factors
Completion of yearly actions identified in ESR or CSR documented in AER	Annually
Assessment of construction impacts and approval of project CEMPs by TAPL and regulatory processes	Per project
Assessment of materials stockpiled within the Civil Area for reuse consistent with PFAS NEMP	Per project

3. HAZARDOUS MATERIALS ACTION PLAN

Objectives

- To prevent pollution from occurring on the Airport or its environs through the appropriate storage, handling and use of hazardous materials; and
- Where feasible, substitute, minimise or eliminate the use of hazardous materials.

Site Context and Potential Environmental Impacts

Townsville Airport has been in operation since 1939, including a period as a military base during World War II. As noted above, the Airport overlies various depths of imported fill, and is a known location for the historical use of fire-fighting foam and potential PFAS contamination, subject of a Detailed Site Investigation undertaken by the Department of Defence. There is also a possibility of dangerous items of Unexploded Ordnance in the Civil Area.

Hazardous materials used in the Civil Area of Townsville Airport are managed according to their nature and scale. The use, handling, storage and disposal of hazardous materials is managed in accordance with regulatory requirements for workplace health and safety, the EMS and the Aerodrome Emergency Plan.

Civil airport activities that involve storage and handling of hazardous materials include:

- Bulk fuel storage and handling including aviation, unleaded and diesel fuels
- Aircraft refuelling
- Vehicle and aircraft washdown facilities
- Aircraft, vehicle and mechanical plant and electrical equipment servicing and maintenance
- Construction, earthworks and demolition
- Quarantine waste stores and operations
- General airport operation, construction, maintenance and landscaping including weed and animal pest control

The above activities may lead to:

- Contaminated surface and groundwater, land or air
- Increased risk to human and environmental health

Measures to Prevent, Control or Reduce Environmental Impacts

- Assessment of hazmat storage and handling requirements and review of the Asbestos Management Plan is undertaken during the project design phase and construction processes for new facilities and developments.
- CEMPs associated with operational and construction activities or relevant new developments will incorporate measures to minimise potential adverse impacts on land, water or air.
- Tenant and construction audits/routine inspections of the Civil Area. Where activities have resulted in hazardous materials causing water, land or air contamination, airport operators, contractors and tenants are required to undertake relevant measures to monitor, manage or remediate contamination caused by their operations.
- Spill response and reporting procedures.
- Waste handling procedures, where hazardous materials are periodically substituted or replaced where feasible, with all associated handling and disposal works undertaken by TAPL staff or contractors with the appropriate relevant licences.
- Review and management of tenant OEMPs and annual reporting.
- Staff and tenant inductions and environmental awareness training.

Hazardous Materials Management Targets (2023-2031)

Target	Timeframe
Ensure the ESR and CSR documentation is up to date	5 yearly or on changing factors
Review and update existing TAPL Asbestos Management Plan	By 2024
Ensure and enforce mitigation measures within CEMPs to minimise potential adverse impacts associated with hazardous materials	As required
Review Emergency Response Plan and Spill Response procedures to ensure validity and serviceability and communicate to relevant stakeholders including tenants	Annually

4. GROUND-BASED NOISE ACTION PLAN

Objective

- To reduce and mitigate impacts from noise associated with ground-based airport activities.

Site Context and Potential Environmental Impacts

The responsibility for noise management at Townsville Airport is shared between a number of different organisations. The AEPR requires the operator of an undertaking at an airport to take all reasonable and practicable measures to prevent or minimise the generation of offensive noise from the undertaking. Generally, TAPL receives a low volume of noise enquiries related to ground-based noise. The Department of Defence is responsible for ground-based noise generated by military activities.

Airservices Australia is responsible for the noise generated from aircraft during flight, landing, take-off and taxiing.

Civil airport activities with the potential to generate ground-based noise include:

- Aircraft ground running
- Aircraft maintenance and testing activities
- Mobile plant and equipment operation
- Airport and infrastructure maintenance activities
- Construction and demolition works

These activities have the potential to cause nuisance to airport operators, passengers and neighbouring communities.

