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Dubbo City Regional Airport | Master Plan 2019 – 2040

For Dubbo Regional Council

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MASTER PLAN FIGURES

Revision	Date	Description	Author	Verifier	Approver
0	May 2019	DRAFT	BMW	BJH	BJH
1	28 June 2019	DRAFT	BMW	BJH	BJH
2	22 July 2019	DRAFT	BMW	BJH	BJH
3	29 July 2019	DRAFT	BMW	BJH	BJH
4	16 March 2020	FINAL	BMW	BJH	BJH

1.0 INTRODUCTION

The Dubbo City Regional Airport is one of the leading regional airports in Australia. The Airport is located five (5) kilometres north-west of the Dubbo Central Business District on the Mitchell Highway, and is situated on an overall land holding of 358 hectares.

The Airport provides a lifeline for Central and Western New South Wales in the provision of access to Sydney, Brisbane, Melbourne and Newcastle by air. The Airport is also home to the Royal Flying Doctor Service, NSW Rural Fire Services Fire Control Centre and Training Academy and a growing General Aviation community. In addition, further development has recently been announced by the NSW State government in the form of a NSW Police Service training facility.

The Airport is operated and maintained by Dubbo Regional Council in conjunction with the Regular Public Transport (RPT) airlines and the Civil Aviation Safety Authority.

The Airport hosts direct return services from Dubbo to Sydney serviced by Qantas Link and Regional Express. Regional Express also provide services to Broken Hill. Fly Corporate provides daily services to Melbourne (Essendon) and Brisbane and Fly Pelican provides services between Dubbo and Newcastle.

The Dubbo City Regional Airport is strategically vital to the region, serving not only Western NSW but a large area of the Central West and north-west of the State. The facility is the largest airport in the Orana and Central West Regions and provides services for a catchment in excess of 200,000 persons.

The Airport in 2017 had a total of 216,489 passengers utilising 7,500 RPT services (inbound and outbound flights[1]).

The Airport also has significant general aviation activity with a total of 7,941 movements[2] during 2017. The general aviation movements comprise all aircraft that may be operating charter, flight training, air freight and other private aviation, emergency services, military and recreational aircraft. The Airport is also used for the purposes of refuelling transiting aircraft.

The considerable land holding and investment particularly by emergency services in the Airport, the continued population and business growth in the Orana and Central West Regions, the growth of mining operations and the potential for general growth of industry in Dubbo and the Orana Region has resulted in Dubbo Regional Council undertaking this review of the 2015-2036 Master Plan.

[1] Bureau of Infrastructure, Regional Development and Cities April 2019
[2] Avdata April 2019

2.0 PURPOSE

This Master Plan 2019 – 2040 is a strategic document which will guide future development decisions to achieve the sustainable growth and development of RPT and GA operations and facilities at the Airport and to ensure the Airport can capitalise on any future business and commercial development opportunities as the largest airport in the Central West, Orana and Western NSW.

Dubbo Regional Council, as the owner and operator of the Dubbo City Regional Airport, has pursued a program of planned growth and development over time with the first Master Plan prepared for the facility in 1997. Following completion of the first Master Plan in 1997, consultants, Airplan, undertook preparation of a Facilities Area Master Plan Review in 2002 as a review of the 1997 Master Plan and to ensure future projected passenger growth for the next 20 years was adequately provided for in respect of airport facilities.

Consultants Airbiz undertook preparation of a further Facilities Area Master Plan Review in 2008. The purpose of this Review was to provide a snapshot of Airport growth and whether this was keeping track with the development regimes provided in the 2002 Facilities Area Master Plan Review. In addition, the purpose of the 2008 Review was to examine further opportunities for commercial development on the Airport lands given the size of the landholding and the design of the Airport facilities.

The 2008 Master Plan Review provided a snapshot in time of Airport operations and the general state of regional airline operations. The Review placed a strong emphasis on airlines commencing jet operations within a reasonable time period. However, this has not yet proved to be the case with the Dubbo RPT airlines and other airlines that currently provide regional services predominately operating turboprop aircraft.

This Master Plan 2019 – 2040 prepared by REHBEIN Airport Consulting on behalf of Council has undertaken a review of landside and airside development and their relationships with each other while taking into account trends and drivers associated with regional airport planning.

This Master Plan provides for the necessary strategic intent and guidance for the Airport to allow regular operations up to and including Code 4D aircraft which could allow for Large Air Tanker used for firefighting by the NSW Rural Fire Service (RFS).

The Master Plan also recognises Council's commitment to enhancing transportation links between key industrial areas and arterial roads – particularly the potential for larger scale freight opportunities. The Master Plan recognises the Boeing 777 (B777) as a possible future aircraft for freight operations and has considered the suitability of key facilities and a possible freight precinct to accommodate B777 operations and similar aircraft in the future.

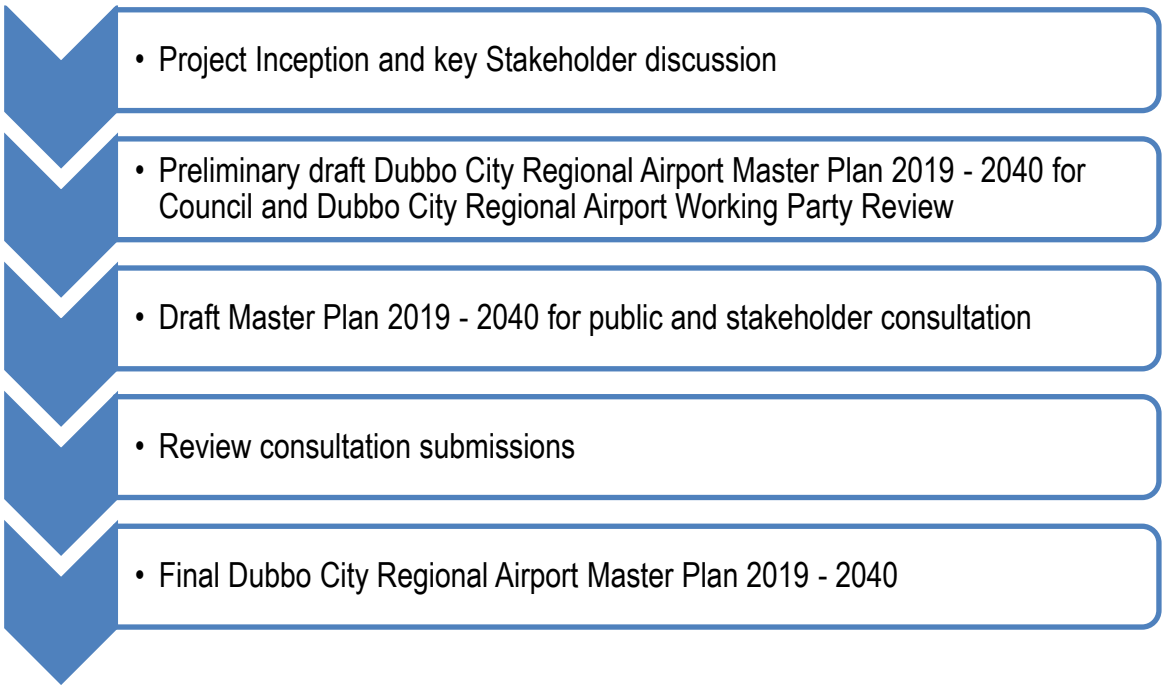
The Master Plan identifies key elements critical to positioning the progression and development of the Airport as a strategic service for the greater Western Region, supporting strategic planning for the facility to ensure Airport development keeps pace with the demands of the community.

2.1 MASTER PLANNING APPROACH

The approach adopted in the preparation of this Master Plan has included discussions with key stakeholders of the Airport.

Figure 1 shows the general approach that has been adopted in the review of this Master Plan.

Figure 1: Master Planning Approach



The specific objectives of the Dubbo City Regional Airport Master Plan 2019 – 2040 include the following:

- Undertake rational and strategic development of the Dubbo City Regional Airport which is critical to support the economy of the Central West and Orana Regions of NSW;
- Ensure the strategic significance of the Airport continues to be recognised by all levels of government;
- Ensure a sustainable and long term financial plan is in place to provide adequate funding for the maintenance and expansion of airside and landside infrastructure;
- Ensure that expansion of Airport infrastructure keeps pace with community needs and aviation trends;

- Enhancement of the existing runway and taxiway systems to remove weight limitations that currently exist and which are currently overcome by way of concessions for certain aircraft types.
- Ensure the Passenger Terminal is continually developed to accommodate the expected increase in passenger numbers and RPT movements;
- Recognition and development of commercial opportunities within the terminal precinct inherent and implied by growth projections;
- Increase take-off distance available on the main runway when required within existing airport boundaries to increase the range and payload of departing aircraft;
- To identify issues of energy supply and the influence of availability of energy in the development of the Airport;
- Develop land surplus to the needs of aviation in a manner designed to generate funding to service the massive cost of maintaining the facilities and at the same time relieve the community of that cost in part or in total; and
- Examine any future development opportunities for freight use and activity in conjunction and consultation with key industry types and groups; and
- Ensure the RPT Apron and associated infrastructure is continually developed in accordance with the future growth characteristic of the Airport.
- Ensure the maintenance of current assets and provide the flexibility to maintain assets with enhanced levels of service in response to market demands.
- The Master Plan will be subject to a biennial review to ensure that development timing remains consistent with the future planning of the Airport.

3.0 DUBBO CITY REGIONAL AIRPORT

Dubbo City Regional Airport is situated in the Dubbo Regional Local Government Area and occupies 358 hectares of land designated as SP2 Infrastructure: Air Transport and Emergency Services Facilities. The airport is owned and operated by the Dubbo Regional Council and a brief history of the Airport is provided in **Section 3.4**.

3.1 LOCATION

Dubbo City Regional Airport is located five (5) kilometres north-west of the Dubbo Central Business District, on the Mitchell Highway. The Airport is accessed directly off Mitchell Highway via Arthur Butler Drive which runs along the western airport boundary. The Airport location is illustrated on **Figure A** at **Appendix A**.

The Airport Ring Road and the wider traffic movement system on airport are considered to provide adequate vehicular access to the airport based on the current traffic generation and overall activity.

3.2 EXISTING AIRSIDE FACILITIES

The existing airside facilities are shown on **Figure B** at **Appendix A**.

3.2.1 RUNWAYS

Dubbo City Regional Airport has two sealed runways. The main runway is oriented roughly north-east – south-west and is designated Runway 05/23, and the secondary runway is orientated roughly east – west and designated Runway 11/29.

Runway 05/23

Runway 05/23 is the main sealed runway at the Airport. Runway 05/23 has an overall length of 1,706 metres and an overall width of 45 metres. The Runway is situated within a designated 150 metre wide runway strip. Runway End Safety Areas must be provided at the end of a runway strip, to protect the aircraft in the event of undershooting or overrunning the runway.

The runway is equipped with low intensity runway lighting and a single-sided Precision Approach Path Indicator (PAPI) system at each end. The runway is classified by the Civil Aviation Safety Authority (CASA) as a Code 3 non-precision instrument runway.

The heaviest RPT aircraft currently using the runway is the Bombardier Q400 operated by Qantas Link which has a maximum take-off weight of 29 tonnes and is classified as a Code C aircraft. The Airport also hosts periodic visits from RAAF aircraft including C130 Hercules and Challenger CL 604 jets.

The length of Runway 05/23 adequately services the current range of aircraft movements.

The Aircraft Classification Number/Pavement Classification Number (ACN/PCN) system of classification of pavement load carrying capacity is a procedure whereby the loading characteristics of an aircraft are compared with the supporting capacity of a pavement.

The pavement of Runway 05/23 is rated in the Airservices Australia publication En-Route Supplement Australia (ERSA) FAC YSDU (23 May 2019) as having an overall Pavement Concession Number of 19 / F / C / 1100 (160 psi) / T. The runway pavement is flexible on a subgrade strength category of low (C). The pavement is suitable for a maximum aircraft tyre pressure of 1,100 kPa (160 psi).

The Aircraft Classification Number of typical RPT aircraft operating into the Airport is provided in **Table 1** below.

Table 1: Common RPT Aircraft Classification Number (ACN)

Aircraft	Maximum Take-Off Weight (tonnes)	ACN
Bombardier Dash 8 Q200	16.5	8
Bombardier dash 8 Q300	18.6	9
Bombardier Dash 8 Q400	29.2	19
SAAB 340B	13.1	7
Embraer 135	20.1	12

Runway 11/29

Runway 11/29 (also referred to as the cross runway) is the secondary sealed runway at the Airport. Runway 11/29 has an overall length of 1,067 metres and an overall width of 18 metres. The Runway is situated inside a protected 90 metre wide runway strip. Runway 11/29 is classified as a Code 2B non-precision instrument runway.

The cross runway is predominately utilised for the purposes of General Aviation flight training and is used by the NSW Rural Fire Service during water bombing activities by Air Tractor and other associated aircraft. The overall weight limitation is eight (8) tonnes which limits its use by RPT and other larger aircraft.

3.2.2 TAXIWAYS

Taxiway Alpha

Taxiway Alpha (A) is a 23 metre wide taxiway that provides access from the RPT apron to Runway 05/23. Taxiway Alpha is suitable for use up to and including Code 3C aircraft. The taxiway also meets the minimum width for Code D aeroplanes, however is not provided with the shoulders which are required for Code D use.

Taxiway Alpha is suitable for night time operations due to the inclusion of taxiway edge lighting.

Taxiway Bravo

Taxiway Bravo (B) is a 15 metre wide, spray-sealed taxiway providing access between Runway 05/23 and the RPT apron. Taxiway Bravo is only suitable for use by up to Code 3C turboprop aircraft with a wheel base less than 18 metres. Taxiway Bravo also has taxiway edge lighting and is suitable for night time operations.

Taxiways Charlie, Delta and Echo

Taxiways Charlie is 10.5 metres wide and mostly suitable for Code B aircraft access. However, Code B access to the GA Apron via Taxiway Charlie is constrained when aircraft are parked in front of the Airmed, Airbush and/or Beal Aircraft Maintenance hangars.

Taxiways Delta and Echo are 10.5 metres wide and suitable for use by Code B aircraft with Maximum Take-off Weight (MTOW) up to 8,000 kg.

Taxiway Delta (D) runs parallel to Runway 05/23 from Taxiway Bravo (B) to the Runway 23 threshold.

Taxiway Echo (E) provides Code B access to the GA apron from Taxiway D.

Taxiways Hotel, Juliet and Kilo

Taxiways Hotel, Juliet and Kilo are not yet designated in AIP-ERSA, but have recently been constructed.

Taxiway Hotel (H) is 7.5 metres wide and provides access for Code A aircraft to the smaller private lease lots from Taxiway Delta.

Taxiway Juliet (J) is 10.5 metres wide and provides access for Code B aircraft to the commercial lease lots along the southern side of Runway 11/29 from Taxiway Delta.

Taxiway Kilo (K) is 10.5 metres wide and provides access for Code B aircraft to Runway 11/29 from the New GA Area commercial lease lots connecting to Taxiway Juliet.

3.2.3 APRONS

RPT Apron

The RPT Apron is situated adjacent to the passenger terminal and currently includes three Code C aircraft parking bays for RPT traffic in front of the terminal building. The RPT apron accommodates one Dash8Q400 and two SAAB340B simultaneously.

Two stand-off bays for smaller aircraft are provided at the southern end of the RPT Apron.

GA Apron

There is a limited number of tie down points for light aircraft to park on the grass area north-east of the RPT apron. Light aircraft parking is also provided on the western end of the GA apron. Code B access to the fuel bowser and to the Beal Aircraft Maintenance and Airbush hangars is available

via Taxiway E. However, access for Code B aeroplanes in to the GA Area via Taxiway C is restricted due to aircraft parking in front of the Airmed, Airbush and Beale hangars.

RFDS Apron

The Royal Flying Doctor Service (RFDS) has a dedicated apron within the RFDS lease area situated adjacent to Taxiway Echo. Recently, the RFDS has constructed four (4) aircraft shelters for the purposes of passenger transfer and refuelling (CASA approval pending).

3.2.4 LANDING AND NAVIGATION AIDS

VOR/DME

A VHF Omni-Directional Radio Range (VOR) and Distance Measuring Equipment (DME) south-east of the runways have recently been decommissioned by Airservices Australia.

NDB

Off airport is a Non-Directional Beacon (NDB) approximately one (1) kilometre west of Runway 05 threshold adjacent to the Mitchell Highway.

