20 August 2014

Your ref:
Our ref: A02/0278-2:I/2014/19861

Ms Madeleine Foley
Director – Committees
Standing Committees on State Development
Legislative Council
Parliament House
SYDNEY NSW 2000
Via email: dsteller@armidale.nsw.gov.au

Dear Ms Foley

Standing Committee on State Development- Inquiry into Regional Aviation Services held 22 July 2014 – Question on Notice Taken During Hearing

I refer to the questions on notice taken during the hearing held in Tamworth on the 22 July 2014.

The Hon. MICK VEITCH: Do you have a master plan for the airport?
Mr STELLER: I certainly do.
The Hon. MICK VEITCH: Is it possible to provide that to the Committee?
Mr STELLER: I can provide one to the Committee, yes?

A copy of the Armidale Regional Master Plan (INT/2014/08735) is enclosed with the documentation and has been reviewed over the past 3 months and updated from the original 2003 document following consultation with stakeholders. The document is still a draft document and will be put before council for adoption in October 2014.

The Hon. MICK VEITCH: I refer to the methodology behind the development of the landing fee structure. Can you provide the Committee with the calculations or the things you look at to determine the landing fee?
Mr STELLER: Yes.
The Hon. MICK VEITCH: I will explain why I have asked that question. I have been asking it around the State—
Mr STELLER: I gathered that.
The Hon. MICK VEITCH: —of all local government bodies. As someone who spent 12 years in local government I am a tad surprised at the variation in responses I have received. Some people make it up, others have a very detailed process, and others just copy their neighbours. I am interested in your methodologies.
Mr SCOT MacDONALD: Some have not changed for 15 years.
The Hon. MICK VEITCH: Some have not change for 20 years.
Mr STELLER: That is something I was going to raise. We tended to keep our charges as low as possible for the airlines because we knew there were always pressures on them. Obviously we have been dealing with them for more than 60 years. We have not increased our charges since 2008. The

reason for that is that we regularly get requests about what we can do as a council-owned airport to assist regional airline services to be competitive. We have said that while ever we can balance our ring-fenced airport budgets we can sustain the level of fees that we are currently charging. Once again, it is a balancing act between keeping services at the airport and not having a reduced schedule of services by imposing—

The Hon. MICK VEITCH: If you take the question on notice you can probably provide a more detailed response.

Mr STELLER: Okay.

Council's methodology of calculating the landing fees for the airport is based on operating the airport as a separate Council business to keep revenues and expenditures ring fenced so that the Council ratepayers are not burdened with any losses or renewal costs and that users pay a fair and reasonable cost to the long term operation of the airport. As stated at the inquiry, Council generates 90 to 92% of its total airport income from Regular Public Transport (RPT) Services. This isn't reflected in the total usage figures in the aircraft traffic movement mix that has 30% RPT services, 63% General Aviation (GA) and 7% helicopter movements. However the RPT services demand on airport infrastructure is far higher than GA services that primarily are light planes with very small payloads and utilise only a small fraction of the airport infrastructure in relation to the wear and tear on infrastructure and management costs. For example, GA operations don't use the airport terminal building, often only use the grass runway and operate principally in daylight hours and therefore don't use runway lighting and don't require car parking areas to service their operations.

The heavier RPT aircraft are the main consumers of sealed runway pavement life and runway lighting costs. Both Qantaslink and Rex park their aircraft overnight, six days per week on the main apron area at the terminal requiring special security lighting and due to the 6.30am to 8.30pm daily flight schedule spread of hours, require the terminal building to be open and available to the RPT passengers and support staff for 15 hours a day and more if flights are delayed. To provide equity and incentive for competitive RPT service fares on the regional route between Armidale and Sydney, Council has adopted a structured pricing system for RPT services.

Council has a passenger fee charge of $14.90 (inclusive of GST) per inbound and outbound passenger for the first 70,000 passengers carried by the RPT operators. The sum of these fees basically covers the operating costs for the airport. Passenger numbers above the 70,000 threshold are charged at a reduced rate of $9.70 (inclusive of GST). Council also has an incentive scheme where fares sold under $180.00 one way are charged the lower rate of $9.70 (inclusive of GST) for these passenger fares.

Council fees are reviewed each year as part of the management plan review of all Council fees and charges. Where passenger number increases are above the CPI increase (say 3%) then fees remain the same as the previous year. Where the airport income exceeds expenditure for the year then these funds are held in reserve for major capital renewals and upgrades such as runway overlays and other aircraft movement areas, car park extensions and passenger terminal improvements. A spreadsheet is attached that shows a summary of the revenues and expenditures for the airport over the past six years and how the average passenger tax charged to the airlines is traced against the consumer price index (average 3.0% exclusive of GST) and explains the reasoning behind Council's decision not to increase the passenger tax since 2008.

Council is currently replacing and renewing the apron and runway lighting at the airport valued at $1.3million. This is also in conjunction with a terminal apron extension and new parallel taxiway valued at $2.6 million. Other terminal improvements are planned in the next 12 months to bring the

total value of the current renewals program to $5.4million of which $3.5million is a Federal Government Infrastructure Grant.

CHAIR: Do you have any figures on where the people flying from Armidale come from? How many come from Inverell and Tenterfield?

Mr STELLER: We have had to do our own survey because once again it is very difficult to get the information out of the carriers. It would be great if the carriers allowed us to use that information for these sorts of purposes. We have had to do our own survey of people and we have only been able to do it for a week or two at a particular time. We have the full range of them coming from those areas. If I take the question on notice I can provide the break-up that we got when we did that work.

The Hon. MICK VEITCH: Are those surveys available, or summaries?

Mr STELLER: I am sure we could make them available.

CHAIR: That would be good.

Mr STELLER: The types of questions we asked and the responses we received?

CHAIR: Yes, thank you.

As discussed at the inquiry it is very difficult to get data from the airlines on where passengers using the airport are located across the region. Council has undertaken two surveys, one is in relation to the Armidale - Brisbane route that was completed in 2013 to establish a possible market case for airlines to consider introducing a service from Armidale to Brisbane. This survey was an online survey with 919 responses with 90% of respondents from the Armidale regional catchment covering Armidale, Uralla, Walcha, Guyra, Inverell, Glen Innes, Tenterfield and Tamworth where Brisbane services stopped when Brindabella ceased operating. A full copy of the survey is attached.

The second survey in July 2013 was a car parking survey trying to establish how people got to the airport and their car parking demand. The survey was conducted over 9 days and only covered 3 flights per day being the 6.30am, 9.50am and 1.20pm Qlink flights from Armidale to Sydney.

LGA Area or State	Number
Armidale	137
Walcha	5
Uralla	38
Guyra	6
Inverell	3
Glen Innes	8
Tenterfield	3
Bellingen (Dorrigo)	3
Tamworth	4
Sydney	9
Victoria	4
Northern Territory	2
Queensland	1

A full copy of the survey questions and responses is attached.

Mr SCOT MacDONALD: I was there for the Barnaby announcement. Councillor O'Connor, I refer to the precinct and what you are trying to do. Can you offer any suggestions about what the State Government could or should be doing better to support you? At the end of the day, the Committee must make recommendations. We can talk about many of these issues and many are similar.

However, in terms of recommendations, what can the Committee do to make regional aviation, including precincts, sustainable and to help them to grow?
Ms O'CONNOR I will take that question on notice.

The Armidale Regional Airport precinct is a high priority strategic area Council has identified for regional economic development. Council has 76 Ha of undeveloped and un-serviced industrial land adjacent to the airport and located on the western side of the New England Highway with access to the highway. Council has commenced and recently completed extending 4.5 kms of trunk water main to the precinct and will shortly call tenders for the construction of sewerage pumping station and mains to service the industrial precinct and supply upgraded water and sewer services to the airport related businesses located at the airport. This project also involves the extension of the NBN fibre network at council's cost to the precinct in common trenching with the sewer and water main construction works. This project work is fully funded by Council at an estimated cost of $4.45million.

The project will release the first stage of industrial subdivision (13 hectares) for development however further development will require a new road intersection access with the New England Highway 300m south of the existing airport access to provide Stage 2 industrial land access and access to a private industrial land development proposal (not yet approved) opposite the airport. The Roads and Maritime Services (RMS) has provided concept approval for a major two lane roundabout to be constructed on the New England Highway to service the future developed industrial land. The roundabout construction is estimated at $3million that Council currently can't fund until a revenue stream is generated from the Stage 1 development and contribution from the proposed private industrial land development that is yet to be determined. The RMS has advised that there will no funding available from the Federal Government to contribute to the intersection upgrade and must be funded by the proponents, being Council and the private developer.

Council would like the State Government to support this regional development program with financial support to assist Council with the construction of the roundabout access to service the industrial land that will greatly improve road safety and the regional employment opportunities for Armidale and region by opening much needed industrial land by attracting businesses to this prime highway access industrial site adjacent to the Armidale Regional Airport. Feasibility studies have been completed on the viability of these projects and Council would welcome the opportunity to discuss future infrastructure grant funding to help achieve these essential strategic projects.

Please contact me on   or by email at   if I can be of further assistance.

Yours sincerely

David Steller
Director Strategic Projects & Public Infrastructure

Armidale
Dumaresq Council

ARMIDALE REGIONAL AIRPORT

Master Plan

May 2014

Armidale
Dumaresq Council

CONTENTS

Armidale
Dumaresq Council

1.1 BACKGROUND

Airplan was appointed by the Armidale Dumaresq Council in August 2003 to prepare a Master Plan for Armidale Regional Airport. An in- house review of the Master Plan was undertake in March 2014 to update with current trends in the aviation industry. Armidale is located on the New England Tablelands in northern New South Wales, about midway by road between Sydney and Brisbane.

Major objectives of the study, as outlined in the brief for the study, are as follows:

- Assessment of aviation needs at Armidale Regional Airport over the next 20 years planning horizon

- Identification of land use safeguards to protect the longer term viability of the airport at its existing site

- Potential re-zoning of land use not required for future aviation needs, particularly the tract of land adjacent to Runway 05 which has direct frontage to the New England Highway and has the potential to attract other higher commercial land uses

- Resolution of congestion and land use conflict of existing commercial leases in the vicinity of the passenger terminal

1.2 CONSULTATION

Airplan's Roy Ng visited Armidale Regional Airport at the commencement of the study (10 and 11 September 2003) to inspect the existing airport and its facilities and for consultation with key stakeholders for their input to the master planning study, including the Armidale Dumaresq Council, airlines, airport tenants and other stakeholders.

In 2014 an in house review of the Master Plan has been undertaken with additional consultation with the key stakeholders to gain current trends and opportunities for the aviation industry.

Notes of these additional consultation have been added to the appendix B along with the original consultations undertaken by Airplan Stakeholders involved in the review are listed in Table 1.2.

Table 1.1: **Original Consultation with Key Stakeholders in 2003**

Organisation	Name	Title
Armidale Dumaresq Council	Mr Shane Burns	Fmr General Manger
	Mr Alan Harvey	Fmr Transport Operations
	Mr John Hadfield	Fmr Administration Manager
	Mr Stuart Allardice	Fmr Tourism & Marketing Manager
Armidale Chamber of Commerce	Mr Glen Chapman	Fmr Representative
Centre for Agricultural & Regional Economics Pty Ltd	Mr Roy Powell	Fmr Representative
Qantaslink (Eastern Australia Airlines)	Mr Keith Randall	Fmr Network Services Mgr
	Captain Mario Cipollone	Fmr Technical Manager
Regional Express	Mr Glenn Fitzpatrick	Fmr National Airports Mgr
Sunshine Express Airlines	Mr Phil Laffer	Fmr General Manager
Superair Australia	Mr David Boundy	General Manager
Fleet Helicopters	Ms Claire Mullin (for Mr Lachlan Onslow)	Director/Chief Pilot
Collect Food Service	Mr Andrew Murray	Principal
Armidale Airways	Mr Rod Andrews	Chief Pilot Aircrew
Aircrew Check & Training Australia	Captain GordonSmith	Fmr Chief Pilot/C.F.I
Nifty Couriers	Mr Neville Northey	Principal
NSW Rural Fire Service	Mr Tony Griffiths	Fmr Aviation Officer

Armidale Dumaresq Council thanks the key stakeholders for their participation and input to the review for this study and acknowledges the valuable information provided.

Under the review of the Masterplan the following organisations were interviewed

Table 1.2

Organisation	Name	Title
Armidale Dumaresq Council	Mr Glenn Inglis	A/ General Manger
	Mr David Steller	Director, Infrastructure Services
	Mr Phil Brown	Airport Manager
	Clr Laurie Bishop	Mayor
	Clr Andrew Murat	
Fleet Helicopter	Mr Lachlan Onslow	Director/ Chief Pilot
	Mr Mike Watson	Director
Qantas Link	Mr Andrew Hall	Qantas Link Airport Manager (Armidale Airport Services)
Airport Users Group	Mr Hans Heitbrink	Chairman
	Mr Don Tydd	Board Member
National Farmers Federation	Mr Robert Gordon	
Superair	Mr David Boundy	
Department of State and Regional Development	Mr Peter Sniekers	Regional Manager
Edwards Aviation	Brad Edwards	Director
Rural Fire Service	Steve Mepham	New England Zone Manager
	Tim Butcher	Deputy Zone Manager

2.1   EXISTING AIRPORT SITE

The existing Armidale Regional Airport occupies a site of about 262 hectares besides the New England Highway and it is located approximately 6km to the south west of the city of Armidale as shown in Figure 2-1. Historical notes indicated that the airport started its life as an open paddock for the local aero club activities back in 1946 and later became a Regular Public Transport (RPT) aerodrome when East West Airlines started its inaugural passenger flight from Armidale to Sydney in October/November 1947.
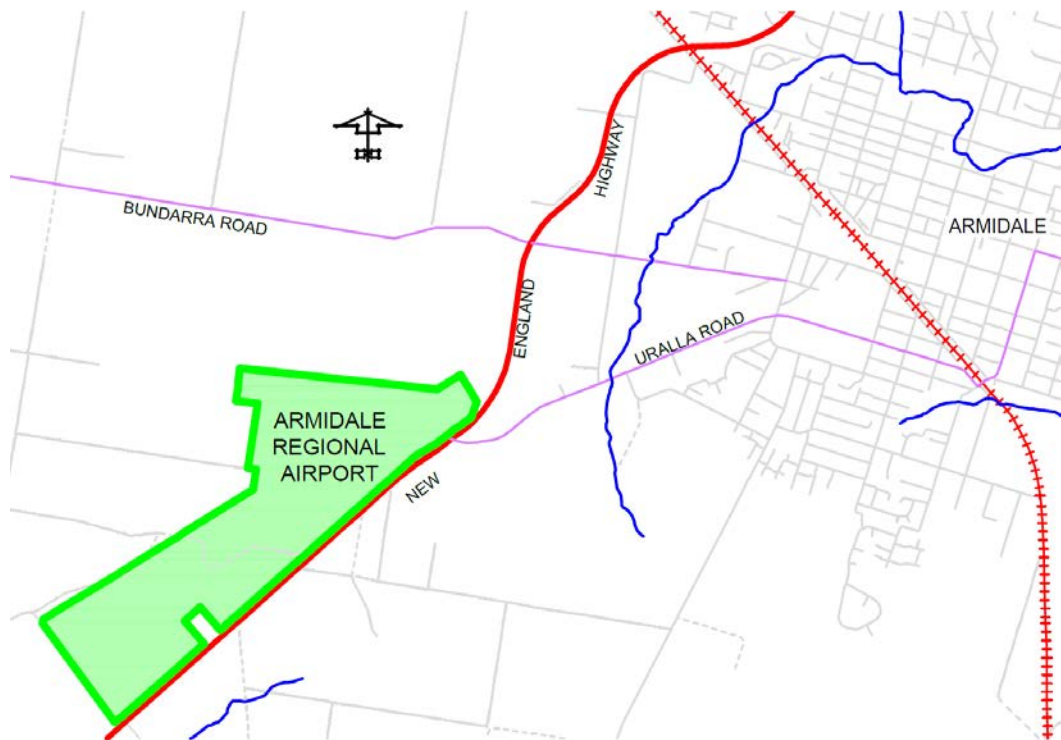
Figure 2-1:   ***Location of Armidale Regional Airport***

Under the Commonwealth Government's 'Aerodrome Local Ownership Plan', the airport was originally transferred to the jurisdiction of the Dumaresq Council in 1991. The amalgamation of the Dumaresq Shire Council and the Armidale City Council in February 2000 placed the airport under its present jurisdiction of Armidale Dumaresq Council.

