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Parkes Regional Airport Master Plan
For Parkes Shire Council

TABLE OF CONTENTS

Document Control Page

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GLOSSARY OF TERMS & ABBREVIATIONS

ACN (Aircraft Classification Number)	A number expressing the relative effect of an aircraft on a pavement for a specified standard subgrade category.
ASV	Annual Service Volume
Aerodrome	A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.
AFRU (Aerodrome Frequency Response Unit)	The AFRU is an electronic, ground based, aviation safety enhancement device, intended for use on the CTAF or MBZ frequency at non-controlled aerodromes.
AIP ERSA	Airservices Australia Aeronautical Information Package En-Route Supplement Australia
ANEF	Australian Noise Exposure Forecast
ARC (Aerodrome Reference Code)	A code used to specify the standards for individual aerodrome facilities which are suitable for use by aeroplanes within a range of performances and sizes. The code is composed of two elements: the first is a number (from 1 to 4) related to the aeroplane reference field length and the second is a letter (from A to F) related to the aeroplane wingspan and outer main gear wheel span.
ARP	Aerodrome Reference Point
ATC	Air Traffic Control
AWIS	Automatic Weather Information Service
BoM	Bureau of Meteorology
CAGR	Compound Annual Growth Rate
CASA (Civil Aviation Safety Authority)	The Australian federal government department responsible for setting and maintaining safety standards for civil aviation. CASA is responsible for the codification of international standards and recommended practices into Australian legislation and for the issue of licences for aviation personnel including pilots, amongst other responsibilities.
CASR (Civil Aviation Safety Regulation)	CASRs establish the regulatory framework (*Regulations*) within which all service providers must operate.
CTAF	Common Traffic Advisory Frequency
EOC	Emergency Operations Centre
FAA	Federal Aviation Administration (United States Department of Transportation)
General Aviation (GA)	The sector of the aviation industry that does not include regular public transport (RPT) airlines and military aviation.
GSE	Ground Servicing Equipment
GPS	Global Positioning System
IATA	International Air Transport Association

ICAO	International Civil Aviation Organisation
IFR/IMC (Instrument Flight Rules/ Instrument Meteorological Conditions)	Refers to rules under which flight involving navigation requiring reference to radio navigational aids or instruments is carried out. Weather conditions below a certain minima are referred to as instrument meteorological conditions (IMC). IFR flight requires pilots to be qualified in the use of instrument navigation and to use radio navigational aids provided at airports.
INM	Integrated Noise Model
IWI	Illuminated Wind Indicator
LIRL	Low Intensity Runway Lighting
LoS	Level of Service – a range of values or assessments of the ability of the terminal to meet demand
MPPA	Million Passengers Per Annum
MOS	Manual of Standards
MTOW	Maximum Take-off Weight
Navaid	Commonly-used abbreviation for 'radio navigational aid'
NDB (Non Directional Beacon)	A simple and common type of radio navigational aid which allows pilots to track to or from its location.
Non-precision instrument approach	An instrument approach and landing that uses lateral guidance but does not use vertical guidance.
OLS	Obstacle Limitation Surfaces
PAL	Pilot Activated Lighting
Pavement Classification Number (PCN)	A number expressing the bearing strength of a pavement for unrestricted operations by aircraft with ACN value less than or equal to PCN.
Payload	The total weight of passengers and cargo that an aircraft can carry.
PSI	Unit of pressure or stress (pounds per square inch)
RESA (Runway End Safety Area)	Area provided at the end of a runway strip, to protect the aeroplane in the event of undershooting or overrunning the runway.
RFDS	Royal Flying Doctor Service
RNAV/GNSS Approach	Area Navigation/Global Navigation Satellite System Approach. A form of instrument approach procedure using signals from orbiting satellites to determine an aircraft's precise position at a point in time.
RPT (Regular Public Transport)	Air services operated by airlines that are scheduled to occur on a regular basis at fixed times or frequencies and on fixed routes.
Runway Strip	A defined area including the runway and stopway, intended to reduce risk of damage to aircraft running off a runway and to protect aircraft flying over it during take-off or landing operations.
DME	Radio navigation system: Distance-based measuring equipment

VFR/VMC (Visual Flight Rules/ Visual Meteorological Conditions)	Refers to rules under which flight involving navigation solely by reference to visual cues (rather than requiring reference to radio navigational aids or instruments) is carried out. VFR flight is permissible only when meteorological conditions (cloud base and visibility) are above defined limits. Such conditions are referred to as visual meteorological conditions (VMC). VFR flight does not require pilots to be qualified in the use of instrument navigation, nor does it require expensive radio navigational aids to be provided at airports.
WDI	Wind Direction Indicator

1.0 INTRODUCTION

REHBEIN Airport Consulting was commissioned by Parkes Shire Council (Council) to prepare a Master Plan for Parkes Regional Airport. Specialist assistance in relation to terminal development was provided by Noxon Giffen architects.

1.1 OBJECTIVES

At a general level, airport master planning is undertaken to enable sound land-use development. An Airport Master Plan is, therefore, a key strategic tool that sets out a long-term framework for the development of all facilities within the airport and protects future development against the effects of current decisions.

Consistent with these strategic considerations, the *Airports Act 1996* summarises the aims of an Airport Master Plan as follows:

- Establishing strategic direction for the efficient and economic development of the airport over the planning period;
- Providing for the development of additional uses of the airport site;
- Indicating to the public the intended uses of the airport site; and
- Reducing potential conflicts between uses of the airport site, and to ensure that uses of the airport site are compatible with the areas surrounding the airport.

Although the *Airports Act 1996* does not have statutory application to Parkes Regional Airport, this does not reduce the relevance of these four key aims. Council has identified several further specific objectives in commissioning this Master Plan, including the desire to:

- Review existing data – a Strategic Review Workshop undertaken in 2011 and an Economic Assessment Report completed in 2012 – to deliver a Master Plan that will meet existing and future needs;
- Review current and potential RPT operations at the airport giving indications of scope needed for future aircraft types and additional carriers;
- Review the existing runway, taxiway and apron layout with recommendations for changes taking into consideration future growth of the airport and larger aircraft types;
- Review the existing terminal configuration and make recommendations for future expansion to meet future needs of the region by residents, businesses, visitors, and Government authorities;
- Review the car park to include long term parking and future business requirements;
- Review the General Aviation area and services with recommendations for future expansion of the airport including provision for further hangar space and business development; and

- Review the existing services provided such as water, sewer, power, drainage and communications with recommendations for future needs according to growth.

The Master Plan provides a focussed framework for the development of the airport over the next 20 years (and beyond) and represents future facilities that will satisfy potential air traffic demand and economic growth opportunities. It also ensures compatibility with user needs and regulatory obligations including safety and security.

Whilst this Master Plan sets out strategic infrastructure requirements for Parkes Regional Airport over the next 20 years, it is important to recognise that the Master Plan makes no assertion as to the commercial viability of any individual component. Suitable trigger points and anticipated timings for each element are identified; however each development should be subject to its own business case prior to any decision to proceed with capital expenditure.

1.2 METHODOLOGY

The principal steps in the preparation of this Master Plan were as follows:

- Visits to Parkes were made by REHBEIN Airport Consulting and Noxon Giffen personnel on 4 March and 26 March 2013;
- Stakeholder Consultation was undertaken to solicit the views, issues and concerns of key stakeholders and airport users including Council representatives, airlines, airport tenants and users, local businesses and organisations. Discussion was largely focussed on the future infrastructure requirements and expansion potential of Parkes Regional Airport. Consultation was undertaken in Parkes as well as by telephone. (Appendix B provides a stakeholder consultation schedule);
- Based on consultation with these key stakeholders and consideration of relevant market trends, future aviation activity forecasts for both aircraft movements and passengers were developed;
- Based on selected future scenarios, aeronautical infrastructure development proposals were set out and a staged development plan for the passenger terminal, additional hangar sites, and aerodrome infrastructure was formulated to provide guidance on the implementation of the proposals;
- Once the requirements for aeronautical infrastructure and the required supporting services were confirmed, proposals for non-aviation development at the airport were developed;
- Airspace and other assessments have also been undertaken to provide direction for land use planning on the land surrounding the airport; and
- Indicative capital cost estimates have also been developed to aid with the implementation of both the aeronautical and non-aeronautical proposals within this Master Plan.

1.3 REPORT STRUCTURE

This Master Plan report is structured as follows:

- Section 2.0 provides background context to the Master Plan;
- Section 3.0 describes the existing situation with respect to airport facilities;
- Section 4.0 discusses historical and forecast future aviation activity;
- Section 5.0 describes the development concept for aeronautical facilities;
- Section 6.0 outlines non-aeronautical development and land-uses; and
- Section 7.0 provides information on land-use planning restrictions associated with the proposed airport development.

2.0 PLANNING CONTEXT

2.1 MASTER PLANNING CONTEXT

2.1.1 LOCATION

Parkes is located within the Parkes Shire Council area, within the Central West region of New South Wales Region.

The town of Parkes is situated approximately 365km from Sydney, 721km from Melbourne, 995km from Brisbane, 1067km from Adelaide and 306km from Canberra.

Parkes Regional Airport is situated 5km east of the centre of Parkes, along Orange Road. The airport is also 100 km by road from Orange, 120 km from Dubbo and 105km from Cowra.

2.1.2 POPULATION

The population of the Parkes Local Government Area in 2012 was around 15,000 and approximately 12,000 of these lived in Parkes itself. Population projections developed by AEC Group Limited[1] suggest that the Shire's local population is expected to grow at an annual average rate of 0.5% and will exceed 16,000 by 2036.

The population catchment of the Parkes Regional Airport is estimated at around 41,000, which includes the town of Forbes 35 km to the south and stretches as far as Cowra.

2.1.3 ECONOMY

Tourism

Parkes Shire has a thriving tourism industry with numerous events throughout the year and a large number of passing visitors along the Newell Highway. Overall, the tourism industry generates more than $40 million to the Parkes economy annually. The primary attractions are the CSIRO's Australia Telescope National Facility at the Parkes Observatory, home of the 64-metre Parkes radio telescope ('the Dish') which attracts over 130,000 visitors each year, the Peak Hill Open Cut Experience and the Henry Parkes Centre. Major annual events including the Elvis Festival, Tullamore Irish Festival, Trundle Bush Tucker Day and ABBA Festival and the Peak Hill Spit and Spud as well as major sporting fixtures, car rallies and conventions, all attract large numbers of visitors. The Elvis Festival in particular draws people from all over Australia a significant number of which rely on air travel.

Mining

Mining represents one of the major cornerstones of the Parkes economy with the Northparkes Mine located 27 kilometres north-west of Parkes. Open pit and innovative block caving techniques are used to access the considerable copper and gold reserves. The mining industry, and the

[1] Parkes Shire Economic Development Plan Background Report, AEC Group Limited, January 2012.

Northparkes Mine in particular, hasbeen a major contributor to the Parkes economy. The mine currently employs 300 full-time equivalent staff on site as well as around 400 FTEcontractors.

Northparkes has been in operation since 1993 and, although a decision has recently been taken not to proceed with a possible expansion of operations, the mine life is expected to extend beyond 2030. This will ensure that the mine continues to be a considerable contributor to the local economy through the life of this Master Plan.

Logistics

From Parkes, 16 million people or over 80 per cent of the Australian population can be reached by road in less than 12 hours. Parkes has ready access to all major cities in Australia which includes readily accessible rail connections to all major seaports. The centralised location of Parkes reduces the average distance that freight needs to travel to reach the major markets throughout Australia. This results in significantly lower transport costs for distribution. Other cost savings can also be achieved with lower industrial land costs and wage costs.

In recognition of these strategic competitive advantages, Parkes Council, with approval from the State Government, has rezoned 516 hectares of agricultural and industrial land on the western edge of the town for the development of the Parkes National Logistics Hub with an additional reserve of over 100 hectares. The site has been specifically designed for the 24 hour, seven days per week operation of a multi-modal transport facility.

This Hub has received interest from several of Australia's largest and most successful transport and logistics companies who have recognised the immense strategic importance of the development. The Federal Government has recently committed to spend $300 million for pre-construction work for the Melbourne to Brisbane Inland Rail, which will go via Parkes and which, if constructed, will provide additional impetus to the Parkes National Logistics Hub development.

Government

Government businesses including Roads and Maritime Services, Department of Community Services and CentreLink are significant employers. In addition Parkes Shire Council employs around 170 full and part time staff. The Health Care and Social Assistance, and Education and Training sectors are also major government employers. Almost one in three people in Parkes are employed within a government agency or service and government jobs contribute over $100 million to the local economy.

Agriculture

The agriculture sector in Parkes is primarily comprised of sheep grazing and the production of grain crops such as wheat and barley. Recent developments in sustainable farming techniques have positioned Parkes at the forefront of innovation in the sector.

2.2 PLANNING INTEGRATION

A number of strategies and plans already in place have some implications for Parkes Regional Airport and the airport should be developed to align with these plans.

2.2.1 PARKES SHIRE COMMUNITY STRATEGIC PLAN

The Parkes Shire Community Strategic Plan 2022 (Reviewed 2012) (CSP) sets out the vision for the Parkes Shire, which is to be in 2022, "A progressive regional centre, embracing a national logistic hub, with vibrant communities, diverse opportunities, learning and healthy lifestyles".

Future Direction No. 5, to Develop Parkes as a National Logistics Hub, specifically identifies the objective to make Parkes Regional Airport progressive and profitable. A number of other stretgic objectives within the CSP relate indirectly to the airport.

2.2.2 PARKES LOCAL ENVIRONMENTAL PLAN 2012

The Parkes Local Environmental Plan (LEP) 2012 was notified by the Director General Planning and Infrastructure on 7 December 2012. The Parkes LEP 2012 conforms to the NSW Government's Standard Instrument LEP which was developed to set out a common format and contents for LEPs.

Under the Parkes LEP 2012 the airport land is zoned as SP2 Infrastructure and the surrounding land as RU1 Primary Production.

2.3 PREVIOUS STUDIES

2.3.1 PARKES AIRPORT STRATEGIC REVIEW WORKSHOP

A strategic review workshop was conducted in October 2011 by Airbiz with the objectives of:

- Understanding the strengths and weaknesses of the current operation at Parkes;
- Identifying opportunities which could build on the current strengths of the airport; and
- Determining steps required to realise these opportunities, and prioritising them accordingly.

The workshop identified possible opportunities in relation to RPT and possible fly-in, fly-out (FIFO) operations relating to tourism development (particularly the annual Elvis Festival) and the local mining industry. Development of a high-level Master Plan for the airport protecting areas for terminal, apron, support facilities and landside expansion – including areas for hangars and light industrial development – was a key action item from the review.

2.3.2 PARKES REGIONAL AIRPORT ECONOMIC ASSESSMENT

An economic assessment of the redevelopment of the airport was undertaken by AEC in 2012 (*Parkes Regional Airport Economic Assessment, Final Draft, December 2012*). The assessment identified that the airport plays an important role in supporting the regional business community within the Parkes-Forbes-Condobolin region and is crucial to attracting further business investment.

The airport also facilitates tourism visitation to the area to an estimated value of $2.2 million per year.