Visual Aids

A number of visual aids are provided at the Airport as listed below:

- Pilot activated low-intensity lighting on Runway 05/23;
- Precision Approach Path Indicator (PAPI) system on the left-hand side of Runway 05 and Runway 23;
- Two Illuminated Wind Director Indicators (IWDI), one located between Taxiways A and B, the other to the left of Runway 23 threshold;
- One non-illuminated wind indicator located to the left of the Runway 11 threshold;
- Edge lighting on Taxiways Alpha and Bravo;
- Pavement markings on both runways, taxiways and aprons; and
- An Automatic Weather Station (AWS) and Automated Weather Information Service (AWIS).

3.2.5 FUEL SUPPLIERS

Air BP is situated in a dedicated compound adjacent to the RFDS facility. Direct access is available to the airside apron. Landside access is available from Judy Jakins Drive (off Cooreena Road).

Air BP has one above-ground 55,000 litre tank supplying Avtur. There is further land available in this area to facilitate the construction of an additional tank.

VIVA comprises a split operation with the provision of a main storage facility fronting the western end of the GA apron and an additional storage tank and self-serve bowser located in the airside secure area at the eastern end of the GA apron. VIVA also has a dedicated office area off Judy Jakins Drive.

3.3 EXISTING LAYOUT AND USERS

Dubbo City Regional Airport consists of a passenger terminal area, general aviation (GA) area, emergency services area and privately leased lots refer **Figure C** at **Appendix A**.

Access to the passenger terminal area is via Arthur Butler Drive and the Airport Ring Road. Access to the GA area is via Cooreena Road as illustrated on Figure B at Appendix A.

3.3.1 TERMINAL AREA

The terminal area includes the passenger terminal building, car parking area, undercover security car parking, and a hire car area as illustrated on Figure C at Appendix A.

Passenger Terminal

The passenger terminal building incorporates a number of facilities, including the following:

- Check-in area providing check-in facilities for Fly Corporate, Qantas Link, Regional Express and Fly Pelican;
- Passenger screening security point;
- Secured airside departure lounge area incorporating a cafe and associated passenger facilities;
- Arrivals hall including one baggage carousel; and
- Car rentals desk area which provides facilities for five (5) car rental companies Additionally one (1) space is being used by tourism operator Warrior War Birds.

The check-in area and security screening point operate efficiently for the range of services and passengers currently utilising the airport. The check-in area includes six (6) check-in desks, all of which are currently used by the airlines. There is space for the installation of one (1) additional desk.

Expansion of the departure lounge area was undertaken by Council in 2013 in conjunction with the implementation of passenger screening. Passenger screening facilities were introduced at the Airport in March 2013 as a result of Qantas Link commencing operation of the Dash 8 (Q400 series) aircraft. All passengers are screened, whether travelling on Qantas Link Q400 services, other Qantas Link services and /or other airlines.

The existing baggage claim unit is shared by all airlines that currently operate to Dubbo. A single unit is currently adequate for the operational requirements of the airlines and their associated schedules.

General Car Parking

The Airport provides a large vehicle parking area to the west of the passenger terminal. This parking area provides approximately 325 vehicle parking spaces. There is no parking charge for this pubic parking space.

Vehicle access to the parking area is directly available from Arthur Butler Drive via the Airport Ring Road. Pedestrian access to the parking area is a short walk from both the departures and arrivals areas through a pedestrian crossing across Arthur Butler Drive/Airport Ring Road.

Secure Vehicle Parking

A secure and undercover vehicle parking area is located to the north of the passenger terminal. This area has traditionally been well patronised and is utilised by both business and leisure travellers. Payment systems are situated in the arrivals area of the passenger terminal and the egress point from the parking area.

Vehicular access to the secure vehicle parking area is directly available from Arthur Butler Drive/Airport Ring Road. Pedestrian access is through a short connection to the arrivals hall area.

The technology associated with the parking payment system has been raised by stakeholders as being temperamental. Council has indicated that it will seek a further review of the current facilities and new technologies for vehicle parking.

Hire Cars

The airport has a number of hire car companies currently providing services from the airport. Thrifty, Budget, Avis and Hertz currently lease terminal space in the form of a dedicated desk area in the arrivals area and a set number of vehicle parking spaces.

Council, in June 2019, opened a new hire car parking area to the north-east of the passenger terminal. The parking area can accommodate 118 vehicles. This has resulted in hire cars being removed from the main parking areas, subsequently freeing up public spaces.

Airservices Australia

Airservices Australia currently leases an area of land south of the passenger terminal which contains the decommissioned air traffic control tower and an associated compound. Council advises the air traffic control tower is proposed to be removed in the future due to the nature of the uncontrolled airspace around Dubbo and the presence of asbestos in the building. A date for removal of the structure has not yet been confirmed however, it is anticipated that it will be removed beyond 2020. The remaining Airservices building and associated equipment is planned to be decommissioned however, if and when the facility will be removed is unknown.

3.3.2 EMERGENCY SERVICES AREA

Royal Flying Doctor Service (RFDS)

The Royal Flying Doctor Service (RFDS) operates six (6) Beechcraft Super King Air aircraft as air ambulances from its facility within the GA area. The RFDS infrastructure includes treatment rooms, associated offices, aircraft hangar and engineering facilities suitable for the storage of two (2) King Air KA350 aircraft and an associated visitor centre. The RFDS facility also includes an apron area suitable for the parking of two (2) King Air KA350 aircraft. It is understood that Western Area Health also sublets part of the RFDS facility for Administration offices

The RFDS is expanding and building new infrastructure on site. The additions include the RFDS Visitor Experience Centre which will also attract school visits, tour groups and will be an important Airport asset. This facility allows four aircraft under cover, bays for passenger transfer and fuelling aircraft, administration centre, pilots' rest area, aeromedical nurse and a 'nurse-on-call' facility. Some 40-50 staff members are employed on site. It is also understood that the RFDS is interested in additional land for possible future extension opportunities or for the location of complementary activities.

NSW Rural Fire Service

The NSW Rural Fire Service (RFS) District Headquarters are located on the north side of the GA area west of the RFDS facility. The facility was constructed in this area in 2008 and currently consists of an office building and associated sheds which are used for the storage of vehicles and other equipment for the servicing of water bombing aircraft.

The facility was constructed in this location due to the synergies that exist between the RFS and the water bombing services provided during fire events across the Central West.

The RFS have recently expanded to include a purpose built training facility adjacent the southwest side of the GA apron. Council in 2017 partnered with the RFS to develop a 'State of the Art' Training Academy at the Airport. The facility has been recently completed and opened by the NSW State Government. The facility will provide facilities for students to stay at the facility to learn and build advanced fire-fighting skills and techniques.

Police Training Facility

A NSW police training facility is proposed to be located west of the GA Apron and is to be built for up to 40 police officers at a time for training and simulation activities.

SES/VRA Headquarters

The State Emergency Services (SES) and NSW Volunteer Rescue Association (VRA) facility provide emergency services facilities for the two organisations in the Dubbo region.

3.3.3 GENERAL AVIATION AREA

The General Aviation (GA) area consists of old and new sections.

The old GA area includes a total of 15 hangars utilised for a range of GA activities. This older GA area is now surrounded by landside operations including NSW RFS, SES/VRA, Police training and RFS training facilities, and the operations of the RFDS

Airmed Aeromedical

Airmed Aeromedical provides patient transport services by air and ground with multiple locations around NSW and their head office based at Bankstown Airport in Sydney. The Dubbo location stations two (2) fixed wing aero-medical aircraft, two (2) patient transport vehicles, two (2) full time pilots, two (2) part-time pilots, a full time senior nurse and three (3) part time nurses for non-urgent

patient transfer between Dubbo and Sydney. The business also employs three (3) administration staff and three (3) maintenance staff.

A Piper Chieftain aircraft is periodically parked the northern end of the GA apron. Loading of the aircraft is typically undertaken at the southern end of the RPT apron, adjacent to the main security gate for ambulance vehicle access. However, it is understood that the company that owns Airmed Aeromedical has recently purchased AirLink and it is unsure as to their final operating activities for the AirLink hangar and Airmed Aeromedical.

Beal Aircraft Maintenance

Beal Aircraft Maintenance is an aircraft maintenance organisation servicing remote NSW. Typically, they maintain a wide variety of GA aircraft ranging from light fixed wing to air tractor agricultural spraying/water bombing aircraft with up to 10 aircraft at any one time on airport for servicing. Beal currently employs 10 people, and an additional four to five people from AirLink also use the facility.

Beal Aircraft Maintenance currently occupies three (3) hangars on the south side of the GA apron and is in need of aircraft parking spaces for customers. It is understood that Beal Aircraft maintenance also sublets part of its facilities to AirLink engineers.

AirLink Pty Ltd

AirLink Pty Ltd, located next to the secure undercover car park, primarily provide charter services with a fleet, which generally consisted of the following:

- One (1) Beechcraft 1900D Aircraft;
- One (1) x Cessna 310R; and
- Two (2) x Piper PA-31 Piper Navajo Chieftain.

AirLink also has two (2) part-time pilots). AirLink operates in partnership with Airmed which is dedicated to patient transfer.

Other Activities

Private operators with aircraft based at the airport total approximately 15 fixed wing aircraft. The Airport is also home to Thomas Aviation who provides flight training and charter services.

In addition to operations based at Dubbo, a number of GA and military operations visit the airport periodically. The airport hosts intermittent visits from Defence aircraft, fire bombing and other aircraft such as the Beechcraft King Air, Pilatus PC9, and Challenger, Fokker 70 and Gulfstream 650 jets.

New GA Area

Additional lots have recently been made available to the north and east of the traditional GA area. Four (4) lots for Code A aeroplanes to the east of the RFDS facility are provided. One (1) of these now houses the aero club facilities and it is understood the other three (3) are leased.

Seven (7) lots for Code B aeroplanes are provided north of the RFDS with access to Runway 11/29 via Taxiway Kilo and access to Taxiway Delta via Taxiway Juliet parallel to Runway 11/29. The RFS also has water tanks located at the north-west end of this area.

There is no landside access for the purposes of refuelling aircraft on these private lots. Fuel operators have stated that their trucks do not currently have vehicle registration to drive on public roads.

3.3.4 ITINERANT USERS

There are a number of itinerant users including fixed wing aircraft and helicopters. Helicopters include military aircraft as well as air ambulance. Currently itinerant aircraft park in the aircraft tie-down parking area.

3.3.5 ITINERANT AIRCRAFT PARKING

A grass tie down area is provided east of the RPT apron and additional central parking is available on the GA apron area. These areas are operating at capacity.

3.4 HISTORY OF THE AIRPORT

As early as 1929, Australian Airways visited Dubbo looking to include the town on their schedule. Land suggested for a landing strip was outside the municipality. At this time, aircraft had already been landing in George Smith's dairy paddock.

The first flights into Dubbo were in the early 1930s that consisted of aviation exhibition flights by people such as Charles Kingsford Smith. At this time, the landing strip was in Wheelers Lane in the vicinity of the now Orana Mall with the take-off north towards Myall Street.

Mr Tom Perry, who had been instrumental in establishing a landing strip at Narromine, purchased land close to the present Dubbo Airport and commenced 'working bees' to clear the land of trees, stumps and rocks. The official opening took place on 29 April 1935 when a Western Air Service Plane (WASP) flew in from Trangie. The ribbon to commemorate the opening was cut by Mrs Duffy, the Lady Mayoress at the time. The plane departed with a full complement of passengers. WASP flew from Nyngan-Narromine-Dubbo to Sydney twice per week.

With Australia's involvement in World War II came the RAAF Stores Depot. However, the one thing Dubbo did not have was a suitable aerodrome for freight and stores in and out of the Depot. The dirt airstrip was suitable only for small aircraft. The Commonwealth Construction Corps were brought in to build an all-weather Military Airport on land resumed from the Fitzgerald's property 'Blizzard Field'.

The Local Member of the Legislative Council (MLC) of the day appealed to the district farmers to take their tractors, trucks and anything suitable to help speed up completion of the work. Farmers responded, as did local people, who would work all day and then spend time working on the airfield construction. Stone for the foundation of the strip was carted from a property on the south

Burrabadine Road and gravel was carted from a property at Brocklehurst. The work was completed in 1942.

Captain C A Butler of Butler's Air Transport landed on the RAAF strip on a trial trip prior to inaugurating a regular service to Sydney-Dubbo-Bourke-Charleville and other routes. The service commenced in May 1946 following installation of radio equipment from No. 6 RAAF Stores Depot.

In June 1946, the Department of Civil Aviation took over the Dubbo Airport from the Military Services and improved the bitumen runways and ancillary buildings. An air radio station was also installed at this time.

On 1 July 1970, the former Dubbo City Council accepted the transfer of ownership of the Dubbo Airport from the Department of Civil Aviation under the Airport Local Ownership Plan (ALOP). Under this arrangement, Council owned, operated and maintained the aerodrome land as a licensed aerodrome open for public use. A further change was made following the decision of Council in September 1988 to accept the ownership and maintenance of the runway lighting. Whilst Council owns the land, any alteration to the use of the land and buildings without the approval of the Department of Transport at the time was not permitted.

In 1991, the Federal Government advised of its intention to divest itself fully of airport ownership, and on 30 June 1992, a Deed between the Commonwealth and the former Dubbo City Council was enacted, giving full ownership of the Airport to Council. For the City of Dubbo, this meant the following:

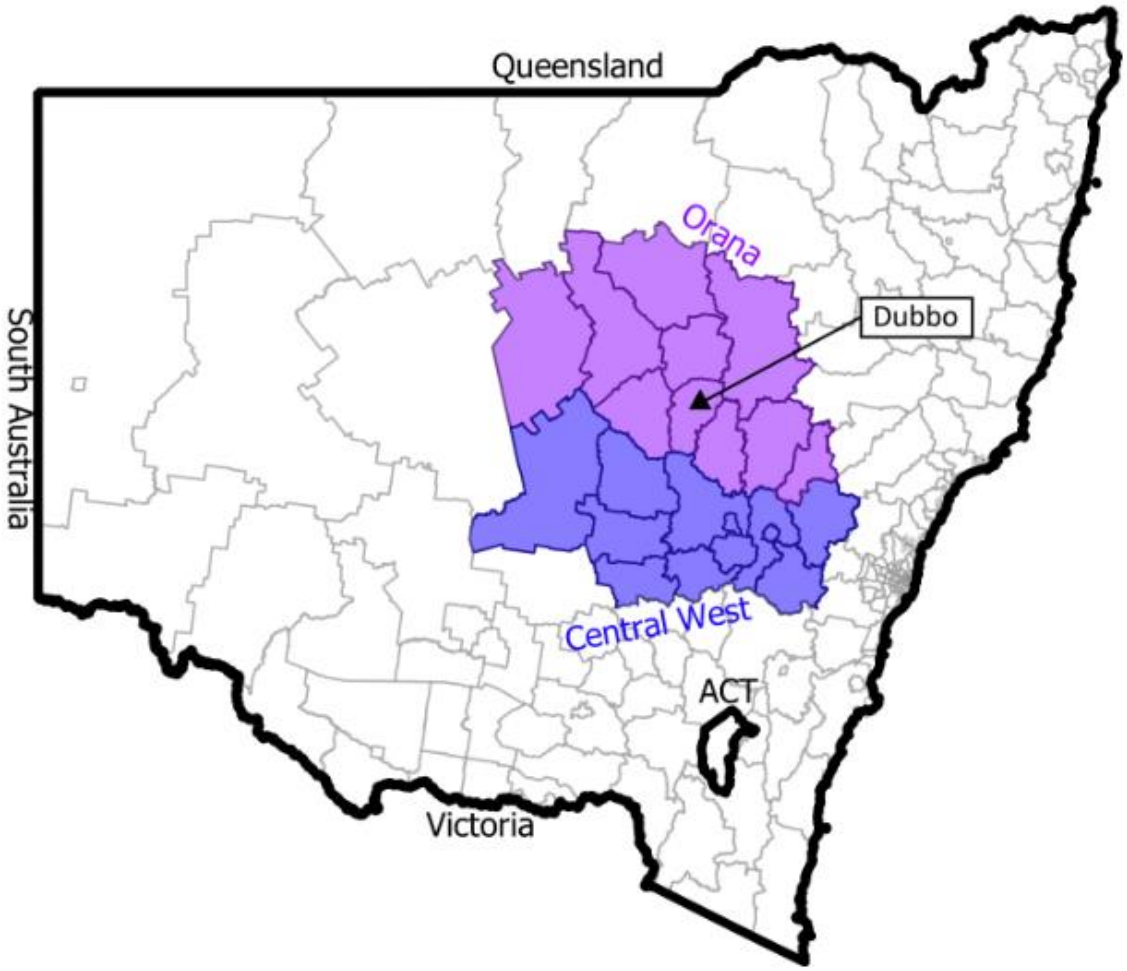
- Council to accept full responsibility for the Airport, including full funding responsibility;
- The Commonwealth to stop collecting landing charges and the Council to develop its own overall charging regime to cover operational costs of the aerodrome consistent with the standard of service demanded by the local community;
- The Commonwealth to 'write-off' any past investment in the aerodrome;
- The Government to consider funding works necessary to meet aviation industry needs by providing a once-only non-attributable grant. In this regard, the Government provided a grant of $200,000 for specified capital works; and
- Responsibilities for all visual aids, which are site-specific, to be transferred to the Council.