The airport experienced peak RPT activities in 2012/2013 when it was serviced by Qantas Link which operated five return services to Sydney daily, and Brindabella Airlines were separately operating two return services to Brisbane daily.

The passenger terminal and all current aviation related commercial activities have been established on prime sites located between the main runway and the New England Highway. Restriction on the number of entry points to the highway specified by the Roads & Maritime Services of NSW (previously RTA) has dictated that a single main airport entrance serves the airport terminal and all the currently established

commercial sites. However, in 2003 up to 3 highway accesses were proposed by Council and supported by Roads and Maritime Services (formerly Roads and Traffic Authority) on the total airport highway frontage. Highway access will be further discuss in section 2.8

2.2   CURRENT REGULAR PUBLIC TRANSPORT (RPT) ACTIVITIES

RPT services at Armidale are currently provided by Qantaslink with 5 return services between Armidale and Sydney Monday to Friday and 3 return services of a weekend. Regional Express Airlines re entered the market in late March 2014 on the Armidale to Sydney route. At the present time there are no airlines operating the Armidale to Brisbane route however discussions are taking place with potential operators.
Qantaslink operates both the 50-seat *Dash 8-300*, with some 36 seat Dash 8 100/200 aircraft to Armidale. The *Dash 8* aircraft on the evening service from Sydney overnights at Armidale to offer the 6.30am direct service to Sydney (except Sydney) in response to market demand.

Regional Express operate the Saab 340(B) turbo prop aircraft with three return services daily on Monday to Friday and a reduced service on the week ends. The aircraft will overnight in Armidale for the Monday to Friday services and will provide a 0635am service to Sydney on these days.

Statistical data over the past 10 years prior to 2004 provided, indicates the approximate split of RPT passengers by route sector as follows: The Brisbane route when re-established by Brindabella Airlines in 2011 – 2012 showed a similar split. Rex has re-entered the Armidale to Sydney route with a schedule providing 60,000 seats per annum.

Sydney – Armidale	=	92%
Brisbane – Armidale	=	8%

2.3   AIRFIELD INFRASTRUCTURE

2.3.1   Runways

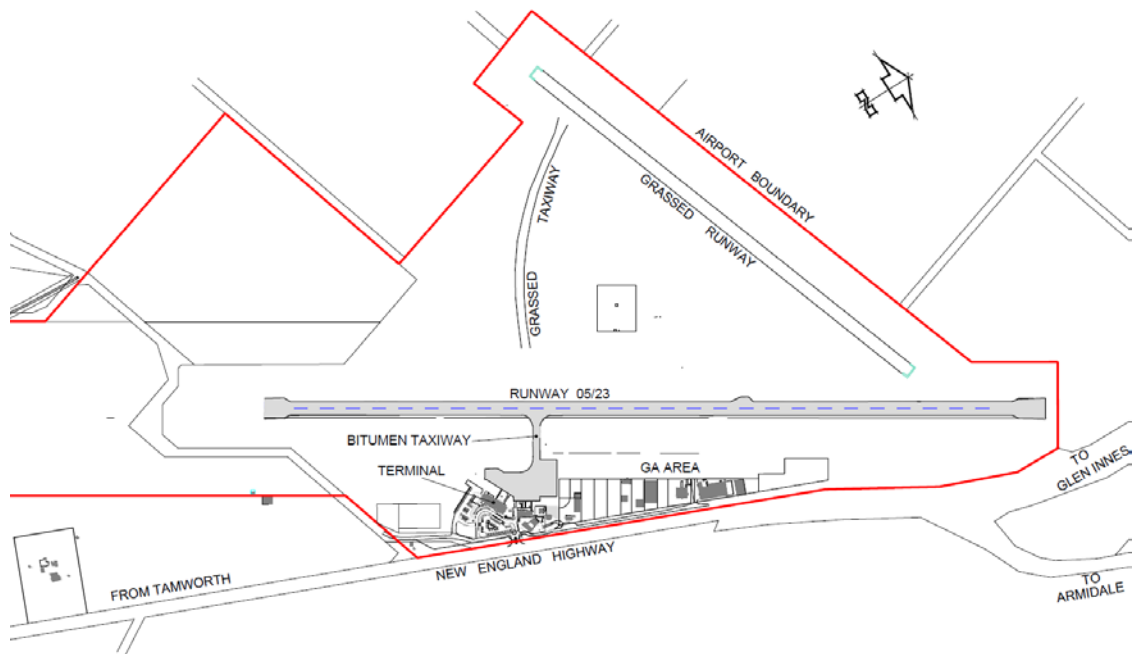The layout of the existing airport is shown in Figure 2-2.

Figure 2-2:   ***Layout of Existing Armidale Regional Airport (Not to Scale)***

Armidale Regional Airport is at an elevation of 3556 feet above sea level and is currently served by two runways, which are set out in a V configuration with the point of the V being near the north-east end of Runway 05/23. The two runways do not intersect.

- Runway 05/23

Runway 05/23 is 1,738m long x 30m wide and is centrally located within a 150m wide runway strip. It was constructed in 1969 and sealed in 1970. A bitumen emulsion surface enrichment was provided in 1982, followed by an aggregate reseal in 1988. In February 2001 the central 15m of the runway was resealed with a 10mm aggregate, the outer 7.5m on each side were provide with a bitumen emulsion surface enrichment.   A 60m long x 45m wide turning node is provided beyond the threshold at the Runway 23 (north-eastern end) end.

The runway is suitable for regular use by aircraft up to medium sized turbo- prop aircraft (e.g. Dash 8, SAAB 340). Heavier aircraft operate on an occasional basis under a pavement concession.

Pavement surface condition inspection was conducted in early 2003 together with Falling Weight Deflectometer testing and borehole investigations along the runway. Remaining life assessment of the pavements indicated that on the basis of the assumed aircraft traffic mix and traffic growth, and an assumed Californian Bearing Ratio value of 6% for the subgrade, the pavements would be adequate for the next 10-15 years without structural strengthening (reference: *Armidale Regional Airport Pavement Strength Testing & Condition Assessment, August 2003* prepared by Pavement Support Services for Armidale Dumaresq Council).

A further pavement surface inspection will be undertaken in 2014 to assess the current condition and to determine when a runway overlay will be required.

The ground drops away immediately beyond the turning node at the northern end of the runway. With the New England Highway being constructed in a cutting beyond the Runway 23 threshold, there is no issue with obstruction from the highway at this end of the main runway. Figure 2- 3 shows the paved turning node beyond the Runway 23 threshold.

Figure 2-3: ***Existing Turning Node beyond the 23 Threshold***

- Runway 09/27

  The cross wind Runway 09/27 is 1,116m long x 30m wide and is centrally located within a 90m wide runway strip. This runway was originally longer, crossing the main runway close to its 23 end, but was reduced to its current length (as shown in Figure 2- 2) due to unstable ground during wet conditions to the south of the 23 threshold. It is an unsealed grass runway and is primarily used for flying training by fixed wing aircraft in cross wind conditions and for helicopter circuit training.

2.3.2 Taxiways

A short 15m wide bitumen taxiway links the main runway with the RPT apron (Figure 2-4). This taxiway is located at approximately one third point of the runway from the 05 runway end.

Figure 2-4: **Bitumen Taxiway from Main Runway towards Passenger Terminal**

A new 15m wide taxiway will be constructed parallel to the main runway in 2014. This taxiway will extend from the terminal building apron to a point 516m to the north of the runway. The new taxiway will reduce the delays to aircraft in back tracking on the main runway for takeoffs to the south.
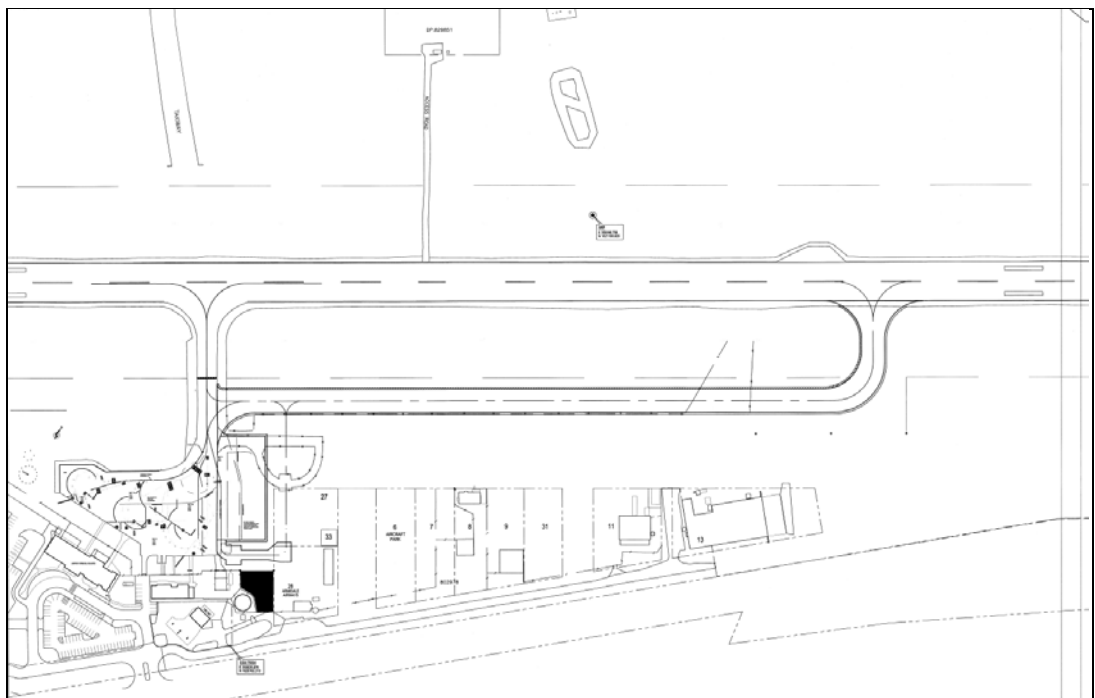

Figure 2-5: New Taxiway

Directly opposite the bitumen taxiway, a curved grass taxiway (marked by cones on the ground) provides light GA (General Aviation) aircraft access to the 09 end of the cross wind runway.

A grass apron area with an apron taxiway is currently provided in the GA area. GA aircraft traverse over a grass area outside the runway gable markers, with a second entry point in front of the existing Superair hangar to provide access to and exit from the main runway by GA aircraft. This will be replaced by taxiway B in the near Future term.

2.3.3   RPT Apron

Figure 2-6:   ***Aircraft on Bay 2 in Front of the Passenger Terminal***

The RPT Apron was last extended in 1996 and currently provides for three parking positions with some restrictions for aircraft up to the Dash 8-400 size. Figure 2-6 illustrates the current RPT apron and airside front of the passenger terminal.

A further extension to the main apron area was completed in 2014. This extension will reduce the requirement for general aviation and charter aircraft to park on the main RPT apron.

Bay No. 2 is most frequently used due to its central location with respect to the passenger terminal. The current Qantaslink service schedule provides for a Dash 8 aircraft to stay overnight at Armidale for the 6.30am non-stop service into Sydney each morning (except Sundays). Regional Express will also overnight an aircraft for the week day services with a 6.35am departure. The aircraft will utilise Bay No.3.

The main apron parking area has recently been remarked to improve aircraft operational safety issues.

2.4   PASSENGER TERMINAL

The existing passenger terminal commenced operation in December 1996 and was officially opened in February 1997. The terminal has been designed to cater for the 2-way passenger flows for the concurrent operations of a 50-seat and 36- seat RPT aircraft. Figure 2-7 shows the landside frontage of the passenger terminal.

Figure 2-7:   ***Landside View of Passenger Terminal***

The terminal building has been set back from the apron to allow an external public viewing area between the terminal front and the fence at the edge of the apron.

Concept plans for a redesign of the passenger terminal building will be undertaken in the second half of 2014 to accommodate the possible introduction of passenger screening facilities for larger aircraft to meet growing passenger numbers. The Terminal redesign will need to consider those aircraft which currently do not require passengers to be screened.

There is currently $1.73 million in funding approved for the Passenger Terminal and car park redevelopment works. Following the acceptance of concept plans for the redesign of the Passenger Terminal building these funds will be used to commence the first stage of the passenger terminal improvements.

Figure 2-8 shows the public viewing area in front of the airside face of the passenger terminal.

Figure 2-8:   ***Public Viewing Area in front of Passenger Terminal***

2.5   GENERAL AVIATION ACTIVITIES

Existing General Aviation (GA) facilities and businesses are currently confined to a narrow strip of land between the New England Highway and the main runway to the north of the main airport entry point. The majority of the GA operators have established their individual facilities on their respective leased sites on a commercial rental that also covers the unlimited movement of home-based aircraft which are registered at the airport.

Tenancies of the existing leases are listed in Table 2.1.