Measures to Prevent, Control or Reduce Environmental Impacts

Management measures to prevent, control or reduce ground-based noise include:

- CEMPs associated with operational and construction activities or relevant new developments will incorporate measures and responsibilities for reducing and managing construction-based noise.
- Tenant and construction audits/routine inspections of the Civil Area.
- Aircraft Ground Running Policy is reviewed in response to airport operation issues and tenant feedback.
- All ground-based noise enquiries entered into the Communications Register, with each enquiry reviewed and appropriate corrective action taken.
- Vehicles, plant and equipment are regularly serviced and maintained.
- Ground-based noise related impacts are considered and minimised through the design and/or selection process for new infrastructure, construction methodology, plant and equipment, and reviewed as part of any ABC application and assessment.
- Staff and tenant inductions and environmental awareness training.

Ground-based Noise Management Targets (2023-2031)

Target	Timeframe
Review the TAPL Ground Running Policy to ensure that it is relevant to this Master Plan period	By 2024
Ensure and enforce mitigation measures within CEMPs to minimise potential adverse noise impacts associated with construction activities	As required
Ensure complaints process implemented and documented in the Communications Register	As required

5. LOCAL AIR QUALITY ACTION PLAN

Objectives

- To reduce air emissions from ground-based airport operations and activities; and
- To support airlines and advocate for cleaner and more fuel-efficient aircraft.

Site Context and Potential Environmental Impacts

The AEPR requires the operator of an undertaking at an airport to take all reasonable and practicable measures to prevent or minimise the generation of pollution from the undertaking.

Air quality outside the airport boundary is subject to the provisions of the *Queensland Environmental Protection Act 1994*. Air emissions generated by aircraft are regulated by the *Air Services Act 1995* and associated regulations.

The Queensland Department of Environment and Science monitor air quality in Townsville; the closest air quality monitoring station to Townsville Airport is in the suburb of North Ward, being 3.5km east of the Airport.

Public complaints are infrequent for the Civil Area, however those received relating to air quality, such as nuisance dust or odour, are investigated and changes made to operations and/or procedures as needed.

Civil airport activities with the potential to generate air emissions include:

- Ground operations (including ground-based movement, refuelling and electricity generating equipment)
- Vehicle, plant and equipment operations
- Use of air-conditioners, pumps and generators
- General aviation maintenance, including spray painting and paint stripping activities, workshop activities and cleaning operations using organic solvents
- Use of ground power units and auxiliary power units
- Use, handling, storage and disposal of hazardous materials
- Removal and/or damage to asbestos containing materials
- Grounds maintenance, including vegetation removal and weed control
- Construction and demolition works
- Controlled burns

Air emissions associated with civil airport activities have the potential to lead to the following environmental impacts:

- Public nuisance
- Offensive odours (eg. food preparation, wastewater, aircraft exhaust, refuelling operations)
- A reduction in visibility through dust and smoke generation
- Airborne pollution, including contributions to climate change and ozone depletion

Measures to Prevent, Control or Reduce Environmental Impacts

Management measures to prevent, control or reduce air emissions include:

- CEMPs for construction activities and all relevant new developments must include details of measures (e.g. dust control measures) to appropriately manage the environmental risks posed by construction activities, including air emissions (e.g. dust suppression methods).
- Tenant and construction audits/routine inspections of the Civil Area. Where activities result in impacts to air quality, airport operators, contractors and tenants are required to undertake relevant measures to monitor, manage or prevent air quality impacts caused by their operations.
- Local air quality related impacts are considered and minimised through the design and/or selection process for new infrastructure, construction methodology, plant and equipment, and reviewed as part of any ABC application and assessment.
- Collection and disposal of ozone-depleting substances from air-conditioning units by licensed contractors.
- Undertake consultation with key stakeholders prior to conducting controlled burns.
- Stabilise stockpiles and unsealed areas exposed by earthworks for dust control.
- Staff and tenant inductions and environmental awareness training.

Local Air Quality Management Targets (2023-2031)

Target	Timeframe
Ensure and enforce mitigation measures in CEMPs to minimise potential adverse impacts on local air quality associated with ground-based operations and construction activities	As required
Ensure the EMS documentation is up to date with servicing and maintenance of TAPL plant and equipment by TAPL Asset Services	As required
Tenant audit form reviewed to address potential air quality impacts by tenant operations	As required

6. ENERGY EFFICIENCY ACTION PLAN

Objectives

- To minimise energy consumption and improve efficiency of all facilities under TAPL operational control; and
- To focus on renewable energy procurement practices that support QAL's target to achieve Net Zero for Scope 1 and 2 emissions by 2030.