4.0 PLANNING CONTEXT

4.1 REGIONAL CONTEXT

The Dubbo Regional Local Government Area (LGA) is located in the Orana Region of NSW and is the gateway to western NSW. Dubbo is one of NSW's growth centres, a hub with an increasing population as people migrate away from Sydney seeking a tree-change. The City is a provider of health, education, cultural services, business and retail services to surrounding areas.

Figure 2: Local Government Areas within the Central West and Orana Region



Dubbo has developed over time as a major service centre and is situated at the meeting point of the Newell, Mitchell and Golden highways. The City is a five-hour drive from Sydney, four hours from Newcastle and Canberra and a 10-hour drive from both Melbourne and Brisbane, being the mid-way point between the two cities.

Dubbo is also a key hub for multiple transport modes – air carriers operating in excess of 166 flights per week in March 2019 to Brisbane, Sydney Melbourne and Newcastle as well as daily rail connections to Sydney.

Approximately 80% of the Australian population can be reached within a 10-hour transport trip of Dubbo – be it by road, by rail or by air. Dubbo's strategic geographic position within NSW and its regional catchment area (Orana), as well as the wider catchment area of western and north-western NSW.

4.1.1 POPULATION

The Dubbo Regional LGA has a population of more than 52,000 people with 77% of those (approximately 42,000 people) living in Dubbo City. The remaining population is located in Wellington (8,000 people) and across its regional villages.

As a regional hub, Dubbo services a broader population of 120,000 people within the Orana region and approximately 200,000 people across Central and Western NSW.

Dubbo's economic prominence is reflected in its ongoing population growth and stable economy. **Table 2** below indicates that between 2006 and 2016 Dubbo City experienced an overall population increase of 8.88 per cent compared to 3.34 per cent for the Orana region and 12.45 per cent for NSW. The annual growth rate during this period sees Dubbo City with an average annual rate of 1.78 per cent versus 2.49 per cent for NSW.

Table 2: Comparative Population Statistics for Dubbo City

	Year	Former Dubbo LGA	Dubbo Regional LGA	Orana Region	NSW
Population	2006	37,845	45,967	114,626	6,549,174
	2011	38,808	47,302	115,652	6,917,656
	2016	41,532	50,075	118,590	7,480,230
Pop. Increase	2006 - 2011	963	1,335	1,026	368,482
	2011 - 2016	2,724	2,773	2,938	562,574
	2006 - 2016	3,687	4,108	3,964	931,056
Pop. Increase (%)	2006 - 2011	2.48	2.82	0.89	5.33
	2011 - 2016	6.56	5.54	2.48	7.52
	2006 - 2016	8.88	8.20	3.34	12.45
Annual Growth Rate (%)	2006 - 2011	0.50	0.56	0.18	1.07
	2011 - 2016	1.31	1.11	0.50	1.50
	2006 - 2016	1.78	1.64	0.67	2.49

Source: Dubbo Regional Council

In line with available projections, Dubbo City's annual population growth rate is projected to continue to trend strongly over the coming years as it attracts people from smaller towns within the Orana region (for education and for employment in construction, manufacturing and in health services), but also from Sydney as families move for lifestyle purposes and prosperity based on the strength of the Dubbo economy. Dubbo City's population is expected to exceed 46,000 by 2036 while Dubbo Regional LGA's population is projected to exceed 60,000 people by 2036.

4.1.2 INDUSTRY

The Orana region specialises in mining and agriculture – production of raw materials which are transported for manufacturing and processing, either in Dubbo or to markets out of the region.

Dubbo is a service centre and specialises in construction, manufacturing and services such as the provision of health care and aged cared for the Orana region and wider NSW, which accounts for 16.5% of employment in Dubbo – both the largest share of jobs and the greatest contributor in value add to the Dubbo economy.

However Dubbo's construction and manufacturing sectors are strong performers as they have ready access to raw materials, livestock and other agricultural commodities as well as skilled labour from across the Orana region.

Table 3 below illustrates Dubbo is a strong contributor to the Orana Region's economy and both Dubbo and Orana boast low unemployment rates against the NSW state average.

Table 3: Comparison GRP and Employment/Unemployment Statistics

	Dubbo Regional LGA	Orana Region	NSW
Gross Regional/State Product	$3.43 Billion	$8.08 Billion	$576.72 Billion
Output	$6.6 Billion	$16 Billion	$1.2 Trillion
Total Employment (People/Jobs)	22,957	49,871	3,358,119
Unemployment Rate	2.5%	2.2%	4.7%

Source: REMPLAN - Economic Modelling and Planning System

Total number of jobs in the Dubbo region is approximately 23,000 (2017), with approximately 1,600 of these jobs in the tourism sector. The Dubbo region currently has an unemployment rate of 2.7%, which is almost half that of the NSW unemployment rate of 5.3% (March 2018).

4.1.3 TOURISM

Dubbo is home to the Taronga Western Plains Zoo (TWPZ), which attracted 260,000 visitors in 2017-18. Other regional attractions include: the Wellington Caves, a 40-minute trip from Dubbo, which will soon boast a new $4.2M visitor experience centre; the historic Dundullimal Homestead, believed to be the oldest sophisticated slab house in Australia; the Dubbo Observatory offering both day and night stargazing; the Old Dubbo Gaol; and the Royal Flying Doctor Service visitor centre.

4.2 LOCAL CONTEXT

4.2.1 DUBBO COMMUNITY STRATEGIC PLAN

The Dubbo Community Strategic Plan (CSP) is the highest level of strategy that will guide and influence the actions and initiatives of Dubbo Reginal Council, the community, all tiers of

government and community stakeholders through to 2040. The Plan includes five principal themes and a number of strategies and outcomes.

The community, in development of the CSP, expressed a need for the *Dubbo City Regional Airport as a freight hub for our region to Asia and beyond* and to *… continue to provide services to its current destinations* as contained within Theme 2: Infrastructure and Theme 3: Economy respectively. The requirement of the community is contained in Principal Theme 2.4 that *the community and business have convenient air access to a variety of destinations.*

4.2.2 DUBBO URBAN AREAS DEVELOPMENT STRATEGY 1996

The *Dubbo Urban Areas Development Strategy* was first adopted by Council in 1996 and is made up of the following strategies:

- Residential Areas Strategy;
- Employment Lands Strategy
- Recreational Areas Strategy; and
- Future Directions and Structure Plan (Part 1 and 2).

The Strategy forms the basis for the land use zonings and planning controls provided in the Dubbo Local Environmental Plan 2011.

Residential Areas Development Strategy

At the core of the *Residential Areas Development Strategy* is the significant emphasis of further residential development being undertaken in West Dubbo which will ensure the Dubbo Central Business District is situated at the centre of the Dubbo urban area. The Strategy also provides for further in-fill development to be undertaken in the south-east of the City.

The Strategy was reviewed by Council in 2007 as part of the review of the *Dubbo Urban Areas Development Strategy* with the preparation of the *Dubbo Urban Areas Development Strategy Discussion Paper*. The Strategy was again reviewed in 2009 in the process of preparation of the Dubbo Local Environmental Plan (LEP) 2011.

The airport is located within a reasonable proximity to the north-west Residential Urban Release Area as contained in the Dubbo LEP 2011. This area of the City will form one of the major residential development fronts over the next 30 years. This area of the City is recognised as having the potential to accommodate approximately 2,600 residential allotments or up to 10,000 persons, over time.

Employment Lands Strategy

The Employment Lands Strategy is the newest component of the Urban Areas Development Strategy that was adopted by Council in March 2019. The Strategy aims to ensure that the City of Dubbo has an appropriate level of commercial, industrial, institutional and tourist zoned land in the future which is situated in locations that can best meet the long-term requirements of Dubbo and the Region.

The Dubbo City Regional Airport is included in the Hierarchy as a Specialised Activity Centre. The Strategy identifies two Specialised Precincts of which the Airport Precinct is one that provides its own unique benefit to Dubbo and the surrounding region. The Airport is located within Industrial Candidate Area 2 – Airport Precinct which was identified as a long term industrial expansion area given its location and access to the airport and highway. Its identified role is to allow development and industries related to the airport including air freight and transport, road transport as well as compatible light industrial and agricultural services.

4.2.3 DUBBO LOCAL ENVIRONMENTAL PLAN 2011 (LEP)

The Dubbo Local Environmental Plan 2011 (LEP) provides the overall land use zoning regime for the Dubbo Local Government Area, guiding the permissibility of development and specific provisions in relation to heritage conservation and environmental management of lands.

The LEP provides a zoning of SP2 Infrastructure over the airport lands. The SP2 Infrastructure zone provides the following objectives for development:

- To provide for infrastructure and related uses; and
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

The SP2 zone provides the following in relation to the permissibility of development:

> *The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose.*

Any development included in the Master Plan which does not have a clear and identifiable relationship with airport operations may require a rezoning or planning proposal process to be undertaken. This process can be further considered prior to the provision of infrastructure and associated development as included in the Master Plan.

4.2.4 DUBBO DEVELOPMENT CONTROL PLAN 2013

The Dubbo Development Control Plan 2013 (DCP) was prepared by the former Dubbo City Council in 2013 to further assist and explain the requirements of the Dubbo Local Environmental Plan 2011 and to include specific provisions for development proposals. The DCP commenced operation on 6 May 2013.

The DCP Section 3.6 *Dubbo City Regional Airport Controls* includes the airport operations overview, the Obstacle Limitation Surface (OLS) for the airport and the Australian Noise Exposure Forecast (ANEF) mapping. Both the OLS and ANEF requirements were included in the DCP to ensure proponents of development proposals surrounding the Airport were required to take into account the impacts of the airport on any development activities.

4.3 LAND USE

The airport is located approximately five (5) kilometres north-west of the Dubbo Central Business District and is situated on the Mitchell Highway. The general land use activities in the vicinity of the airport are shown in **Figure D** at **Appendix A**.

Industrial land use activities predominately adjoin the airport to the south and to the west. This includes light industrial and warehouse activities to the south and transport and logistics activities including warehousing to the west. The airport also immediately adjoins approximately 96 hectares of land zoned IN3 Heavy Industrial under the provisions of the Dubbo Local Environmental Plan to the west. At the present time, these lands have not yet been developed and currently contain single dwelling houses. Council recently purchased two (2) lots at the western end of the Runway 11/29 and assumed within the airport boundary. The land zoned for industrial development south of the airport is contained in the Dubbo Industrial Areas Development Strategy as an Industrial Candidate Area as being suitable for transport, warehousing and associated logistics.

The airport adjoins land zoned RU2 Rural Landscape to the north and north-east. These lands predominately each contain a dwelling house and are utilised for limited rural production purposes. It should be noted that these lands have minimal opportunities for further development of residential housing based on the large minimum allotment size for subdivision and the permissible development types afforded to the land under the provisions of the Dubbo Local Environmental Plan 2011.

Land zoned low density residential development to the east consists of 360 hectares and forms the north-west Residential Urban Release Area.

4.3.1 BIODIVERSITY

The Airport land holding is not known to have any threatened flora or fauna or Endangered Ecological Communities (EEC). However, two areas of remnant vegetation are immediately to the north-east and south-east of the subject site.

The LEP includes biodiversity mapping for the overall Dubbo Local Government Area (LGA). Land with biodiversity values is mapped as either having medium or high biodiversity.

Figure 3 shows the extent of biodiversity mapping in the vicinity of the airport lands. Both vegetation areas have the potential to provide habitat for kangaroos and bird life which can impact airport operations. It is considered that the area of vegetation to the south-east is unlikely to be impacted by current and future operations. However, the area of vegetation to the north- east may

be impacted. Any future development on the airport lands, where native vegetation is proposed to be removed, will require environmental assessment to be undertaken. In addition, further augmentation of Airport facilities may require assessment under the NSW state government Biodiversity Offset Methodology.

Figure 3: Airport Surrounds Biodiversity Mapping

4.3.2 GROUNDWATER

The airport land holding has a relatively high groundwater table when considered in the context of other lands in Dubbo. This high water table has impacted infrastructure works at the airport over time.

The Dubbo LEP 2011 includes groundwater vulnerability mapping for the overall Dubbo LGA. Land is either mapped as having high or medium groundwater vulnerability. The airport land is entirely within the high groundwater vulnerability mapping which means it will require detailed geotechnical assessment and the appropriate design of infrastructure including the construction of aprons, taxiways, extension of (the main) Runway 05/23 and any building works.

4.3.3 STORMWATER

Stormwater drainage for the developed component of the airport lands is carried by an open stormwater drain that traverses the site from south to north as shown below in **Figure 4**.

Additional development activities proposed in the Master Plan have required stormwater infrastructure works to accommodate the uses. Council at the time of writing adjusted the alignment of the open stormwater channel to the west closer to Cooreena Road and underground connections are provided to accommodate road and development infrastructure.

Council has also purchased neighbouring properties on the western boundary and north of the GA area for the purposes of providing additional stormwater infrastructure. Future infrastructure will need to ensure that any detention or other catchment ponds are only temporary to serve the immediate purpose of managing stormwater flows. Ponds should not hold water long term in order to avoid attracting wildlife hazards as discussed in Section 9.2.3

Figure 4: Open Stormwater Channel

4.4 AVATION REGULATORY CONTEXT

Consideration of the aviation regulatory context is integral to ensure a safe and secure environment for aviation operation. Dubbo City Regional Airport is a certified aerodrome by the Civil Aviation Safety Authority (CASA).

The *Civil Aviation Safety Regulations Part 139* (CASR Part 139) requires an operator of an aerodrome used for Regular Passenger Transport operations to have an Aerodrome Certificate. Accordingly, Dubbo City Regional Airport became a Certified Aerodrome on 5 April 2006 (Certification number 1-6EDH).

CASR Part 139 empowers the Authority to specify standards and procedures relating to airports used in air transport operations. The standards and procedures are set out in the CASA *Manual of Standards Part 139 – Aerodromes*.

The *Aviation Transport Security Act 2004* was enacted on 10 March 2005 which legislated that all RPT airports, including Dubbo City Regional Airport, be classified as security controlled airports. As a consequence of the introduction of the Qantas Link Bombardier Dash 8 Q400 aircraft, the Dubbo City Regional Airport is now classified as a Category 3 airport, for security purposes, meaning that passenger and baggage screening is in operation.

This legislation requires Council to maintain a Transport Security Program (TSP) which sets out the manner in which Council will protect the Airport from unlawful security intrusions.

5.0 STAKEHOLDER CONSULTATION

The Dubbo City Regional Airport Master Plan 2019 – 2040 has been prepared in consultation with Council and stakeholders. Consultation with stakeholders was held in two separate formats. One on-site session was held at the airport terminal building as well as telephone discussions with individuals.

5.1 ON-SITE MEETING

Stakeholders were invited to an early morning session at Dubbo Airport on 21 March 2019 to discuss what worked well at the airport and areas that may need attention. Attendees included Beal Aircraft Maintenance, NTL, VIVA, council staff including the Airport Manager and Aerodrome Reporting Officers.

Throughout the day REHBEIN Airport Consulting met separately with the Director of Economic Development and Business, the Airport Manager, the Director Infrastructure and Operations, Council Engineering staff and the Manager Strategic Planning Services, and the Manager Capital Projects.

REHBEIN Airport Consulting conducted a site inspection and met with the RFDS at their premises.

5.2 TELEPHONE DISCUSSIONS

Telephone contact was made to various airlines, car hire companies and general Airport users as provided by Council. All phone calls were made on 15 April 2019. Where phone contact was not provided a brief email advised the stakeholder of the review taking place and welcomed their feedback.

5.3 EMERGING THEMES

Generally, comments focussed around the positive growth of the Airport specifically in RPT services and fire activity. The diversity in businesses and growth in emergency services at the Airport is putting pressure on the Airport and its facilities. Stakeholders expressed the importance of evaluating the layout to ensure areas are interconnected and can operate in a safe manner.

The key themes emerging from the consultation are listed below.

5.3.1 THEME 1: TERMINAL AREA

RPT Apron

Stakeholders expressed that the RPT apron was often congested particularly when an unserviceable aircraft (which happens occasionally) parks on the apron. When this happens the RPT apron is fully utilised and aircraft need to be moved out during peak periods.