2.3.3 PARKES AIRPORT PROPOSED INTERNATIONAL FREIGHT FACILITY

In 1997 Parkes Shire Council commissioned an Environmental Impact Study (EIS) for the proposed upgrading of Parkes Airport to an international freight facility as part of a multi-modal infrastructure system serving the central west of New South Wales. The overall objective was to provide infrastructure to facilitate direct export of perishable produce from the region at lower transport costs and transhipment delays than were associated with contemporary air frieght movements through Sydney, Melbourne and Brisbane airports.

The proposal and EIS were updated in 1998 and the main features of the proposed facility included:

- Development of a new 3,800m long, Code 4E capable runway on a different alignment to either of the existing runways;
- Closure of the existing 04/22 runway;
- Demolition of existing facilities and replacement with dedicated freight and new passenger facilities; and
- A 3km long diversion of State Highway 90 (Orange Road) to the south of the airport and a small diversion of Shire Road 17 to the north.

The proposed facilities would have involved the acquisition of approximately 1,375 hectares of land.

2.4 PARKES REGIONAL AIRPORT

The Parkes Regional Airport is administered, owned and operated by the Parkes Shire Council, which has maintained the airport since 1975 after taking over ownership from the Federal Government. Formerly a Royal Australian Air Force Base, the base was converted in 1949 to a migrant camp. Along with others at Bathurst, Great and Cowra in NSW and Bonegilla (VIC) these camps were the first Australian homes for over 150,000 migrants between 1948 and 1952. The camp at Parkes, originally constructed to house 1,000 was later expanded to accommodate a population of almost 2,000. It closed on 30 May 1952. Several of the original Nissen hut footings are still visible on the airport site.

3.0 EXISTING FACILITIES

Parkes Regional Airport is a Certified Aerodrome in accordance with Civil Aviation Safety Regulation (CASRs) Part 139. The aerodrome is a Security Controlled Airport.

A plan showing the existing facilities at Parkes Regional Airport is provided as Figure A at Appendix A.

3.1 AIRFIELD FACILITIES

3.1.1 RUNWAYS

Parkes Regional Airport has two operational runways: Runway 04/22 and Runway 11/29.

Runway 04/22

Runway 04/22 is the primary runway. It is 1,684 metres long and 45 metres wide with a sealed surface. The runway sits within a 150 metre wide strip. On visual inspection, the full width of the strip would appear to meet the relevant requirements for the graded portion, and is marked as such, however only the central 90 metres is identified as graded in AIP-ERSA. On this basis the runway meets the requirements of CASA MOS Part 139 for instrument non-precision operations by Code 3 aeroplanes.

The runway pavement has a published Pavement Classification Number (PCN) of 8/F/C/850 (123PSI)/T This is adequate to accommodate the current SAAB 340 aircraft operations at maximum take-off weight (MTOW). The central 30m width of the runway pavement was reconstructed approximately 3 years ago and the seal in this central section is therefore of that age. The outer edges, although older, remain in a satisfactory condition.

The runway is equipped with low intensity runway edge lights (LIRL) at 90 metre spacing. The system was installed in approximately 1975. Separate transformer pits are provided at a distance of approximately 5 metres from the edge of pavement, however the primary and secondary cables are directly buried in the ground, as is common for airfield lighting systems of this age. The current standards for runway edge lights require a minimum spacing of 60 metres. Aerodrome operators with non-compliant lighting systems are obliged to comply with the current spacing standard as soon as the existing lighting system is replaced or upgraded.

The runway is not provided with a precision approach path indicator (PAPI) system or other means of visual approach slope guidance.

Runway 11/29

The secondary runway, designated 11/29, is 1,623 metres long by 30 metres wide and also has a sealed surface. The original seal was 45 metres wide, although the outer 7.5 metres on each side are no longer maintained and the runway is marked accordingly for a 30 metre width. The central 18 metres of pavement was last sealed around 6 years ago. The remainder of the operational 30

metre width of seal is older, but in a satisfactory condition. The runway sits within a 90 metre wide graded strip.

Runway 11/29 has a published PCN of 6/F/C/580 (84PSI)/T. This enables it to take most aircraft if required, including occasional use by SAAB 340 operations when Runway 04/22 is unavailable.

Runway 11/29 is not currently lit.

The runway is suitable for non-instrument approaches by aeroplanes up to Code 3C.

3.1.2 TAXIWAYS

There are a series of formal and informal taxiways connecting various parts of the site. For the purposes of identification these have been designated as indicated on Figure A.

Taxiway 'A'

A sealed taxiway links the main apron with the Runway 04 threshold. This taxiway is a minimum of 15 metres wide at its narrowest point and suitable for use by Code C turboprop aeroplanes.

Taxiway 'B'

This taxiway, which links the main apron area to the Runway 04 touchdown zone, is formally marked and has a sealed surface approximately 15 metres wide. The taxiway edges are marked with yellow markers at approximately 10.5 metres wide which would make it suitable for Code B aeroplanes. The seal has reportedly been placed on the natural surface and so there is no formal pavement below the seal. The taxiway is weight limited to 5,700kg.

Taxiway 'C'

This unsealed gravel taxiway links the main apron complex to the Runway 29 Threshold, in an 'L'-shape via the existing airside perimeter fence. The taxiway is approximately 10.5m wide and therefore suitable for use by Code B aeroplanes.

A roadway has been established alongside the taxiway, along which heavy vehicles such as those used during the runway reconstruction and fuel tankers accessing the fuel depot via Gate 3. Whilst the separate roadway prevents road vehicles from damaging the taxiway surface, there is insufficient separation for independent roadway and taxiway operation.

Taxiway 'D'

This taxiway links the Runway 04 threshold with the touchdown zone of Runway 11. The taxiway surface is 15 metres wide and sealed. However the seal was placed to temporarily accommodate SAAB 340 aircraft during the reconstruction of Runway 04/22 and is now in a poor condition and has lost its integrity. The aerodrome operator has advised users that the taxiway should be treated as a gravel surface.

Whilst the seal is 15 metres wide, the taxiway is marked with yellow marker cones at a width of 7.5 metres and is suitable for Code A aeroplanes only. The taxiway is weight limited to 5,700kg.

3.1.3 APRONS

RPT Apron

A single aircraft parking position is marked on the RPT apron adjacent to the passenger terminal. The position is marked for SAAB SF-340 aeroplanes to park facing the Runway 04 threshold. This is the preferred parking arrangement and places the forward passenger access door adjacent to the terminal for ease of loading and unloading. However, dependent on the wind direction the aeroplanes sometimes park in the opposite direction, to facilitate engine start-up by facing into the wind.

3.1.4 HANGAR FACILITIES

There are three main hangars currently situated close to the terminal. All three are historical Bellman hangars approximately 35 metres square.

- Parkes Aviation leases a hangar located to the east of the terminal to conduct aircraft maintenance on local aircraft based at surrounding farms as well as supporting the operations of associated business Air Freight Solutions;
- The Parkes Aero Club leases the hangar adjacent to Parkes Aviation for storage of members' aircraft;
- A hangar to the west of the terminal is currently occupied by the Historical Aircraft Restoration Society (HARS) which stores rare aircraft parts in the hangar due to the benign environment of the region. HARS also allows Agforce to park its aircraft in the hangar.

3.1.5 AIR TRAFFIC CONTROL

Parkes Regional Airport is a non-towered aerodrome. A CTAF operates on frequency 126.7.

3.1.6 NAVIGATIONAL AND LANDING AIDS

VOR/DME

The aerodrome is equipped with a VOR/DME located on the western side of the intersection of the two runways, close to the Aerodrome Reference Point (ARP).

Non-Directional Beacon (NDB)

The Parkes NDB is located to the south-east of the airport site, atop a hill on the southern side of Orange Road approximately 2km (1.1nm) from the ARP.

Wind Direction Indicators

The primary wind direction indicator (IWI) is illuminated and located abeam the Runway 04 threshold on the left hand side. The signal area is located adjacent to the IWI.

A secondary (non-illuminated) wind direction indicator is located approximately 300m upwind of the Runway 22 threshold, on the right hand side.

Automated Weather Information Service (AWIS)

The aerodrome is provided with an AWIS service which can be accessed by telephone or via a radio call.

3.1.7 FUEL FACILITIES

An AVGAS card swipe bowser is provided to the north of the existing hangars located east of the terminal building. The bowser is supplied by an underground pipe from a fuel storage compound which is located further to the east. The facility is operated by Aero Refuellers, which also provides JET A1. Aero Refuellers plans to relocate the AVGAS bowser adjacent to the northern edge of the fuel storage compound.

Aero Refuellers also services several other locations in New South Wales in addition to Parkes, including Grafton, Port Macquarie, Coffs Harbour, Taree, Cobar, Forbes, Orange, Bathurst, Cootamundra Canberra and Goulburn. This involves twice-weekly deliveries to Parkes by B-Double tanker and several export trips per week by semi-trailer vehicles.

3.2 PASSENGER TERMINAL FACILITIES

A small but functional passenger terminal is located to the east of the Runway 04 threshold. The building was constructed in the mid-1970s, has an internal area of approximately 350 – 400 m^2 and incorporates:

- A single check-in desk, operated by Regional Express;
- A small office for airline and ground handling staff use;
- Seating for approximately 50 people;
- 3 small car rental desks;
- Male and female amenities;
- A vending machine, water cooler and coffee machine.

The terminal is generally adequate for the present operations, although a number of sub-optimal aspects were identified through the stakeholder consultation and observation during the site visits, as follows:

- The queuing area for check-in is reportedly under-sized with the queue extending outside in some peak periods (particularly for the early morning departure);
- Airline back-office space is inadequate for pilots to undertake flight planning activities while ground staff are finalising passenger check-in;
- Baggage collection involves the tractor protruding into the kerbside access to enable passengers to access the baggage trolley, which disrupts vehicles movements and is a potential safety risk; and
- The terminal is generally locked between flights, which leaves only a single unisex toilet facility accessible externally for use by surrounding businesses and the Aero Club.

3.3 LANDSIDE FACILITIES

3.3.1 CAR PARKING

Approximately 85 car parking spaces are provided, split between parking areas on either side of the terminal. Access between the two car parking areas is via the terminal drop-off/pick-up area.

3.3.2 ROAD ACCESS

The main access to the terminal and surrounding facilities is off Orange Road via a two-way road which runs approximately 500m north to the terminal precinct. A left-turn taper is provided on Orange Road at the airport entrance for vehicles arriving from Parkes. Parkes Shire Council has plans for an update to the entrance statement at this primary gateway to the airport.

Heavy vehicles, primarily those serving the fuel facilities, access from Gate 3, which is located further east along Orange Road, adjacent the eastern property boundary, then alongside Taxiway C.

3.3.3 PARKES AERO CLUB

The Parkes Aero Club facilities are located immediately to the south of the terminal.

3.3.4 COUNCIL DEPOT

Parkes Shire Council operates a small works depot supporting maintenance of the airport facilities and equipment. The depot is located to the south of the fuel facility.

3.3.5 STORAGE SHED

A shed approximately 25 metres long by 8 metres wide is located to the south-east of the terminal. The shed is currently leased to a local businessman who uses it for storage.

3.3.6 UTILITIES

Water

Water is currently supplied via a combination of raw (untreated) water from a main which runs past the airport entrance, and rainwater tanks on site. The raw water has adequate pressure to supply fire hydrants. Council plans to upgrade the water supply by providing potable water.

Sewer

There is no reticulated sewer network. Sewerage from the toilets in the terminal flows to a septic tank.

Power

Electricity is supplied overhead along the main access road to a pole west of the terminal. It then runs underground to the terminal.

Communications

The site is serviced by standard copper telephone cable. Council has plans to provide conduit for future upgrading of the communications infrastructure.

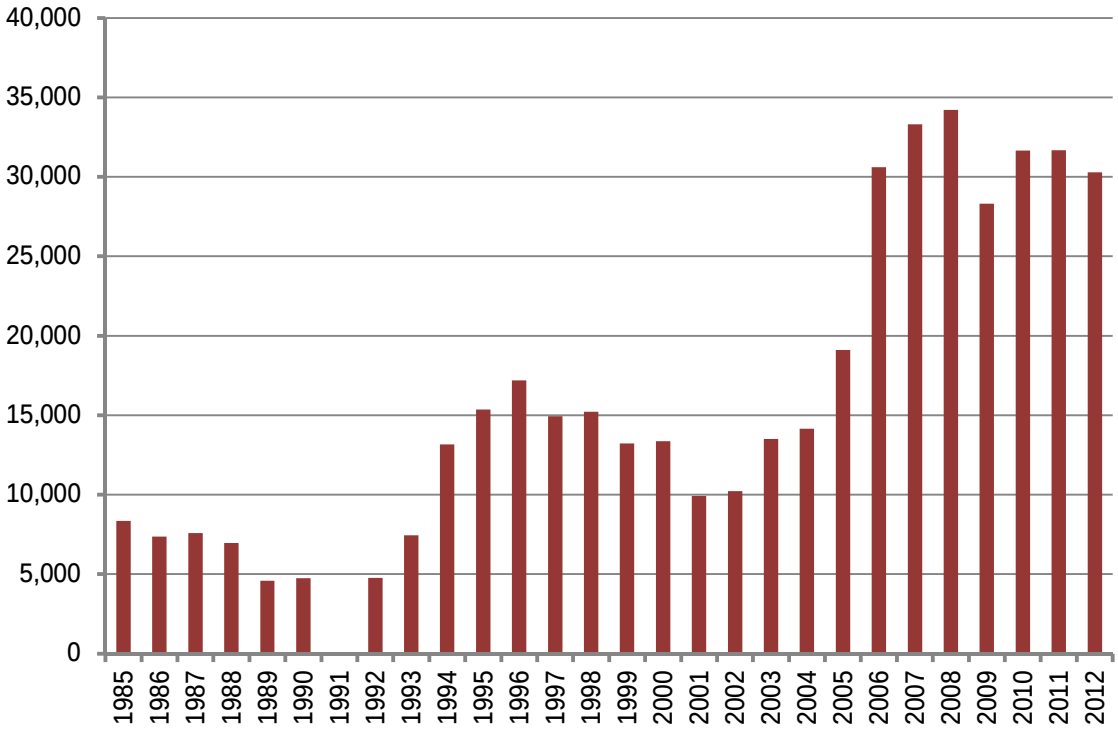
4.0 AVIATION ACTIVITY FORECASTS

4.1 PASSENGER TRAFFIC

4.1.1 HISTORICAL PASSENGER TRAFFIC

Regional Express (Rex) has operated Regular Passenger Transport (RPT) flights between Parkes and Sydney since 2002. Prior to this, services were operated by Hazelton Airlines In 2012, annual passengers totalled just over 30,000, slightly below the peak of 34,215 achieved in 2008. Figure 4-1 shows the annual passenger traffic through Parkes over the period 1985-2012.

Figure 4-1: Annual Passenger Traffic 1985-2012



Regional Express services were originally operated with a 19-seat Metro as a triangulated service with Bathurst. The services are now operated direct by 34-seat SAAB SF-340 aircraft at an average load factor of approximately 50%.