Lease Site	Tenant	Use	Approximate Area (m^2)
2	Unoccupied		3,903
3	Unoccupied		2,389
19	Caltex Services Station	Road house convenience store	2,200
28	Shell	Aviation fuel storage and distribution (Avgas and Jet A1)	566
33	Mr Grant McCarroll	Aircraft storage hangar	182
34	Unoccupied		2,060
Area between 28/33/34 and 6		Shared access	2,884

Table 2.1:   ***Existing Leased Sites and GA Operators***

Lease Site	Tenant	Use	Approximate Area (m^2)
6	(Unoccupied)	-	2,793
7	(Unoccupied)	-	2,635
8	Aero Club	Club room and hangar	2,038
9	Council owned hangar	Leased to Superair for maintenance spray painting	2,231
10	Brad Edwards	Hangar	2,148
11	Fleet Helicopters	Helicopter charter/aerial work, training, maintenance hangar	3,106
Area between 11/12 and 13	-	Shared access	1,618
13	Superair Australia	Agricultural aerial spraying, aircraft parking, maintenance hangar	5,148
Former Terminal Building		Airport Operation Office	(Northern portion of building)
Former Terminal Building	Nifty Couriers	Air freight handling, and agents for Australia Air Express and TNT	(Southern portion of building)
Current leases within terminal building	Qantaslink and Rex	Airline counters & offices	
		Ticketing agent	
	Avis/Hertz/Thrifty/	Car rental	
	Budget/Realistic		
	Runway	Cafe	

Source: Armidale Dumaresq Council

The airport is a Council owned business which is self-funding in its own right. The Council, as the airport owner/operator, favours long-term leases for its tenancies.

Current planning regulations require the Council to register with the Land and Property Information (LPI) Office, New South Wales – a part of the Department of Lands – all sub-divisions with surveyed site boundaries for leases exceeding 5 years

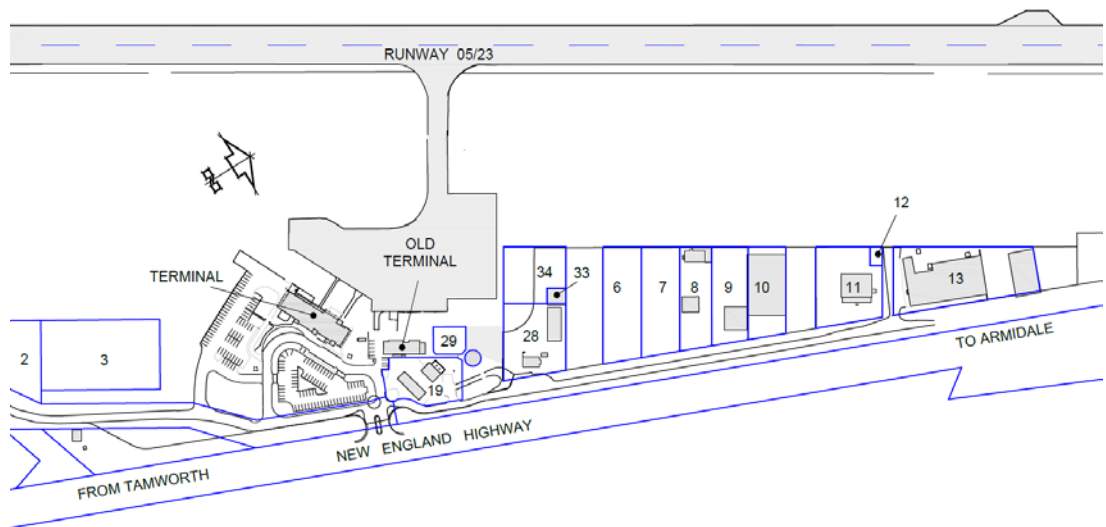Figure 2-9 illustrates the current tenancies of the various leased sites in the GA area.

Figure 2-9: **Existing Leased Sites in GA Area**

Source: *Armidale Dumaresq Council*

The main GA and commercial activities at the airport can be broadly described as follows:

- Flying training schools

- Private itinerant, scenic and recreational flying

- Agricultural aerial spraying

- Aerial survey/inspection work

- 1st and 3rd party aircraft maintenance, repairs and rebuilds of various aircraft types

- Aviation support; e.g. A1 jet fuel and Avgas supply

- Air freight

- Commercial business; e.g. road house/convenience store, café, car rental and ticketing agency

Figure 2-10 illustrates facilities at the southern end of the GA area, i.e. located to the north of the stub taxiway leading from Runway 05/23 to the RPT apron.

Figure 2-10: **GA Area to the north of Bitumen Taxiway**

Other than the leased sites, no formal taxi routes or common-use aircraft parking bays are presently provided in the GA area. The GA taxiway serving the various sites is an unsealed track extending from the public GA taxiway leading to the former Avgas dispenser location.

Some of the GA operators parked their aircraft within their lease boundaries, others and itinerant operators parked their aircraft in a common-use area. Itinerant operators who have short turn arounds will now be able to park on the new GA apron area adjacent to the main RPT apron. This will alleviate the need for GA aircraft to use Bay 1 on the main apron area.

The Caltex Service Station is a private commercial enterprise operating as a road house/convenience store on a prime leased site north of the airport passenger terminal. The road house caters mainly for highway passing traffic, and is well patronised by personnel employed at the airport.

2.6   FREIGHT HANDLING

Nifty Couriers has been established and engaged in the air freight business at Armidale Regional Airport for 15 years. Nifty Couriers' facility is located within the southern portion of the former terminal building in close proximity to the RPT apron, making full use of the existing airside/landside gate for its operations.

Nifty Couriers act as the local agent for Australian Air Express (handling primarily same-day freight) and for TNT, and also operates its own road freight services from the same facility with daily freight delivery truck runs to Coffs Harbour, Dorrigo, Belligen, Glen Innes, Inverell, Bingara, Warialda, Uralla and Walcha.

On Friday, express air freight is carried on Qantas link RPT and Regional Express aircraft.
Some air freight is also handled by other Armidale based agents.
Figure 2-11 illustrates the Nifty Couriers facility and the existing landside/airside gate.

Figure 2-11   ***Existing Airside Gate to RPT Apron***

(Nifty Couriers' facility on the right)

2.7   RURAL FIRE SERVICE

The Rural Fire Service (NSW) had a major operation at Armidale Regional Airport during recent bush fire seasons. Temporary water refilling operations for fixed wing fire bombers was undertaken at the GA area.

The largest aircraft operated by RFS (NSW) is the Air Tractor AT-802, which has a wingspan of 18.06m and overall length 19.87m. Maximum take-off weight is 7,250 kg. The aircraft needs around 1,000m runway length for take-off in summer conditions at Armidale Regional Airport's elevation.

RFS has indicated that future peak operations would normally be during daylight, with up to six aircraft operating, plus 12 helicopters. Two aircraft would refill with water simultaneously (one aircraft behind the other), with filling time being 3 – 4 minutes.

A preferred site would be remote from other airport users, due to propeller wash and dust issues. A 40m deep x 50m wide apron area would be required. At least one "hot" (engines running) refueling point is required and access to a water hydrant.

Good landside access is necessary, along with space for operating crew rest facilities and amenities and equipment storage. The design layout for the new RFS (NSW) base is illustrated on Fig 2.12. detailed designs have been undertaken for the various buildings and the project is awaiting funding approval.
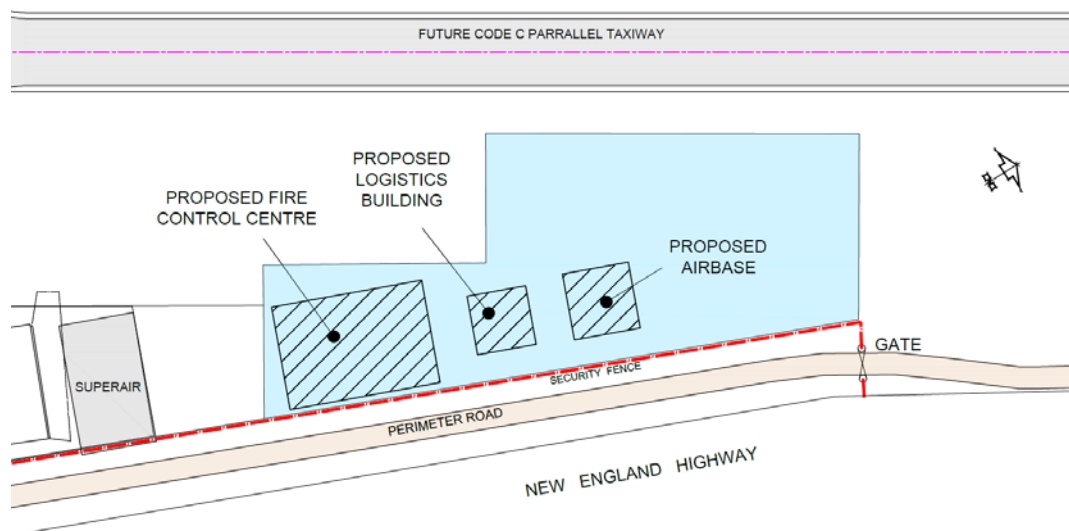
Fig 2-12-Proposed new RFS (NSW) base

AVIATION SUPPORT FACILITIES

2.7.1   Refueling Facilities

Shell provides Jet A1 fuel as well as Avgas at the airport. The Shell installation is established within a leased site located adjacent to the airport water tank. Jet A1 fuel is stored in a below-ground tank of 52,000 litres capacity and is currently replenished by road tankers about twice a month. A shelter is also provided on the leased site for two refueling tanker trucks to service both the RPT and GA aircraft.

Refuelling of GA aircraft at the present time is an issue for the airport as Shell is the only   provider of fuel for general aviation. Superair does have a bowser for Jet A1 fuel but this is only for the company use and is not available for the general public. The Mobil bowser located near Fleet Helicopter has been withdrawn by the company due to poor usuage.

 The preferred method of refueling by the GA fraternity is by tanker however there can be delivery issues with the current service and this need to be addressed with the airport community.

2.7.2   Navigational Aids (Navaids)

- Non-Directional Beacon (NDB) owned by Airservices Australia in the paddock on the north-western side of Runway 05/23, approximately 250m from the runway centerline
- Distance Measuring Equipment (DMEI) owned by the Council located adjacent to the NDB

2.7.3   Landing Aids

- Medium-intensity runway edge lighting on Runway 05/23 (Expected completion August 2014)
- Runway threshold identification lights on Runways 05 and 23
- Bitumen taxiway and apron edge lighting
- Precision Approach Path Indicators (PAPI) on Runway 05 and Runway 23
- One Illuminated Wind Direction Indicator located on the south-western side of the RPT Apron
- One non-illuminated wind indicator is located at each end of Runway 09/27

- Pavement markings on the runway, bitumen taxiway and RPT Apron

2.7.4 Automatic Weather Station (AWS)

Automatic Weather Information Service (AWIS) is available to pilots via an AWS which is located approximately 200m on the north-western side of Runway 05/23 and operated by the Bureau of Meteorology.

2.8 AIRPORT ENTRY

It is understood that the airport entry point is one of the three points of entry to the New England Highway permitted by the NSW RTA. The airport entry provides access not only to the passenger terminal and car park, but also to the Caltex Service Station, the GA area and also provides public access via Saumarez Road that runs along the south-western perimeter fence and across the 05 end of the runway strip, to two properties on the north-western side of the airport as follows:

- *The Saumarez Homestead* belonging to the National Trust and located just outside the airport property

- Mr. Pearson's property and residence located on the western side of the 05 threshold

The existing airport entry from the New England Highway and the Caltex Service Station road house located on airport land adjacent to the airport entry.

Figure 2-13: ***Existing Airport Road Entrance from the New England Highway***

Initial consultation with the key stakeholders at the commencement of this study did not identify any significant issue with the existing airport entry and access road layout. However, the *Preliminary Armidale Dumaresq Plan 2004* provides a new reserve for the relocation of Saumarez Road, with a new intersection with the New England Highway, to the south-west of the airport

to facilitate future runway extension towards the south-west.

The Caltex Service Station itself was not designed to attract highway trucks or road trains. However, occasional trucks do patronise the facility. The operator has proposed that only small shrubs be provided on the highway frontage instead of trees to ensure good visibility by passing traffic on the highway.

The Armidale Economic Development and Tourism Strategy (2011) identified a number of opportunities to attract investment into the local economy. The Strategy specifically identified a shortage of suitably zoned industrial land to accommodate future economic growth in the Armidale Region. The AEC Group was engaged by ADC to prepare the Armidale Industrial Lands Study (2013). The study reviewed future industrial land areas within Armidale and identified the airport industrial zoned land on the western side of the New England highway and the land on the eastern side of the New England Highway adjacent to the Armidale Regional Airport as being appropriate locations to support future industrial land uses.

The Study estimated that the combined sites would provide approximately 89 hectares of developable land and recommended that both sides be zoned IN2 Light Industrial. The western portion of airport industrial land was already zoned IN2, however the eastern side land would need to be rezoned from RU4 Primary Production Small Lots to IN2. In endorsing the Armidale Industrial Lands Study, the Director General of the Department of Planning and Infrastructure advised Council that any future Planning proposal for the rezoning of the eastern land will need to address issues raised by the RMS in relation to site access from the NE Highway.

In 2012, the proposed Industrial subdivision and land rezoning was proposed by a private developer on land opposite the airport with access to the New England Highway. The RMS withdrew all previous concurrence to the location of the 3 highway access points and required a Vehicle Access Management Strategy and Traffic Study to be undertaken to confirm the optimum location of highway access points and rationalization of the existing highway intersections. GTA Consulting was engaged by ADC and the Developer to undertake the required studies.

In 2014 the RMS has supported the study's recommendation to the construction of a major highway roundabout at Saumarez Road 250m south of the existing Airport Access and to the staged closure of Kia Ora Road and Mills Road as industrial land is developed and internal access roads are built to service the existing properties on the aforementioned roads allowing access through the subdivided industrial land to the major roundabout access at Saumarez Road

Figure 2-14: **Public Car Park in Front of Passenger Terminal**

The existing public car park in front of the terminal building provides a total of 121 parking spaces. However vehicle counts indicate that there are regularly more vehicles.