Passenger Terminal Building

Extension to the terminal building was raised with stakeholders suggesting it will need to expand. Comment was made on the terminal screening location that it is difficult to access the café and on-airport employees are not using the facility.

Visitor attraction to the airport was considered important and could take the form of a viewing platform, café or museum that provides a general meeting place which does not require visitors to pass through passenger screening. Stakeholders feel such improvements would support and attract business at the airport. Council undertakes a bi-annual survey of customers and continually reviews and considers feedback provided.

Car Parking

Car parking was indicated as operating at capacity. Council has reported that the car rental companies have grown by 60 to 70 percent in past year alone.

On site car parking was said to need to double in spaces either by extending laterally or providing multi storey facilities. Interest was expressed for a car wash and possibly a petrol service station to support the car rental services.

Aerodrome Reporting Officer (ARO) Base

Stakeholders expressed the need to provide the AROs a dedicated base for plant, equipment and personnel. Currently the AROs use the existing Airservices building.

Taxiway D

The potential need for upgrading the parallel taxiway to Runway 05/23 (Taxiway Delta) to allow Code C aircraft was noted by some operators, and it was identified that extended runway occupancy time (especially when landing on Runway 05, or departing Runway 23) can sometimes cause issues when there is a high amount of circuit traffic. As an interim and more cost-effective solution, for landings on Runway 05, provision of a turning facility to allow 180 degree turns to be executed along the runway would be beneficial to reduce runway occupancy time for larger aircraft.

Taxiway Delta was also raised in discussions as to how the extension would interact with terminal and RPT apron expansion. The current master plan preserves the extension to connect to both ends of Runway 05/23.

5.3.2 THEME 2: GENERAL AVIATION AREA

General Aviation Apron

Council raised concerns about aircraft parking on the south side of the GA apron and possibly infringing the taxiway clearances. Stakeholders noted a number of competing activities are occurring in the GA area such as local freight, medical transfers, and charter operations and refuelling.

It was suggested that the GA area incorporate a dedicated drop/pick up area to prevent unauthorised road vehicle access onto the apron.

Stakeholders commented that the GA apron has experienced drainage issues over the years, and as such, the Apron may experience problems. Council noted that drainage is currently being upgraded along Cooreena Road which is expected to resolve the flooding matters.

Grass Tie Down Area

Various stakeholders expressed that the grass tie down area surface is hard and it is difficult to tie down aircraft. Stakeholders also discussed the need for additional hangar space and tie down areas on the GA apron. Observations included the difficulty for itinerant aircraft using the grass area and occupants walking across apron/taxiway.

In addition, run-up bays should be clearly identified and usable for the GA users.

5.3.3 THEME 3: GROWTH ACTIVITY

Helicopters

Stakeholders are noticing the increased frequency of helicopter traffic at the airport. There is currently no dedicated helicopter landing site or parking stands. Council noted that the Dubbo hospital HLS is currently shut down and as such is contributing to the increased helicopter traffic. Stakeholders stated that at the moment helicopters air taxi to and park on Bay 5 of the RPT apron when available. The majority of helicopter activity is Toll (Air Ambulance) and military.

Large Air Tanker Base

Stakeholders expressed the proposals for a Large Air Tanker (LAT) base and a dedicated precinct to accommodate LAT that frequently visits Dubbo during bushfire season. A design was previously prepared to locate a LAT facility at the western end of the new larger general aviation lots. It was suggested that the location be re-evaluated.

Freight Precinct

Stakeholders expressed the possibility of an international freight operation using a B777F or similar. This may work in connection with the Northern Bypass as included in Councils Transport Strategy.

Commercial Activity

Stakeholders raised the need to provide a more structured layout for the Commercial Precinct as identified in the current Master Plan 2015-2036; specifically, delineation of airside areas and landside areas. It was suggested that recent inquiries for the Commercial Precinct include additional car hire companies, car wash and accommodation facilities.

Stakeholders also thought it adequate for the Master Plan to begin to consider the allocation of suitable land uses across the precinct.

6.0 AVIATION ACTIVITY FORECASTS

Planning for aviation-related facilities (runways, taxiways aprons and other facilities) for the airport is based on a range of factors, including current aviation activity and forecast aviation traffic growth.

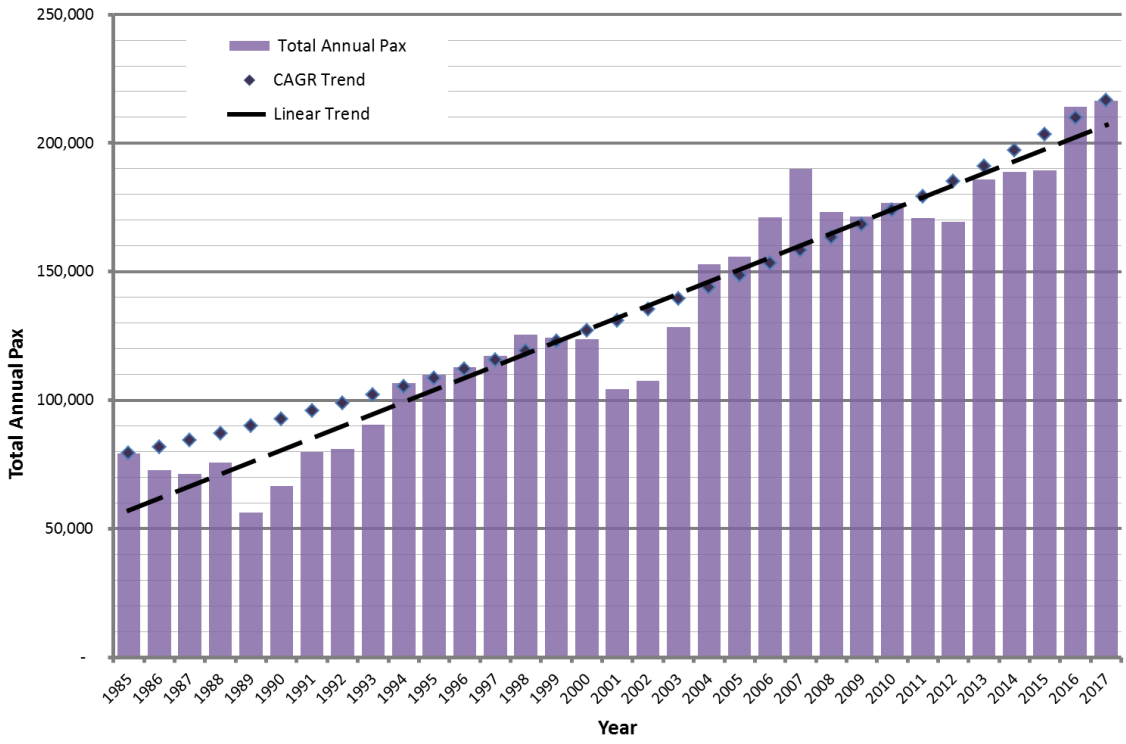
Currently, the airport hosts RPT services and a GA contingent which incorporates predominantly emergency services, a number of smaller general aviation businesses and private operators.

6.1 PASSENGER GROWTH AND PROJECTION

Dubbo City Regional Airport hosts Qantas Link using the Dash 8 Q200 (36 seats), Q300 (52 seats) and Q400 (72 seats), Regional Express and Fly Corporate using the SAAB340 (36 seats) and Fly Pelican using the BAe Jetstream 32 (19 seats) aircraft types.

In 2017 a total of 216,489 passengers passed through the airport inbound and outbound[3]. This is an increase from 1985 where the airport processed a total of 79,308 passengers inbound and outbound. The passenger totals over the period 1985-2017 is represented in **Figure 5**. The compound annual growth rate for passenger traffic at Dubbo from 1985 to 2017 was 3.2 per cent. For comparison, the Australian total passenger growth rate was approximately 5 per cent for the same time period.

Figure 5: Historical Annual Passenger Growth



[3] BITRE Domestic Totals and Top Routes July 2004 – February 2019

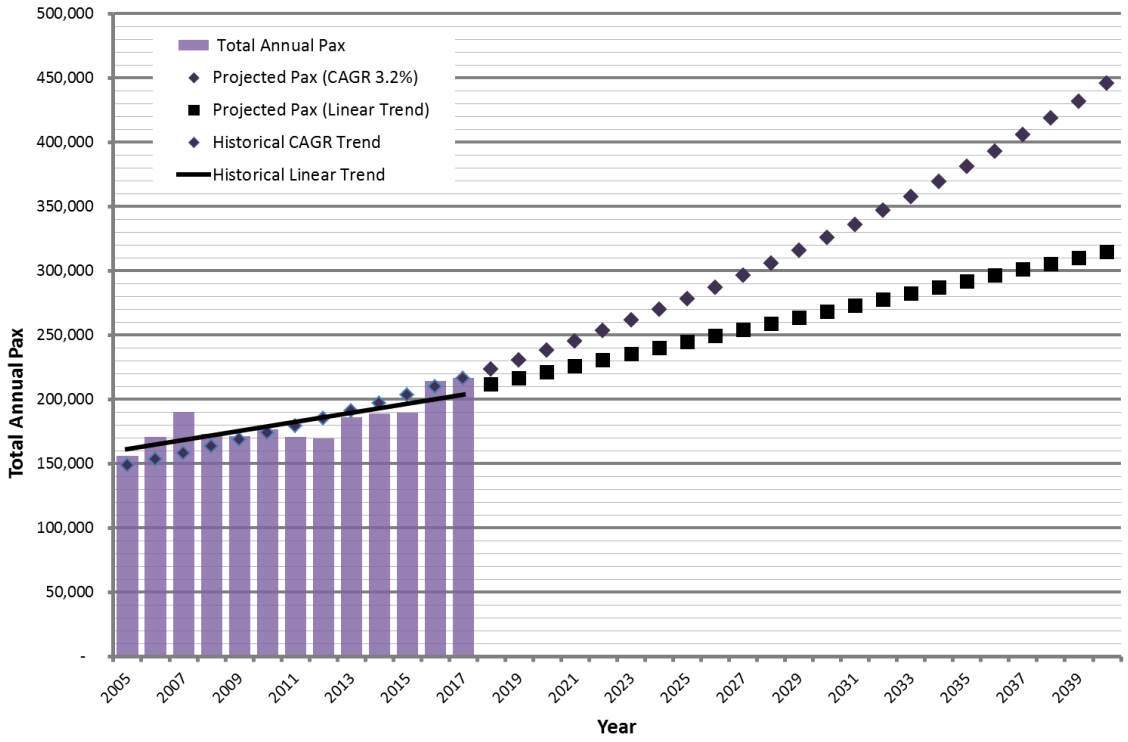
Source: BITRE

There are significant events which may have impacted the RPT passenger growth rates during this time including the pilot strike in 1989-1990, the collapse of Ansett/Hazelton Airlines in 2002 and the Global Financial Crisis in 2013-2015.

Using the historical compound annual growth rate of 3.2 per cent, RPT passenger traffic is projected to reach around 445,000 passengers in 2040.

Extrapolating a linear best fit trend line based on historical data out to 2040, passengers would be estimated at 315,000 as illustrated in **Figure 6**.

Figure 6: Forecast Passenger Growth Based on Historical Trends



Forecasts for passenger numbers through to 2040 will not necessarily continue to follow historical long-term trends. Total passengers utilising the facility will depend on a range of growth pressures and factors impacting Dubbo, the Orana Region and Central West Region.

6.2 RPT AIRCRAFT TYPE GROWTH PROJECTION

In 2018, the airport hosted a total of 5,291 flights which is an average of 102 flights per week. Dubbo has a relatively comprehensive route network, compared with other regional airports. In 2019 Qantas Link and Rex are servicing the Dubbo – Sydney route 48 times per week; Rex services Dubbo – Broken Hill 6 times per week; Fly Corporate services Dubbo – Brisbane 7 times per week and Dubbo – Melbourne (Essendon) 4 times per week; and Fly Pelican services Dubbo – Newcastle 3 times per week.

For infrastructure planning purposes, modelling of expected RPT aircraft movements was undertaken for both passenger growth rate scenarios, to identify timelines for the introduction of larger aircraft types. Modelling was based on passenger movement forecasts and an assumed typical load factor through to 2040. Destinations and the weekly schedule were maintained similar to the current schedules. Load factors were maintained at approximately 67 per cent which is reflective of typical target ranges used by the incumbent airlines and is somewhat higher than the average historical load factor at Dubbo City Regional Airport of around 62 per cent.

Possible future aircraft types were informed by existing available fleet mix for the current operators at relevant seating capacity. Actual aircraft types in the future fleet may differ as new types with similar seat capacity enter the Australian fleet. Although the current and future types are all likely to fall within the same (Code C) aerodrome reference code designation, these new types are likely to be somewhat larger in footprint, and hence RPT apron space demand, than the equivalent types in the current Australian fleet. These types would, physically, fit within the parking and manoeuvring footprint of the B737-800.

Based on the above assumptions, if passenger demand increases at a compound annual growth rate of 3.2% per year on average 100-seat aircraft (such as the Fokker F100/Bombardier CRJ-900/1000) may be expected at Dubbo to accommodate forecasted passenger numbers commencing around 2026. A further up-gauge to 120-seat regional types (such as Boeing 717-200/Airbus A220-100) would be justified by 2032, with Boeing 737 or similar sized aircraft expected from around 2030 onwards.

If passenger demand increases at a lower rate, based on the historical linear trend, it is expected these dates may be around three to four years later, respectively.

Table 4: Aircraft Type Forecast

Aircraft Size	Typical Aircraft	3.2% CAGR	Linear Forecast
100 seats	Fokker F100 / Bombardier CRJ900 / CRJ1000	2023	2026
120 seats	Boeing 717-200 / Airbus A220-100	2028	2032
150+ seats	Boeing 737 / Airbus A220-300	2030	2034

The information provided is based on an assessment of the above factors and should be used for strategic planning purposes only. All fleet decisions will be evaluated by the airlines and would be based on the aircraft fleet available at the time. The timing of any up-gauging will be determined by the operators and the level of passenger traffic is only one factor in this decision-making.

6.3 GENERAL AVIATION GROWTH AND PROJECTION

General Aviation (GA) is a diverse sector including all flying activity other than commercial transport operations. GA is categorised by BITRE into flying training, mustering, firefighting and emergency services operations, search and rescue, aerial surveying and photography, towing and private flying.

Generally in Australia, GA flying activity increased steadily between 1990 and 2010 but has been decreasing overall since 2010, despite some categories within this sector such as search and rescue which has demonstrated an increased.

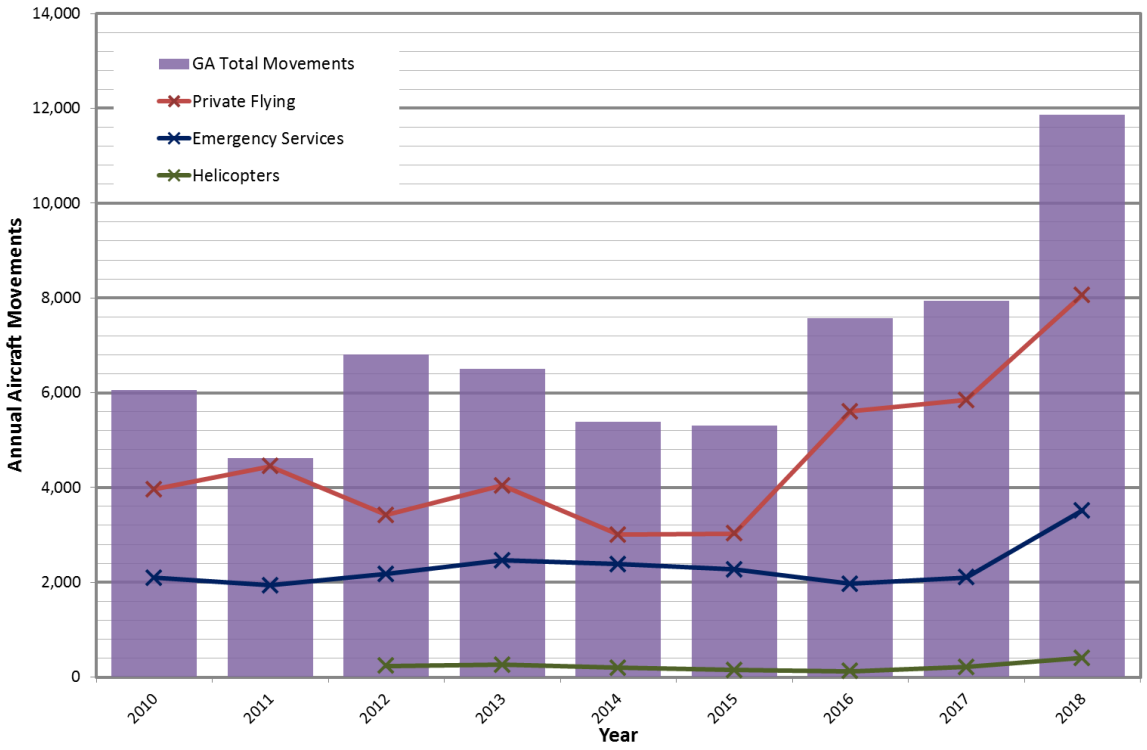
Specifically within the private flying sector BITRE statistics show a marked divergence between the aircraft registered with self-administering organisations (i.e. RAAus) and aircraft on the VH- register. Overall private flying hours showed a strong increase between 1990 and 2012 while private hours flown in VH- registered aircraft gradually but consistently fell with a significant decrease in 2014. Flight training by VH- registered aircraft has been falling since 2009. While search and rescue activities vary significantly from year to year, hours flown for these operations have been trending upwards since the early 1990s.