Site Context and Potential Environmental Impacts

With the forecast growth in passenger numbers, energy consumption is expected to increase. Avoiding consumption of energy where feasible and minimising non-renewable electricity and fuel use is of key importance.

This approach also minimises greenhouse gas emissions which contribute to climate change.

Civil airport activities under TAPL's operational control, including those with the potential to generate greenhouse gas emissions include:

- Electricity use (lighting, air conditioning, refrigeration etc.)
- Fuel use (plant and equipment operation, generators, vehicle and aircraft ground running)
- Operation of air-conditioning units and gas insulated switchgear

The above activities may lead to:

- Energy use
- Generation of greenhouse gas emissions
- Depletion of natural resources.

Measures to Prevent, Control or Reduce Environmental Impacts

Management measures to improve energy efficiency include:

- Specialist contractor management of the heating, ventilation, and air conditioning system (HVAC) to ensure optimum efficiency.
- Monitoring and visual presentation of energy consumption via the Building Management System (BMS) to identify high usage areas and facilitate optimum efficiency.
- CEMPs associated with operational and construction activities or relevant new developments will incorporate measures to appropriately manage the environmental risks posed by electricity and fuel use.
- Tenant and construction audits/routine inspections of the Civil Area. Where activities result in energy use and associated green-house gas emissions, airport operators, contractors and tenants are required to undertake relevant measures to monitor, manage or prevent impacts caused by their operations.
- Energy use related impacts are considered and minimised through the design and/or selection process for new infrastructure, plant and equipment, and reviewed as part of any ABC application and assessment.
- Carbon mapping, and implementation of reduction initiatives, including certification under the Airports Council International Airport Carbon Accreditation (ACA) framework.
- Staff and tenant inductions and environmental awareness training.

Energy Efficiency Management Targets (2023-2031)

Target	Timeframe
Update Townsville Airport Development Guidelines (2016) to include energy efficient development principles	By 2024
Ensure and enforce measures in CEMPs that manage energy and fuel consumption in operational and construction activities	As required
Ensure EMS documentation is up to date with records of servicing and maintenance of TAPL plant and equipment. (As plant and equipment reach end-of-life, assess whether to replace with energy efficient or low emissions alternatives)	As required
Advocate where opportunities arise, that new procedures and systems contribute to maintaining or improving existing ACA and reaching Net Zero	As required
Tenant audit form reviewed to include energy efficiency initiatives	As required

7. WATER EFFICIENCY ACTION PLAN

Objective

- To improve the efficiency of water consumption at all facilities under TAPL operational control.

Site Context and Potential Environmental Impacts

Townsville is located in the Burdekin Dry Tropics and has distinct seasonal rainfall periods primarily associated with cyclonic activity. Often there are extended dry periods where Council is required to implement water restrictions to manage water supply.

TAPL has installed data loggers at most water meters providing granular data to assist with identifying leaks and high use areas to facilitate efficient water usage.

Examples of initiatives that assist with reducing water consumption at Townsville Airport include reviewing the HVAC efficiency, which relies on an evaporative cooling system, and promoting the use of local drought tolerant species to minimise irrigation requirements.

Operational activities involving the use and consumption of water resources at Townsville Airport include:

- Cooling towers associated with air-conditioning units
- Irrigation of grounds and gardens
- Construction works such as dust suppression
- Cleaning, amenities and hygiene management
- Washdown of aircraft and airport vehicles
- Maintenance activities, including irrigation
- Aircraft water uptake and waste disposal
- Commercial kitchen facilities

The above activities may lead to:

- Depletion of limited water resources

Measures to Prevent, Control or Reduce Environmental Impacts

Measures to improve the water efficiency within the Civil Area includes:

- Routine site inspections for leak detection.
- Routine monitoring and servicing of the water-cooled HVAC by specialist contractors to maintain high operating efficiency.
- Real-time monitoring and logging of water consumption to identify key use areas.
- Awareness of water conservation principles communicated via the tenant auditing program.
- Water conservation principles considered during project design phase.
- CEMPs to include monitoring of water consumption for projects involving earthworks and other key water consuming activities.
- Staff and tenant inductions and environmental awareness training.
- Assessment of tenant developments for sensitive water design.