2.9 EXISTING UTILITIES

Figures 2-15 and 2-16 show the current arrangement of the main utilities in the airport and at the terminal precinct respectively.
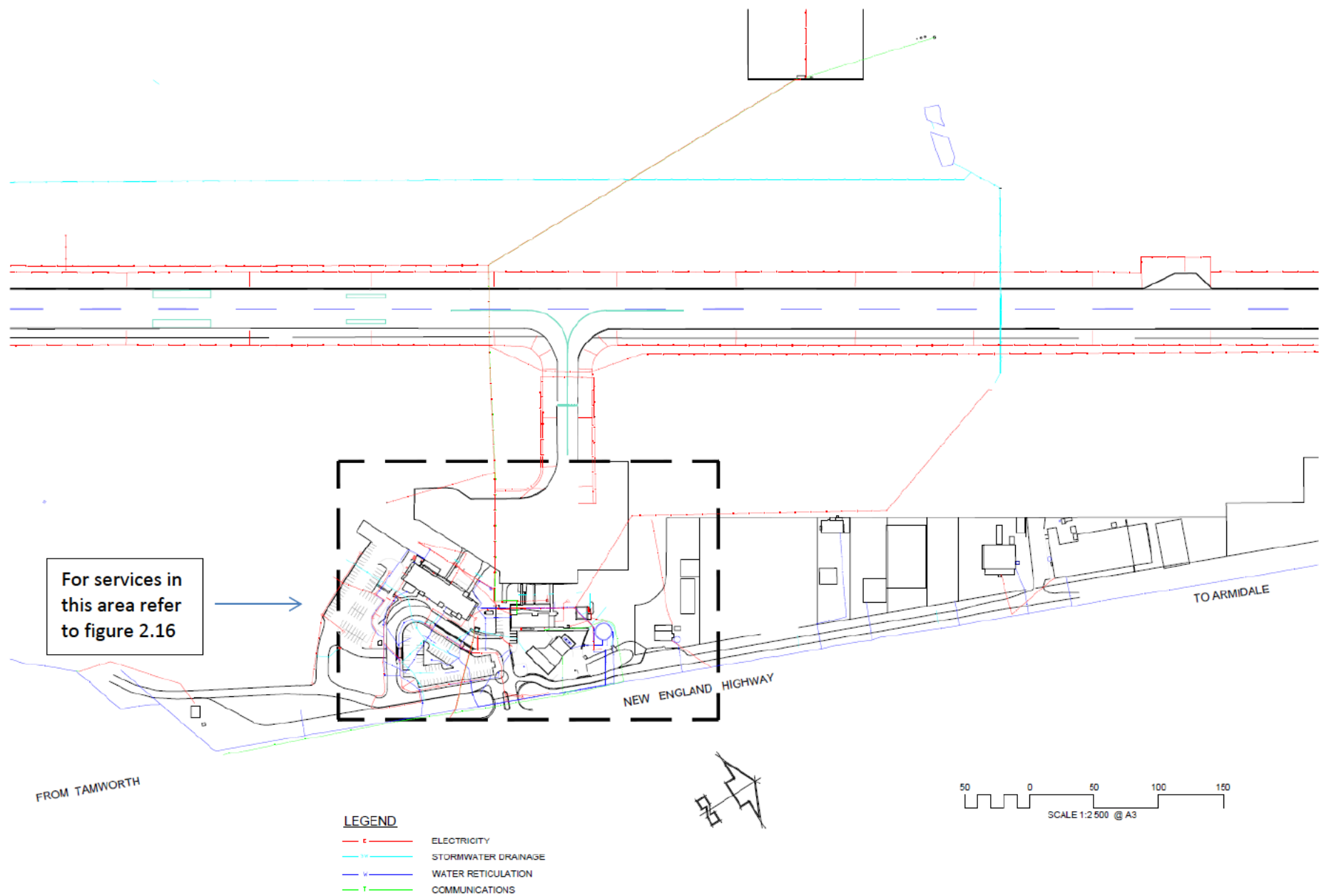
A circular above-ground water storage tank is located in the GA area close to the airport entrance. It has a holding capacity of 300,000 litres and provides for both potable and firefighting supplies on the airport. Half the tank capacity is required as firefighting reserve at the airport.

In 2014, Council commenced the construction of a high pressure water main to provide firefighting capability and fully potable water supply to the airport and surrounding industrial land and also sewerage system connected to the Armidale town sewerage to replace the existing onsite wastewater treatment system at the Armidale Airport.

The new sewer main to be installed will replace the existing control bio cycle treatment located on the eastern side of the runway.

Mains power supply comes from the street main on the New England Highway to a substation near the terminal building and distributed to the various facilities. A 200kVA standby generator set is provided at the northern end of the terminal building to cater for emergency airfield lighting, navaids and emergency lighting in the terminal.
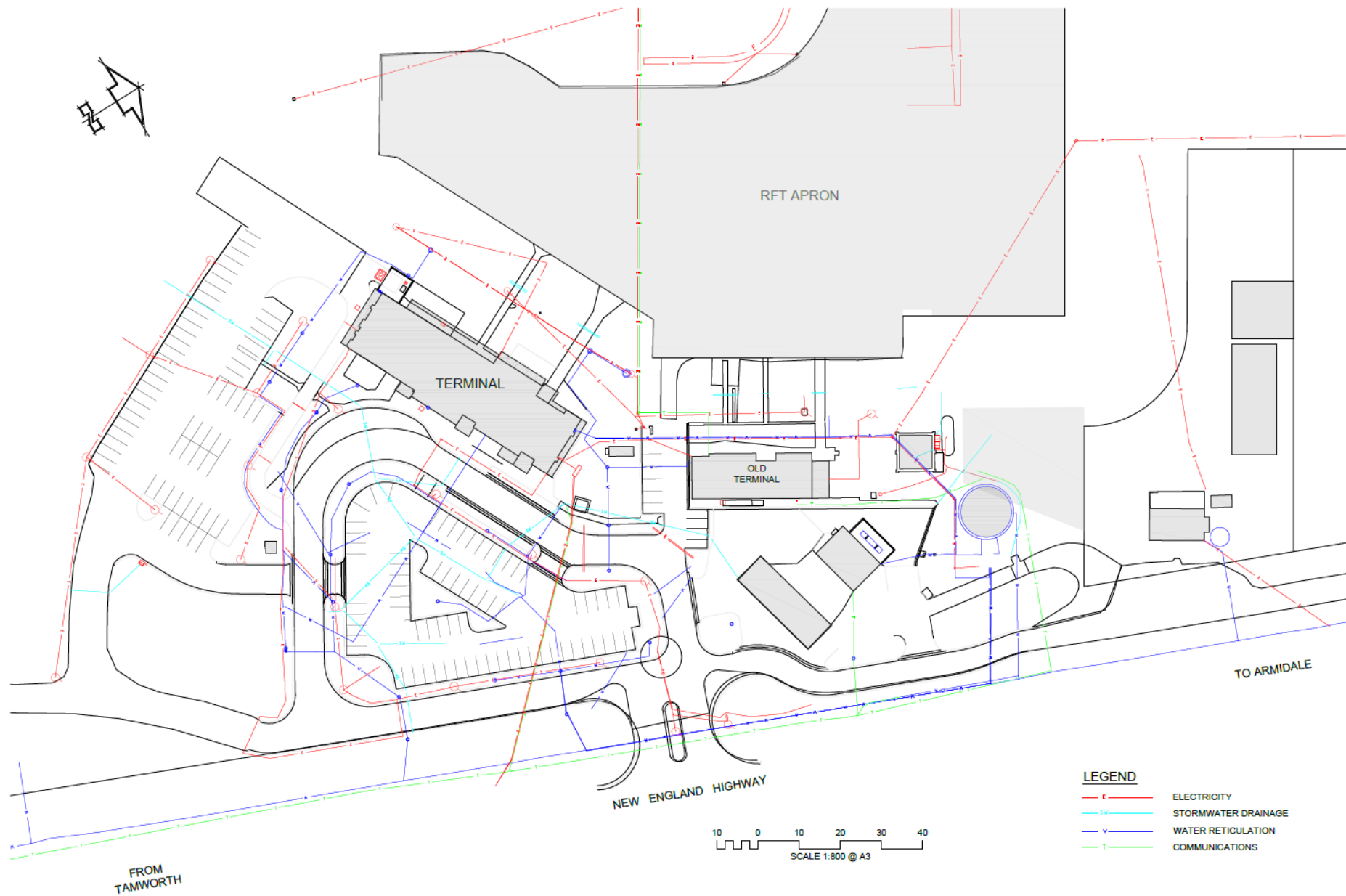
Telecommunications is provided from the local *Telstra* network. High speed telecommunication optical fibre has also been commissioned to service the airport and industrial land with fibre to premise capability by National Broadband Network (NBNCo) funded by Armidale Dumaresq Council.

.

For services in this area refer to figure 2.16

FROM TAMWORTH

NEW ENGLAND HIGHWAY

TO ARMIDALE

LEGEND

—— E ——		ELECTRICITY
—— W ——		STORMWATER DRAINAGE
—— W ——		WATER RETICULATION
—— T ——		COMMUNICATIONS

50   0   50   100   150
SCALE 1:2 500 @ A3

EXISTING MAJOR ENGINEERING SERVICES

Fig 2.15

LEGEND

——E——	ELECTRICITY
——SW——	STORMWATER DRAINAGE
——W——	WATER RETICULATION
——T——	COMMUNICATIONS

RFT APRON

TERMINAL

OLD TERMINAL

TO ARMIDALE

NEW ENGLAND HIGHWAY

FROM TAMWORTH

SCALE 1:800 @ A3

10   0   10   20   30   40

EXISTING MAJOR ENGINEERING SERVICES
WITHIN TERMINAL AREA

Fig 2.16

3.1 PLANNING PHILOSOPHY

Armidale Regional Airport is an important transport infrastructure for the region its serves and is recognised by the community for its growing significance to the local economy and the region. As a business unit of Armidale Dumaresq Council, the airport is self-funding and a viable business on its own right, contributing to the general reserves of the Council.

In developing the planning philosophy for the airport, it is also important to note some of the Council's obligations under Clause 2 of "Local Authority Undertakings" as part of the Commonwealth's *Aerodrome Local Ownership Plan (ALOP)* quoted as follows:

- *shall be responsible for the safety of the aerodrome in accordance with Air Navigation Act 1920, the Civil Aviation Act 1998, the Air Navigation Regulations, the Civil Aviation Regulations and Orders made pursuant to those Regulations*

- *shall be responsible for the security of the aerodrome in accordance with the Air Navigation Act 1920, the Air Navigation Regulations and Aviation Transport Security Act 2004 and any direction or order made pursuant to the Regulations*

- *may lease or licence the whole or any part of the aerodrome so that it will be operated as an aerodrome in compliance with Civil Aviation Regulations and Civil Aviation Safety Authority standards and with international conventions to which Australia is a party*

- *shall provide by way of lease or licence or otherwise for the use of parts of the aerodrome by Companies or persons engaged in businesses directly related to the air transport industry*

- *may lease or licence any part of the aerodrome for any purpose, other than for the operation of an aerodrome provided that does not contravene any conditions specified by the Civil Aviation Safety Authority for the operation of the aerodrome or international conventions to which Australia is a party*

Accordingly, the philosophy being adopted for the airport master plan encompasses the following:

- Maximising the use of the existing airport site and assets in accordance with the Council's brief for this study

- Protection for the long-term viability of the airport without undue cost to the Council and the community

- Preserving as much as possible, the flexibility for future airport expansion where spatial and/or land constraint is not an issue

- Enhancement of airport capacity to cater for future aviation needs of the region and the safety of aircraft operations

- Improvement of commercial opportunities at the airport to encourage the growth of businesses related to the air transport industry and to enhance the airport as a business unit

- Compatibility with the planning principles and provisions of the *Armidale Dumaresq Local Environmental Plan 2012.*

3.2   HISTORIC AIR TRAFFIC TRENDS

3.2.1   Passenger Traffic Movements

The Council has advised that RPT services are the most significant at Armidale Regional Airport in terms of service to the community and revenue to the airport business unit. Despite a relatively static local population with low growth, historical traffic data provided by the Council show a steady growth in annual RPT passenger traffic movements over the past decade. The growth was, however, dented at times of extraordinary events to the domestic aviation industry such as the pilot strike in 1989 and the collapse of Ansett Airlines in 2001 and subsequent failure of other Regional Airlines.

Figure 3-1 shows passenger traffic growth at Armidale since 2003, with the total annual passenger movements reaching 107,724 in FY 2012/13. Passenger numbers grew substantially in FY 2004/05 due to competition on the route. When Regional Express withdrew from the route in FY 2006/07 there was a drop in passenger traffic however from that time there continued to be steady growth on the route of 2.6% to the present time. Passenger numbers are expected to increase again with the reintroduction of Regional Express on the Armidale – Sydney route.

Passenger Movements

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Amount	56,476	60,380	86,050	97,445	85,012	95,480	95,120	99,254	104,115	102,489	107,724

Figure 3-1: **Historical RPT Passenger Traffic Trend**

Source: Armidale Dumaresq Council

Figure 3-2 indicates the indicative split of passenger traffic by route sectors from 2003/04 to 2013/14 between Armidale-Sydney and Armidale-Brisbane. However at the present time there are no operators on the Armidale to Brisbane route.
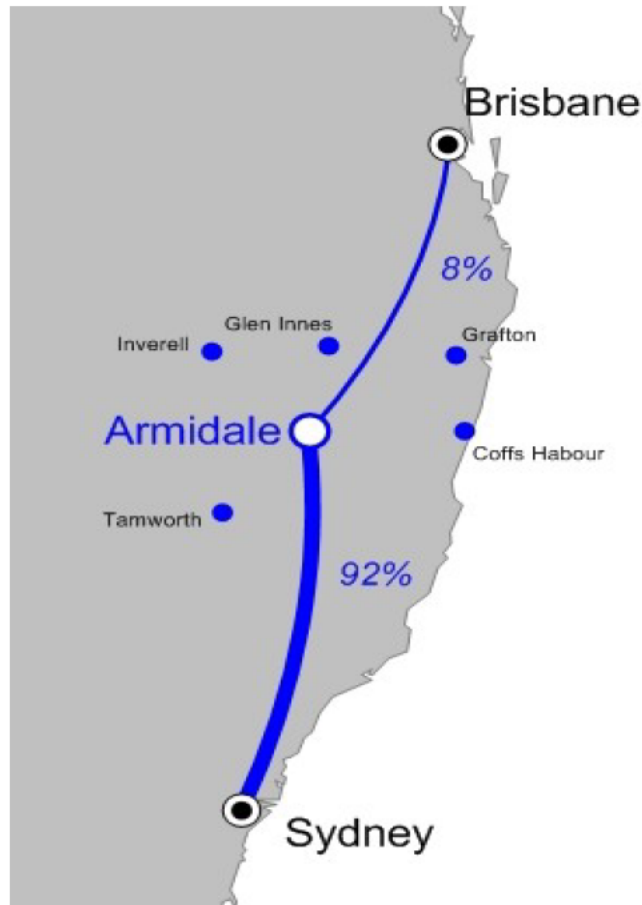
Figure 3-2: *Indicative Split of Passengers*

3.2.2 Aircraft Movements

There is no local data to illustrate a trend in GA activities at Armidale. Consultation with stakeholders for this study indicated that GA business growth maybe declining with a reduction in fixed wing pilot training.