There are two (2) emerging areas of GA growth, self-administering associations and remotely piloted aircraft systems that are having a significant effect on the GA sector in Australia.

Private flying and emergency services (fire and medical) which include helicopters are the main GA activities at Dubbo City Regional Airport. In 2018, GA movements totalled approximately 11,860 of which approximately 67 per cent was private flying, 30 percent emergency services and 3 per cent helicopter activity.

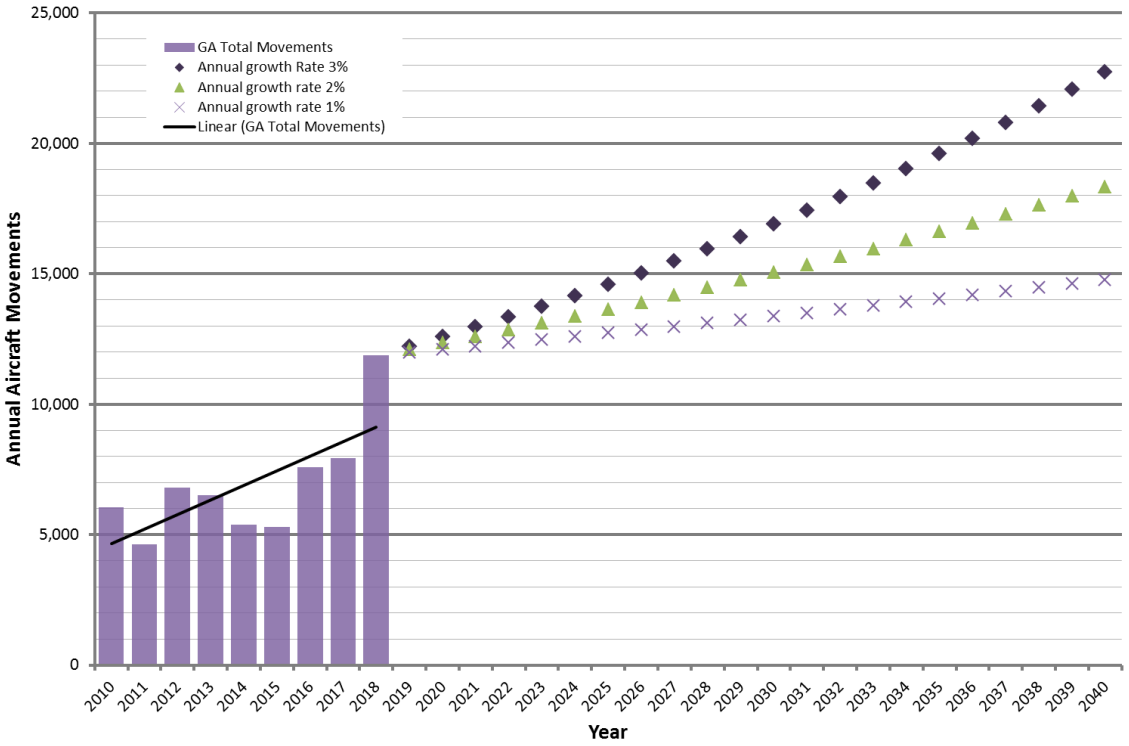
The airport in the past two to three years has seen significant investment from emergency services particularly the RFDS and RFS setting up headquarters and training facilities. The private flying, emergency services and helicopter movements from 2010 to 2018 are illustrated in **Figure 7** below.

Figure 7: Historical GA Movements



Based on a low growth scenario assuming approximately 1 percent overall, total GA movements would be approximately 15,000 movements by 2040. Based on an annual growth rate of 3 percent total GA movements would be roughly double the 2018 level of activity with around 22,700 in 2040. Growth rates of 1 to 3 percent are typical of growth forecasts for GA within the regional airport sector. The resulting forecast GA movement numbers are also typical of many regional airports. Higher growth may be possible contingent on the amount of development and additional users which Council is able to attract to the airport.

Figure 8: Forecast GA Movements



7.0 STRATEGIC DIRECTION

The establishment of a clear strategic direction is fundamental to the subsequent development of appropriate concept layouts for infrastructure and land use. Vision and objections will guide the strategic direction of Dubbo City Regional Airport and complement the City's strategic direction providing an understanding of how the airport is likely to change into the future.

The below vision statement was endorsed by Council in the Master Plan 2015 – 2036 and is consistent with key stakeholder feedback provided as a part of this review. The statement, philosophy and goals/objectives are consistent with the *Dubbo Community Plan* and the *Dubbo Urban Areas Development Strategy* 1996.

7.1 VISION STATEMENT

To develop an efficient and fully functioning Airport which significantly contributes to and improves the economic and social base of the Dubbo City area and the wider region.

7.2 PHILOSOPHY

Dubbo City Regional Airport is a major gateway to Dubbo and a significant driver of the economy of the City and the Orana Region

7.3 GOALS AND OBJECTIVES

1. To continue to operate the Airport to provide a commercial return on investment to the community;
2. To provide airport facilities for, and encourage the operation of, economic and viable air services to and from Dubbo;
3. To meet the needs of commuters to and from Dubbo within the financial constraint of the 'user pays' system;
4. To ensure that the operations of the Airport are in accordance with the relevant regulations and that perceived emergency needs can be met;
5. To constantly review, evaluate and update operational procedures in order to stay relevant and effective;
6. To provide for the air users of Dubbo and the wider region, a multi-purpose aerodrome as the basis for their operation;
7. To attract development to the Airport that would be of benefit to the City of Dubbo in general; and
8. To have planned sufficient area for development to meet the anticipated demand in the next five years.

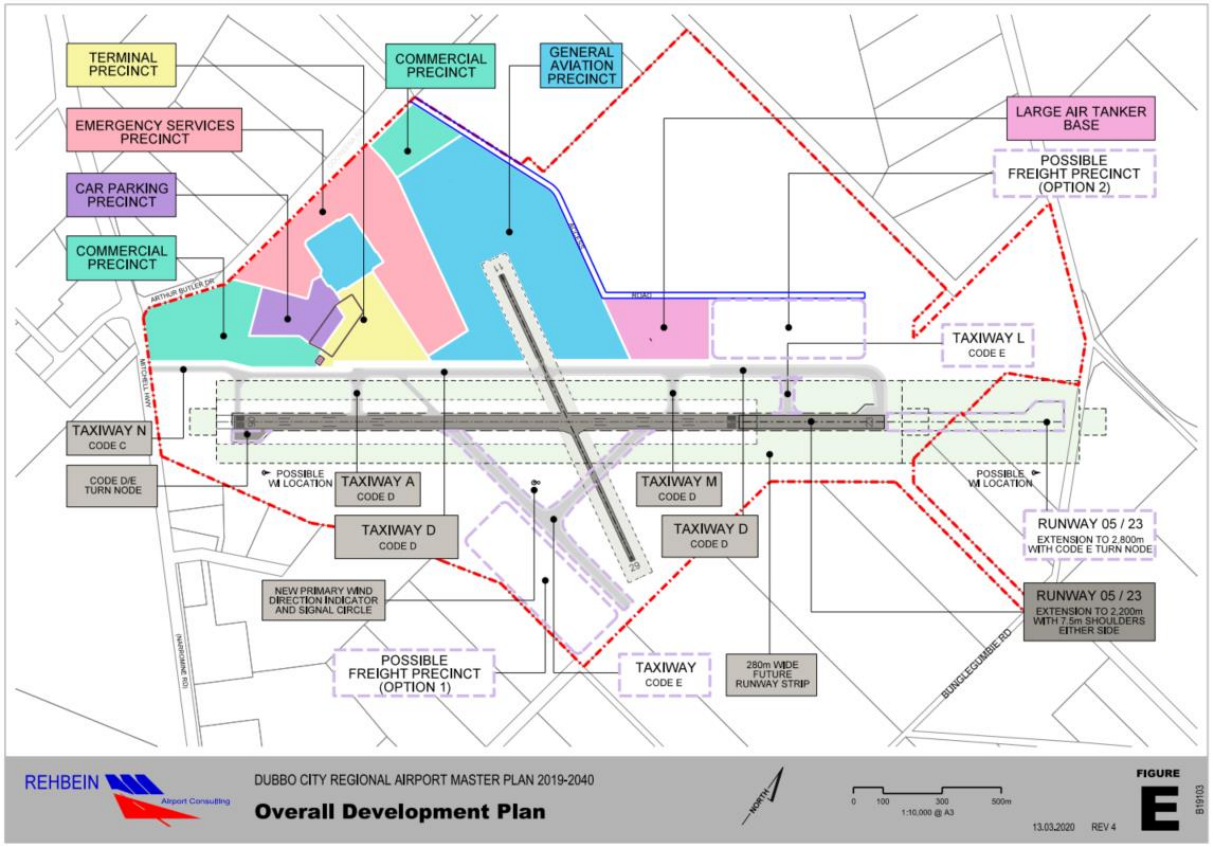
8.0 DEVELOPMENT CONCEPT

Based on the stakeholder feedback and discussion with Council, the precinct layout and airport movement area infrastructure (runway system, taxiway network and apron areas) required to meet the identified Dubbo City Regional Airport vision and purpose were established. This is a key step in the preparation of the Master Plan and includes determining the key facilities and infrastructure required to accommodate the aspirations of key stakeholders and Council to continue to support the airport growth and opportunities.

The development concept is described below:

8.1 OVERALL DEVELOPMENT PLAN

The Overall Development Plan as illustrated below and in **Figure E** at **Appendix A** identifies each of the precincts with their own uses.



Central to the Overall Development Plan are the runways and taxiways necessary for the take-off, landing and ground movement of aircraft to access the relevant precincts.

The Precinct Plan identifies the following precincts which are described in the subsequent sub-sections:

- Terminal Precinct;
- Car Park and Precinct Access;
- Commercial Precinct;
- Emergency Services Precinct:
- General Aviation Precinct;
- Large Air Tanker (LAT) Base; and
- Freight Precinct.

8.1.1 TERMINAL PRECINCT

The Terminal Precinct is proposed to be extended to accommodate an expansion of the terminal building at the north end and two (2) additional aircraft parking bays for aircraft up to B737-800 size, as well as reconfiguration of the existing RPT apron area. In addition, an ARO Base is proposed at the south end of the terminal building.

8.1.2 CAR PARK AND PRECINCT ACCESS

A dedicated Car Park is proposed which expands the general car parking area and includes the existing hire car facilities and relocates the secure car park.

Existing vehicle access to the Airport is provided from the Mitchell Highway via Arthur Butler Drive with a secondary emergency services access point provided via Blizzardfield Road into the southeast corner of the airport.

It is recommended that Council review the Blizzardfield Road secondary emergency access point in relation to any future airport development.

8.1.3 COMMERCIAL PRECINCT

The Commercial Precinct is proposed to accommodate both airside and landside development.

Landside Development

The landside development could include a car wash, service station and accommodation facilities. Accommodation could potentially include demand for airport transits and also, given the proximity to the Mitchell Highway, demand for non-Airport related accommodation. A motel-style facility of one or two-storeys is likely to be the most suitable, however the actual accommodation offering will need to be suited to the specific demand to maximise the commercial return to Council. In order to respect the OLS limitations and maximise visibility and accessibility to both Airport and non-Airport

customers, locations abutting Arthur Butler Drive and/or the corner with the Mitchell Highway might be most suitable for accommodation and service station facilities.

Additional commercial land for future use is also identified west of Runway 11. This land abuts Coreena Road and does not have direct airside access. This precinct is suitable for commercial uses that might not necessarily require direct aeronautical facilities but which would complement the either the Emergency Services Precinct development or the proposed General Aviation Precinct and could benefit from access from Coreena Road.

Airside Development

The airside development will accommodate Code C aircraft hangars with airside apron parking and could include helicopter parking and/or hangar facilities with access via Taxiway D.

8.1.4 EMERGENCY SERVICES PRECINCT

The Emergency Services Precinct incorporates all the existing users with additional area to the north adjacent RFS and SES for further expansion.

8.1.5 GENERAL AVIATION PRECINCT

Old GA Area

The existing GA apron can remain broadly as it currently is. However, pending possible relocation of the fuel facilities to the western edge of the apron, greater access into the area for Code B aircraft may be possible.

If additional access for Code B in the Old GA Area is not provided, Code B aircraft operations will need to be located in the New GA Area or the proposed General Aviation Precinct.

It is recommended that options for the ongoing use and development in this Old GA Area be subject to further investigation of options, costs and benefits by Council and the development of a business case for the preferred course of action, in the context of the other Master Plan proposals. This should include a detailed investigation in respect of aircraft movements to ensure compliance with the Part 139 Manual of Standards.

New GA Area

A dedicated Local Freight Processing and Distribution Area is proposed towards the north-west end of the existing Code B lease lots, just to the south west of the existing RFS apron. This area is for aircraft loading/unloading and transferring freight to vehicles. This area has road access to the south and airside access via Taxiway F. The RFS apron includes parking for Air Tractor aircraft as well as RFS water tanks.

The new GA Area will have the capacity to accommodate small scale recreational helicopters in addition to the proposed designated helicopter stands located south of the existing terminal building.

In respect of the provision of further sanitary facilities in the new GA area, the Master Plan recommends that Council, in conjunction with GA users undertake an analysis of the most appropriate location for these facilities.

In respect to the identified need for an airside road network, it is considered that there are suitable connections between the existing GA Area and the proposed GA Area are via the local road network. However, this Master Plan includes a requirement for Council to undertake an investigation of the suitability, location and cost implications associated with the provision of an airside road network linking the existing and proposed general aviation areas.

GA Precinct Expansion

An expansion of the General Aviation Precinct is proposed at the west end of Runway 11/29. This will incorporate new Code B hangar lease lots north of Runway 11/29 and a new light aircraft tie down areas.

8.1.6 LARGE AIR TANKER (LAT) BASE

A Large Air Tanker (LAT) Base situated to the north-west of the runway intersection is proposed to accommodate three (3) aircraft parking positions each to accommodate two Code C fire-bombing aircraft and one (1) Coulson C130 (Code D) as well as landside area for supporting equipment.

8.1.7 FREIGHT PRECINCT

Council has identified possible use of large scale freight with aircraft up to a B777F. Two options for precinct locations are illustrated on Figure F. **Option 1** is to the south-east of the runways intersection. This Option provides for landside connection directly to a possible future road which is subject to Council approval. Airside access could be via proposed new taxiways (Code E) to Runway 05/23.

Freight Precinct **Option 2** is positioned at the threshold of Runway 23 with access via the parallel Taxiway D (Code E). In both Options aircraft using the Freight Precinct will be required to back track the runway. In addition, the runway will be required to be extended, widened through the provision of shoulders and strengthened.

8.2 AIRSIDE INFRASTRUCTURE

Airside infrastructure is comprised of the runway system, taxiway network and apron areas as illustrated on **Figure E** at **Appendix A**. All future airside infrastructure is planned in accordance with the CASA *Manual of Standards Part 139 – Aerodromes* (CASA MOS Part 139) as Version 1.14 January 2017, except with respect to parallel taxiway separation distances from Runway 05/23.

Consideration has also been given to the CASA Notice of Proposed Rule Making NPRM1462AS (in particular Annex C *Draft Part 139 Manual of Standards (Aerodromes) Instrument 2017*), where this is anticipated to bring about relevant changes to relevant standards, once finalised and effective in 2020.

In all cases, airside infrastructure must be provided in accordance with the aerodrome standards which apply in the future at the time of development.