Clear data on the proportions of inbound and outbound business and leisure passengers at Parkes Regional Airport is not available. However, the use of air as a mode of transport in Parkes is clearly dominated by the business sector. It has been estimated[2] based on survey information for 2011-12 that approximately 1% of the total leisure (holiday and visiting friends and relatives) overnight visitors to the Parkes-Forbes-Condobolin region use the airport. This compares with around 4% of

[2] *Parkes Regional Airport Economic Assessment, December 2012 (AEC Group)*

the total overnight business travellers which arrive by air. When inbound day-trips are accounted for as well as outbound travel, it is reasonable to assume that around 80% of passengers using Parkes Regional Airport are travelling for business purposes.

4.1.2 PASSENGER TRAFFIC PROJECTIONS

Airport infrastructure, particularly the passenger terminal and landside access facilities, need to be planned with sufficient capacity to accommodate future anticipated passenger levels. Passenger traffic has therefore been forecast to provide a basis for these future facility requirements. It should be recognised, however, that the development of accurate forecasts of passenger traffic is extremely difficult, due to the large variety of internal and external factors which drive demand as well as actual throughput. In the past, regardless of the size or location of the airport, industry predictions of passenger numbers beyond 5 years have routinely proven inaccurate. The passenger traffic projections presented below should therefore be treated with appropriate caution. Whilst every attempt has been made to identify a realistic upper-end scenario, representing the likely worst-case infrastructure requirements over the next 20-years, no guarantee is made that this or any other forecast scenario will actually occur in reality.

Future passenger numbers and growth rates are related to a variety of factors including travel demand, aircraft types and the resultant seat capacity, aircraft load factors, slot availability at destination airports, airline route economics and traffic growth at existing and potential destinations. Clearly, they are also impacted by a range of external economic system variables that are important to understand in relation to Parkes and the surrounding region.

Based on feedback from the stakeholder consultation process and reference to available information referenced in Section 2.0 the key drivers considered to affect passenger numbers and growth rates at Parkes Regional Airport over the 20 year planning horizon are as follows:

- Growth and development of the tourism market;
- The growth and development in local business activities; and
- Possible fly-in, fly-out (FIFO) activity serving the mining and/or mining support sectors.

Of these, growth and development in local business activities is considered the most likely to have an impact on the demand for air travel. Much of the local tourism market is served by road and this is likely to remain the case, however some potential for an increase in both inbound and outbound leisure travel demand exists if average ticket prices fall. FIFO activity has the potential to have the greatest influence on passenger traffic.

To reflect the inherent uncertainty associated with forecasting air passenger traffic, a series of three scenarios has been developed, intended to cover the likely range of potential traffic growth over the next 20 years, as follows:

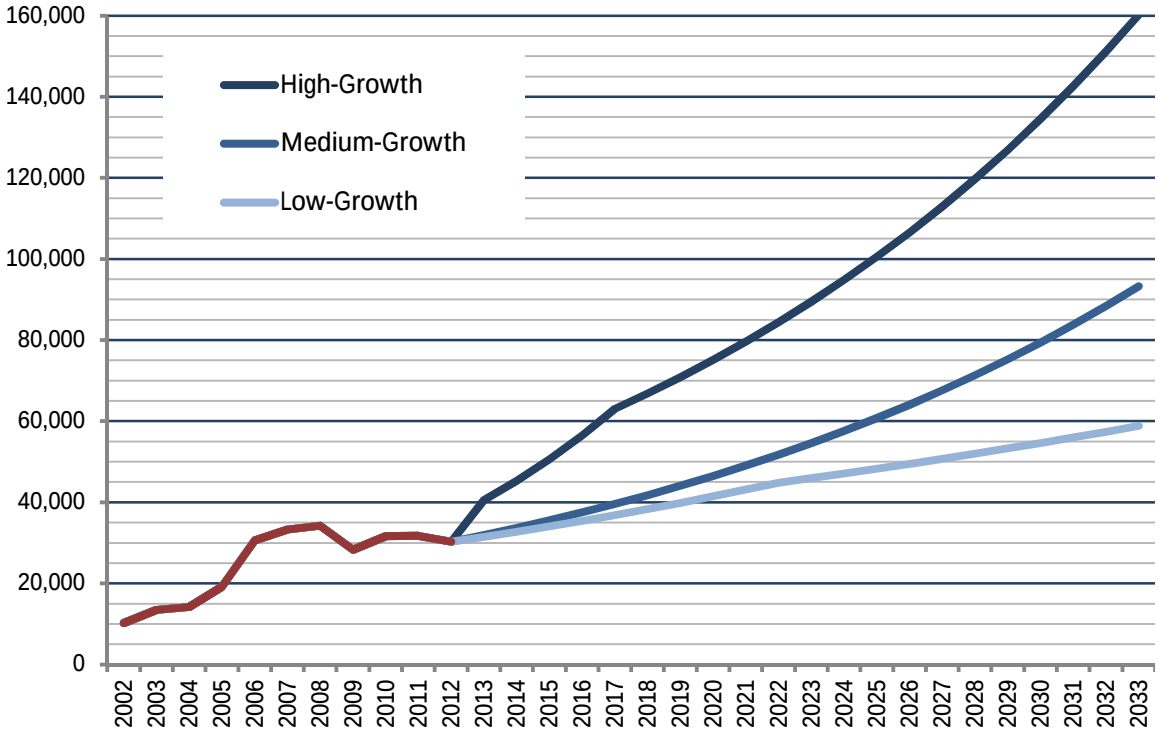
- High-growth: based on continuation of the growth rate over the preceding 10-years of 11.1% per year for the next 5 years, then 7.2% for the subsequent 5 years reflecting the average growth over the last 20 years, and reducing to 6% for the following 10 years which

is in line with upper end forecasts of global and regional Asia-Pacific traffic growth. This results in annual passenger traffic by 2033 of almost 180,000 passengers;

- Medium-growth: based on the continuation of the growth rate over the preceding 10 years, of 7.2% per year for the next 10 years, reducing to 4.5% per year for the following 10 years, which is in line with current average Australian growth rates. This scenario results in annual traffic of around 82,000 passengers in 2033, or approximately 2.7 times the existing throughput; and
- Low-growth: based on 3.5% per year for the next 20 years, reflecting a continuation of the approximate compound annual growth rate since 1985. The low-growth scenario only anticipates approximately 62,000 passenger movements by 2033 which is an approximate doubling of current traffic.

Figure 4-2 shows the resulting projected annual passenger traffic for each scenario from 2013 through 2033.

Figure 4-2: Projected Annual Passenger Traffic 2013-2033



4.2 AIRCRAFT MOVEMENTS

4.2.1 HISTORICAL MOVEMENTS BREAKDOWN

Figure 4-3 shows the total number of aircraft movements at Parkes over the last 5 years. Annual movements have increased from 5,654 to approximately 7,276 – a compound annual growth rate of 6.5%. As RPT movements have remained approximately static at around 1,800 movements over

the period, this increase is attributable to greater General Aviation activity at the airport, in particular freight, agriculture, helicopter and training movements.

Figure 4-4 shows the average proportion of various type of aircraft movement over the last 5 years. In addition to RPT, Private, Training and Freight comprise the majority of movements.

Figure 4-3: Total Annual Aircraft Movements

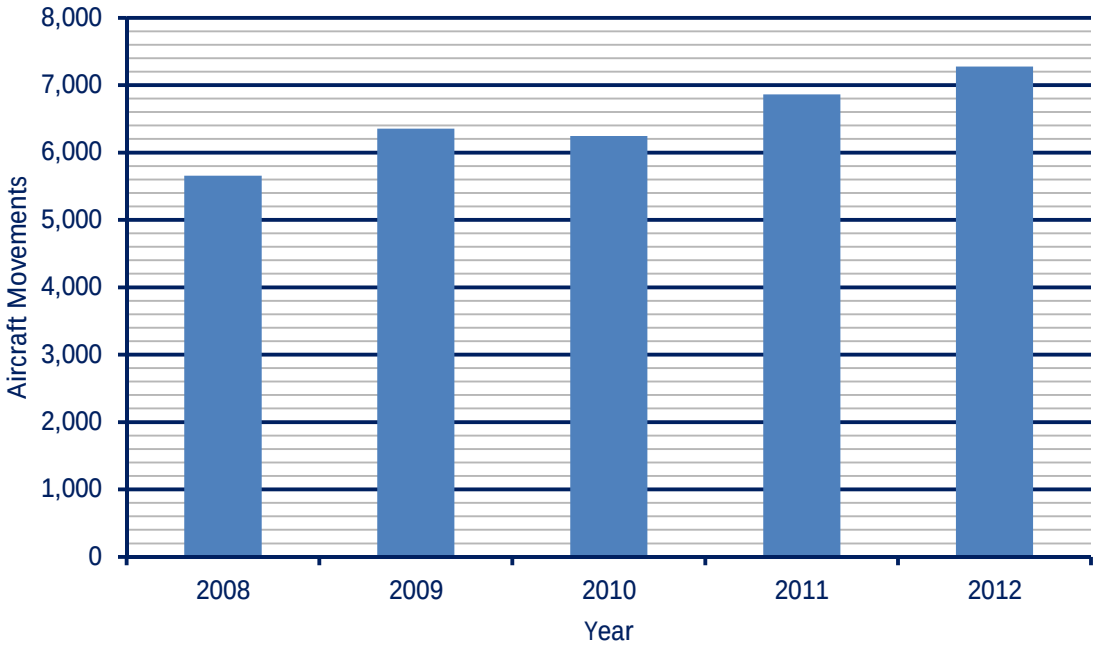
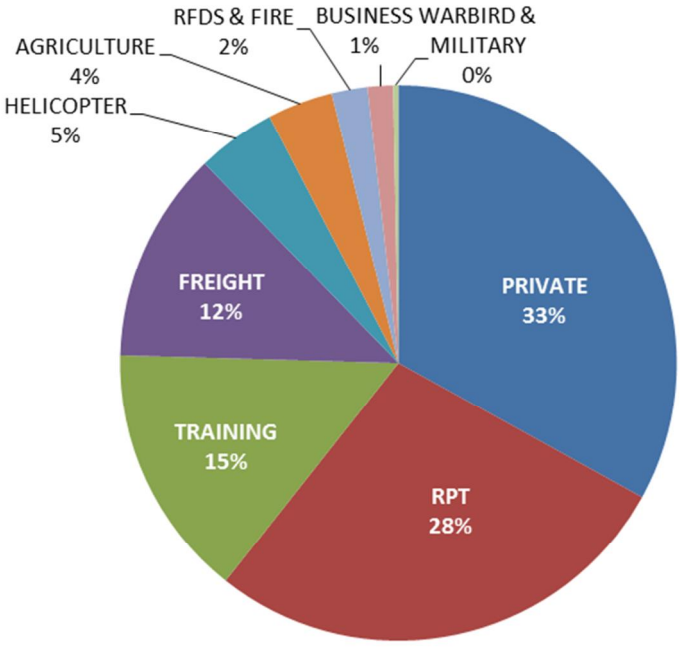


Figure 4-4: Historical Aircraft Movements by Category



4.2.2 REGULAR PASSENGER TRANSPORT (RPT)

Currently, Parkes Regional Airport is served by 18 direct return services ex-Sydney, undertaken by 34-seat SAAB SF-340 aircraft operated by Regional Express (Rex), which provides an annual seat capacity of 63,648. At an overall seat-factor of around 75%[3], this schedule should provide sufficient capacity for around 47,700 passengers. This might be adequate until around 2020 in the medium-growth scenario, but may require supplementing within the next 2-3 years in the high-growth case.

Given the current schedule, and based on the current RPT airline remaining as the only operator (which is likely, as Rex has recently secured the license to operate the Parkes-Sydney route until 2018), then the most logical means of increasing capacity would be the introduction of a fourth daily weekday service to Sydney. This strategy was confirmed in discussions with Rex as the most likely next step in term of capacity. Together with, perhaps, one additional weekend service, this would introduce an additional capacity of 21,216 seats or around 15,000 annual passengers[4]. In the low-growth scenario, this is likely to be sufficient for the duration of this Master Plan.

In the high-growth scenario, however, additional capacity would be required from around 2017, or from around 2026 in the medium-growth scenario. There are several ways in which this additional capacity could be introduced, however because regional ports such as Parkes rarely receive more than four daily services to any destination by a single carrier, all but one of these will require the establishment of a second airline operator. The exception would be the establishment of a second destination operated by Rex. Realistically, and based on feedback from the stakeholder consultation on the demand drivers for, the likely candidate would be Brisbane. However Melbourne is also a possibility. Both could (albeit only just), be served with the SAAB SF-340 and therefore could be operated by Rex. However, other operators, using similar-sized, aircraft, could potentially also establish one of these destinations.

However, to achieve the highest levels of growth, beyond around 2021, larger aircraft types will be required regardless of the destinations served. Bearing in mind the current Australian aircraft fleet, and the likely fleet expansion plans of airline operators, it is considered reasonable to assume that the introduction of larger aircraft types would be along the following lines:

- Stage 1 (0-10 years): continuation of 34-seat (SAAB SF-340, BAe Jetstream 41, Bombardier Dash 8-100 or similar) operations together with possible 50-seat (Dash 8-300 or, 70-seat (Dash 8 Q400 or ATR 72-600) services; and

[3] As a rule-of-thumb, a seat-factor of 75% across all services can typically be considered as the point at which some services at peak demand times will begin to be over-subscribed and hence where it becomes commercially attractive to introduce additional capacity.

[4] A similar increase could also be effected through the establishment of charter operations on a schedule of 3 weekly 70-seat aircraft (or two weekly 100-seat aircraft).

- Stage 2 (10+ years): continuation of 50-70 seat operations from Stage 1 with the possible introduction of operations by 150- to 180-seat operations by Boeing 737 or Airbus A320 family aircraft, depending on actual passenger traffic growth.

In either event, the number of RPT movements is likely to increase to between 2,500 – 4,000 per year depending on the aircraft sizes utilised and the number of carriers and destinations served. For the purposes of developing aircraft movement forecasts, a mid-range, high-frequency estimate based on maintaining existing aircraft size to accommodate the medium-growth forecast has been assumed.

4.2.3 CHARTER MOVEMENTS

As an alternative to an increase in the number of RPT aircraft movements or the size of aircraft operating these, a proportion of passenger traffic growth may be accommodated through closed charter operations. In this situation, the destinations, aircraft types and service frequencies are likely to vary from what would be expected if these passengers were carried on RPT services.

Stakeholder consultation has suggested that the potential for Fly-In, Fly-Out (FIFO) demand for services into Parkes is limited, and is unlikely to be sufficient to justify travel on specific charters rather than RPT services. However, there is some reported demand for FIFO services for personnel originating in Parkes and travelling to mine sites in Western Australia. Currently this traffic, which is estimated at around 5,000 passengers per year, is served through Orange. At this level of traffic, it is unlikely that dedicated charter services to Parkes would be justified by the aircraft types of a size needed to achieve the required range.

In the future there is a possibility, subject to being able to generate sufficient demand in the specific sector, that dedicated charter operations might occur in addition to, or in place of those, currently serving Orange. This is likely to be accommodated by up to daily weekday services of an F100 or similar aircraft, or around 520 movements per year. However, there is a possibility, if demand levels exceed expectations due to structural changes in some of the driving supply and/or demand side factors, that 150- to 180-seat operations (B737/A320) may become viable for charter operators.