The estimated traffic mix by category at Armidale based on the aircraft movement data for the year 2013 from Avdata Australia is shown in Figure 3-3.
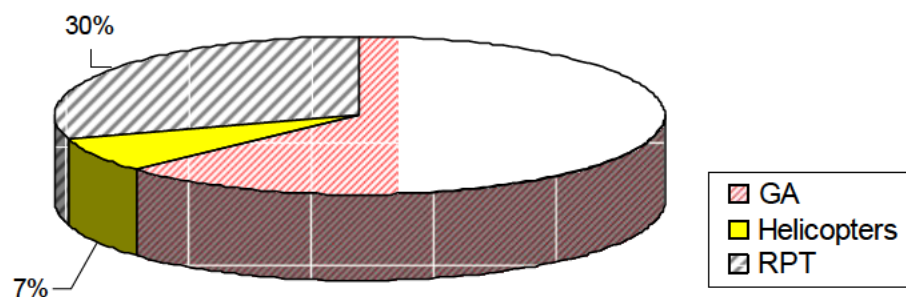

Figure 3-3: *Estimated Aircraft Traffic Mix by Category in 2013 (8,413 annual movements)*

Source: *Avdata Australia Pty Ltd*

3.3 FUTURE AVIATION ACTIVITIES

3.3.1 Key Drivers for Aviation Growth

Armidale is a major regional centre for agricultural produce, cattle and sheep products. In addition, Armidale is a major educational centre, with the University of New England (UNE) located at the city. In September 2012, the UNE had a student enrolment of 20,356 and 1,262 staff. There are also three major boarding schools in town for students from Years 1 to 12.

Local economic data in recent times compiled by the Centre of Agricultural and Regional Economics Pty Ltd at Armidale indicate a steady growth in local residential building activity, improvement in the prices of livestock and agricultural produce, with the economic trends pointing to a rising level of household income and wealth. However, there is limited data to translate the growth in economic activity to air traffic growth at Armidale.

Anecdotal evidence of increasing business confidence and economic activity in the region together with the current development of a world-class walking trial and other tourist promotion programmes can be expected to be key drivers for growth in air transport demand in the Armidale region. Increased air freight volumes via Armidale.

The factors critical to future traffic growth at Armidale have also been identified as follows:

- Air fare affordability, through the airlines' ability to keep their costs under control

- Competition and flexibility of RPT services (which has the potential to drive down air fares) and offer the travelling public choices in their travel itinerary.

- Competition has proven to add growth to passenger numbers.

- Meeting the needs of the business community.

3.3.2 RPT Passenger Traffic Projections

Consultation undertaken for this study with Armidale Dumaresq Council, local business leaders and airline stakeholders has indicated a general consensus that air traffic growth is likely to be underpinned by the growth in Gross Domestic Product (GDP).

Discussions with local community and business leaders in 2003 identified a number of catalysts for economic growth in the Armidale region, including.

- Exceptional growth achieved in the past year by several local businesses targeting markets outside the region: e.g. New Horizon (which exports educational software worldwide), Veterinary Health Research – VHR (veterinary chemical research and development, disease diagnostic laboratory, grazier consulting services), and Star Systems (developing computer software for agricultural businesses)

- Mature conference centre, with about 240 business/education conferences held in Armidale in 2002

- Promotion of Armidale as an events venue.

- Current infancy of tourism in the Armidale region with potential for growth, and seven national parks in the region with potential to attract more visitors to the region

- Factors such as the lifting of the drought that has gripped regional NSW in recent times and current buoyant projections in the global economy can expect to lead to improved agricultural income and a more positive outlook for key economic drivers in the region. However this is seasonal and droughts are inevitable and can occur at any time.

Competition from road transport (reported to be around 94% of tourist arrivals) will continue to remain strong against air transport (about 4%) at Armidale. This will increase as improvements are made to the New England highway between Sydney and Armidale.

3.3.3 Passenger Traffic Projections

From the previous Section 3.2 (Historic Air Traffic Trends), it could be concluded that that underlying growth in passenger traffic at Armidale Regional Airport could be between 2.2% and 3.8% per annum, the latter excludes extraordinary events in the domestic aviation industry.

With the lifting of the drought in regional NSW and the more positive outlook of the national and world economies, a rate of GDP growth of some 3% per annum would not be unreasonable. Future air traffic growth based on the underlying average GDP growth of 3% per annum is considered a reasonable approach.

At an annual growth rate of 3%, the growth in passenger traffic would nearly double the current level in the 20 year planning horizon for this study. Based on the actual level of traffic of 107,724 passenger movements recorded in 2012/13 the annual traffic projection for 2022/23 would be around 160,000 passenger movements as shown in Figure 3-5.
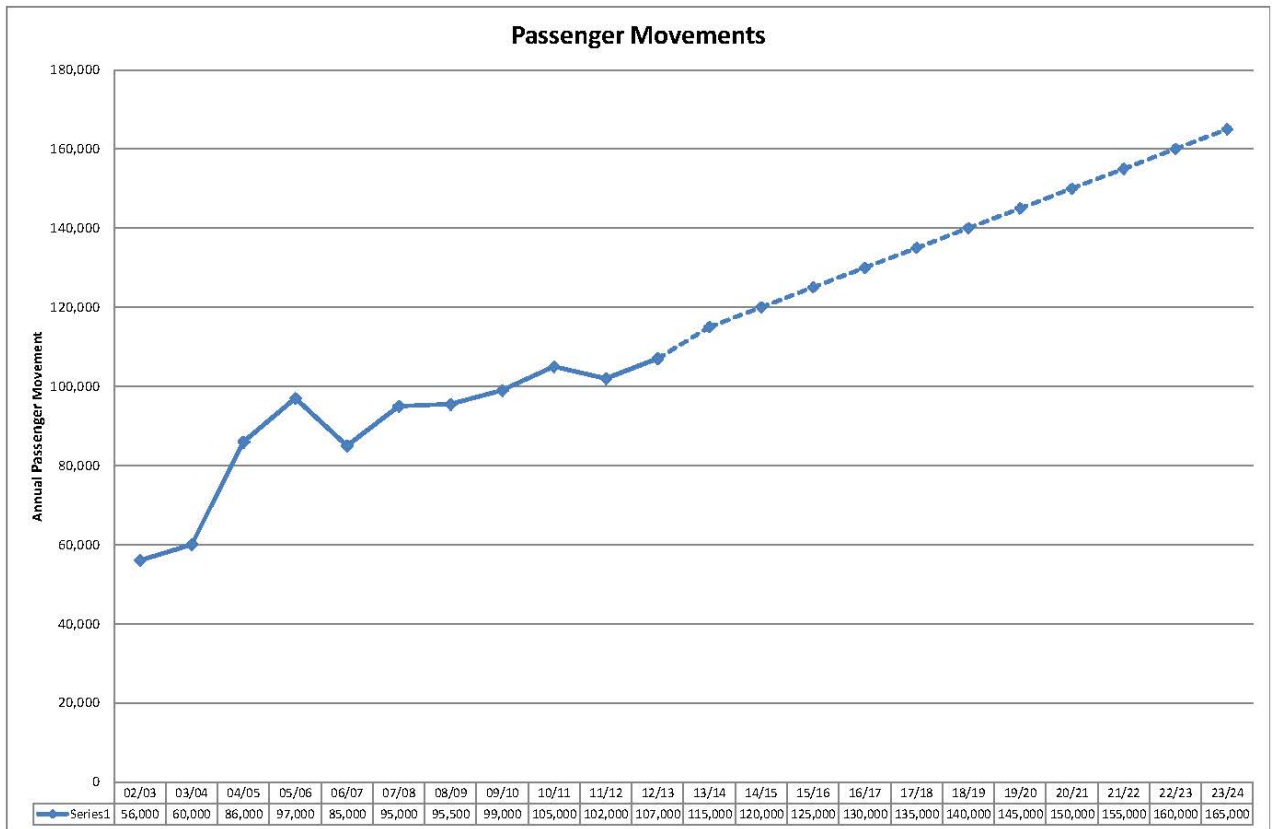
Figure 3-5:   *RPT Passenger Traffic Growth Projections*

3.3.4   General Aviation Growth

During stakeholder consultation for this study, large GA operators had reported increased business over the past couple of years and their expectation that business would remain strong in the coming years. Despite this positive outlook, existing operators (with the exception of one or two) advised that their individual leased areas are adequate for their needs, and the majority of them have no requirement for additional lease areas for business growth in the foreseeable future. Edwards Aviation and Fleet Helicopters both intend to expand their businesses in the near future and are holding discussions with Council over the lease of additional lands.

For operational safety improvement and security enhancement in the GA area, the following observations have been considered for the airport master plan:

- Provision for a paved parallel taxiway in the GA area to encourage more orderly traffic flow for GA aircraft

- Provision of a common-use GA apron with clearly defined aircraft parking positions and orderly aircraft movement configuration to accommodate home-based and itinerant aircraft, rather than the *ad hoc* parking currently practised at the airport. (This would also help to segregate GA and RPT aircraft operations at the airport)

- Each of the GA lease sites should be provided with direct airside and landside frontage rather than tracking through an adjacent lot

- Airside security fencing with authorised entry points has been provided to ensure aircraft safety and to enhance security to the airfield in general and to aircraft movement areas in particular. Armidale Regional Airport is now classed as a category 6 security airport.

- The provision of a tie down facilities for overnight visiting aircraft. It is intended to convert the exisiting seal taxiway to the GA hangars into a tie down area once the new parrallel taxiway is constructed.

3.3.5   Aviation Related Commercial Opportunities

Caltex Service Station has suggested that expansion of GA activity and the establishment of more industrial/commercial businesses at the airport would help the further growth of its existing business at the airport

Flying training in some sections of GA has experienced strong growth in the past couple of years, but some of the operators see diversification as the opportunity for business expansion in the near term, e.g.

- Fleet Helicopters have recently added a new fuel truck to service other customers and is developing additional hangar facilities within its lease site.

- Superair has initiated the process of expanding its existing aircraft maintenance facility and sees an opportunity to diversify its existing spray repair business to include other vehicles. However, Superair also recognises that such a proposition is restricted by the terms of its existing lease which require the business to be "directly related to the air transport industry"

3.4   PROBABLE AIRLINES' RESPONSE

It is envisaged that domestic RPT passenger traffic growth shown in Figure 3-4 will still be driven predominantly by the traffic growth in the Armidale-Sydney route. Airlines' response in future to this traffic growth is likely to be as follows:

(a)   Increasing service frequency between Sydney and Armidale; or

(b)   Introducing larger aircraft for the Sydney-Armidale services; or

(c)   A combination of (a) and (b) above

Qantaslink currently operates 5 return services between Sydney and Armidale on weekdays and 3 return services of a weekend, with the 50-seat Dash 8-300 as the primary equipment. To cater for increased demand on its regional network, the larger Dash 8-400 aircraft with 74 seats may need to be introduced to cater for demand in the morning and evening peak periods.

Regional Express recommenced services to Armidale on the 28th March 2014 using Saab 340 aircraft. The Airline will offer 4 return services a day on a Monday to Friday and two services on a Saturday and Sunday. The competition on the Armidale to Sydney route is expected to affect Qantas share of the market but with the possibility of lower airfares

the market is also expected to grow significantly.

Increasing service frequency between Sydney and Armidale will also be dependent on two other factors:
- The demand at various times of the day on the respective airline's fleet mix in serving the various regional centres on each airline's network, and

- Slot management control effective at Sydney (Kingsford Smith) Airport.

Within the planning horizon for this study, slot restrictions can be expected at Sydney Airport on account of traffic growth, thus compelling airlines to use larger aircraft types and/or load consolidation at regional ports. Based on the traffic growth projections discussed in the preceding section, future regional RPT aircraft size would likely be those turbo-prop aircraft in the 70-seat range. Consultation with Qantaslink for this study indicated that the Dash 8-400 aircraft will fit well into this category for the Sydney-Armidale service. Regional Express has advised that they will continue to use the Saab 340 as its principal aircraft for the foreseeable future.

3.5   AIRPORT DESIGN CRITERIA

3.5.1   Design Standards

Design standards for Australian airports are set out in the Civil Aviation Safety Authority (CASA) publication: *Manual of Standards (MoS) Part 139 – Aerodromes*. The Australian standards reflect the international standards contained in the International Civil Aviation Organisation (ICAO) publication: *International Standards and Recommended Practices – Aerodromes, Annex 14* (Third Edition, July 1999)

For the purpose of identifying standards for various sizes of airports and the functions they serve, reference codes have been developed.

The reference code is a two element numeric-alpha notation derived from the critical aeroplane that would use the aerodrome. The code number is based on the aeroplane reference field length and the code letter is based on the aeroplane wingspan and the outer main gear span. The reference code provides a method of grouping aeroplanes with different characteristics which behave similarly when landing, taking-off or taxiing, thus enabling standards for aeroplane groups rather than individual aeroplanes.

The *MoS Part 139* aerodrome reference codes are provided in Table 3.1.

Table 3.1:   ***Aerodrome Reference Code***[1]

Code Number	Aeroplane Reference Field Length	Code Letter	Wing Span	Outer Main Gear Wheel Span[2]
1	Less than 800m	A	Up to but not including 15m	Up to but not including 4.5m
2	800m up to but not including 1,200m	B	15m up to but not including 24m	Up to but not including 6m
3	1,200m up to but not including	C	24m up to but not including 36m	Up to but not including 9m

4	1,800m and over	D	36m up to but not including 52m	Up to but not including 14m
		E	52m up to but not including 65m	Up to but not including 14m
		F	65m up to but not including 80m	Up to but not including 16m

Notes: (1)   Source:CASA Manual of Standards part 139
*   (2)   Distance between the outer edges of the main gear wheels*

3.5.2   Design Aircraft

The length of runway to be provided is dependent on the field performance of the design aircraft to be operated at the airport. As the performance parameters of aircraft vary, even between different models of the same aircraft series, the required runway length to be provided to allow aircraft to reach a desired destination will depend on a combination of the following:

- Aircraft type

- Performance characteristics of the engines fitted to the aircraft

- The aircraft weight at take-off (empty weight of the aircraft plus payload and fuel)

- Ambient temperature at the time

- Elevation of the airport

- Presence of head or tail winds

- Runway gradient

- Whether the runway is wet or dry

Currently, the predominant route for air services at Armidale is to/from Sydney. This are considered to remain the dominant route through the planning horizon, because the small proportion of passengers whose destinations are not Sydney or Brisbane have the availability of good transfer opportunities at these airports.
A company is currently looking a proposed Narrabri – Armidale – Brisbane route and feasabilty studies are currently being undertaken as to the viability of such a route.

Summer temperatures often reach 30^0C in summer, so runway lengths were assessed for this ambient temperature.

Indicative take-off runway lengths for operations to Sydney (the critical distance) for a range of current, probable and possible future aircraft types that may operate at Armidale are provided in Table 3.2.