8.2.1 RUNWAYS

Runways provide the core functionality of any airport. Therefore, appropriate planning must define future requirements for runways as a central aspect of the airport Master Plan.

Runway 05/23

Runway 05/23 is planned ultimately as a Code 4E instrument non-precision runway in accordance with CASA MOS Part 139. The runway is anticipated to be up to 2,800 metres long and 45 metres wide with runway shoulders provided at 7.5 metres wide either side. The runway will be contained within a 280 metre wide by 2,920 metre long runway strip, with the central 150m width graded. (Note: the minimum strip width requirement is currently 300 metres in accordance with CASA MOS Part 139 v1.14, however is expected to reduce in future to 280 metres, in line with ICAO *Annex 14 Volume I Aerodromes*, 8th Edition, July). 2018 A Code 4E runway as described above will accommodate a B777F or similar aircraft. In order to accommodate this runway length, additional property will be required beyond the existing airport land boundary. Re-alignment of Bunglegumble Road would also be required.

Runway 05/23 is also illustrated at 2,200 metres long to accommodate Code D aircraft operations in the LAT base and Code 4C narrow body jet RPT operations. The runway is to be contained within a 280 metre wide by 2,320 metre long runway strip. The existing 1,708 metres in length will also require strengthening for the proposed aircraft operations. This runway length could be accommodated within the existing airport land boundary.

In both runway extension scenarios, the existing runway and other relevant taxiway infrastructure would need to be strengthened to accommodate the proposed aircraft operations.

Runway 11/29

Runway 11/29 is planned to remain as a Code 2B non-precision instrument runway. This runway remains as existing, at an overall length of 1,067 metres and 18 metres wide. The runway is situated inside a graded 90 metre wide runway strip. (Note: the minimum strip width requirement is expected to reduce in future to 80 metres, in line with ICAO *Annex 14 Volume I Aerodromes*, 8th Edition, July 2018).

Runway Turning Area

Turning areas will need to be provided for Runway 05/23 in accordance with CASA MOS Part 139 where no entrance or exit taxiway way is provided to the threshold which accommodates the maximum size of aircraft utilising the runway.

Runway Shoulders

Runway shoulders are to be provided for the total length of the runway. A width of 7.5 metres either side of the 45 metre wide runway must be constructed for Code 4D and Code 4E runways. The

shoulders provide for erosion protection and must be capable of supporting an aircraft, running off the runway, without causing structural damage to the aircraft.

Runway End Safety Areas (RESA)

RESAs are to be provided at a minimum of 90 metres long and 90 metres wide (or twice the width of the runway) beyond the end of the runway strip for Runway 05/23 in all cases to protect the aircraft in the event of undershooting or overrunning the runway.

8.2.2 TAXIWAY NETWORK

For taxiways and apron configuration refer **Figure F** at **Appendix A**.

Taxiway Alpha

Taxiway Alpha is planned be upgraded to a Code D taxiway providing accessing between Taxiway D and Runway 05/23, as well as Code C access to RPT Apron in the Terminal Precinct. In order to accommodate jet aircraft, shoulders would need to be provided to a minimum of 3.5 metres either side in accordance with CASA MOS Part 139.

Taxiway Bravo

Taxiway Bravo is planned to remain as a Code C taxiway from Runway 05/23 to the RPT Apron and the aircraft stand-off area in the Terminal Precinct. In order to accommodate jet aircraft, shoulders would need to be provided to a minimum of 3.5 metres either side in accordance with CASA MOS Part 139.

Taxiway Charlie

Taxiway Charlie will be removed to provide for the extension of the RPT Apron on the north side of the RPT terminal building.

Taxiway Delta

Taxiway Delta is a proposed full-length parallel taxiway on the western side of Runway 05/23 and will extend south of the Runway 05 threshold to access the Commercial Precinct. Taxiway Delta is planned in three sections with different capabilities as follows:

- From Taxiway A south to the Runway 05 threshold Taxiway Delta is planned at a minimum of 15 metres wide within a 52 metre wide taxiway strip to provide Code C aeroplane and helicopter taxi access to the Commercial Precinct. This taxiway will need to be separated a minimum of 158 metres from the Runway 05/23 centreline.
- From Taxiway A north to the intersection with Runway 11/29, Taxiway Delta is planned as Code D taxiway with a minimum separation of 166 metres from Runway 05/23. This separation allows for Code 4 non-precision instrument runway operations and Code C taxiway operations in accordance with the current CASA MOS Part 139. Following alignment of CASA MOS Part 139 with the latest ICAO taxiway minimum separation distances and reduction of the runway strip width to 280 metres, this separation will be suitable for Code D taxiway operations. The

existing taxiway will need to be realigned to ensure Code D taxiway strip clearances to existing development, and widened to a minimum of 18 metres to accommodate the C130 aircraft. In order to accommodate Code C jet aircraft such as the B737-800, this section would also need to be provided with 3.5m wide shoulders each side. To accommodate larger Code D aeroplanes this taxiway may need to be widened to 23 metres with 7.5 metre wide shoulders.

- From the runway intersection north to the threshold of Runway 23, Taxiway Delta is planned ultimately as a Code E taxiway 23 metres wide with 10.5 metre wide shoulders, accessing the Freight Precinct Option 2 and the Runway 23 threshold. Initially this would be developed to suit Code D aeroplanes only for access to the LAT base. However the taxiway should be constructed with separation from Runway 05/23 suitable for ultimate Code E use. The minimum separation is currently 182.5 metres in accordance with CASA MOS Part 139. However, this is expected to reduce to 172.5 metres following alignment of CASA MOS Part 139 with the latest ICAO taxiway minimum separation distances and reduction of the required runway strip width to 280 metres. (The minimum separation for Code 4 non-precision runway and Code D taxiway operations is currently 176 metres reducing to 166 metres.

In addition, it is also proposed that an intermediate holding position be included on Taxiway D between Taxiway H and Taxiway E. This location is illustrated on Figure F of the master plan and needs to be positioned so that aircraft holding on Taxiway D can see if there is conflicting traffic on Taxiway E while remaining clear of Taxiway E Code C taxiway strip clearance. The intermediate holding position is aimed at mitigating the risk of head to head aircraft movements on Taxiway E as a result of line of sight across the intersection between Taxiway D and E. The intermediate holding position markings need to be in accordance with the Manual of Standards.

Once complete, Taxiway Delta will provide full length Code C aeroplane access parallel to Runway 05/23 as well as Code D access between the Runway 23 threshold and Taxiway A. A short section of backtracking between Taxiway A and the Runway 05 threshold would be required for Code D aircraft. Council considers that this requirement would not be operationally restrictive, given the respective costs associated with removing existing constraints to achieving Code D clearance in this section.

Taxiway Echo

Taxiway Echo is proposed to be upgraded from Code B to Code C between Taxiway Delta to the entrance of the existing GA apron in order to provide access to the proposed Code C parking positions on the expanded RPT Apron.

Taxiway Juliet

Taxiway Juliet will remain as a Code B taxiway accessing the larger Code B lots in the New GA Area. Taxiway Juliet will be extended west to provide access to the proposed fuelling point and the local freight processing and distribution area adjacent to the hangar lots as well as light aircraft tie-down area further to the west.

Taxiway Lima

A proposed new taxiway (indicatively called Taxiway Lima for the purpose of this Master Plan) is planned to run west from Taxiway Delta on the north side of Runway 11/29 to provide access to the new GA Precinct. A taxiway connection from Taxiway Kilo to the Runway 11 threshold is also proposed.

Taxiway Mike

A proposed new taxiway (indicatively called Taxiway Mike for the purpose of this Master Plan) is planned to provide access for Code D aircraft from the LAT base to backtrack on Runway 05/23. This taxiway may be necessary for the early stages of LAT base operation, depending on how quickly Taxiway Delta is upgraded. Taxiway Mike will also provide an intermediate access/egress point for RPT and other aircraft to/from the main runway.

Taxiway November

A proposed new taxiway (indicatively called Taxiway November) for the purpose of this Master Plan) is planned provide access for Code C aircraft and helicopters to the airside development in the Commercial Precinct south of the Terminal Precinct. This taxiway will need to be located so as to avoid infringement of the OLS by aircraft using it or by those parked within the Commercial Precinct.

8.3 AIRCRAFT PARKING AREAS

RPT Apron

The RPT Apron located in the Terminal Precinct is proposed to be extended north and west around the extension to the terminal building as a Code C. The RPT Apron is proposed to be extended to provide two (2) new aircraft parking bays which can each accommodate up to a B737-800 aircraft. The existing Bay 1 will also be re-designed to accommodate a B737-800, and Bay 3 will be upgraded to accommodate Dash 8-Q400 (DH8D) and Fokker F100 aircraft. Existing Bays 4 and 5 will be removed to allow for Taxiway Delta clearance requirements as a Code D taxiway. The expanded and reconfigured RPT apron will be able to accommodate:

- three (3) aircraft up to B737-800 size (this also includes possible future 100-150 seat regional jet types such as the B717-200 and Airbus A220); and
- two (2) 70-100-seat aircraft such as the Q400 / F100

It is expected that this will be sufficient for RPT operations up to 2040. However, overflow parking will also be provided through stand-off positions.

RPT Stand-Off and Run-Up Bays

A stand-off area east of the RPT Apron will provide for two (2) SAAB 340B maximum or one (1) executive jet such as a Gulfstream IV, Challenger 600 or Falcon 900. The stand-off area is accessed east via Taxiway Bravo.

Four Code B run-up bays accessed via Taxiway Echo are also planned in this area.

Existing GA Apron

The existing GA Apron is suitable for the current mix of Code A and Code B uses. Options for increasing the availability of Code B access, including the need and/or benefit for relocation of the existing fuel facilities, should be subject to more detailed feasibility assessment.

Tie-down Parking Areas

Reconfiguration of the GA Apron to accommodate Code B operations, and/or the future RPT Apron expansion will absorb the current grass tie-down parking. Replacement tie-down areas are proposed in the GA Precinct Expansion west of the lease lots to the north of the Emergency Services Precinct. Further tie-down area will be incorporated into the future GA Precinct development north of Runway 11/29.

In addition, it is recommended that a tie-down strategy be prepared by Council, including best practice tie-down locations and procedures for airport customers. This strategy should be developed in close consultation with users of the facility.

Passenger Terminal Building

The Passenger Terminal Building is presented with a number of potential opportunities for expansion to the north, east and west of the existing facility, as shown on Figure F. Expanding the building on the south end is restricted due to Taxiway Delta clearance requirements. In addition, OLS and taxiway clearance requirements to provide aircraft parking bays up to a Code C B737-800 standard associated with the extension would prohibit these bays being located at the southern end of the RPT apron. The existing Undercover Secure Car Park and pick up and drop off zones will need to be relocated to allow for terminal building expansion.

Reconfiguration of the internal spaces of the terminal building would be required to accommodate the expansion. This would need to be subject to a further detailed study, however it is anticipated that:

- The existing departures area could expand to the north, with the security screening relocating to the existing check-in area;
- Check-in facilities could be relocated to the existing administration and arrivals areas;
- Arrivals baggage claim area could be expanded to the north along with relocated administration facilities; and

- An airside enclosed or covered walkway could also be incorporated from the existing departures area past the rear of the existing check-in to access the new RPT apron bays and to allow passengers from the southern RPT positions to access the arrivals facilities;

Terminal expansion is likely to be driven by increases in operating RPT aircraft sizes and should be kept under regular review in discussions with airlines.

8.4 CAR PARKING

Car parking is provided for west of the Terminal Precinct with an additional area of approximately 15,500 square metres. The Undercover Secure Car Park (3,500 square metres) would relocate to this area. An additional section of car parking is provided to the south side of the Airport Ring Road intended for Council use in keeping with the existing circumstances.

8.5 ARO BASE

An area to consolidate the ARO facilities and equipment is allocated at the south end of the Terminal Building across the airside access point. The existing Airservices Building may be able to be converted into the ARO facilities, otherwise it may need to be removed to accommodate them in the same location. This location provides the AROs with immediate access to the airside, visual surveillance of the aircraft movement areas while having direct access to the terminal building.

8.6 HELICOPTER PARKING STANDS

Helicopter parking stands are proposed at the east end of the Commercial Precinct to accommodate up to three (3) AgustaWestland AW139 helicopters. This area is directly opposite the end of Runway 05 and land access via Arthur Butler Drive. Helicopters would utilise the runway network for arrivals and departures and taxi to the allocated stand areas. These facilities would form part of the airside commercial precinct.

8.7 WIND DIRECTION INDICATORS AND GROUND SIGNALS

There are three existing wind direction indicators on the airport and an Automatic Weather Information System (AWIS). A primary wind direction indicator illuminated with a signal circle is currently located on the west side of Runway 05/23 between Taxiway Alpha and Taxiway Bravo. An additional illuminated WDI at the threshold of Runway 23 and one non-illuminated WDI at the threshold of Runway 11. The AWIS equipment is located on the east side of Runway 05/23 south of Runway 11/29.

In accordance with MOS Part 139 Section 8.7.1 the airport must install and maintain at least one indicator at the airport. However, when surface wind information is passed to the pilots of aircraft approaching the runway through an automatic weather observing system the requirement to provide a wind direction indicator at the threshold of the runway is not applicable as per MOS Part 139 Section 8.7.1.3.

In order to allow for the expansion of Taxiway Delta, the RPT Apron and the General Aviation Precinct the primary WDI and the non-illuminated WDI will need to me removed.

One WDI and Signal Circle is provided for in accordance with MOS Part 139 *Aerodromes* south-east of the runways intersection so as to be visible from aircraft that are in flight or aircraft that are on the movement area.

8.8 FUEL STATIONS

New fuel facilities are proposed in the New GA Area next to the freight and distribution area, which could accommodate both Code A and Code B aircraft to power in and out.

The existing fuel bowsers on the east end of the existing general aviation apron may be retained, or relocated to the western end of the apron, depending on the future development option chosen in this area (refer **Section 8.3**).

8.9 INDICATIVE DEVELOPMENT STAGING, TRIGGERS AND TIMING

Proposed developments have been grouped into indicative short (1-3 years), medium (3-10 years) and long-term (10+ years) stages. Key developments and triggers are shown in **Table 5**, **Table 6** and **Table 7**, respectively, below.

A rough order-of-magnitude cost range has also been provided. These cost ranges are based on judgement, rule-of-thumb, and experience with similar developments and discussions with Council. No warranty is made as to their accuracy. It should be noted that cost estimates are extremely sensitive to engineering design parameters including, in particular, earthworks and ground conditions, as well as the specific project scope requirements. No investigation or assessment of these items has been undertaken in developing these estimates, nor have the development packages been subject to a formal scope definition, and so the indicative costs should be treated with appropriate caution and are not to be relied upon until engineering design can be further progressed.