Water Efficiency Management Targets (2023-2031)

Target	Timeframe
Revise the TAPL Water Quality Management Plan (WQMP) to quantify potable and non-potable water consumption associated with facilities and activities under TAPL operational control relevant to this Master Plan period	By 2024
Implement a WQMP for potable water use and consumption and update if triggered by a CEMP	2024-2031
Develop a Water Efficiency Management Plan, including for irrigation	By 2024
Ensure and enforce mitigation measures in CEMPs to minimise water use associated with construction activities	As required
Metering and monitoring included in updated Airport Development Guidelines	By 2024
Logging and reporting of water usage for key projects involving earthworks or other heavy water consuming activities	As required

8. WASTE MANAGEMENT ACTION PLAN

Objective

• To maximise waste diversion from landfill.

Site Context and Potential Environmental Impacts

Waste generated by airport users in the Civil Area includes a range of diverse waste products such as organic waste (food scraps and vegetation), recyclable items (paper, metals, glass and plastics), liquid sanitary and trade waste, hazardous waste, regulated waste associated with mechanical servicing of plant and equipment, and electronic equipment.

TAPL is committed to managing waste generated by its own operations and common use areas consistent with the principles of the waste management hierarchy framework contained in the Queensland Government *Waste Avoidance and Resource Productivity Strategy 2014-2024* and encourages other airport users to do likewise.

TAPL holds a Trade Waste Agreement with Townsville City Council and is responsible for development, maintenance and operation of the sewer reticulation system within the site to the single discharge point into Council's network. Airport user license and lease agreements require compliance with relevant legislative obligations including Council's sewer admission standards.

Regular maintenance of sewer pre-treatment devices is undertaken to facilitate compliance with sewer admission standards and minimise the risk of environmental discharge incidents. Maintenance of these is generally the responsibility of the operator, however some leases include specific responsibilities.

The Council Trade Waste Agreement requires regular monitoring to confirm compliance with sewer admission standards for discharge to the Council network.

Hazardous materials and associated waste products (regulated waste) are handled, stored and disposed of in accordance with relevant legislative requirements, including removal by licensed contractors.

Civil airport and aviation activities with the potential to generate waste include:

• Tenant aircraft painting facilities
• Vehicle, plant and equipment maintenance facilities
• Vehicle and aircraft washdown
• Cleaning, amenities and hygiene management
• Landscaping and weed management
• Terminal operations, including food and beverage provision
• Commercial kitchens
• Administration and airport offices
• Construction and demolition works

The above activities may lead to:

• An increased demand on local landfill
• Unnecessary depletion of natural resources
• Increased fuel consumption associated with the transport and disposal of waste
• Soil contamination and scavenging opportunities for and attraction of wildlife
• Pollution due to inappropriate disposal of waste

Measures to Prevent, Control or Reduce Environmental Impacts

Waste management measures include:

- Tenant and construction audits/routine inspections of the Civil Area. All airport tenants, contractors and operators are required to ensure that procedures are in place to manage specific environmental risks associated with their activities. A system of regular audits has been designed to monitor compliance.
- Implementation of QAL's Procurement Policies, which include sustainability considerations.
- CEMPs for civil and construction projects to reflect QAL/TAPL requirements for separation of recyclable materials, reusable resources, including potential fill, and landfill material for off-site disposal. Similarly, hazardous, regulated or contaminated waste should be segregated and disposed of in accordance with relevant legislation.
- Monitoring and reporting in compliance with the Townsville City Council Trade Waste Agreement.
- Multiple waste bins are located throughout TAPL managed facilities to collect general waste materials.
- Recycling promoted and encouraged through provision of co-mingled bins throughout the terminal and in all TAPL-managed airport buildings.
- Waste collected and disposed of through an approved waste management facility.
- Waste to landfill minimised through the implementation of the TAPL Public Place Recycling Program.
- Regulated waste is handled, stored and disposed of in accordance with relevant legislative requirements including removal by licensed contractors.
- Staff and tenant inductions and environmental awareness training.