Charter service schedules are dictated entirely by the contracting company's requirements and are difficult to predict or influence. These services may therefore occur simultaneously with RPT operations.

4.2.4 FREIGHT MOVEMENTS

Domestic freight movements, which totalled and estimated 1,000 in 2012, are forecast to grow by around 10% per year, reflecting recent strong growth in these movements, the expected continued support for the current freight business operations and an increasing importance on freight and logistics to Parkes area, of which a proportion will rely on transportation by air. In addition, international freight services may begin to contribute to this growth towards the end of the Master Plan period.

4.2.5 OTHER GENERAL AVIATION MOVEMENTS

Training

Training is expected to continue to be a strong contributor to aircraft operations at Parkes, whether through ab-initio pilot training or other types of activity. Accordingly, strong growth of 8-9% per year is expected.

Agriculture

Agriculture will remain essential to the regional economy and this is expected to contribute to continued growth in agricultural operations at Parkes Regional Airport. Growth at an average annual rate of 5% per annum is anticipated.

Private

Private movements, whilst remaining a large proportion of total movements, have displayed a decline over the past 5 years. In line with industry trends around Australia and globally, growth in this sector is expected to remain relatively small. An average growth rate of 1% per year is assumed.

Helicopter

Helicopter movements are strongly associated with agricultural activity in the region. As such, an average annual growth rate of 5%, similar to that for agricultural movements, is anticipated.

RFDS & Fire

These two emergency services categories are difficult to predict, and fire-fighting requirements especially can vary substantially from year to year. An average growth rate of 3.5% per year is assumed.

Business

Business movements are expected to grow moderately strongly as the regional economy develops, attracting larger business operations as part of broader activity throughout the Central West NSW region. An annual average growth rate of 7% is assumed.

Warbird and Military

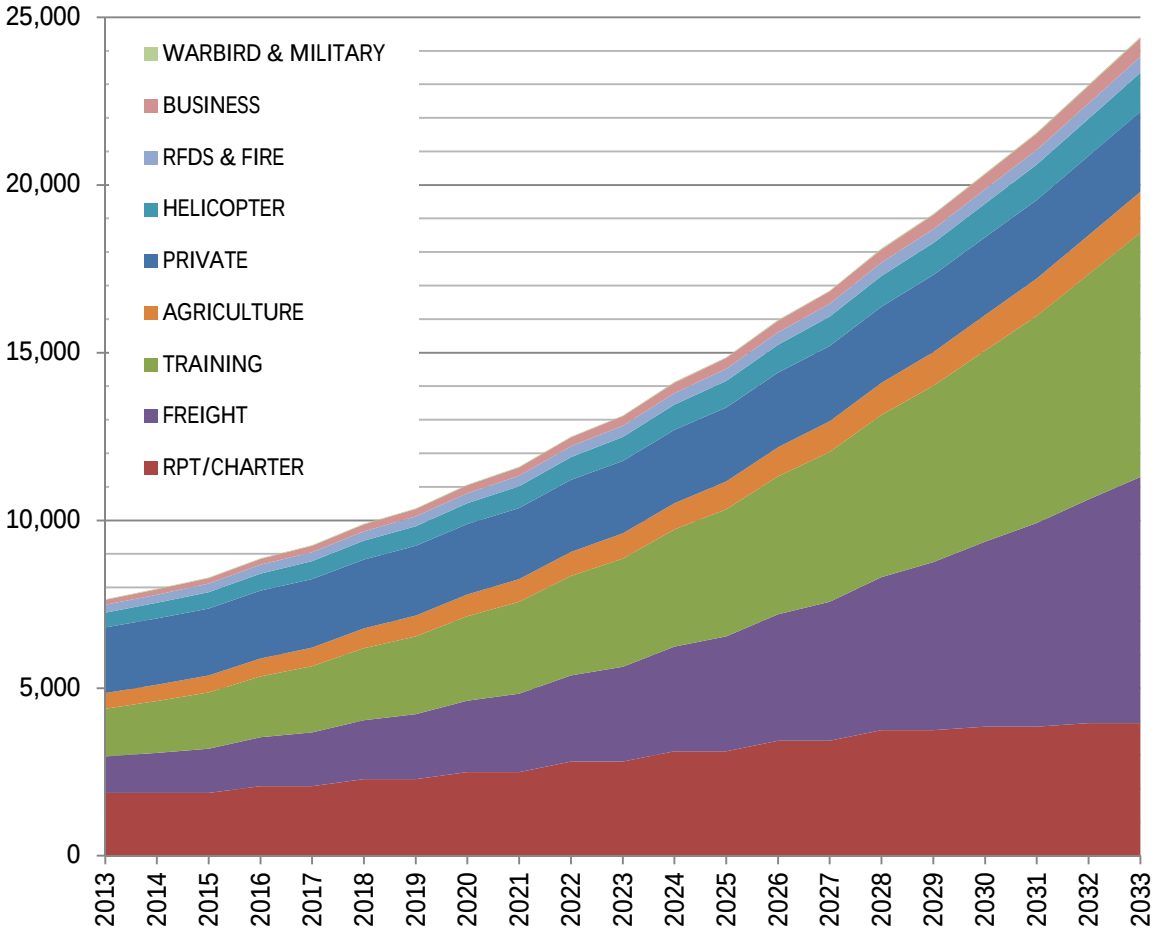
Movements in this category have historically been negligible and are expected to remain a small proportion of the total movements at Parkes. Growth at an average of 2% per year is assumed.

4.2.6 AIRCRAFT MOVEMENT FORECAST SUMMARY

Figure 4-5 shows the forecast growth in aircraft movements at Parkes Regional Airport over the next 20years, based on the assumptions outlined above. An increase of 3-4 times the current level of movements is anticipated. The equivalent compound annual growth rate for non-RPT movements is around 6.5% per year, consistent with growth over the last 5 years.

A total annual movement level of around 24,400 is forecast by 2033.

Figure 4-5: Forecast Aircraft Movements 2013-2033



5.0 AERONAUTICAL DEVELOPMENT CONCEPT

5.1 OVERVIEW

The proposed aeronautical development concept, covering airfield and terminal infrastructure requirements and development staging, has been prepared on the basis of satisfying a set of key planning parameters. These parameters are set out in Section 5.2.

The proposed development concept for the runways, taxiways, aircraft parking areas, hangar development and passenger terminal are described in Section 5.3 through Section 5.6. Figures B through F at Appendix A illustrate the development concepts described herein.

Proposed development is broadly separated into two stages:

- Stage 1: Covering approximately the next 10 years to around 2022-23; and
- Stage 2: Future development expected not to be required until the second half of the Master Plan period, or beyond.

The actual scope and timing for implementation of specific proposals should be reviewed on a case-by-case basis.

5.2 KEY PLANNING PARAMETERS

Whilst the forecasts of overall passenger traffic and aircraft movements described in Section 4.0 are useful for gaining an understanding of likely future activity levels, they are of only limited value as inputs to the planning of individual aeronautical facilities. Therefore, more specific key planning parameters have been developed consistent with these overall forecasts.

To determine the key planning parameters, which include terminal sizing requirements and aircraft parking capacity, a scenario-based approach was adopted which considered the potential impacts of varying combinations of passenger traffic and operating aircraft size/frequency in order to plan for the worst case scenario in terms of infrastructure development.

5.2.1 PLANNING SCENARIO ANALYSIS

Likely aircraft types, operating frequencies and schedules were determined through discussion with the incumbent RPT airline, Regional Express, together with reference to other industry knowledge and the application of a general understanding of airline operations to develop a range of different scenarios for provision of passenger services.

The key airline operational scenarios encapsulated in the scenario analysis are:

- High-Frequency operations utilising generally the smallest aircraft types appropriate to the level of traffic, to the greatest number of destinations considered viable and offering the highest frequency of service considered viable to each destination;

- Low-Frequency operations utilising generally the largest aircraft types appropriate to the level of traffic, serving only the existing destinations and offering the lowest frequency of service to those destinations; and
- Medium-Frequency operations utilising aircraft types of intermediate size to serve traffic to existing destinations, and in some cases the most likely additional destinations, on a moderate frequency to each destination.

For each scenario a base schedule detailing the typical weekly airline operations including airline, origin/destination, scheduled arrival/departure time and operating aircraft type was developed. These nominal schedules with peak aircraft load factors were used to determine the maximum number of passengers in the terminal at one time and maximum concurrent aircraft parking requirements.

5.2.2 DESIGN AIRCRAFT CHARACTERISTICS

ICAO Reference Code

The dimensions, shape and layout of basic aerodrome facilities such as runways, taxiways and aprons are essentially determined by the performance capability and size of the aircraft that are intended to use them. The planning and design of these facilities therefore begins by identifying the most demanding or critical aircraft that will use them.

In Australia, like most countries, this is achieved by using an ICAO reference code system. The reference code has two elements, a number and a letter, which are derived by grouping aircraft with similar performance capability and key physical dimensions. Thirteen aircraft groupings, each with a unique code number and letter combination such as 1A, 2B, 3C and 4D have been identified.

The objective is to plan individual facilities for the critical aircraft likely to use them. Different facilities at the airport, such as those intended for RPT services and those intended solely for GA aircraft, are normally planned for their specific critical aircraft. On the other hand, common use facilities such as the primary runway and taxiway system will be planned for the most demanding aircraft envisaged to use the airport.

Pavement Strength

The strength of airfield pavements is classified using the ICAO Aircraft Classification Number/Pavement Classification Number (ACN/PCN) system. The ACN is calculated by the aircraft manufacturer for each aircraft, based on the damaging effect of the aircraft on different types of pavement. The ACN is dependent on both the maximum weight of the aircraft and the number, type and configuration of the landing gear. The ACN also includes a component related to the tyre pressure of the main gear, which can often become the critical parameter in relation to pavement strength.

Principal Aircraft Parameters

Table 1 summarises the principal relevant planning parameters that relate to aeronautical facilities for each of the key aircraft types that might conceivably use Parkes Regional Airport in the future.

Table 1: Principal Design Aircraft Key Parameters

Aircraft Type	Wingspan (m)	Tail Height (m)	MTOW (kg)	ICAO Aerodrome Reference Code	ACN (1)	Typical Capacity (Pax/Tonnes)
Cessna 172	10.9	2.7	1,160	1A	< 5,700 kg	N/A
Cessna 310	11.3	3.3	2,495	1A	< 5,700 kg	N/A
GippsAero GA-8	12.4	3.9	1,905	1A	< 5,700 kg	N/A
Pilatus PC-12	16.2	4.3	4,740	2B	< 5,700 kg	N/A
Beech Super King Air 350	17.7	4.4	6,804	1B	4	N/A
BAe Jetstream 41	18.4	5.7	10,866	3B	9	30
Embraer EMB-120 Brasilia	19.8	6.4	11,990	3C	7	30
Bombardier Dash 8-100	25.9	7.5	15,650	2C	8	37
SAAB SF-340B	28.7	7.6	44,500	3C	8	34
Bombardier Dash 8 - 300	27.4	7.5	18,643	2C	11	50
ATR 72	27.0	7.7	22,000	3C	14	68
Bombardier Q400	28.4	8.3	29,257	3C	18	72
Fokker 70	28.1	8.5	36,740	3C	27	79
Fokker 100	28.1	8.5	45,810	3C	31	107
Embraer E-190	28.7	10.5	46,990	4C	33	106
Boeing B717-200	28.4	8.9	51,710	4C	38	106
Airbus A320-200	33.9	11.8	73,500	4C	44	150
Boeing B737-800	35.8	12.6	70,535	4C	51	175
Boeing B767-300F	47.6	16.0	186,880	4D	59	54T
Airbus A330-200F	60.3	17.2	230,000	4E	72	70T
Boeing 777F	64.8	18.5	347,814	4E	87	103T
Boeing B747-400F	64.5	19.5	396,893	4E	82	122T

(1) For flexible pavement on a low (category C) sub-grade

5.2.3 PASSENGER AIRCRAFT PARKING REQUIREMENTS

The planning scenario analysis was used to determine the combinations of aircraft types likely to occur in relation to the RPT apron and passenger terminal at Parkes over the Master Plan horizon. The planning scenario analysis suggests:

- During Stage 1, the following combinations of aircraft represent those which are considered sufficiently likely that facilities ought to be planned to ensure they can be accommodated:
  - 2 x 30-seat; or
  - 1 x 30-seat plus 1 x 50- to 100-seat.
- During Stage 2, the combinations considered for Stage 1, plus in addition:
  - 1 x 30-seat plus 2 x 50- to 100-seat; or
  - 1 x 30-seat plus 1 x 50- to 100-seat plus 1 x 100- to 180-seat.

Potential 30-seat aircraft types include the SAAB SF-340, BAe Jetstream 41, which are Code 3C, and Bombardier Dash 8-100 (Code 2C) types. Potential 50- to 100-seat aeroplanes include the Bombardier Dash 8-300 (2C), Bombardier Q400, ATR72-600, Fokker-70 and Fokker-100 (all Code 3C). 100- to 180-seat aeroplanes would include Embraer E-190 regional jets, Boeing B717, Boeing B737 variants up to the -800 series and Airbus A320 aircraft (mainly Code 4C).

5.2.4 PASSENGER TERMINAL

Functional Space

Functional space requirements for the terminal were developed by reference to the International Air Transport Association (IATA) *Airport Development Reference Manual* (9th Edition). Space requirements were based on accommodating estimated design loadings for each functional area at a Level of Service of C. Level of Service C represents a good balance between passenger comfort and space efficiency and is generally adopted as the appropriate level for planning purposes.

It should be noted that design parameters for passenger and checked baggage security screening, where considered to be required, have been based on current Commonwealth requirements and experience at other regional airports in Australia.

Commercial Space

An allowance for retail, food and beverage space and other concession space such as car rental desks has been included as appropriate to an airport terminal of the current and anticipated size at Parkes. This allowance was based on benchmarking of commercial areas at some typical Australian and overseas regional airports and based on industry best practice.

5.3 RUNWAYS

5.3.1 RUNWAY 04/22

Runway 04/22 is currently 45m wide, which is sufficient to accommodate Code 4C aeroplanes such as the Boeing 737-800 and Airbus A320 types. However, the current OLS does not meet the required standards for a 45m wide runway and the runway length is marginal in terms of the range of destinations that could be served. Although regular operations by aircraft types requiring a 45m wide runway is not envisaged by this Master Plan, the possibility that B737 or A320 type aircraft might serve Parkes in the future is recognised in the development of terminal and apron concept plans. The Master Plan also acknowledges previous proposals to develop a significant international freight hub at Parkes. Whilst it does not propose the wholesale realignment of runways and surrounding highways put forward previously, on the basis that there is yet to be demonstrated any conclusive economic potential for such a facility, some limited international operations would be possible with logical extension of the existing Runway 04/22. Realisation of these aspirations in any form will necessitate a runway of the current 45m width. It is therefore recommended that runway infrastructure be provided, as far as practical, to enable a 45m wide runway to be maintained or reverted to in the future with minimal changes to infrastructure.