Table 5: Proposed Short-Term Development (1-3 Years)

Development package	Indicative Cost	Trigger
Extend Taxiway Juliet	$0.5 million	Immediate operational requirement
Southern Apron Expansion, lighting and associated facilities	$2 - 3 million	Immediate operational requirement
Local Freight Processing and Distribution apron	$0.5 – 1 million	Immediate operational requirement
Construct LAT Base Stage 1 apron and access road (utilities extra) Taxiway Lima connection to Runway 05/23	$6.5 – 8 million	Project Partnership Agreement with RFS
Taxiway Delta and Taxiway Echo re-seal	$230,000	Overall demand and quality of existing infrastructure
Re-development of the Café area	$300,000	Commercial demand
Re-seal of the Cross Runway 11/29	$450,000	Condition and use off the Cross Runway
Undercover Walkway for RPT Passengers	$200,000	Passenger Demand and inclement weather
Aerodrome Reporting Officers shed and associated facilities	$300,000	Operational demands
GA Apron re-seal	$500,000	Operational requirement

Table 6: Proposed Medium-Term Development (3-10 Years)

Development package	Indicative Cost	Trigger
Construct LAT Base Stage 2 apron and structures	$2 million	RFS requirement and industry development opportunities
Runway extension to 2,200 m long Code 4D	$40 million	
Upgrade and extend Taxiway Delta (Stage 1 Taxiway Alpha to Taxiway Lima. Stage 2 Runway 23 threshold) Staged Code C to Code D	$15 – 20 million	Code 4C jet or Code 4D runway
Reconfigure existing Old GA Apron to full Code B access including relocation of fuel bowser (if required)	$0.5 – 2 million	Feasibility study, funding and business case
Additional Northern GA Area (including Taxiways J, K and aircraft parking) (utilities extra)	$3 – 5 million	Commercial demand
Strengthen Runway 05/23 to Code D LAT requirements and extend Runway to 2,200m Code D	$40 million	RFS or RPT Aircraft requirement
Commercial Precinct (landside – Mitchell Highway)	$5 - 10 million	Commercial demand
Proposed new Fuelling Point	~ $1 million	Commercial demand
North Western RPT Apron Expansion (including stand-off and run-up bays)	$5 – 10 million	RPT demand
Passenger Terminal Upgrade	$1 – 2 million	Level of Service
Relocation of Secure Parking	$2 – 3 million	Expansion of RPT Apron,

Development package	Indicative Cost	Trigger
Passenger Terminal Expansion	$5 – 10 million	passenger and service numbers
Public Car Park Expansion	$1 – 2 million	Passenger demand
Commercial Precinct (Airside) including access via Taxiway November	$3 – 5 million	Commercial demand
Warehouse and distribution/ commercial precinct	$5 million	Commercial demand

Table 7: Proposed Long-Term Development (10+ Years)

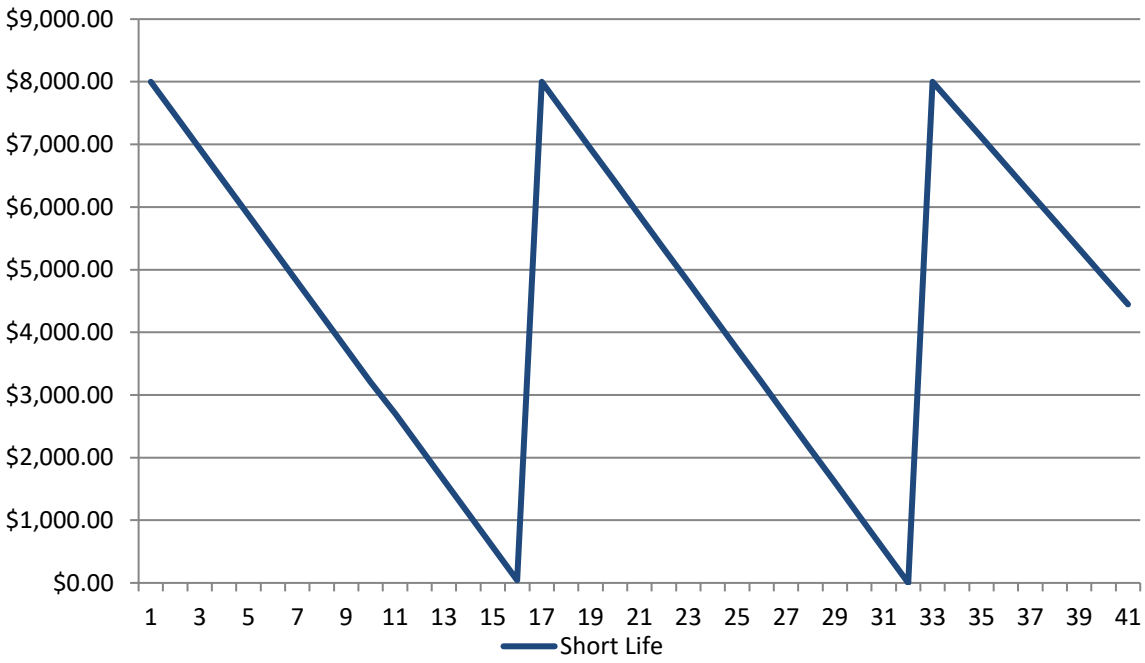
Development package	Indicative Cost	Trigger
Freight Precinct Development Runway Extension to 2,800 m long and widening to Code E New Code E taxiway/s (Assumes 2,200m Code 4C runway constructed prior)	$30 – 50 million	Wide-body freight operations

8.10 LONG TERM MASTER PLANNING AND EFFECTIVE ASSET MANAGEMENT

Long term master planning focuses on establishing a long term strategic approach with two main objectives. Firstly, to establish sustainable management of the current assets so that they can provide the current level of service on an ongoing basis without burden to future generations – this is achieved by having current users pay for the proportion of the asset life that is being consumed each year. This provides a foundation for the second asset management objective – for management to be adequately agile to embrace opportunities that enhance the asset set to new sustainable levels of service that are aligned to market needs, and the capacity and demands of the business owners and stakeholders.

For the airport to effectively plan and be positioned for the future, it must firstly ensure that current assets are managed – strategically, operationally and financially – in a sustainable way now, to support the long term visions of the Master Plan. For example, the main Runway 05/23 is Dubbo City Regional Airport's most significant asset. The strengthening upgrade of the runway in 2018 increased the value of the asset significantly, delivering a stronger pavement for airport users. This new runway surface is subject to aircraft traffic, weathering and other influences which mean the surface will need to be renewed in approximately 15 years, unless it is damaged prematurely by excessive loading or other factors. **Figure 9** illustrates that the asset value depreciates over time and, every 15 years or so, the airport will need to fund renewal of that surface.

Figure 9: Asset Value



Source: Dubbo City Council

9.0 AIRPORT SAFEGUARDING

9.1 THE NEED FOR SAFEGUARDING

Adequate protection of the basic capability to undertake aircraft operations in accordance with accepted safety standards and regulatory requirements, and in an efficient and economic manner, is imperative to the future realisation of aeronautical opportunities at Dubbo City Regional Airport. Operations at Dubbo City Regional Airport will require adequate safeguarding in order to develop the vision and objectives of the Master Plan.

Airport safeguarding includes a number of elements that will be required throughout the planning and development processes. The various safeguarding elements will be triggered by different activities and aircraft operations.

9.2 NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK

The National Airports Safeguarding Framework (NASF) is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms; and
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues.

The NASF was developed by the National Airports Safeguarding Advisory Group (NASAG), comprising of Commonwealth, State and Territory Government planning and transport officials, the Australian Government Department of Defence, the Civil Aviation Safety Authority (CASA), Airservices Australia and the Australian Local Government Association (ALGA).

NASF currently consists of a set of seven principles and nine guidelines. The full NASF principles and guidelines can be found on the Department of Infrastructure and Regional Development's website at: *www.infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf.*

The NASF principles are as follows, and each guideline is described in the following subsections.

- **Principle 1:** The safety, efficiency and operational integrity of airports should be protected by all governments, recognising their economic, defence and social significance
- **Principle 2:** Airports, governments and local communities should share responsibility to ensure that airport planning is integrated with local and regional planning
- **Principle 3:** Governments at all levels should align land use planning and building requirements in the vicinity of airports
- **Principle 4**: Land use planning processes should balance and protect both airport/aviation operations and community safety and amenity expectations
- **Principle 5**: Governments will protect operational airspace around airports in the interests of both aviation and community safety
- **Principle 6:** Strategic and statutory planning frameworks should address aircraft noise by applying a comprehensive suite of noise measures
- **Principle 7:** Airports should work with governments to provide comprehensive and understandable information to local communities on their operations concerning noise impacts and airspace requirements.

9.2.1 GUIDELINE A

Measures for Managing Impacts of Aircraft Noise

NASF Guideline A can be used in the assessment of new development applications for noise sensitive uses. While the Australian Noise Exposure Forecast (ANEF) system is recognised by a number of jurisdictions in land use planning decisions, the 20 and 25 ANEF zones do not capture all high noise affected areas around an airport. In addition, Australian Standard AS2021-2015 recognises that the ANEF contours are not necessarily an indicator of the full spread of noise impacts, particularly for residents newly exposed to aircraft noise.

Guideline A is the Government's recognition of the need to consider a complementary suite of noise measures in conjunction with the ANEF system to better inform strategic planning and to provide more comprehensive and understandable information on aircraft noise for communities.

Council should consider, taking into consideration the existing and potential future land uses in the vicinity of the Airport:

- Whether the current ANEF represents an adequate forecast of potential future noise impacts associated with the potential aviation activity foreseen in this Master Plan; and
- Whether there is a need to develop and communicate additional information in addition to the ANEF mapping.

9.2.2 GUIDELINE B

Managing the Risk of Building Generated Windshear and Turbulence at airports

The purpose of this guideline is to assist land use planners and airport operators in their planning and development processes to reduce the risk of building generated windshear and turbulence at airports near runways.

Applicability of this Guideline is initially determined by the location of the building within an 'assessment trigger area' around the runway ends, that is:

- 1200 metres or closer perpendicular from the runway centreline (or extended runway centreline);
- 900 metres or closer in front of runway threshold (towards the landside of the airport); and
- 500 metres or closer from the runway threshold along the runway.

The guideline recommends that all developments within the assessment trigger areas which will infringe a 1:35 sloping surface from the runway centreline should be subject to further assessment.

Positioning of all developments on airport will need to be evaluated on a case by case basis. Subject to confirmation through such evaluation that no adverse impact on aircraft operations is predicted, then buildings may be located closer to the runways and within the 1:35 surface.

Council should retain flexibility in the internal layout of proposed development precincts until the positioning of buildings in relation to Guideline B is resolved.

9.2.3 GUIDELINE C

Managing the Risk of Wildlife Strikes in the Vicinity of Airports

The purpose of Guideline C is to inform the land use planning decisions and the way in which existing land use is managed in the vicinity of airports with respect to the attraction of wildlife, particularly birds. A table is included in Attachment 1 which indicates wildlife attraction risk and associated actions for developments within buffer zones around airports of 3, 8 and 13 kilometres radius.

Council should consider Guideline C in its planning decisions with respect to land uses and developments within 13 kilometres of the Airport.

9.2.4 GUIDELINE D

Managing the Risk to Aviation Safety of Wind Turbine Installations

This guideline provides general information and advice in relation to wind farms and turbines and their hazards to aviation. Proponents of such installations should take account of Guideline D in undertaking assessments of the impacts of the proposals, including on aviation. Council should be aware of the guideline and it may assist Council in evaluating and commenting on any wind farm proposals.

9.2.5 GUIDELINE E

Managing the Risk of Distraction to Pilots from Lighting in the Vicinity of Airports

Guideline E provides guidance on the risk of distractions to pilots of aircraft from lighting and light fixtures near airports. The CASA *Manual of Standards part 139 Aerodromes* Section 9.21: *Lighting in the Vicinity of Aerodromes* sets out the restrictions and provides advice to lighting suppliers on the general requirements, information and correspondence avenues.

Advice for the guidance of designers and installation contractors is provided for situations where lights are to be installed within a 6 kilometre radius of the airport. Lights within this area fall into a category most likely to be subject to the provisions of regulation 94 of CAR 1988.

The primary area is divided into four light control zones; A, B, C and D. These zones reflect the degree of interference ground lights can cause pilots as they approach. Lighting associated with any developments should therefore meet the maximum intensity of light sources measured at 3 degrees above the horizontal associated with each Zone as follows:

- Zone A - 0 cd;
- Zone B – 50 cd;
- Zone C – 150 cd; and
- Zone D – 450 cd.

Council should consider Guideline E in relation to any proposed lighting installations (for example, associated with sports fields, industrial facilities and similar) within 6 kilometres of the Airport.

It should be noted that solar panel installation is a particular consideration in relation to glare/reflectivity affecting aircraft in various stages of flight as well as ATC operations. Should any solar panels be proposed within the vicinity of the Airport a solar glare hazard analysis to satisfy CASA and Council that the safety of aircraft operations will not be affected is recommended.

9.2.6 GUIDELINE F

Managing the Risk of Intrusions into the Protected Airspace of Airports

Guideline F is designed to address the issue of intrusions into the operational airspace of airports by tall structures, such as buildings and cranes in the vicinity of airports.

The safety, efficiency and regularity of aircraft operations require airspace to be largely free of obstacles which may make it unsuitable for the conduct of visual and instrument flights.

At Dubbo City Regional Airport the Obstacle Limitation Surfaces (OLS) are currently provided based on an instrument non-precision Code 4 Runway 05/23 at 2,350 m long. To protect for the operations which may be associated with a possible freight precinct, the OLS should be updated to reflect the possible 2,800 metre long Runway 05/23.

The OLS for an airport describe the airspace boundaries for flight in proximity to an airport which should be kept free of obstacles that may endanger aircraft operations in visual operations or

during the visual stages of an instrument flight. The OLS components are defined in the International Civil Aviation Organization (ICAO) Annex 14 and in Chapter 7 of the CASA Manual of Standards (MOS) Part 139. Subject to aeronautical assessment, an obstacle may be permitted to penetrate the OLS without placing restrictions on the allowable operations, but will normally require it to be marked and/or lit to make it conspicuous to pilots. CASA may also impose operational limitations on aerodrome users in the presence of obstacles. To avoid any undesirable limitations on operations, it is recommended to ensure that obstacles are not permitted to penetrate the approach or departure areas.

The Guideline also addresses activities that could cause air turbulence that could affect the normal flight of aircraft operating in the prescribed airspace and/or emissions of steam, other gas, smoke, dust or other particulate matter that could affect the prescribed airspace in accordance with Visual Flight Rules (VFR).

9.2.7 GUIDELINE G

Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)

Essendon Airport operates a number of aviation based CNS facilities. Protection surfaces have been established and published for these facilities so as to prevent interference with the performance of the facilities.

9.2.8 GUIDELINE H

Protecting Strategically Important Helicopter Landing Sites (HLS)

Guideline H provides guidance on the ongoing operations, protection of flight paths and areas for off-airport HLS. As such it is not applicable to on-airport facilities. However, on-airport helicopter facilities should be planned and designed in accordance with the guidance set out in CAAP 92-2(2) *Guidelines for the establishment of on-shore helicopter landing sites*.

9.2.9 GUIDELINE I

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

Guideline I provides guidance on approaches for the application of a Public Safety Area (PSA) planning framework in Australian jurisdictions. The Guideline is intended to ensure there is no increase in risk from new development and to assist land-use planners to better consider public safety when assessing development proposals, rezoning requests and when developing strategic land use plans.

A PSA is a designated area of land at the end of an airport runway within which development may be restricted in order to control the number of people on the ground around runway ends. The size and shape of a PSA typically depend on the statistical chance of an accident occurring at a particular location. The risk is related to the number and type of aircraft movements and the distance from the critical take-off and landing points. PSAs are based on the landing threshold for

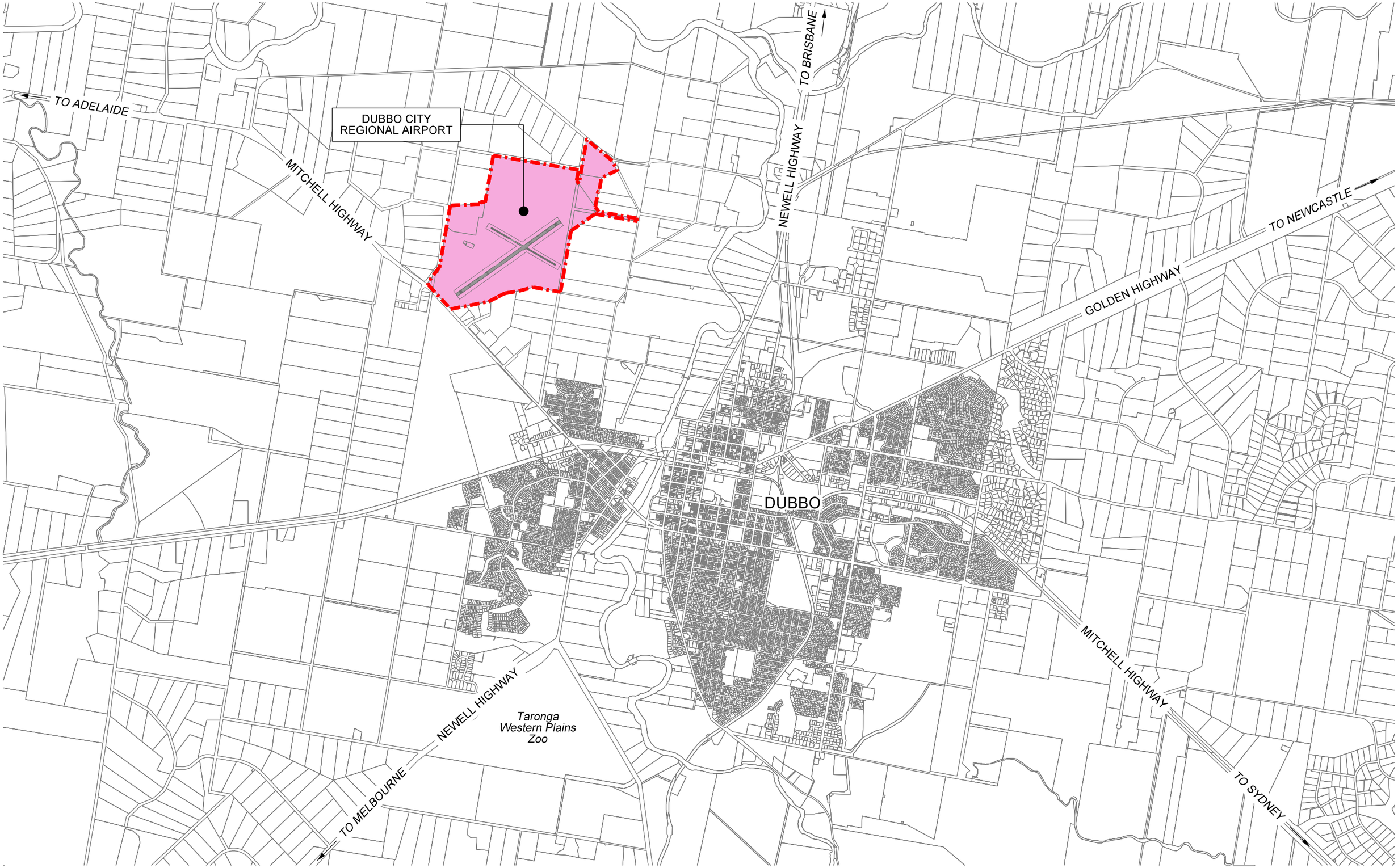
each end of the runway and in most cases become narrower with increasing distance before the threshold.