Waste Management Targets (2023-2031)

Target	Timeframe
Review the TAPL Water Quality and Trade Waste Management Plan's relevance for this Master Plan period	By 2024
Undertake a waste audit of airport tenant and operator facilities and develop a waste management plan for all streams of waste	2024
Implement Trade Waste Management Plan and update if triggered by a CEMP	2024-2028
Review Tenant Auditing program	Annually

9. BIODIVERSITY ACTION PLAN

Objectives

- To protect and maintain biodiversity values at Townsville Airport; and
- To minimise the likelihood of bird and wildlife strike risks at Townsville Airport.

Site Context and Potential Environmental Impacts

Although the Civil Area of Townsville Airport does not contain areas identified as of environmental significance, general ecological values exist on site and environmentally significant areas are present outside the leased Civil Area, including the Townsville Town Common to the north and Great Barrier Reef Marine Park and World Heritage Area, five kilometres to the east.

Historic landfill areas to the north-east of the terminal, approximately 35 hectares in size, comprises two Category B least concern remnant vegetation regional ecosystems (11.1.1 *Sporobolous virginicus* grassland on marine clay plains and 11.3.27 Freshwater wetlands); one of which contains palustrine wetland. The site also contains essential habitat for two bird species (Eastern curlew, *Numenius madagascariensis*; Western Alaskan bar-tailed godwit, *Limosa lapponica baueri*), which are listed as threatened under the *Nature Conservation Act 1992* and the EPBC Act. However, these species have not been recorded on the Townsville Airport site, despite frequent operational bird monitoring under the Wildlife Hazard Management Plan.

A number of migratory birds have been recorded within the Civil Area, including the Fork-tailed Swift (*Apus pacificus*), Eastern Great Egret (*Ardea modesta*), Barn Swallow (*Hirundo rustica*), Rainbow Bee-eater (*Merops ornatus*) and Satin Flycatcher (*Myiagra cyanoleuca*). These species are not known to roost or breed on the Airport site, but periodically use this area for foraging.

The historic landfill area has also recorded up to 56 species of non-native plant, four of which are listed as Weeds of National Significance including *Cryptostegia grandiflora* (Rubber vine), *Parkinsonia aculeata* (Parkinsonia), *Jatropha gossypifolia* (Bellyache Bush) and *Eichhornia crassipes* (Water hyacinth), which are managed via a combination of controlled burns and the Weed Management Plan.

Civil airport activities with the potential to impact upon biodiversity include:

- Grounds maintenance activities, including vegetation clearing and slashing
- Weed control and stock-piling of green waste
- Hazardous wildlife procedures
- Vehicle or aircraft movements
- Construction and demolition works
- Lighting from airport infrastructure

The above activities may lead to:

- Loss or degradation of foraging habitat
- Reduced native biodiversity
- Introduction and/or spread of weed and animal pest species
- Direct injury through vehicle collision or wildlife hazard procedures
- Direct injury through vehicle collision or wildlife hazard procedures
- Disturbance of potential acid sulfate soils
- Light pollution affecting wildlife

Surrounding land uses may also impact upon biodiversity within the Civil Area through predation by domestic dogs and cats, and habitat clearance associated with development. Declared animals, such as feral pigs, may also impact on airport operations.

Measures to Prevent, Control or Reduce Environmental Impacts

TAPL is committed to managing biodiversity and wildlife hazard risks at Townsville Airport and reducing the potential impact of airport operations on wildlife safety, biodiversity and nearby areas of environmental significance.

Fire, weed and pest management practices ensure TAPL meets its biosecurity obligations whilst improving ecological values on site. For example, practices include reducing fuel loads and preventing the introduction, establishment and spread of common or declared pest or plant species throughout the Airport site or onto neighbouring properties and natural areas.

Management measures to protect biodiversity and minimise threats to wildlife include:

- Tenant and construction audits/routine inspections of the Civil Area. All airport tenants, contractors and operators are required to ensure that procedures are in place to manage specific environmental risks associated with their activities. A system of regular audits has been designed to monitor compliance.
- CEMPs incorporating measures to minimise potential adverse impacts to biodiversity required for all relevant new developments. CEMPs may trigger a review of Vector Management or Biosecurity Management Plans.
- Airside monitoring of wildlife is conducted daily by airside safety officers, in accordance with the Wildlife Hazard Management plan.
- Landscaping and maintenance procedures promote using locally sourced, endemic species, and avoid bird attracting species.
- Weed and pest management.
- Installation and maintenance of pollution control devices.
- Environmental incident response and reporting procedure.
- Waste handling procedure.
- Relocation of fauna from construction sites.
- Hazardous wildlife management procedures and training.
- Potential lighting impacts on fauna are considered in the planning and design of new developments.
- Staff and tenant inductions and environmental awareness training.