Table 3.2: **Indicative Take-off Runway Length Requirements[1]**

Aircraft Type	Wingspan (m)	Typical Passenger Capacity	Indicative Take-off Runway Length	Aerodrome Reference Code
Current types				
Dash 8-100 [2]	25.9	36	1,480	2C
Dash 8-200 [2]	25.9	36	1,530	2C
Dash 8-300 [4]	27.4	50	1,600	3C
SAAB 340B [3]	21.4	36	1,800	3C
Fairchild Metro 23 [4]	17.37	19	2,200	3B
Piper Navajo PA-31 [5]	12.4	9	1,070	1A
Cessna 310R [6]	11.3	5	740	1A
Cessna 402 [6]	12.2	7	870	1A
Probable future types				
Beech 1900D [4]	17.67	19	1,620	2B
Dash 8-400 [2]	28.4	70	2,120	3C
Possible future types				
B717-200 (BMW/RR	28.4	117	1,920	4C
B737-800 (CFM56-7B26) [7]	34.32	160/184	2,050	4C

Notes: (1)   Maximum payload, ARM – SYD sector, aerodrome elevation 3,556 ft, 30^0C, dry runway, zero slope, nil wind, 50m line-up allowance
(2)   Source: Eastern Australia Airlines
(3)   Source: Regional Express (REX) Airlines
(4)   Source: Flight International 28 August – 03 September 2001, factored for altitude and temperature
(5)   Source: Janes All the World Aircraft 1997-98, factored for altitude and temperature
(6)   Source: Rules and Practices for Aerodromes, factored for altitude and temperature
(7)   Source: Boeing Airplane Characteristics for Airport Planning

Table 3.2 provides the Aerodrome Reference Codes for typical current and possible future aircraft types that could operate at Armidale. From this, it is noted that the largest current types are Code 3C, which as can be seen from Table 3.1,

have a wingspan between 24m and 36m and have a reference field length (based on ISA conditions at sea level) of between 1,200m and 1,800m in length.

Although the *Dash 8-400* is a Code C aircraft by nature of its wingspan, it is demanding on runway length due to the high elevation and summer temperatures that can be expected at Armidale. This 70-seat aircraft at Maximum Take-off Weight and at 10° flap has an indicative take-off runway length of some 2,100m on a hot day. Although it is less demanding on take-off runway length at a higher flap settings, the aircraft would be subject to significant performance penalty in the take-off climb phase with payload reduction which may render it uneconomical for the service.

Possible future jet types shown in Table 3.2 are Code 4C, which require a take-off runway length of 1,800m or over.

It is recommended that the critical design aircraft for master planning be the *Dash 8-400* (Code 3C), with provision made for Code 4C jet types in the long term.

3.6 FUTURE RUNWAY REQUIREMENTS

3.6.1 Runway 05/23

Length

From consultation with Qantaslink, and taking account of operational economic factors relevant to the services to and from Armidale, it is considered that turboprop aircraft types are likely to remain the primary aircraft types for RPT services to Sydney and Brisbane. These provide optimum sector times coupled with relatively low operating costs compared to jet aircraft. The current *Dash 8* type- 300 with a 50 seat capacity are widely used on services to regional centres in New South Wales and, being current types, are likely to remain in the airlines' fleets for some time. In the future, the larger 70 seat *Dash 8-400* variant could be introduced to cater for growth in demand.

From Table 3.2, a future runway length of some 2,100m can be expected to cater for the operations of majority of the probable and possible future aircraft types with little or no significant payload penalty, including the *Dash 8-400,* jet aircraft types such as the *B717-200* (being operated by Qantaslink on regional and tourism routes) and the *B737-800* and A320 which is one of the Boeing and Airbus narrow bodied types currently in use in Australia.

It is therefore recommended that a future runway length of up to 2,100m be protected, which represents a 362m extension of the existing main runway.

Land constraint at the northern end of Runway 05/23 precludes runway extension in that direction.

With land to the south-west being zoned for "Special Uses – Community Services" in the *Preliminary Armidale Dumaresq Plan 2004,* and the extent of the existing airport boundary to the south-west, it is prudent to protect for such a future runway extension to the south-west, thus safeguarding the long-term viability of the airport at the existing site. Additionally, a new road reserve has been provided in the *Preliminary Armidale Dumaresq Plan* to facilitate the future relocation of Saumarez Road beyond the airport boundary. Therefore, the public right of access to the western side of the airport and to private properties would not be impeded by such a future runway extension.

Such a vision in the airport master plan will encourage the promotion of business growth and greater investments by existing and potential businesses at the airport. The provision for the future extension of Runway 05/23 is wholly within the existing airport boundaries and no further land acquisition or cost to the Council will be required. It is therefore recommended for incorporation in the master plan (thus preserving the option for future runway extension and the potential capacity of the airport, and protecting the long-term viability of the airport on the existing site).

Figure 3-6 illustrates land to the south-west of the existing Runway 05 threshold,

showing where the future proposed extension to Runway 05/23 would be situated.

Figure 3-6: ***Runway 05 End – Location of Future Runway 05/23 Extension***

A future length of 2,100m would bring the runway to a Code 4 classification, in which case, the longitudinal profile of the runway would need to be upgraded to comply with the following criteria of *MOS Part 139:*

• Overall slope (difference between the maximum and minimum elevation along the runway centreline divided by the runway length), not more than 1%

• Longitudinal slope along any part of a runway, not more than 1.25%, with a uniform slope for at least 300m at each end of the runway

• Longitudinal slope along the first and last quarters of the runway, not more than 0.8%

• Change in longitudinal slope between any two adjoining parts, not more than 1.5%

• Transition from one longitudinal slope to another must be accomplished by a vertical curve, with a rate of change not more than 0.1% for every 30m (minimum radius of curvature 30,000m).

Note: The rate of change of longitudinal slope may be relaxed outside the central one third of the runway at intersections, either to facilitate drainage or to accommodate any conflicting slope requirements

Based on the existing runway longitudinal section and the above criteria, the level at the centreline of the Runway 05 threshold when extended some 362m to the south of the existing threshold (to provide an overall runway length of 2,100m) would need to be established at approximately 1,077m AHD. This would effectively require the southern

portion of the runway to be re-constructed at a higher level than the existing profile.

Approach Surface Protection (Southern End)

Figure 3-7 illustrates the new Runway 05 Approach Surface Diagram (of the extended runway) and its close proximity to the existing terrain to the south of the airport. With the severe height restriction, the land to the south of the existing runway would be of little use other than for the preservation of the opportunity for future runway extension. Rather than extend a RESA area at the runway 23 end it would be more prudent to use part of the existing runway as the RESA area and extend the runway by the appropriate length at the south east 05 end. This would reduce the need to purchase property and extensive fill to meet the MOS requirements.
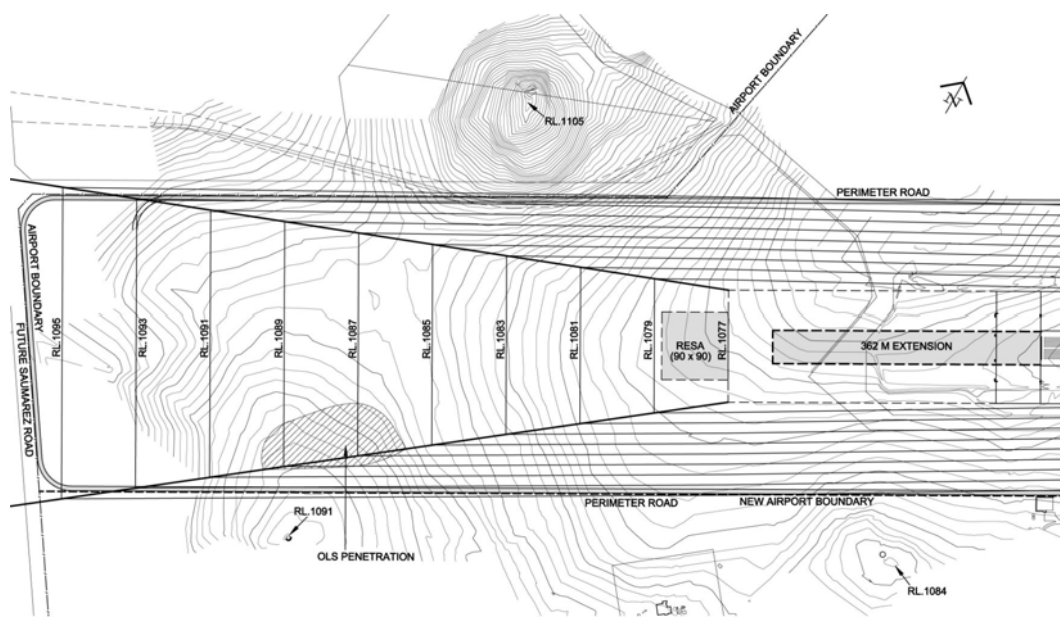

Figure 3-7:   ***New Runway 05 Approach Surface Diagram***

Under the *Preliminary Armidale Dumaresq Plan 2004* (see Figure 3-8), this land is already under the ownership of the Council and is appropriately zoned for "Special Uses 5(1) – Community Services". It is therefore recommended that the land be retained under the airport's jurisdiction - at the least to safeguard effective access by the airport for obstacle control and to ensure the safety of aircraft operations.
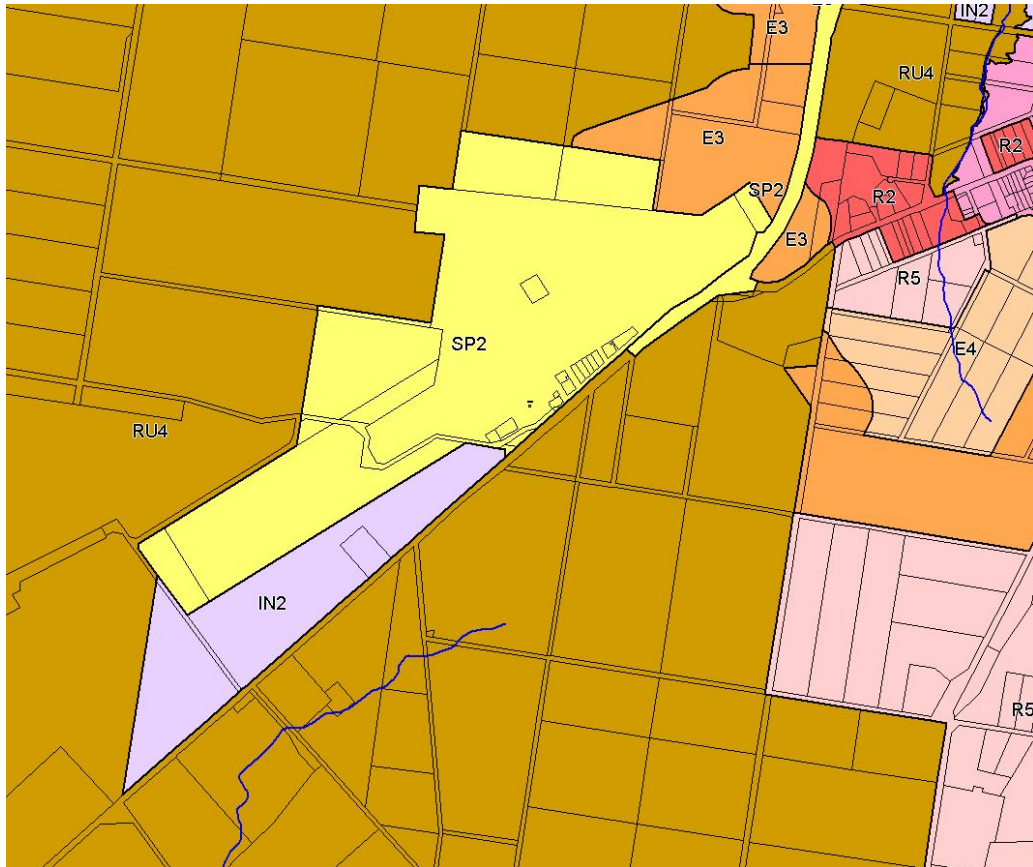
Figure 3-8: **Extract of Preliminary Armidale Dumaresq Plan 2004**

Legend: 4(1)   Industrial
*   4(2)   Industrial -*
Highway
*   4(4)   Enterprise – Airport Related*
Development 5(1)   Special Uses –
Community Services
Shaded Area: Airport Buffer
Zone

Width

The existing runway width of 30m is adequate for the range of aircraft types that are currently operating at Armidale.

Whilst a 30m wide runway is adequate for a Code 3C runway, but a 45m wide runway would be required for a Code 4C runway under *MOS Part 139*.

It is therefore recommended that the master plan provides for a future 45m wide runway so as not to preclude the potential for larger jet aircraft operations at Armidale in future.

3.6.2   Runway 09/27

The existing grassed gravel surface cross runway is suitable for general aviation aircraft types, which use this when wind conditions are more favourable than on the main runway. This runway is not suitable for use by the larger aircraft types engaged on RPT services.

The current length and width of this runway is suitable for continued use by GA aircraft, so this runway is retained in its current configuration.

3.7 RUNWAY END SAFETY AREAS

MOS Part 139 requires the provision of Runway End Safety Areas (RESAs) beyond the end of the runway strip to protect the aeroplane in the event of undershooting or over-running the runway, unless the runway's Code Number is 1 or 2 and it is not an instrument runway. *MOS Part 139* requires RESAs to be provided for all new runways and existing runways, when lengthened.

Runway 05/23

This requirement has application as part of the provision for the future extension of Runway 05/23 to a Code 4C runway. The minimum length of the RESA is 90m where the runway is suitable for aircraft with a Code Number of 3 or 4 and used by air transport jet aeroplanes. The width of the RESA must not be less than twice the width of the associated runway.

The provision of a 90m long x 90m wide RESA at the southern end of the future 45m wide runway is not an issue as land is available at that end. However, there would be a need to acquire a small tract of land in the adjacent property to accommodate such a RESA at the northern end. The alternative of 'sliding' the runway towards the south and incorporating the new RESA on the existing runway will be more cost effective as the purchase of additional lands would not be required. Some costs would be incorporated in relocating runway end lights and PAPI landing aids.