Guideline I provides two examples of most relevance to Australia (the UK and Queensland approaches) to developing PSA extents:

- The UK model is the most formalised approach to defining a PSA and has been applied at a number of international and Australian airports; and
- The Queensland model is a modified version of the policy and research conducted in the UK. The Queensland model may be more appropriate at a regional airport such as Dubbo.

APPENDIX A

MASTER PLAN FIGURES



REHBEIN Airport Consulting

DUBBO CITY REGIONAL AIRPORT MASTER PLAN 2019-2040

Locality Plan

NORTH

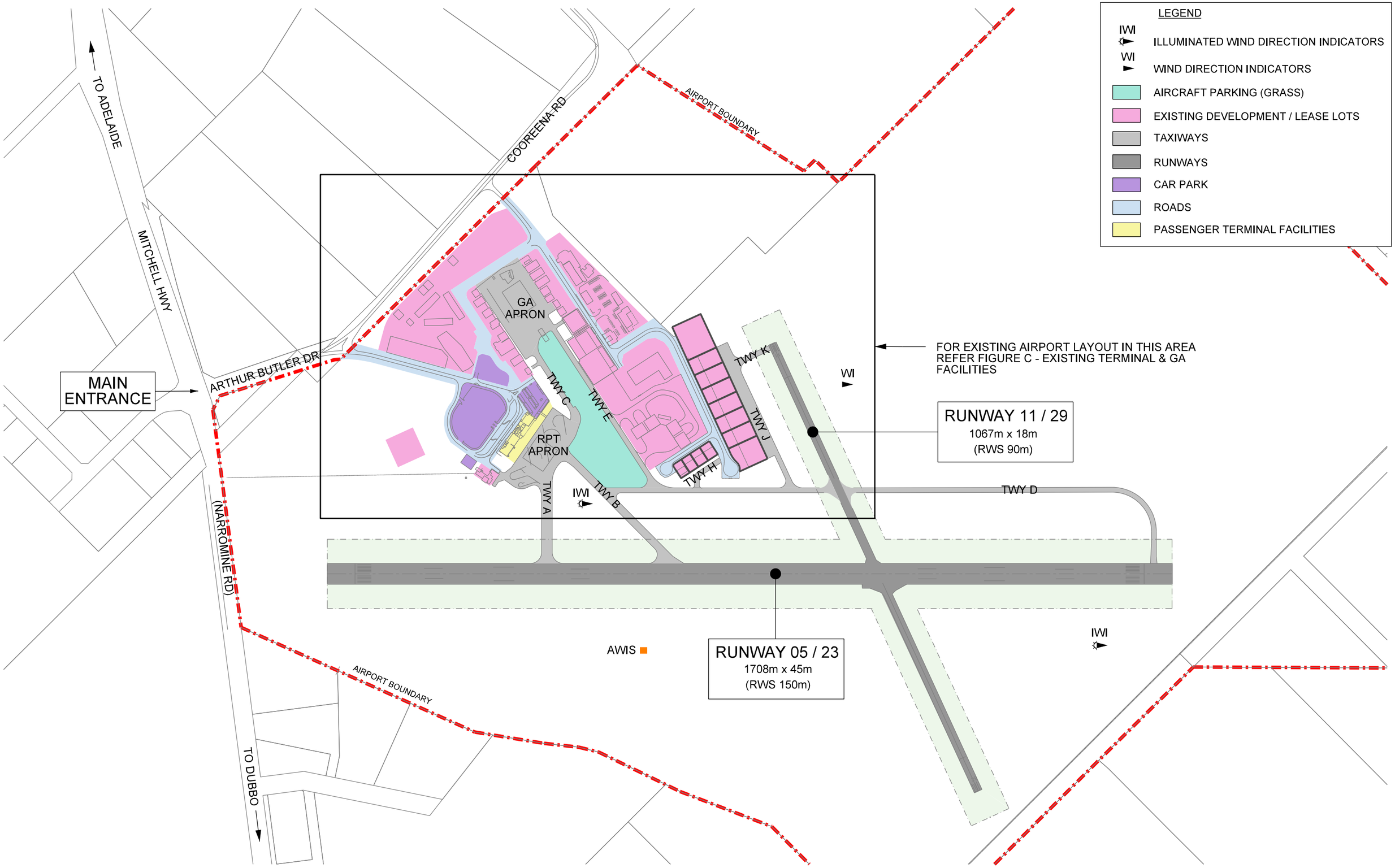
0 0.5 1.5 2.5Km

1:50,000 @ A3

13.03.2020 REV 4

FIGURE A

B19103



REHBEIN Airport Consulting

DUBBO CITY REGIONAL AIRPORT MASTER PLAN 2019-2040

Existing Airport Layout

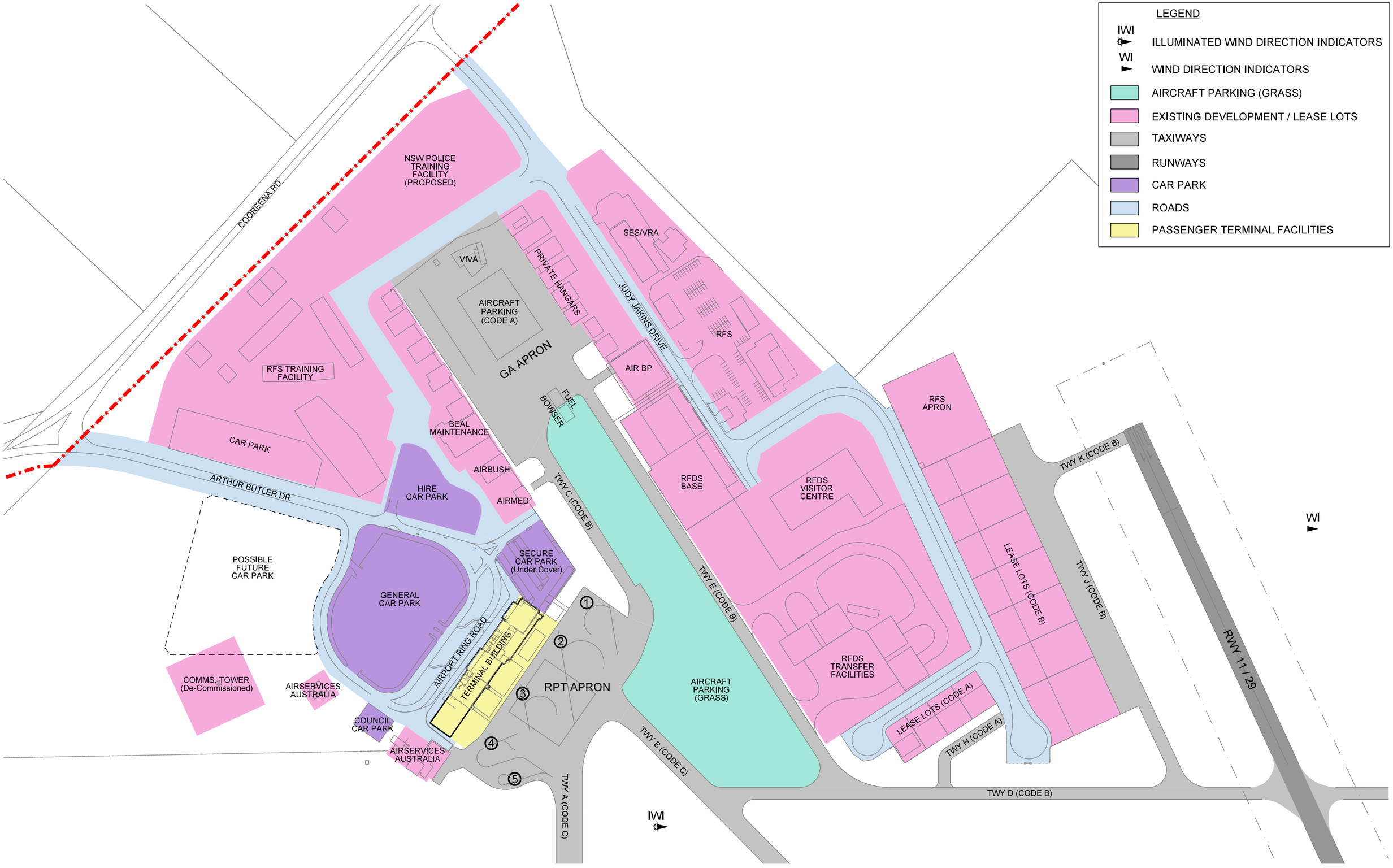
NORTH

0 70 210 350m

1:7,500 @ A3

13.03.2020 REV 4

FIGURE **B** B19103



REHBEIN Airport Consulting

DUBBO CITY REGIONAL AIRPORT MASTER PLAN 2019-2040

Existing Terminal & GA Facilities

NORTH

0 30 90 150m

1:3,000 @ A3

13.03.2020 REV 4

FIGURE C

B19103

LEGEND

- SP2 - INFRASTRUCTURE
- R2 - LOW DENSITY RESIDENTIAL
- R5 - LARGE LOT RESIDENTIAL
- IN2 - LIGHT INDUSTRIAL
- IN3 - HEAVY INDUSTRIAL
- RU2 - RURAL LANDSCAPE
- RU4 - PRIMARY PRODUCTION SMALL LOTS
- E3 - ENVIRONMENTAL MANAGEMENT
- RE1 - PUBLIC RECREATION

RU4
R5
RU2
AIRPORT BOUNDARY
BUNGLEGUMBIE ROAD
IN3
SP2
DUBBO CITY
REGIONAL AIRPORT
COOREENA ROAD
RU2
E3
RU2
IN2
IN2
R5
RE1
MITCHELL HIGHWAY
SP2
R2
E3

REHBEIN Airport Consulting

DUBBO CITY REGIONAL AIRPORT MASTER PLAN 2019-2040

Land Use Plan

NORTH

0 150 450 750m

1:15,000 @ A3

13.03.2020 REV 4

FIGURE D

B19103

TERMINAL PRECINCT

EMERGENCY SERVICES PRECINCT

CAR PARKING PRECINCT

COMMERCIAL PRECINCT

COMMERCIAL PRECINCT

GENERAL AVIATION PRECINCT

LARGE AIR TANKER BASE

POSSIBLE FREIGHT PRECINCT (OPTION 2)

TAXIWAY L
CODE E

ARTHUR BUTLER DR

COOREENA RD

MITCHELL HWY

ACCESS ROAD

11

05

23

29

TAXIWAY N
CODE C

CODE D/E TURN NODE

POSSIBLE WI LOCATION

TAXIWAY A
CODE D

TAXIWAY M
CODE D

POSSIBLE WI LOCATION

TAXIWAY D
CODE D

TAXIWAY D
CODE D

RUNWAY 05 / 23
EXTENSION TO 2,800m
WITH CODE E TURN NODE

NEW PRIMARY WIND DIRECTION INDICATOR AND SIGNAL CIRCLE

RUNWAY 05 / 23
EXTENSION TO 2,200m
WITH 7.5m SHOULDERS
EITHER SIDE

(NARROMINE RD)

POSSIBLE FREIGHT PRECINCT (OPTION 1)

TAXIWAY
CODE E

280m WIDE FUTURE RUNWAY STRIP

BUNGLEGUMBIE RD

REHBEIN Airport Consulting

DUBBO CITY REGIONAL AIRPORT MASTER PLAN 2019-2040

Overall Development Plan

NORTH

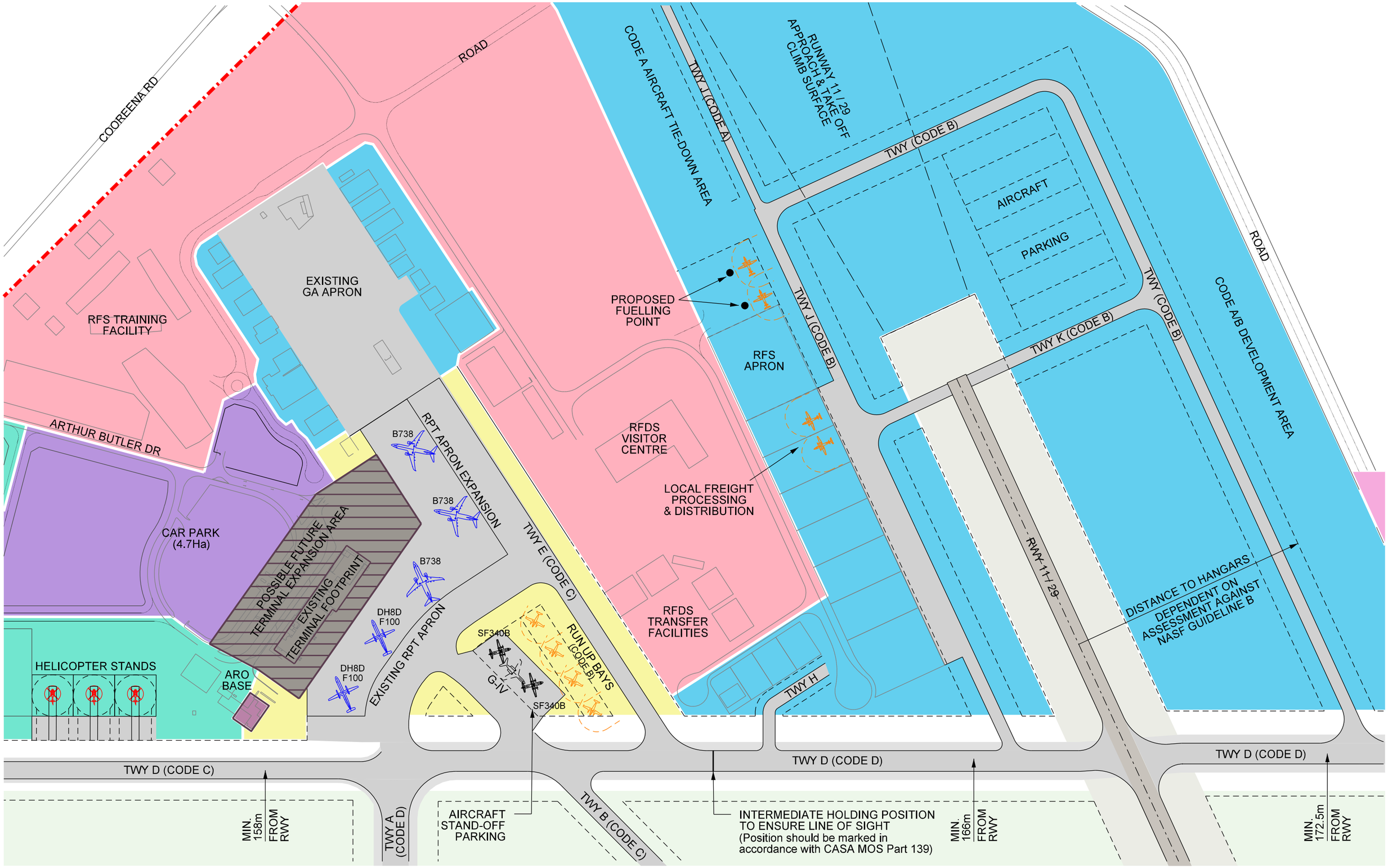
0 100 300 500m

1:10,000 @ A3

13.03.2020 REV 4

FIGURE E

B19103



REHBEIN Airport Consulting

DUBBO CITY REGIONAL AIRPORT MASTER PLAN 2019-2040

Terminal & GA Area Development

NORTH

0 30 90 150m

1:3,000 @ A3

13.03.2020 REV 4

FIGURE F

B19103