Three stages of runway extension are proposed:

- Stage 1: Extension to the north-east by approximately 470m, to a total length of 2,154m. This is the maximum extension feasible within the existing airport property boundary. The provision of minimum 90m wide by 90m long Runway End Safety Areas (RESAs), consistent with a 45m wide runway, would be triggered by this extension. The Stage 1 runway would be suitable for F100 and B737-800 operations to all domestic destinations, but would not permit international services;
- Stage 2A: Extension by a further 410m to the north-east, to a total length of 2,564m. This is the maximum length possible without impacting on Shire Road 17 to the north-east. Further extension in the direction is also likely to be ineffective due to the rising ground beyond which will limit approach and take-off gradients. The Stage 2A runway would enable wide-body operations to south-east Asian destinations such as Singapore, Jakarta and Kuala Lumpur by aircraft such as B737-800, B767-300F, A330-200 and B747-400ER F at approximately 50-90% of maximum payload; and
- Stage 2B: Extension by approximately 450m to the south-west would be possible, subject to acquisition of the adjacent property. This therefore represents the maximum practical length of runway available on the current site. A runway of this length is likely to permit maximum payload by the above aircraft types to destinations throughout Asia and as far as Tokyo.

Extension of the runway beyond Stage 1 would be contingent on land acquisition and is therefore not proposed unless a compelling economic case develops for operations requiring the additional

length. These extensions are included in the Master Plan merely to ensure that they are safeguarded in case they are ultimately required in the long term. On the other hand, it is considered likely that some, if not all, of the Stage 1 extension would be required to realise the high-growth scenario passenger traffic.

Provision is made for inclusion of 240m long RESAs at each end of the runway in Stage 2, in accordance with international recommended practices as these may be required if international freight services develop.

5.3.2 RUNWAY 11/29

No changes are proposed to Runway 11/29. This runway and its present Obstacle Limitation Surfaces (OLS) is suitable to accommodate Code 3C non-instrument approaches, or Code 2C instrument approaches.

5.4 TAXIWAYS

A series of progressive upgrades to existing taxiways and provision of new taxiways is proposed, subject to operational requirements.

Taxiway A

It is proposed that the existing Taxiway A is essentially retained as is, suitable for Code C aeroplanes, with the possible addition of shoulders to accommodate jet aircraft operations. Progressive extension of Taxiway A is then proposed, to from a full-length parallel taxiway connecting to the Runway 29 threshold and the extended Runway 22 threshold. In Stage 1 this taxiway should only need to meet Code C jet aeroplane standards.

In Stage 2, Taxiway A may be upgraded to meet Code E standards, depending on the establishment of wide-body jet operations, and the centreline should be established at a minimum of 182.5m from the Runway 04/22 centreline to permit Code 4E precision instrument operations.

Taxiway B

Upgrade and formalisation of Taxiway B is proposed, to link the RPT apron to the Runway 04 touchdown zone. This will provide an additional access/egress route for RPT aircraft which currently must use Taxiway A. Any unserviceability of Taxiway A under the present layout would prevent RPT services and therefore represents a risk to the airport operation.

Taxiway B would then extend along the approximate alignment of the existing apron edge to connect to the Light Aircraft Hangar Precinct and proposed Taxiway C. This taxiway should be established to meet Code C jet aeroplane standards and will facilitate operations in and around the RPT apron by F100 and, possibly in Stage 2, B737 aircraft.

In Stage 2, the section of Taxiway B connecting Taxiway A to the runway may be upgraded to Code E standard to accommodate aircraft accessing or existing Runway 04/22 south of Runway 11/29.

Taxiway C

Realignment of Taxiway C is proposed, through the establishment of a new taxiway linking the Aviation Support Precinct with the start of Runway 29. Initially, in Stage 1, Code B provision will be sufficient. However, in Stage 2, it may prove beneficial to upgrade this taxiway to Code C standard.

Taxiway D

No upgrade to Taxiway D is proposed in Stage 1, as the provision of Taxiways A, B and C as described above should adequately service operations on Runway 11/29 by aircraft larger than Code A. However, with increasing traffic, upgrade of this Taxiway to maximum Code C standard may be warranted during Stage 2.

Taxiways E, F and G

These short taxiways provide links between the runway and other taxiways or between taxiways and may be developed according to operational need in Stage 2.

5.5 AIRCRAFT PARKING AREAS

5.5.1 RPT APRON

To accommodate the combinations of aircraft identified in Section 5.2.3, an aircraft parking concept for the RPT apron has been developed. The concept is illustrated in Figure E at Appendix A. The parking arrangement retains the current principle of parking aircraft parallel to the terminal, as this is advantageous with respect to the future Obstacle Limitation Surfaces (OLS) discussed in Section 7.1.

The existing SAAB SF-340 position is retained, and formalised for reversible parking to enable aircraft to park facing into the wind to assist with engine start-up. Regional Express currently adopts this practice but uses the same stop-bar in each direction. The proposed concept provides separate primary and secondary positions (Bay 1/1A) in accordance with current CASA preferences and clear of the OLS.

An additional position suitable for aircraft up to F100 size, including the SAAB SF-340, and all current Dash 8 models up to and including the Q400, is proposed to the east of the existing position. This position will also be reversible for turboprop aircraft. When parked on the primary position, aircraft will be positioned conveniently in relation to the proposed Stage 1 terminal arrangements.

Finally, a third position (Bay 3) is proposed immediately to the north of the existing AVGAS bowser once this, and the adjacent hut, have been relocated. This position will accommodate all aircraft up to Boeing 737-800. It is not anticipated that this position will be required until Stage 2.

Possible refinements to the concept which may be investigated during detailed implementation, according to need, might include the accommodation of B717, B737 or other 100- to 180-seat aircraft on Bay 2. This would require careful consideration of aircraft manoeuvring, wingtip

clearances and jet blast impacts on the terminal and adjacent areas. This may defer or negate the need for Bay 3, or allow that area to be used for parking other aircraft as discussed further below.

5.5.2 ITINERANT AIRCRAFT

Currently, there is limited parking available for itinerant light aircraft which tend to park on the grass along the northern edge of the RPT apron. This requires pilots and passengers to walk across the RPT apron to reach the terminal and landside, which is considered undesirable. Following redevelopment, this area will be increasingly unsuitable for this purpose.

Bearing in mind the current location of the Parkes Aero Club, the likely requirement for its ultimate relocation to accommodate terminal precinct and car parking development and the preferred future location of the Aero Club landside facilities (see Section 6.2.1 and Section 6.4), an area has been allocated for the parking of itinerant light single- and twin-engine aircraft. Figure D at Appendix A illustrates the proposed location. Approximately 25 light and ultra-light aircraft could be accommodated in this area.

Larger itinerant aircraft, would park on or adjacent to the RPT apron, possibly utilising Bay 3 or secondary positions in this area.

5.6 PASSENGER TERMINAL

A staged development concept for expansion of the passenger terminal has been prepared. The concept outlines two (2) broad stages of development, consistent with the overall aeronautical development concept staging:

- Stage 1: Expansion to accommodate simultaneous operations by up to 1 x 30-seat aircraft and 1 x 70-seat aircraft, through an improved and expanded check-in area, a new departures hall, capacity to incorporate passenger screening for some services if required, upgraded amenities, improved baggage reclaim operations with an extended kerb and pedestrian area and the inclusion of retail/food and beverage opportunity;
- Stage 2: Further expansion, if required, to accommodate multiple simultaneous 30- to 150-seat services or a single 180-seat service.

Figure F and Figure G at Appendix A show the estimated footprint required for each stage of expansion, together with associated reconfiguration of the access road and car parking arrangements which are described in more detail in Section 6.0.

Whilst the overall footprint of the terminal facilities required in each stage is considered to be well-defined, the terminal expansion concept incorporates a great deal of flexibility in both stages with respect to the internal configuration of the building. This will enable the facilities to respond to changes in the regulatory and operational requirements that will inevitably occur over the life of the Master Plan. Detailed concept of the internal arrangements of the terminal are illustrated in Figures SK10.0 – 10.2 and SK 11.0 – 11.2 at Appendix A.

Appendix A also includes a preliminary 3-dimensional visualisation of the overall terminal development concept as Figure 3D01.

5.7 HANGAR DEVELOPMENT

5.7.1 AVIATION SUPPORT PRECINCT

An Aviation Support Precinct is proposed, to accommodate aeronautical and aviation support businesses. This precinct (illustrated in Figure D at Appendix A) surrounds the passenger terminal precinct and is divided into two zones. Hangars within this zone replicate and extend the original grid of Bell

Western Zone

In the area to the west of the passenger terminal, and extended south from the existing hangar, three (3) hangar sites suitable to accommodate hangars up to approximately 35m x 35m are proposed (Sites W1, W2 and W3). Each of these hangars may also have access to leased apron area immediately in front. As the only sites which have the potential to incorporate leased apron area, together with their Code B aeroplane access, proximity to the terminal, main access road and the Runway 04 threshold, these sites should represent prime commercial locations.

The existing hangar (currently occupied by HARS) may require relocation as it is likely to infringe the future OLS. This should be confirmed and, if the hangar infringes the OLS and CASA considers it to be a hazard to aircraft safety, then it is recommended the hangar be relocated as soon as practicable to a suitable site. The heritage nature of the hangar structure may restrict the number of available sites to which it may be relocated. If the hangar is relocated, the vacated site (W4) may be utilised for other purposes provided these do not infringe the OLS.

Eastern Zone

To the east of the terminal, a total of 16 lease sites suitable for 35m x 35m hangars are available. Three of these are currently leased – Site E1 to Parkes Aviation, Site E2 to the Parkes Aero Club and Site E5 to Aero Refuellers. A fourth site (E6) is occupied by Council facilities that could be relocated in due course to another location to make this available for a hangar. Of the proposed sites, E9, E10, E13 and E14 occupy historical hangar sites whereas the remaining sites are completely new.

These sites would all have Code B aeroplane access and direct access from the landside, with the exception of Site E1 which would need to be accessed via the apron. Sites E1 and E2 would retain aeroplane access from both sides whereas the remaining sites would be accessed from central taxilanes only.

5.7.2 LIGHT AIRCRAFT HANGAR PRECINCT

East of the Aviation Support Precinct, a zone to accommodate hangars for smaller aircraft is proposed. This Light Aircraft Hangar Precinct can accommodate approximately 40 15m x 15m

hangar sites for Code A aeroplanes with direct airside and landside access. These sites could be made available singly or in combination to private and small business users.

5.7.3 FUTURE HANGAR DEVELOPMENT

Provision for further hangar development in the future is made to the north-east of the Light Aircraft Hangar Precinct. This area is illustrated in Figure C at Appendix A.

5.8 INTERNATIONAL AIR FREIGHT FACILITIES

Consistent with previous proposals for the development of an international air freight hub at Parkes Regional Airport, the Master Plan retains the option to implement an amended version of the previous concepts by safeguarding an area in the south-east of the airport site for this purpose, as shown in Figure C at Appendix A.

The location has been selected in recognition of the currently speculative nature of this particular opportunity, and utilises land that is unlikely to be required for other more immediate development. The location is considered suitable as it would be well-located with respect to the runway complex, independently accessible off Orange Road, and with connectivity to proposed non-aviation industrial land uses along the southern airport boundary.

Conceptual provision is made for:

- A freight processing facility of approximately 20,000m^2 internal area and around 5 hectares of external land, accessible via Gate 3;
- Contact gates for up to 3 B747-400F aircraft, or a large number of smaller types;
- Stand-off parking for 2-4 additional aircraft; and
- Provision for air traffic control (ATC) tower and aerodrome rescue and firefighting (ARFF) facilities.

The shape of the site may pose some constraints on optimisation of the development, if the existing airport property boundary is retained, however as land acquisition would be required to accommodate the runway extensions necessary for this opportunity the option exists to acquire some adjacent land to improve the external arrangements.

6.0 NON-AERONAUTICAL DEVELOPMENT CONCEPT

6.1 OVERVIEW AND OPPORTUNITIES

A high-level land use concept incorporating consideration of non-aeronautical development opportunities has been developed. The level of detail associated with this is considerably less that that afforded to the aeronautical development, which represents the principal focus of the Master Plan. Nonetheless, the consideration of potential non-aviation development in broadly allocating land uses is likely to enhance the commercial and economic benefits realisable from appropriate development. The concept is intended solely to guide land use decisions in relation to opportunities as they arrive and should not be considered as a formal development proposal.

The Parkes Regional Airport Economic Assessment, and the stakeholder consultation undertaken for this Master Plan, have identified the following possible opportunities for non-aeronautical development. Other opportunities, related or unrelated to these, may eventuate over the life of the Master Plan, including:

- Pilot shop;
- Pilot training school;
- Parachute training;
- Motel;
- Restaurant and Café;
- Conference or meeting facilities;
- Office facilities; and
- Secure parking.

6.2 LAND USE PRECINCTS

The Master Plan sets out several land use precincts for aviation, aviation-related and non-aviation activities, as indicated on Figure C and Figure D at Appendix A. Those primarily associated with aeronautical activities are described in Section 5.0. In addition, precincts allocated to primarily non-aviation purposes are discussed in the following sub-sections.

6.2.1 PRECINCT A: ACCOMMODATION, DINING AND CONFERENCE

Landside Precinct A is located between the terminal and Orange Road, and is bounded by the main airport access and also has visible highway frontage. As such, it would be suitable for the development of opportunities of a commercial retail nature including accommodation, dining and entertainment. Development in this precinct could also emphasise the historical pedigree of the airport site as a World War II RAAF Base.

Other opportunities identified in the Strategic Review and Economic Assessment that would be suited to this precinct include a motel, restaurant or café and conference, meeting and office facilities.

6.2.2 PRECINCT B: EDUCATION AND TRAINING

Precinct B offers the potential of development with direct airside access. It would therefore be suited for training and educational facilities that require airside access plus large-scale landside facilities such as classrooms, simulators and accommodation. It would make a suitable location for commercial or military pilot training academies or for other training reliant on aviation such as parachute training.

6.2.3 PRECINCT C: LIGHT INDUSTRIAL

This precinct, extending eastwards from the central development and located adjacent to the southern boundary, would be most appropriately suited for light industrial development of a non-aviation nature.

6.2.4 RESIDENTIAL AIRPARK RESERVE

Land has been allocated for potential residential airpark development comprising lots with access by agreement to the aerodrome. This land is located along the western boundary of the airport, as shown in Figure C at Appendix A. This provides for direct access to Taxiway D from which convenient access to both of the existing runways can be gained. This land is not likely to be required for other purposes during or beyond the life of this Master Plan. These lots may therefore be allocated freehold tenure if required.

6.3 ROAD ACCESS

It is intended that the main access road to the airport remain and that the area around the intersection with Orange Road be upgraded with a more definitive entrance statement. The main access between Precincts A and B will eventually be upgraded in line with traffic volumes and should offer an appropriate boulevard feel.

A one-way central loop system serving the terminal drop-off, pick-up and car parking areas is proposed. Initially, and until relocation of the aero club facilities is effected, this will circulate to the north of the existing open drainage channel. In the future, the road will loop around the perimeter of the car parking and provide access to the Aviation Support Precinct (Eastern Zone) and Precinct C development.