Figure 3-9 illustrates the extent of land acquisition and the proposed arrangement of the RESA at the northern end of Runway 05/23.
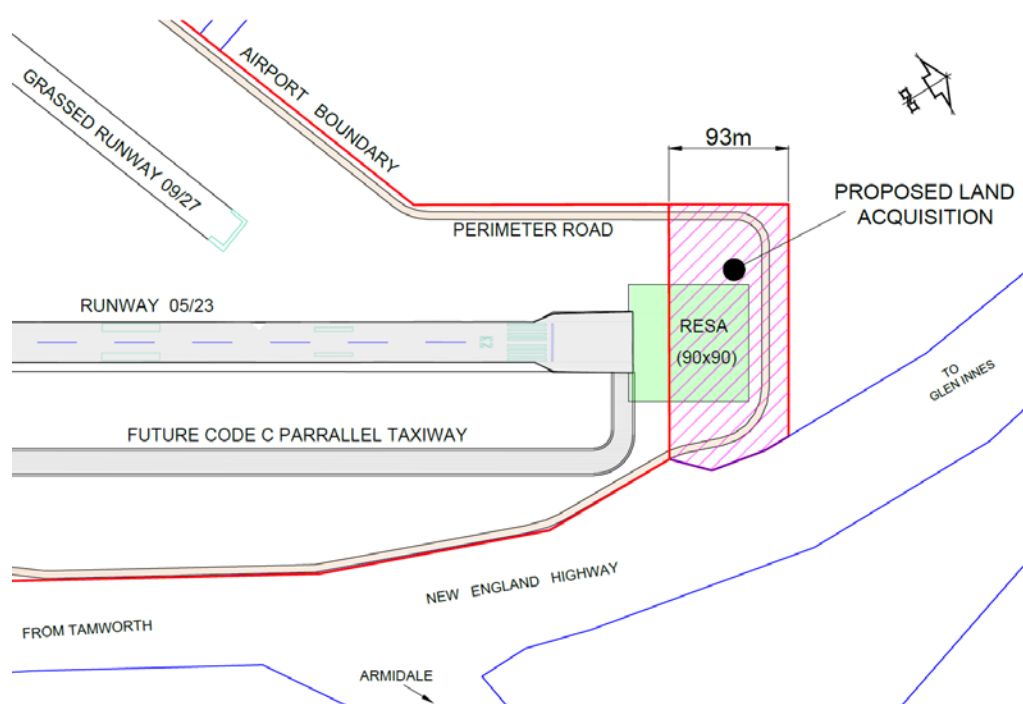

Figure 3-9:   ***Indicative Land Acquisition and Arrangement of 23 RESA***

Runway 09/27

Consultation with stakeholders has not identified the need to upgrade the status or operational use of this GA runway. There is currently no published instrument procedure for aircraft operations on this runway. There is no requirement in *MOS Part 139* to provide RESAs to this Code 2 non-instrument runway. Accordingly, it is not proposed to change the current classification of Runway 09/27 in the airport master plan.

3.8 RUNWAY STRIP REQUIREMENTS

3.8.1 General

MOS Part 139 requires that a runway (and any associated stopways) must be centrally located within a runway strip.

The runway strip comprises the following:

- For a non-instrument runway, a graded area around the runway and stopway

- For an instrument runway, a graded area around the runway and stopway and a flyover area outside the graded area

The graded area of the runway strip must extend beyond the end of the runway and its associated stopway for at least 60m, unless the runway's Code Number is 1 and it is a non-instrument runway.

3.8.2 Runway 05/23

Runway 05/23 is currently equipped with NDB/DME(I) and GPS approach procedures, allowing for straight-in approaches, and it is classified as a non- precision instrument runway.

For a Code 4 non-precision approach runway (where the runway width is 45m or more), the runway strip width should be 300m. *MOS Part 139* however makes provision for a reduced runway strip width of 150m where it is not practicable to provide the full 300m strip width, subject to landing minima adjustment.

However, lowering the landing minima at Armidale would be potentially advantageous for flight operations. Work undertaken by Airservices Australia CNS-ATM Implementation Group is some way from wide-spread industry acceptance of high resolution satellite based Global Positioning System (GPS) approaches at regional airports in Australia.

Ground-based Regional Augmentation System (GRAS) is like *Satellite Based Augmentation System (SBAS)* as one of a number of air navigation systems available to the industry. The concept of *GRAS* is understood to be gaining industry support and Armidale could be expected to be a good candidate where this technology would improve marginal weather operation without a great expenditure associated therewith. It is understood that Airservices Australia is currently running a *GRAS* research and development project (with the support of CASA) to provide data signal that can be received by the aircraft to obtain augmentation data for both en route as well as terminal area approach and departure operations.

The existing Runway 05/23 is located within a 150m strip, with the inner 90m graded. The strip width cannot be widened to 300m due to land constraint, the location of the passenger terminal and the various GA and commercial establishments fronting to the New England Highway.

It is therefore recommended that the current 150m wide strip be retained in the planning, with necessary adjustments made to landing minima. These adjustments, in practice, would make little impact on the operation of aircraft to the runway, with the pilot's decision height being raised by some 35 feet. The length of the strip is to be 60m beyond the thresholds, making the overall length 1,852m until the runway is lengthened. The length of the runway strip, when the runway is lengthened to 2,100m, would then be 2,220m.

3.8.3   Runway 09/27

Runway 09/27 is a non-instrument approach Code 2 runway. It is centrally located within a 90m wide strip, which ends at the runway thresholds.

MOS Part 139 requires a graded runway strip of 80m width for this runway. Thus, the existing 90m width strip is retained in the planning, but lengthened to 60m beyond each runway end making the strip length 1,236m.

3.9   PASSENGER TERMINAL PRECINCT & APRON

3.9.1   Terminal and Apron

Occasional congestion has been reported to occur at the existing RPT apron, particularly when one of the three existing bays is occupied by a visiting itinerant aircraft or by an unserviceable aircraft.

To cater for future aircraft parking requirements in the 20 year planning horizon of this study, it is proposed to provide for the simultaneous parking of up to five aircraft. The future apron is sized to accommodate the following design aircraft. Aircraft whose dimensions are within those of the design aircraft can also use the apron.

- One Dash 8-400

- Two Dash 8-300

- One SAAB 340

- As an alternative to two of the Dash 8 aircraft, provision for parking one B717-200 (planning provision only at this stage).

In order to allow access between these stand positions and the runway, it is proposed to serve the future apron with an apron edge taxiway sized for Code C aircraft. The apron edge taxiway is positioned at a distance from Runway 05/23 with sufficient set-back distance to accommodate a future full length parallel Code C taxiway.

The provision of the aircraft stands, as well as the future parallel and apron edge taxiways, will determine the position of the airside face of the terminal. The

transitional surfaces from the runway strip will determine the maximum height of the terminal building and other structures, e.g. apron lighting masts.

The existing passenger terminal faces the apron but is aligned at about 45^0 to the runway, being closer to the runway at its southern end.

The traffic projections indicate that busy hour passenger traffic will approximately double in the time horizon of this master plan (20 years). Thus, for master planning purposes, a terminal reserve should be protected that gives an area approximately double the area of the existing terminal. The existing terminal has an average depth of some 15m. This depth is relatively small and should be increased in the future, as passenger traffic grows, in order to provide more direct passenger flows between the kerbside and the aircraft gates.

Figure 3-10 illustrates the parking arrangement of the design aircraft, as well as the offset of the future terminal relative to Runway 05/23, and shows the proposed future terminal expansion reserve that provides increased terminal depth. In order to provide sufficient set-back distance from the runway and taxiway system plus providing for future aircraft parking, the alignment of the future terminal expansion is shown parallel to the runway.
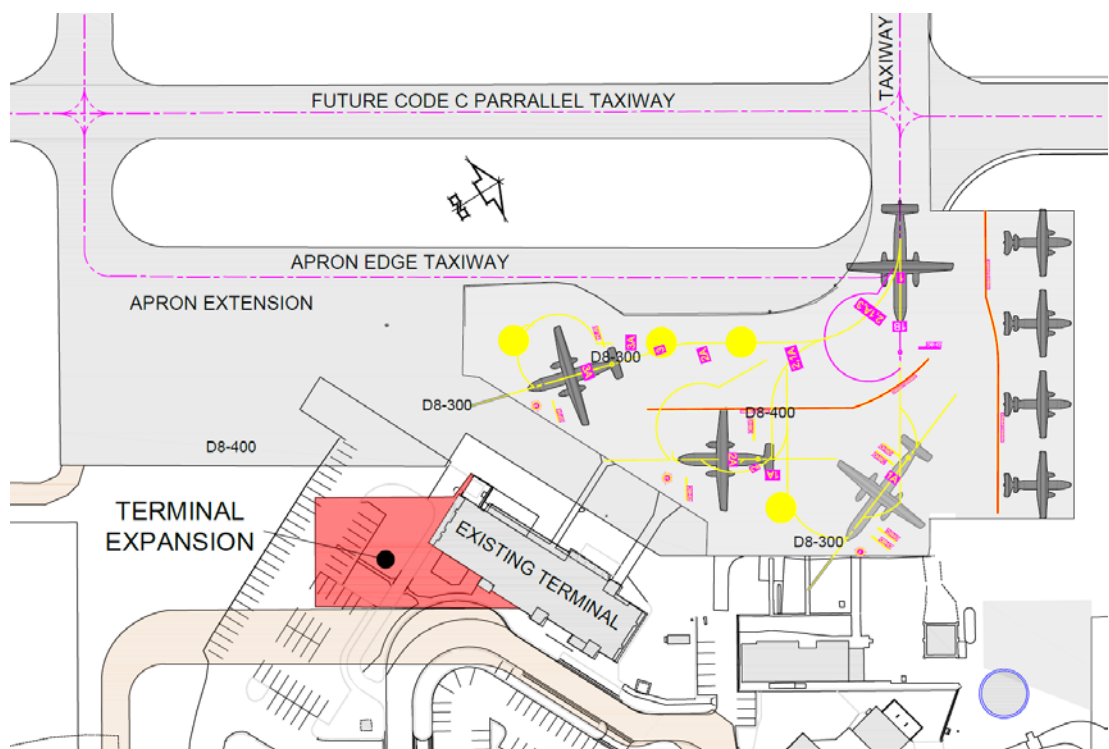

Figure 3-10: **Terminal and Apron Layout**

3.9.2   Landside Roads and Car Park

On the basis of the traffic projections in the time horizon of this Master plan, a car park reserve to accommodate up to some 250 cars is proposed. "inset"

In addition, when the terminal is expanded as shown on Figure 3-10, the terminal access road will require re-alignment.

In order to improve airport access from the New England Highway, and to provide better circulation to/from the terminal, the existing road house and the GA area, a new roundabout is proposed. The proposed landside roads and car park reserve is shown on Figure 3-11.
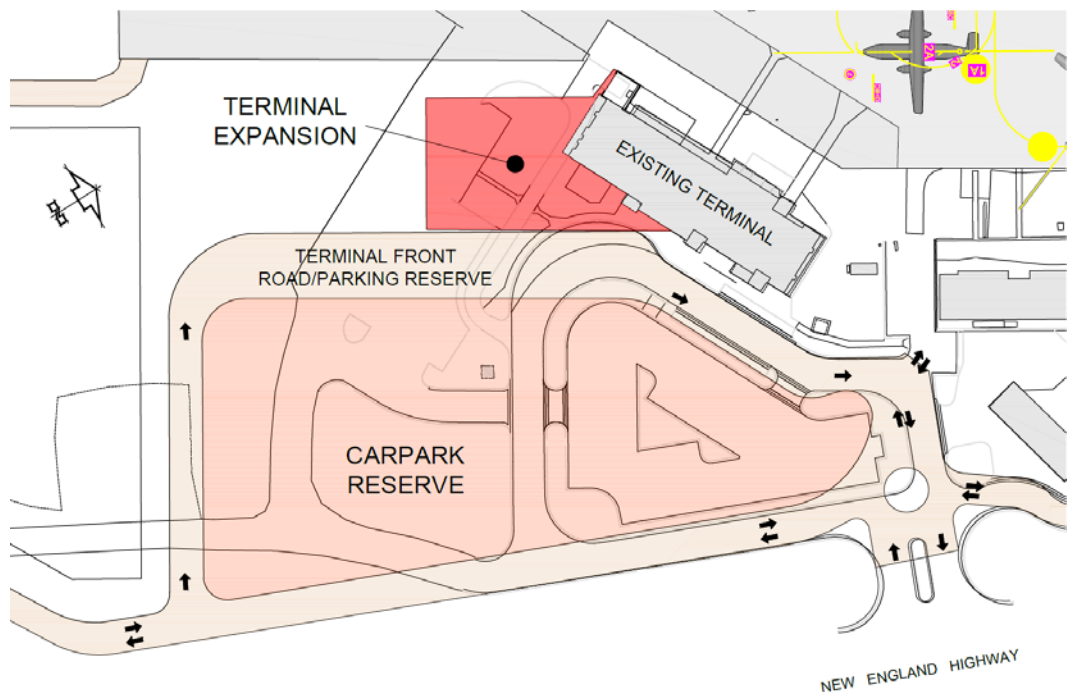

*Figure 3-11:   **Landside Roads and Car Park Reserve***

Edwards Aviation is currently planning to construct an undercover secure paid parking facility for up to 103 vehicle in the 2014/2015 financial year. This facility will be located on Council leased land to the south of the existing passenger terminal building and carpark area and should relieve some pressure on the existing car parking facilities.

Council should also consider the concept of paid parking for the remaining car parking area at the airport in order to reduce demand on existing facilities and to provide funding for additional carparking facilities in future years.

3.10 GENERAL AVIATION REQUIREMENTS

3.10.1 Typical Aircraft

Typical General Aviation (GA) aircraft types that are envisaged to operate at Armidale Regional Airport are listed in Table 3 3.

Table 3.3 **Typical GA Aircraft at Armidale Regional Airport**

Aircraft	Wingspan (m)	Overall Length (m)	Code Letter	Typical Use
Twin Engined Aircraft				
B1900D	17.65	17.63	B	Regional airliner
Metro 23	14.10	19.87	A	Regional airliner
BE 58	11.53	9.09	A	Private/charter
PA 31	12.40	10.55	A	Regional airline/charter
C310	11.25	9.74	A	Private/charter
Single Engine Aircraft				
BE 36	10.21	8.38	A	Private/training/charter
C172	10.92	8.20	A	Private/training/charter
C182	10.92	8.55	A	Private/training/charter
PA 28	10.67	7.25	A	Private/training/charter
Pacific Aerospace Cresco		11.07		Crop spraying
Fletcher FU24	12.81	9.70	A	Crop spraying
Air Tractor AT-802	18.06	19.87	B	Fire fighting

From the Table 3.3, typical envelopes for parking of each aircraft group within the GA area of the airport were identified as follows:

- Code A   15m wingspan x 12m overall length

- Code A (singles) 11m wingspan x 9m overall length

- Code B   18m wingspan x 18m overall length.

3.10.2 GA Aircraft Parking

GA aircraft are currently parked either within individual lease areas, or on common use areas adjacent to the leased sites to the north-east of the terminal area.