Minimising Wildlife Hazard Risk

TAPL maintains a Wildlife Hazard Management Plan for both TAPL managed areas and the Joint User Areas of Townsville Airport.

The Wildlife Hazard Management Plan defines the risk that wildlife pose to air traffic and sets future performance indicators and procedures for the ongoing management of risks to aviation safety and for the preservation of existing wildlife.

Mosquito Management and Control

Guided by the Vector (Mosquito) Management Plan (2019), TAPL is responsible for the management of mosquitoes in the Civil Area of Townsville Airport. Civil aviation operations have the potential to facilitate the introduction and/or spread of mosquitoes on site and to the surrounding area. The Airport lies adjacent to potential mosquito breeding grounds, while Airport operations and building landscapes also have the potential to harbour mosquito breeding grounds.

As a result, TAPL has a requirement to comply with the World Health Organization International Health Regulations, relevant to mosquito management. The Australian Department of Agriculture conducts regular mosquito surveillance of the Townsville Airport passenger terminal and Townsville City Council inspect and apply mosquito treatment to Townsville Airport's internal drainage network.

Biodiversity Management Targets (2023-2031)

Target	Timeframe
Review and update the TAPL Wildlife Hazard Management Plan	Annually
Review and update the TAPL Mosquito (Vector) Management Plan	Annually
Review and update landscaping elements of Townsville Airport Development Guidelines (2016)	By 2024
Revise and implement 2016 Weed/Pest/ Biosecurity Management Plan	2024 and ongoing
Ensure mitigation measures within CEMPs to minimise potential adverse impacts associated with construction activities on biodiversity are implemented	As required

10. HERITAGE ACTION PLAN

Objectives

- To minimise potential adverse impacts to items of indigenous or built heritage value; and
- To ensure the management of the airport is compatible with, and guided by, identified heritage values and that the identified heritage values are known and understood.

Site Context and Potential Environmental Impacts

The Civil Area of Townsville Airport is a highly modified, built environment that has been heavily disturbed through historic land use activities. Previous studies have indicated that there are no sites of significance to Aboriginal or Torres Strait Islander people recorded on the TAPL lease area (Cultural Heritage Desktop Assessment, AECOM 2015).

However, there are identified areas of cultural heritage value in the vicinity outside of the Airport precinct. As the airfield is recognised as an area of built heritage, there is a potential for unknown artefacts of Indigenous or built heritage value to be present under the Civil Area. Civil aviation activities have the potential to impact upon cultural heritage values through the loss or damage to unknown artefacts.

TAPL is committed to managing cultural heritage values within the Civil Area should they be discovered and minimising the potential impact of its operations on heritage values of the surrounding area.

Airport activities with the potential to impact upon heritage values include:

- Grounds maintenance activities and construction;
- Excavation and demolition work; and
- Fire and backburning.

Measures to Prevent, Control or Reduce Environmental Impacts

Management measures to protect cultural heritage values include:

- CEMPs incorporating measures to minimise potential adverse impacts to cultural heritage required for all new developments. During excavation and earthworks, include specific measures for managing artefacts including notification and stop work procedures. Ensure that risks of damage to areas of cultural heritage are carefully monitored.
- Re-establishment of an Indigenous Working Group, to allow for ongoing engagement and advice on cultural heritage matters and identification of potential sites of indigenous significance.
- Tenant and construction audits and routine inspections of the Civil Area. All airport tenants, contractors and operators are required to ensure that procedures are in place to manage specific environmental risks associated with their activities. A system of regular audits has been designed to monitor compliance.
- Staff and tenant inductions, environmental and cultural heritage awareness training and programs.