6.4 CAR PARKING

Staged development of car parking is proposed, subject to demand. To best serve the terminal and associated services precinct, development of car parking is proposed within the central road loop.

The initial stage would involve development of car parking to the east of the existing Parkes Aero Club facilities, as indicated on Figure F at Appendix A. to provide an additional 50 spaces

approximately. However Stage 1 terminal expansion would result in a reduction of around 20 spaces so this development will only achieve a net increase of around 30 spaces over the existing provision.

In order to facilitate further car parking in the proximity to the terminal, relocation of the Parkes Aero Club facilities will be required. The aero club is an important contributor to the vibrancy of activity at Parkes Regional Airport and selecting a suitable alternative location will need to be undertaken in consultation with the club. A number of possible alternatives exist for the future location of the facilities, with and without direct airside access. Parkes Shire Council should engage with the Parkes Aero Club to agree on a preferred arrangement for the future facilities within the context of the Master Plan development proposals.

Once the aero club facilities are relocated, a further 46 car spaces can be provided as shown in Figure G at Appendix A. Further expansion, as required, is proposed to the south of the existing open drainage channel which would be retained and appropriately landscaped. It is estimated that approximately 220 spaces can be accommodated in this area, to give a total of around 313 public car parking spaces. As this area is developed, the existing car parking areas adjacent to the terminal can be allocated to car rental operators and/or as a premium secure parking area. This will provide a further 67 dedicated spaces.

Actual demand for car parking spaces is a function of several factors, including any charging regime, however benchmarking against other regional airports currently handling similar levels of traffic to those forecast for Parkes suggests this is an adequate number of spaces to provide for passengers. If necessary in the future, further overflow parking areas to serve the terminal could be provided within Precinct C.

Parking for on-site businesses should be incorporated into the development of the associated precincts to avoid these users having to occupy spaces in the terminal car park, with appropriate controls and enforcement to prevent unauthorised use.

7.0 LAND USE PLANNING

7.1 BUILDING HEIGHT RESTRICTIONS

Figure H at Appendix A provides an Obstacle Limitation Surface (OLS) plan that indicates limits on building and other object heights surrounding the airport. This has been developed based on the ultimate runway development incorporating Stage 1, 2A and 2B extensions and protecting for Code 4E precision approach operations to Runway 04/22, to ensure that all future potential operations can be safeguarded.

The new OLS plan is based on the minimum requirements for these potential operations as set out in CASA MOS Part 139. Due to the prevalence of existing obstacles, further protection of take-off gradients below 2% slope is considered impractical.

This plan should be reviewed to understand if any existing buildings and/or objects impinge on the future OLS. It should also be incorporated into future Local Environmental Plans to ensure that any future developments do not impact further on the OLS and therefore restrict the operational potential for airport expansion in the future.

7.2 LIGHTING RESTRICTIONS

Section 9.21 of the MOS Part 139 provides advice with regard to the design and provision of lighting systems for use at or in the vicinity of an aerodrome, with the intention of minimising the potential hazard to aircraft operations from the lighting. Anyone proposing to install a lighting system within the vicinity of the aerodrome should be made aware of the requirements by the airport operator.

CASA has the power, through Regulation 94 of the Civil Aviation Regulations 1988 (CAR 1988), to require lights which may cause confusion, distraction or glare to pilots in the air, to be extinguished or modified. Ground lights may cause confusion or distraction as a result of their colour, position, pattern or intensity of light emission above the horizontal plane. The advice provided by CASA is applicable to lighting installations within a 6 kilometre radius of the airport. The lights within this radius fall into a category most likely to be subjected to the provisions of Regulation 94 of CAR 1988.

Within the 6km radius, a primary area exists which is divided into four light control zones designated A. B, C and D. These zones reflect the degree of interference ground lights can cause as a pilot approaches to land. Figure J at Appendix A shows the primary area and zones in relation to Parkes Regional Airport within which limits on intensity of light emissions (at 3 degrees above the horizontal plane) should be maintained. The emission intensity limits are also shown on the plan, expressed in candela (the common candle emits light at an intensity of roughly one candela) and are as follows:

- Zone A: 0 candela (cd);

- Zone B: 50 cd;
- Zone C: 150 cd; and
- Zone D: 450 cd.

Lighting restriction zones in relation to both runways are shown, even though currently only Runway 04/22 is lit, in case Runway 11/29 is upgraded for night operations in future.

7.3 BIRD & WILDLIFE HAZARDS

Birds (and other wildlife) on or around airfields should be regarded as a potential hazard to aircraft safety. The majority of aircraft collisions with birds occur near the airfield during take-off, landing and associated phases. Birds may be ingested into aircraft jet engines or otherwise cause damage that may impact on the pilot's ability to manoeuvre the aircraft.

The prevention of bird strike requires careful consideration during master planning phase to identify potential land uses that may attract birds. Master planning considerations include the land use inside the boundaries of the airport and the surrounding land uses that should be avoided to reduce the risk of bird strike. It is essential that the Parkes Shire Council planners incorporate this into future Local Environmental Plans to minimise the bird strike threat associated with land use.

While consideration of land uses within and adjoining the airport is essential for decreasing bird strike risk, operational procedures and control measures are applied to reduce the existing threat of birds. Targeted maintenance and management activities are necessary to reduce habitat or food sources that attract birds.

Land use and the environment surrounding aerodromes can attract birds and bats. Waterways, agriculture, landfills and even golf courses often provide attractants that contribute to transit issues where birds and bats traverse the airfield while moving between nesting areas and feeding or foraging sites. Development near airfields that provides refuge, feeding or breeding opportunities for large numbers of birds or bats contributes to an increased risk of bird strike. Appropriate land use development restrictions within these boundaries should be implemented by Parkes Shire Council to adequately protect the safety of future aircraft operations.

below Figure K at Appendix A identifies land uses that have the potential to increase bird and bat strike potential and. provides guidance on buffer zones within which certain activities around Parkes Regional Airport should be controlled. Within these buffers it is recommended that some activities are excluded whilst others have control measures. Appropriate land use development restrictions within these boundaries should be implemented by Parkes Shire Council to adequately protect the safety of future aircraft operations.

Current land uses within the buffer zones should be reviewed, including agricultural land use, to identify any existing non-compatible land uses that increase bird strike risk. Consultation with land-owners and operators of non-compatible land uses may identify suitable management practices to reduce the bird presence. Existing infrastructure associated with incompatible land uses will not

require relocation but management practices may require enhancement if bird and wildlife hazards from these and similar become an issue.

7.4 AIRCRAFT NOISE

Aircraft noise impacts associated with this Master Plan have not been assessed. An Australian Noise Exposure Forecast was created in 1998 in relation to the proposed international air freight hub development. However, due to the differing alignment of the runway this may no longer suitable for the purpose of protecting the airport from encroachment by land uses that would be incompatible with the ultimate potential of the airport operations.

Aircraft technology has also advanced greatly over the last 15 years, with consequential reduction in noise footprints associated with individual aircraft movements. On the other hand, there has recently been much discussion about other tools for the dissemination of aircraft noise information. Subject to adoption of the infrastructure proposals and forecast operations contained within this Master Plan, Parkes Shire Council should consider the development of an ANEF for incorporation within the Local Environmental Plan as well as the preparation of other aircraft noise information in accordance with the latest guidance.

APPENDIX A

FIGURES

INSET

EXISTING HANGAR

EXISTING TERMINAL

EXISTING CAR PARKING

EXISTING CAR PARKING

AVGAS BOWSER

FUEL STORAGE COMPOUND

EXISTING PARKES AERO CLUB FACILITIES

EXISTING HANGARS

0 50 100m

SCALE 1 : 2500

NORTH

90m RUNWAY GRADED STRIP

RUNWAY 11/29 (1,623m x 30m)

EXISTING WIND DIRECTION INDICATOR

150m RUNWAY GRADED STRIP

22

AIRPORT PROPERTY BOUNDARY

TAXIWAY 'D'

VOR/DME

RUNWAY 04/22 (1,684m x 45m)

PRIVATE AIRCRAFT ACCESS

EXISTING ILLUMINATED WIND DIRECTION INDICATOR (IWI) AND SIGNAL AREA

TAXIWAY 'B'

TAXIWAY 'A'

04

TAXIWAY 'C'

TAXIWAY 'C'

TO ORANGE

REFER TO INSET

TO PARKES

ORANGE ROAD

ORANGE ROAD

AIRPORT ACCESS ROAD

GATE 3

NDB

0 100 200 300 400 500m

SCALE 1 : 12500

Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
EXISTING FACILITIES

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ABN. 77126939768

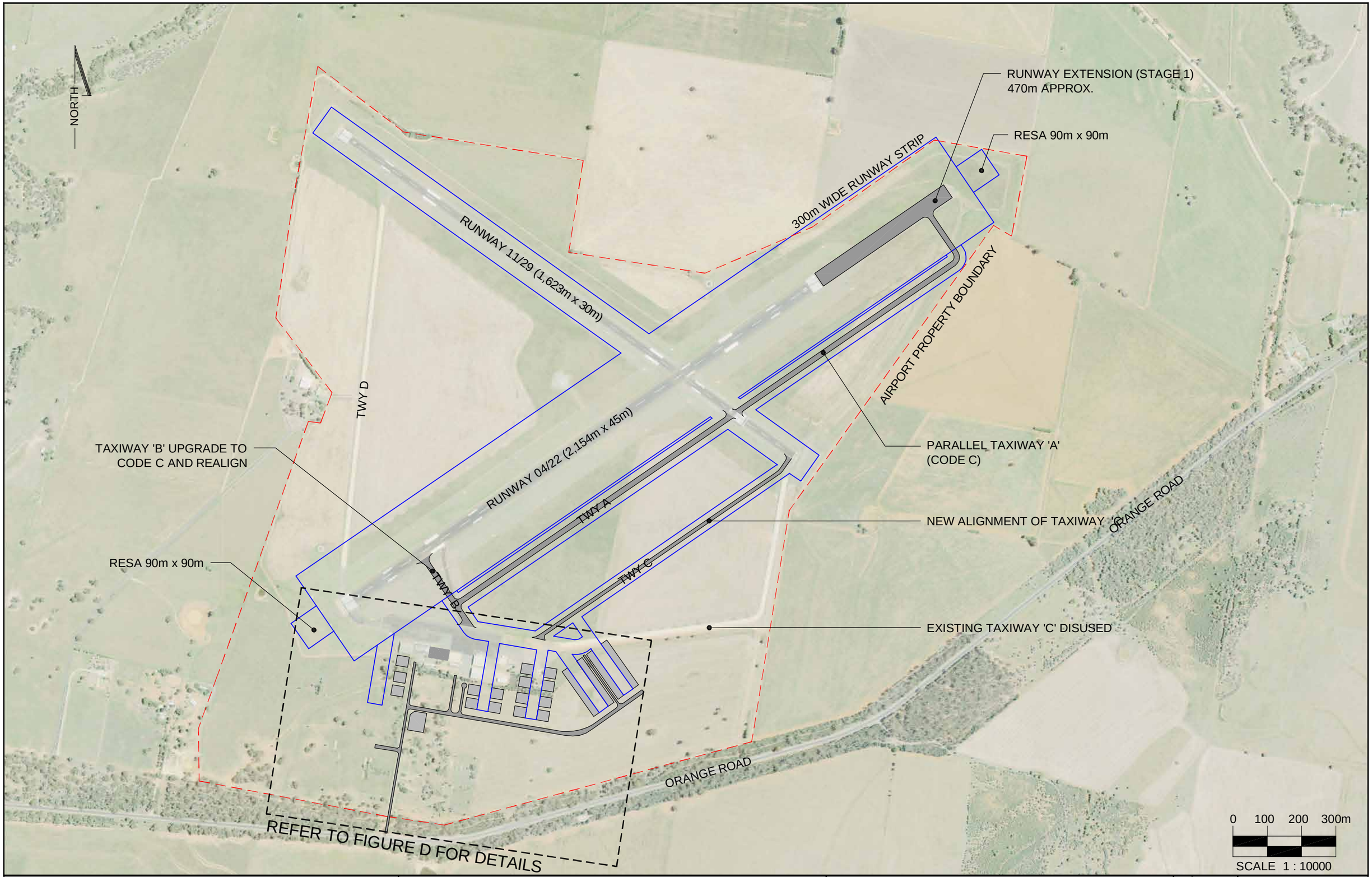
Rev.	Date
2	20/06/13
1	30/05/13
0	06/05/13

Drawn: LT | Checked: BJH | Approved: BJH

Figure No:
FIGURE A

Scale: AS SHOWN | A3 Sheet Size

File Ref: B13022



Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
PROPOSED DEVELOPMENT
STAGE 1

REHBEIN Airport Consulting
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Figure No:
FIGURE B

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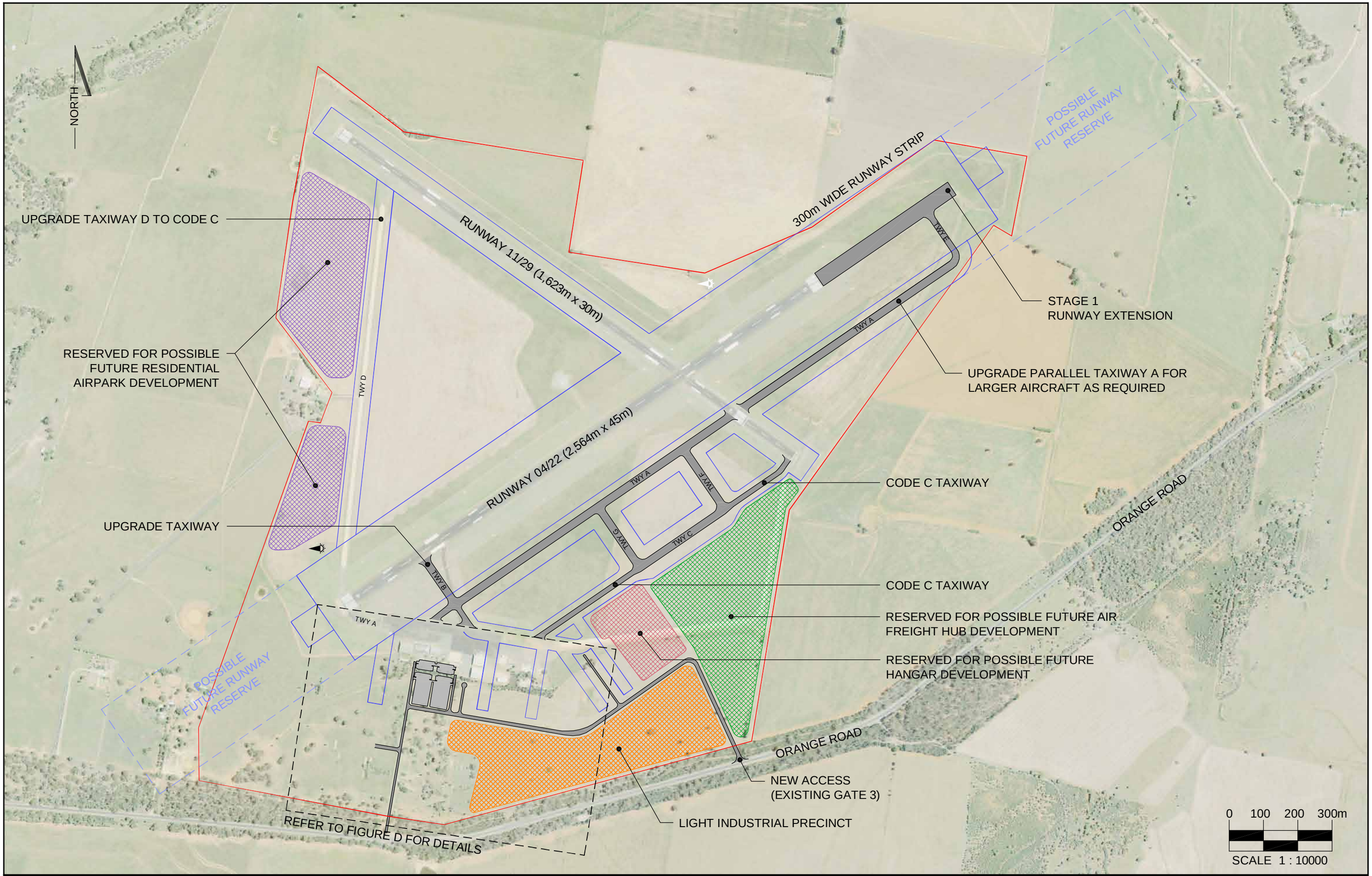

Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
PROPOSED DEVELOPMENT
STAGE 2

REHBEIN Airport Consulting
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1	30/05/13
0	06/05/13

Figure No:
FIGURE C

Scale: 1:10000 | A3

File Ref: B13022 | Sheet Size

Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
LAND USE CONCEPT
ULTIMATE DEVELOPMENT

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Figure No:
FIGURE D

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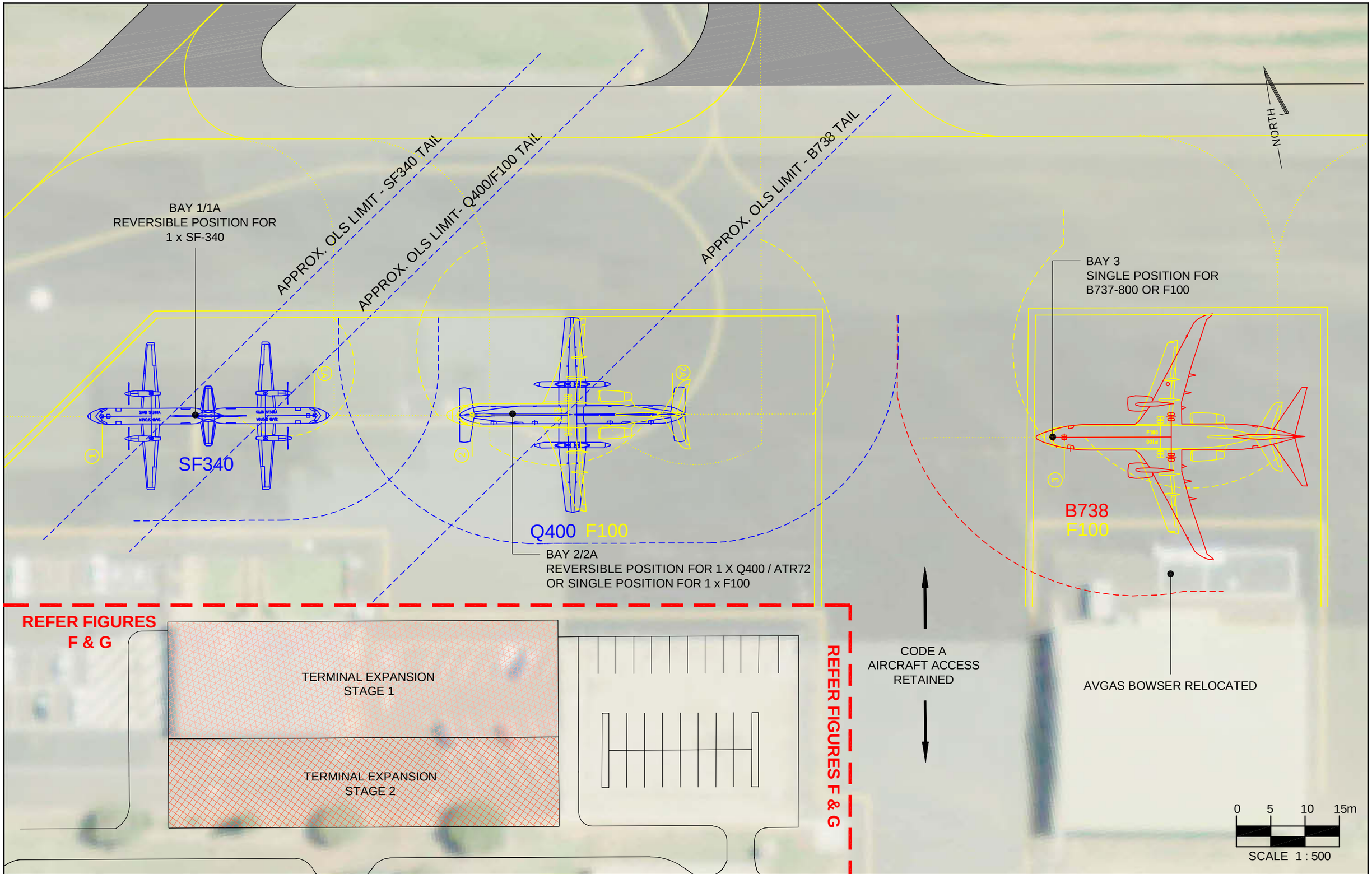

Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
RPT APRON LAYOUT
CONCEPT PLAN

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Figure No:
FIGURE E

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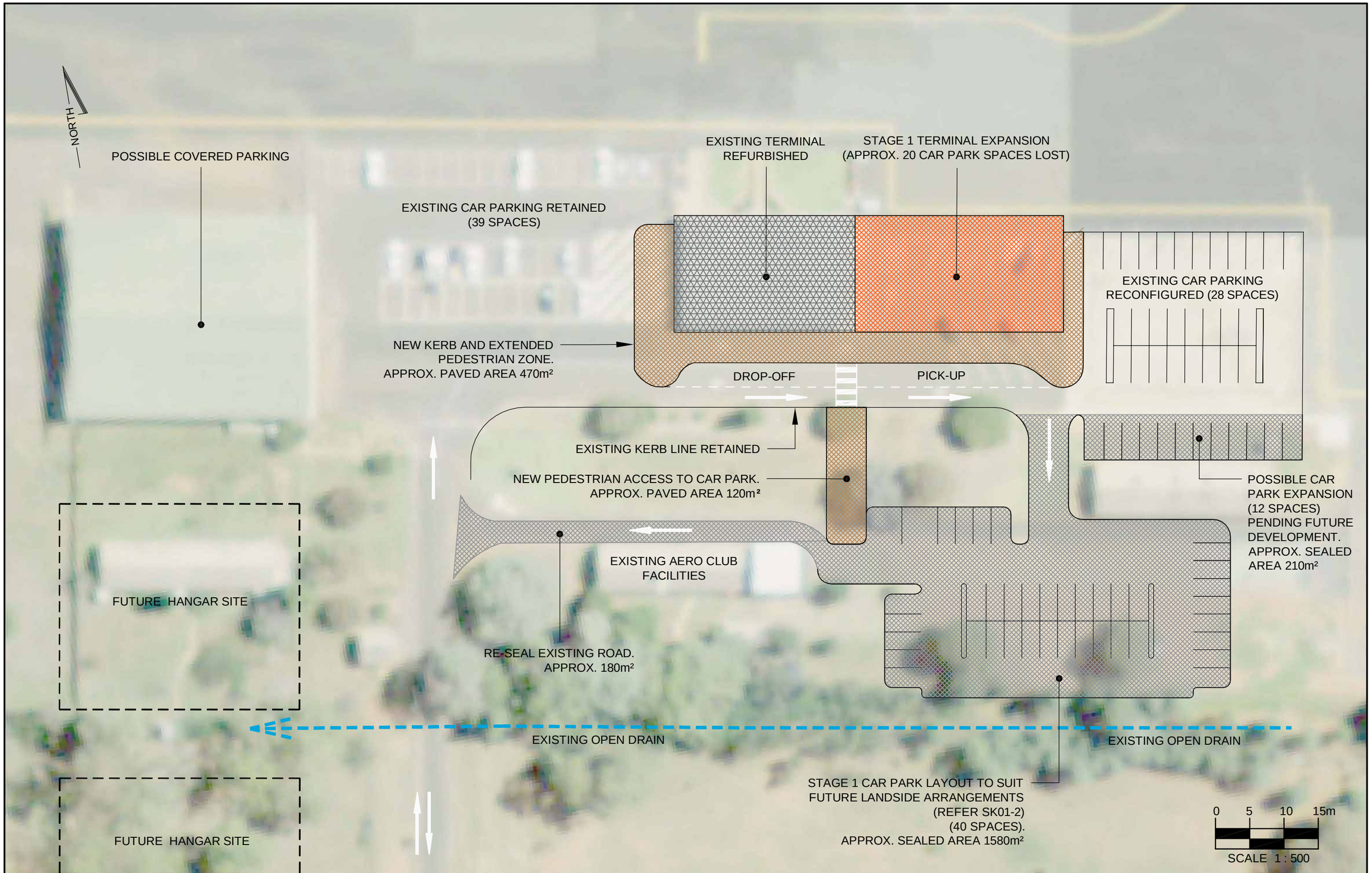

Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
TERMINAL AND CAR PARK EXPANSION CONCEPT
STAGE 1

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0	04/04/13

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Figure No:
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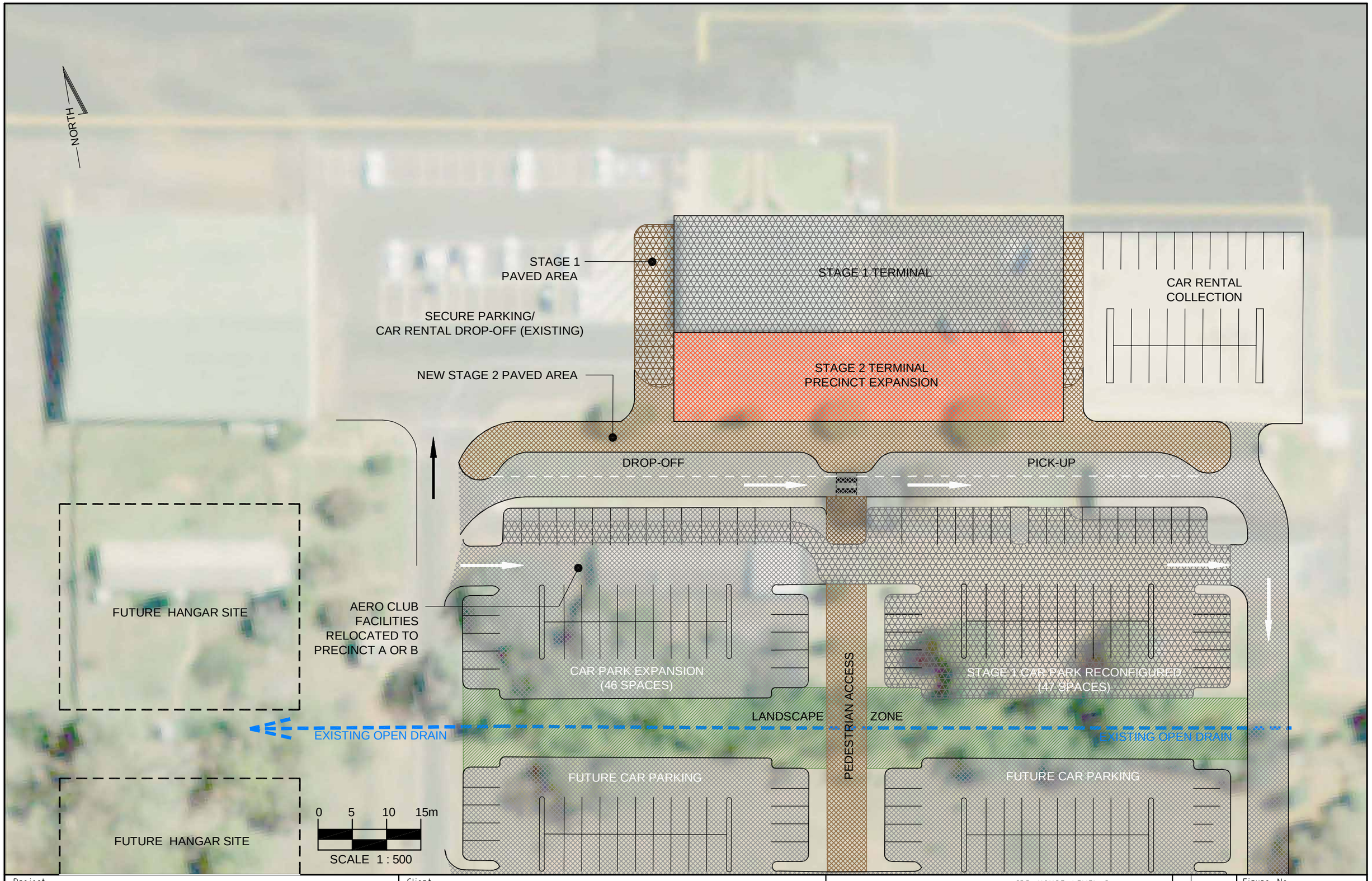

Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
TERMINAL AND CARPARK EXPANSION CONCEPT
STAGE 2 (ULTIMATE DEVELOPMENT)