Heritage Management Targets (2023-2031)

Target	Timeframe
Ensure mitigation measure in CEMPs to minimise impacts associated with construction activities on cultural heritage	As required
Ensure cultural heritage awareness training and inductions for TAPL staff, airport operators and contractors are informed and relevant	As required
Develop a Cultural Heritage Management Plan or policy for cultural heritage finds and remains, and include a representative of the relevant Traditional Owners (via TAPL's Indigenous Working Group) on relevant Airport working groups or committees	By 2024

AES MONITORING SCHEDULE

Target	Timeframe	Frequency of TAPL Review
All	Tenant Environment Management Guideline	To be developed
Water quality	CEMPs	Monitoring detailed in CEMPs
	Water Quality Management Plan (WQMP)	WQMP review every 5 years
		WQ monitoring report – annually
		WQMP updates triggered by CEMPs
Soil quality	CEMPs	Monitoring detailed in CEMPs
	Contaminated Site Register	Contaminated sites added to EMS – annual summary report
Hazardous material	CEMPs	Monitoring detailed in CEMPs
	TAPL Spill Management Procedure/ Aerodrome Emergency Plan	Incidents maintained in EMS – annual summary report
Ground-based noise	CEMPs	Monitoring detailed in CEMPs
		Incidents maintained in EMS – annual summary report
Local air quality	CEMPs	Monitoring detailed in CEMPs
Energy	Carbon footprint mapping for ACA certification	Annually
Water (incl. potable water)	Water usage logged in BMS	Continuous
	TAPL Development Guidelines for Landscaping	By 2024
Waste	Trade waste agreement	Monthly trade waste monitoring
Biodiversity	Wildlife Hazard Management Plan v8 (TAPL 2020)	Biosecurity reporting - annually
	Vector Management Plan (TAPL 2019)	WHMP reporting – annually
		VMP reporting – annually
		All plans fully revised every 5 years
		Plan updates triggered by CEMPs as relevant

TSV Townsville Airport

Appendix D Glossary

Term	Definition
Airport	A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.
Airport Building Controller (ABC)	Position appointed by the Secretary of the DITRDCA to administer regulatory functions in relation to airport building control matters.
Airport Environment Officer (AEO)	Position appointed by the Secretary of the DITRDCA to administer onsite regulatory functions on behalf of the Department in relation to environmental matters.
Airport Master Plan	The principal planning document required under the Airports Act that sets out a 20-year plan for each leased federal airport.
Airport Operator	The person(s) or organisation whose name appears on the licence document and / or in the aeronautical aviation publication En Route Supplement Australia (ERSA).
Airport-lessee Company	A company that holds an airport lease under the Airports Act whose sole business is to run the airport.
Airservices Australia	The Australian Government agency providing air traffic control management and related airside services to the aviation industry.
Airside	The part of the airport grounds, and the part of the airport buildings, to which the non-travelling public does not have free access.
Air Traffic Control	Air traffic control service provided by Department of Defence in the context of Townsville Airport.

Term	Definition
Apron	The part of an airport used for: (a) the purpose of enabling passengers to board, or disembark from aircraft; (b) loading cargo onto, or unloading cargo from, aircraft; and/or (c) refuelling, parking or carrying out maintenance on aircraft.
Australian Noise Exposure Concept (ANEC)	A set of contours based on hypothetical aircraft operations at an airport in the future. As ANEC maps are based on hypothetical assumptions and may not have been subject to review or endorsement, they have no official status and cannot be used for land-use planning. However, an ANEC can be turned into an ANEF.
Australian Noise Exposure Forecast (ANEF)	A system developed as a land-use planning tool aimed at controlling encroachment on airports by noise-sensitive buildings. The system underpins Australian Standard AS2021 'Acoustics – Aircraft noise intrusion: Building siting and construction'. The standard contains advice on the acceptability of building sites based on ANEF zones. ANEFs are the official forecasts of future noise exposure patterns around an airport because they constitute the contours on which land-use planning authorities base their controls.
Busy hour	The highest hourly passenger flow in the average peak day of the peak month.
Construction Environmental Management Plan (CEMP)	Construction Environmental Management Plan developed to protect the environment and public safety during any proposed works.
Civil (Use) Area	The Civil Use Area is one of the three areas defined by the Joint User Deed at Townsville Airport. TAPL occupies the civil use area exclusively for civil aircraft operations.
Code C aircraft	Classified as a narrow-body aircraft with a wingspan of between 24 metres and up to but not including 36 metres. Examples are the Airbus A320 series and Boeing 737 series.

Term	Definition
Code E aircraft	Classified as a wide-body aircraft with a wingspan of between 52 metres and up to but not including 65 metres. Examples are the Airbus A330 or A340 and Boeing 747 or 777.
Community Aviation Consultation Group (CACG)	A mechanism to ensure appropriate community engagement on airport planning and operations, pursuant to the Airports Act.
Environmental impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services.
Environmental Management System (EMS)	A management system that includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy and managing the environmental aspects of an organisation.
Environmental objective	Overall environmental goal, arising from the environmental policy, that an organisation sets for itself to achieve, and which is quantified where practicable.
Environmental target	Detailed performance requirement, quantified where practicable, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
Federal Minister	The Federal Minister for Infrastructure, Transport, Regional Development and Local Government.
Joint ANEF	Australian Noise Exposure Forecast produced for civil and military operations at Townsville Airport by the Department of Defence, in accordance with the requirements of the Airports Act.
Joint User Aerodrome / Facility	An airport under the control of the Department of Defence in respect of which an arrangement under Section 20 of the *Civil Aviation Act 1988 (Cth)* is in force.
Joint User Deed	A Joint User Deed ratified on 9 June 1998 between the Commonwealth of Australia represented by the Department of Defence and Australian Airports Limited (now Townsville Airport Pty Ltd (TAPL)) which defines the responsibilities of each party for the operation and management of Townsville Airport.
Joint User Area	The Joint User Area is one of the three areas defined by the Joint User Deed at Townsville Airport. The Department of Defence manages the Joint User Area. TAPL has access to and use of the Joint User Area for civil aircraft operations and contributes to maintenance of this area.
Landside	The part of the airport grounds, and the part of the airport buildings, to which the non-travelling public has free access.
Major Development Plan (MDP)	A major development plan is required for each major development at an airport and is prepared by the airport-lessee company taking into account public comments. Part 5, Division 4 of the *Airports Act 1996 (Cth)* provides a full definition.
Military Area	The Military Area is one of the three areas defined by the Joint User Deed at Townsville Airport. The Department of Defence occupies the Military Area exclusively as an RAAF Base.
Obstacle Limitation Surfaces (OLS)	A series of surfaces that define the volume of airspace at and around an aerodrome to be kept free of obstacles. The OLS permit the intended aircraft operations to be conducted safely and prevent the aerodrome from becoming unusable by the growth of obstacles.
Precision Approach Path Indicator (PAPI)	A visual aid that provides guidance information to help a pilot acquire and maintain the correct approach (in the vertical plane) to an airport.
Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS)	A set of International Civil Aviation Organization rules for designing instrument approach and departure procedures at aerodromes.
Regular Public Transport (RPT)	A general public flight service performed on a fixed schedule and specified air routes for specific fees.
Taxiway	A path on an airport connecting runways with apron, hangars, terminals and other facilities.
Townsville Airport Pty Ltd (TAPL)	Airport-lessee company of Townsville Airport, and a subsidiary of Queensland Airports Limited.

Reference List

AECOM Australia Pty Ltd 2015, C*ultural Heritage Desktop Assessment*, Townsville Airport Pty Ltd, Townsville.

Airports Act 1996 (Cth)

Airports Regulation 1997 (Cth)

Airservices Australia 2023, *Understanding Aircraft Noise*, Airservices Australia, viewed 14 March 2023, <*https://www.airservicesaustralia.com/community/environment/aircraft-noise/monitoring-aircraft-noise/understanding-aircraft-noise/*>.

Queensland Government 2017, *State Planning Policy*, Department of Infrastructure, Local Government and Planning, Brisbane.

Queensland Government 2020, N*orth Queensland Regional Plan*, Department of Infrastructure, Local Government and Planning, Brisbane.

Townsville City Council 2017, *Townsville City Plan* (Version 2022/01), City of Townsville, Townsville.

Acknowledgements

QAL acknowledges the following for their contribution to this document:

- ARUP
- TTM/PMP Consulting
- Regional Economic Advisory
- NGH
- RLB
- RPS
- CAPA Consulting

TSV Townsville Airport