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Figure No:
FIGURE G

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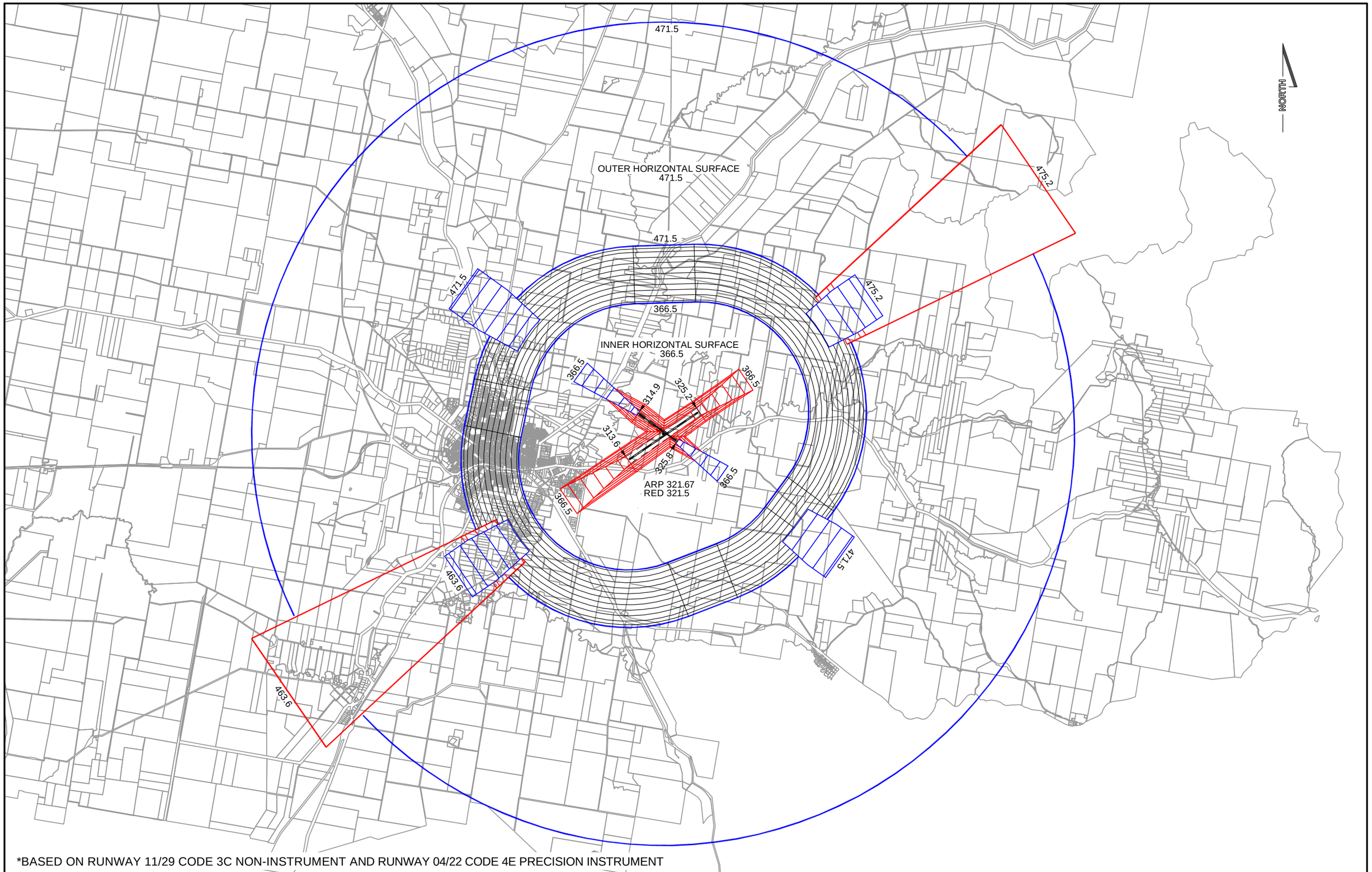

*BASED ON RUNWAY 11/29 CODE 3C NON-INSTRUMENT AND RUNWAY 04/22 CODE 4E PRECISION INSTRUMENT

Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
OBSTACLE LIMITATION SURFACES

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Figure No:
FIGURE H

Scale: 1:125000 | A3
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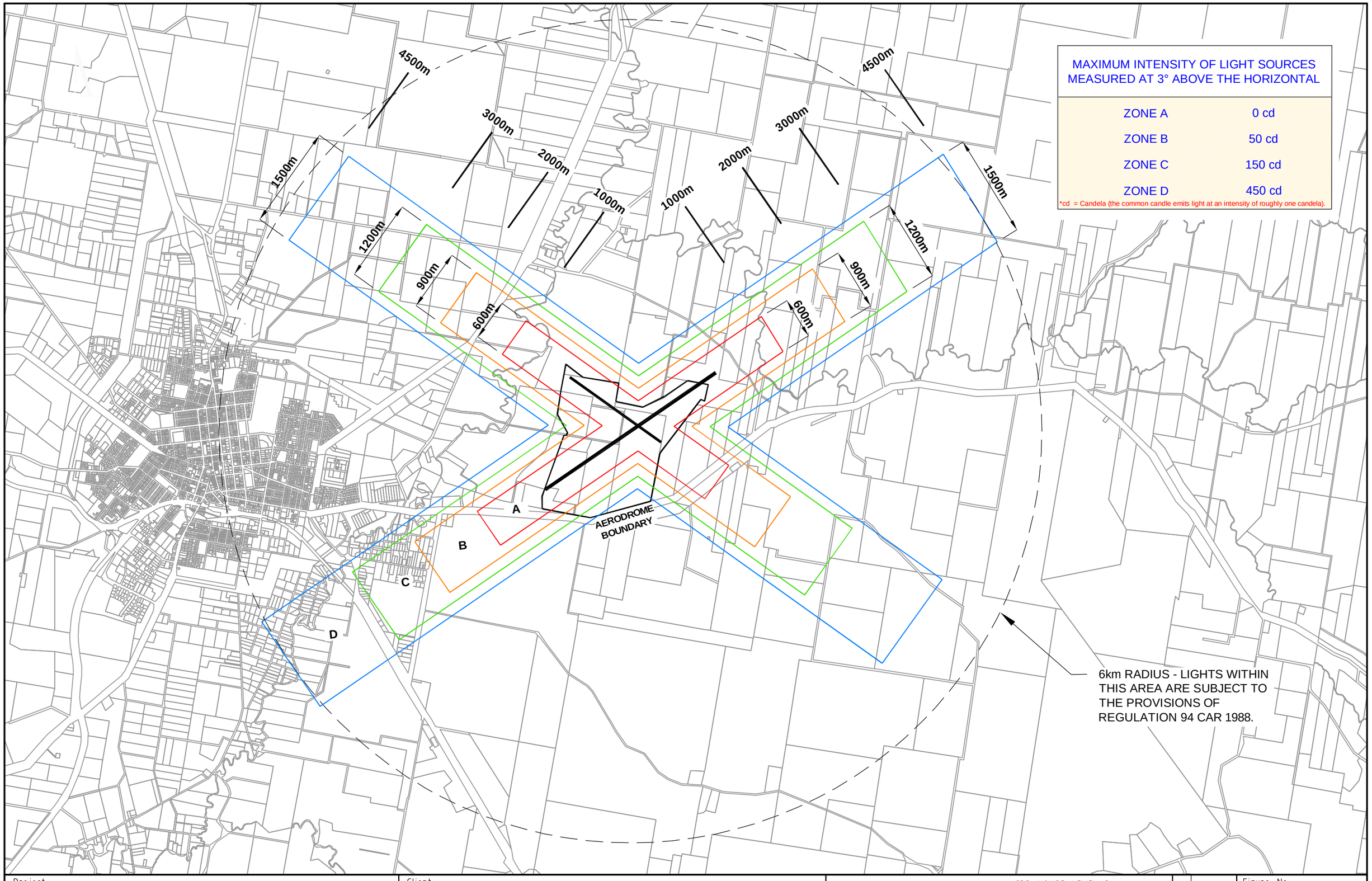

MAXIMUM INTENSITY OF LIGHT SOURCES MEASURED AT 3° ABOVE THE HORIZONTAL

ZONE A	0 cd
ZONE B	50 cd
ZONE C	150 cd
ZONE D	450 cd

*cd = Candela (the common candle emits light at an intensity of roughly one candela).

Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
LIGHTING RESTRICTIONS

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0	30/05/13

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Figure No:
FIGURE J

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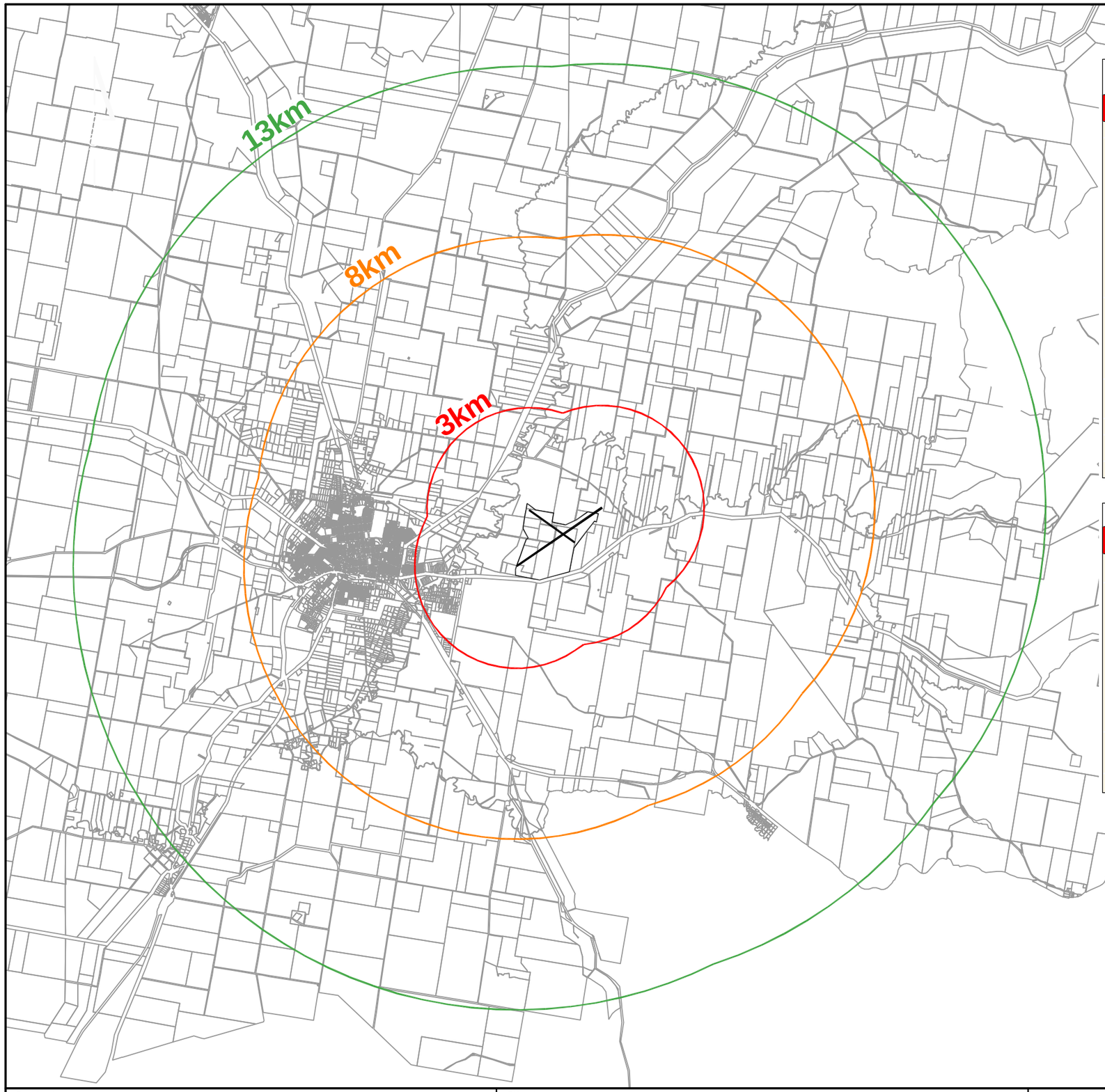

PLANNING ASSESSMENT CRITERIA FOR BIRD AND BAT STRIKE POTENTIAL

LAND USE CATEGORY	DESCRIPTION
Group A	Putrescible waste disposal site
Group B	Sewerage treatment facilities
	Commercial fish processing
	Bird sanctuaries and fauna reserves
	Artificial water body (including water mgt structures such as detention basins or wetlands and dams or enclosed tanks)
	Aquaculture
	Turf farming
	Animal farming with potential to attract birds/bats
	Fruit farming
	Food processing plants
Group C	Race Tracks
	Fairgrounds
	Outdoor theatres
	Drive-in Restaurants
	Sports Grounds
	NB: Group classifications have been adopted from the Queensland State Planning Policy 1/02: Development in the Vicinity of Certain Airports and Aviation Facilities
	Artificial water bodies may include:
	a) Water management structures, such as detention basins and constructed wetlands
	b) Large agricultural dams and non-enclosed tanks.

PLANNING RECOMMENDATIONS TO LIMIT BIRD AND BAT STRIKE

LAND USE CATEGORY	RECOMMENDATION	DESIGN RESPONSE RECOMMENDATION
Group A	Should be avoided within 13 km of the runway	Recommend no development
Group B	Should be avoided within 3 km of the runway and where located between 3 km and 8 km of the runway, should include measures to discourage wildlife	Potential food/waste sources are covered/collected so that they are not accessible.
		For fruit, animal farming and turf production, wildlife deterrence measures are used (e.g. bird scarers or netting)
		Artificial water body Artificial water body design shall minimise habitat opportunities for birds (e.g. careful selection of landscaping, water body edge treatments, etc)
Group C	Where located within 15 km of the runway, should include measures to manage waste disposal	Potential food/waste sources are covered/ collected so that they are not accessible to wildlife

NB: There is no requirement to remove or change existing land uses within the above categories.

Project:
PARKES REGIONAL AIRPORT
MASTER PLAN

Client:
PARKES SHIRE COUNCIL

Title:
BIRD & WILDLIFE HAZARDS

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0	30/05/13

Figure No:
FIGURE K

Scale: 1:50000 | A3 Sheet Size

File Ref: B13022

APPENDIX B

STAKEHOLDER CONSULTATION SCHEDULE

Organisation	Representative	Position	Date	Method
Regional Express	Mr Warrick Lodge	General Manager, Network Strategy and Sales	7 May 2013	By Telephone
Air Freight Solutions	Mr Tim Hall-Matthews	Director	3 April 2013	By Telephone
Regional Express	Mr Andrew Lillington	REX Port Agent (Parkes)	4 March 2013	In Person
Parkes Aero Club	Mr Henry Keller	Member	26 March 2012	In Person
	Mr Bill Barber	President	24 May 2013	By Telephone
Avcar Aerofuellers	Mr Paul ????		26 March 2013	In Person
Historical Aircraft Restoration Society	Mr Geoff Timms		15 April 2013	By Telephone
Agforce	Mr David Caban	CEO	Unable to Contact	By Telephone
	Mr John Westcott	Parkes Airport Leasee	15 April 2013	By Telephone
Riot Tinto (Northparkes Mine)	Mr Brad Walsh	Manager Community and External Affairs	26 March 2013	In Person
Air Services Australia	Mr Steve Tattam	Aviation Relations Manager	21 May 2013	In Person

REHBEIN Airport Consulting

APPENDIX C

INDICATIVE DEVELOPMENT COSTS

Indicative capital development costs for proposed Stage 1 developments, together with trigger points and anticipated timings based on the forecasts are shown in Table C-1

Development	Trigger	Anticipated Timing	Indicative Cost ($ Million)
Terminal Expansion – Stage 1	Now	2014	$1.5
Access Roads & Car Park – Stage 1	Now	2014	$0.2
Formalise TWY B	Recommended for Operational Flexibility	2015	$1.6
Strengthen RPT Apron & TWY A	Required to enable operations by >30-seat aircraft	2018	$2.5
Runway 04/22 Extension (Stage 1)	Required to enable F100 operations	2018	$7.9
Realign TWY C	Required in Conjunction with Light Aircraft Hangar Precinct Development	2020	$2.9
Parallel TWY A (South of 11/29)	Subject to Operational Need	2023	$6.0
Parallel TWY A (North of 11/29)	Subject to Operational Need	2023	$4.6