Alternate common-use parking layout concepts for itinerant and visiting GA aircraft have been developed based on a common theme to accommodate 7 x Code A plus 4 x Code B itinerant aircraft. In addition, a separate area for NSW Rural Fire Service operations has been incorporated in the layout concepts.
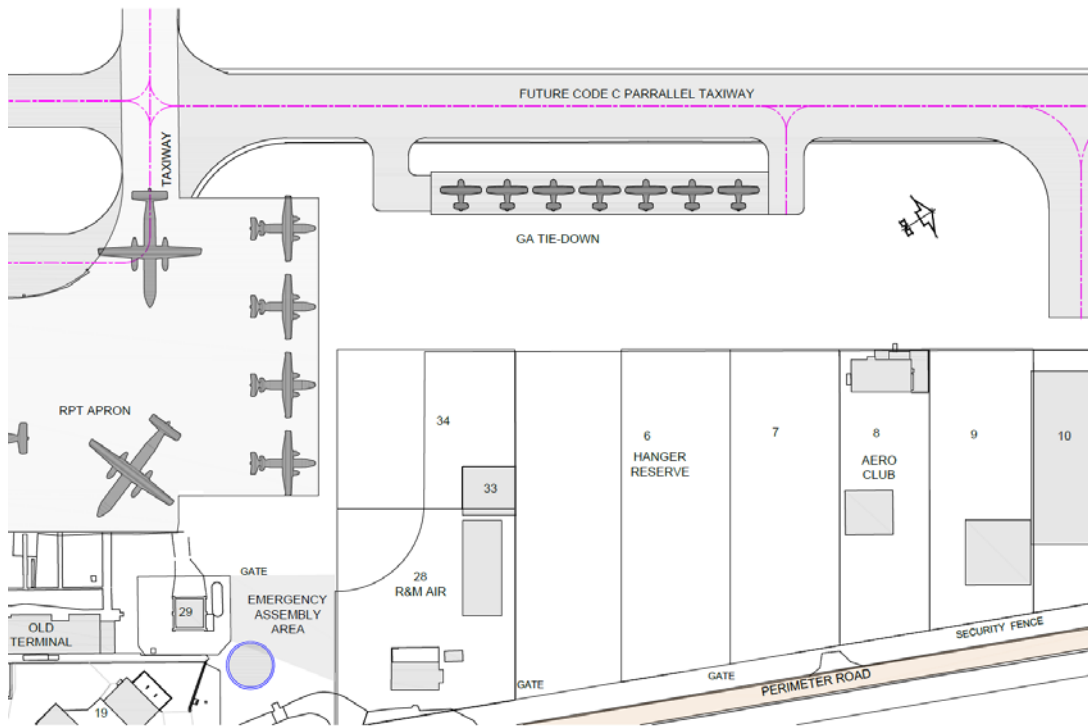
Figure 3-12: **GA Airport Parking Layout – Southern End of GA Area**

Figure 3-12 shows Code B aircraft parking on the northern side of the existing stub taxiway.

A reserve for lock-up type hangars has been developed in Lot 6 to enable the Council to attract more operators to establish at the airport and to accommodate in an orderly manner future growth in demand. A corresponding landside road corridor has been proposed in the plan to service the new hangar reserve.

Figure 3-13 provides a layout at the northern end of the GA area, and to the NSW Rural Fire Service Area to the north.
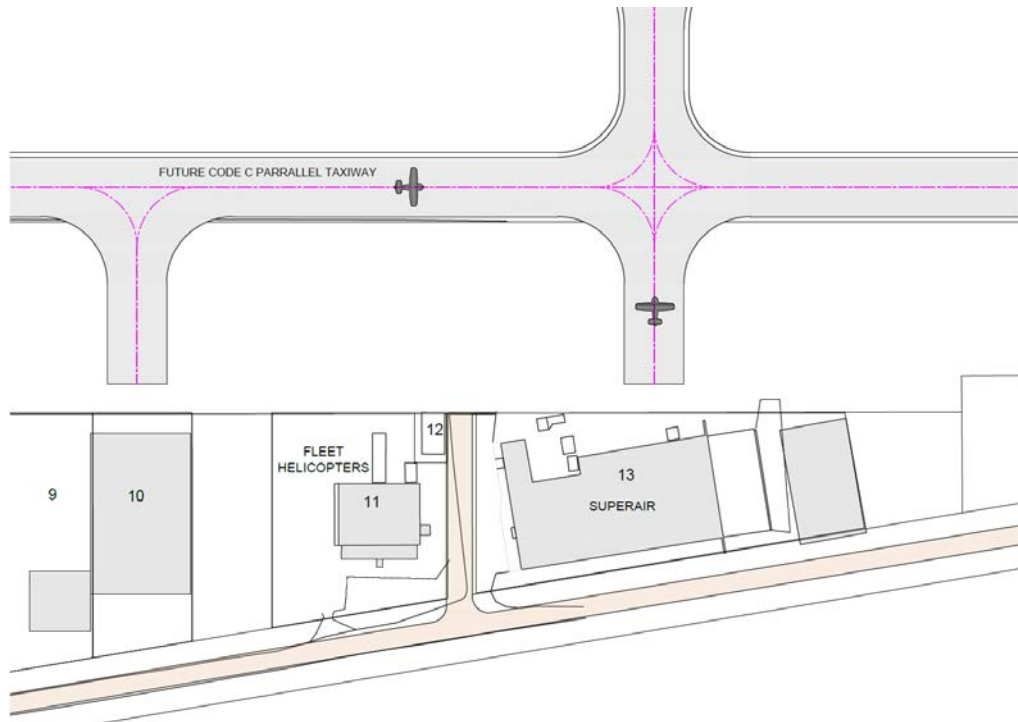
Figure 3-13: **GA Aircraft Parking and Movement Area – Northern End of GA Area**

The reserve nominated for the NSW Rural Fire Service at the extreme northern end of the GA area is self-contained and relatively remote from other GA operators and airport users. This is the most northern facility in the GA area due to the reducing width between the airport boundary and the runway towards the north. The nominated area is also conveniently located in close proximity to the new 150mm diameter town water supply main currently being laid by the Council to supply the airport. This would serve the operational needs of the NSW Rural Fire Service in a bush fire emergency. Figure 3.14 shows the proposed reserve for the NSW Rural Fire Service at the extreme northern end of the GA area.
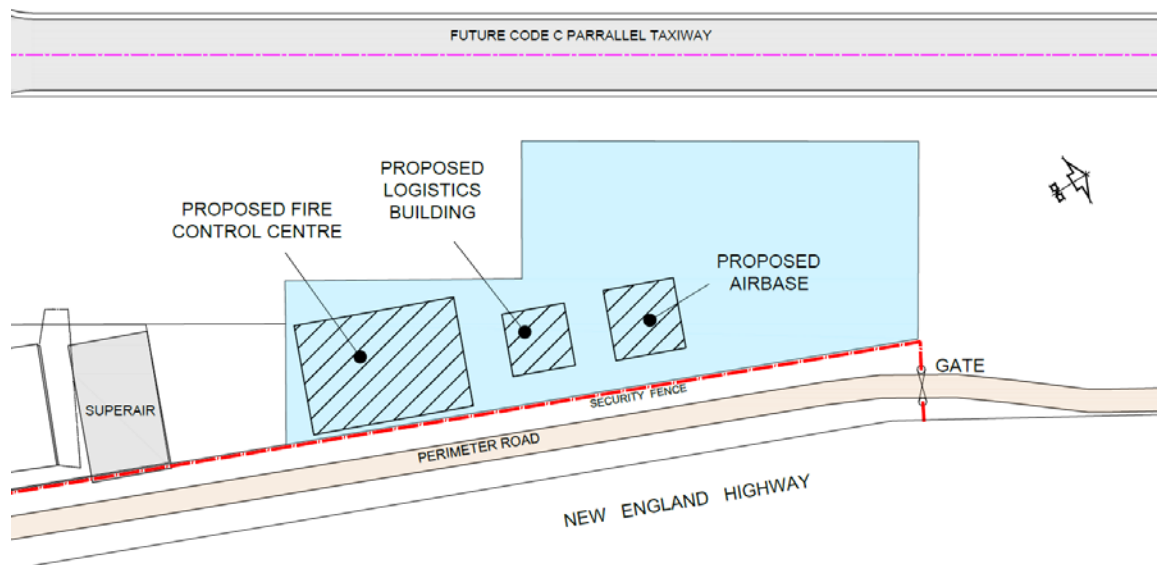

Figure 3-14: **Dedicated NSW Rural Fire Service Area**

3.10.3 Itinerant Helicopter Landing Pad

No formal helicopter landing pad has been provided at the airport for the occasional visiting helicopters. Apart from the activities of Fleet Helicopters who operate in and out of its existing lease site in the GA area, it is considered appropriate to provide a formal helipad for visiting helicopters such that rotary wing aircraft operations are largely segregated from fixed wing aircraft operations.

Majority of the private helicopters visiting Armidale Regional Airport is relatively small. However, to cater for the potential use of the proposed facility by rescue helicopters for medical or emergency evacuation, a helipad suitable for use by say, a *Bell 412* helicopter, is proposed for this planning study.

Armidale Dumaresq Council's siting criteria for the proposed helipad based on day light operations under visual meteorological conditions has been adopted as follows:

- Design helicopter taken as the *Bell 412*

- Helipad being located within the *Final Approach and Take-off Area (FATO)* which is a defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced

- Two approach surfaces separated by at least 150° with the approach paths aligned with the prevailing wind direction where possible

- Within airside area for operational safety and close to the RPT apron for re-fuelling access and ground handling services, when required

- Relatively remote from other obstacles and public areas to minimise potential impacts of rotor down draft

- Close proximity to the passenger terminal and public amenities for passengers and crew

Accordingly, the proposed siting of the helipad in the Airport Master Plan is shown in Figure 3-15.
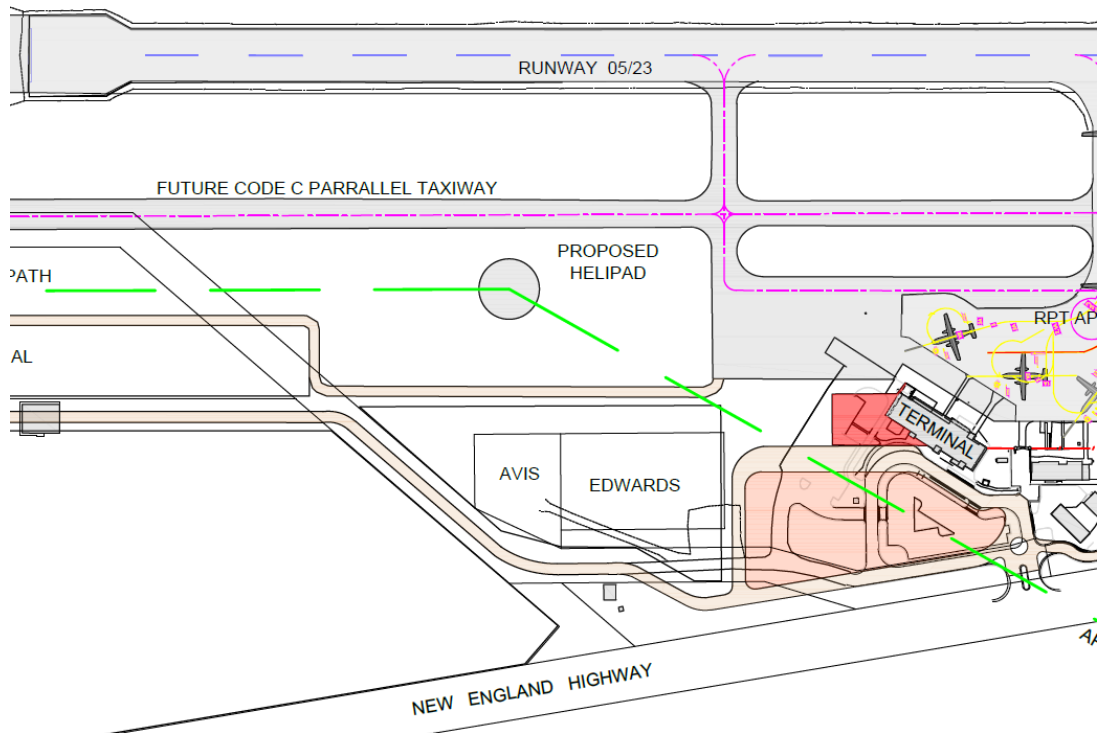
Figure 3-15: **Proposed Helipad Location for Visiting Helicopters**

3.11 AVIATION RELATED COMMERCIAL PROVISIONS

The airport owned land to the south of the terminal precinct between the runway and airport boundary would be available for non-aviation related commercial development. This land has the advantage of prominent exposure to the New England Highway. However, owing to RMS's restriction, access to the commercial area and the land for other uses would have to be via the airport entry or the future Saumarez Road or via a new intersection.

Commercial developments could be provided on airport owned land as indicated in Figure 3-16.

Remnant airport land between the future runway extension and the New England Highway is unlikely to be required in the future for aviation purposes. The Council may wish to release the surplus land for other uses at the time of the Council's endorsement of the Airport Master Plan as presented in this study.

Airport land on the north side of the runway that is surplus to long-term aviation requirement is of limited commercial value other than for agricultural use because there is currently no suitable road access and engineering services are not available.

An aircraft museum which would also incorporate a transport museum has been suggested for the southern side of the terminal precinct area. This would have exposure to the New England Highway to attract potential visitors.
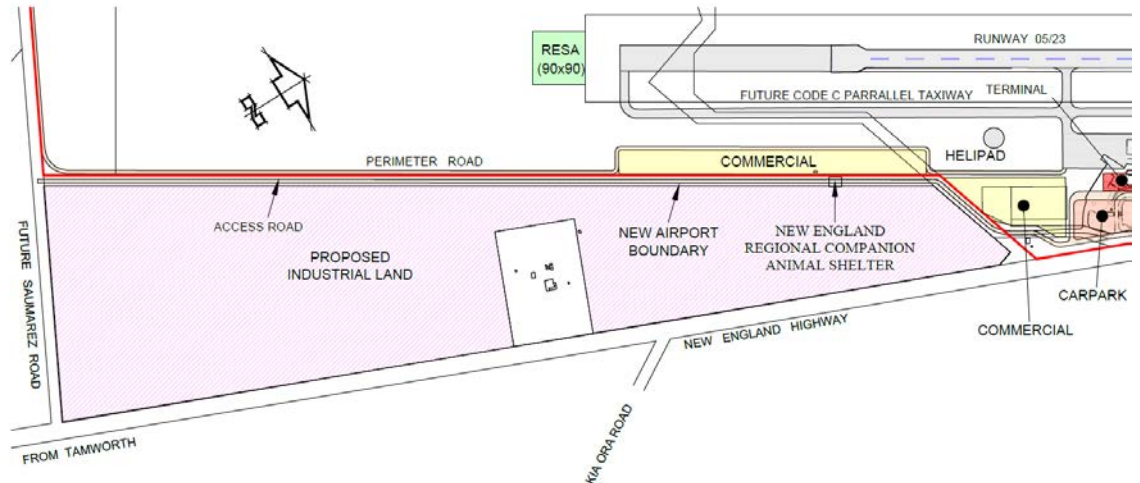
Figure 3-16: ***Areas Nominated for Commercial Sites and Other Uses***

3.12   FENCING

A new security fence has been installed around the entire airport to bring the airport up to a category 6 airport under the Air Transport Security Regulations.

Figure 3-17 illustrates the alignment of security fencing that has been installed within the terminal precinct and GA area, and indicates the location of security controlled (locked) gates at the airside/landside boundary.
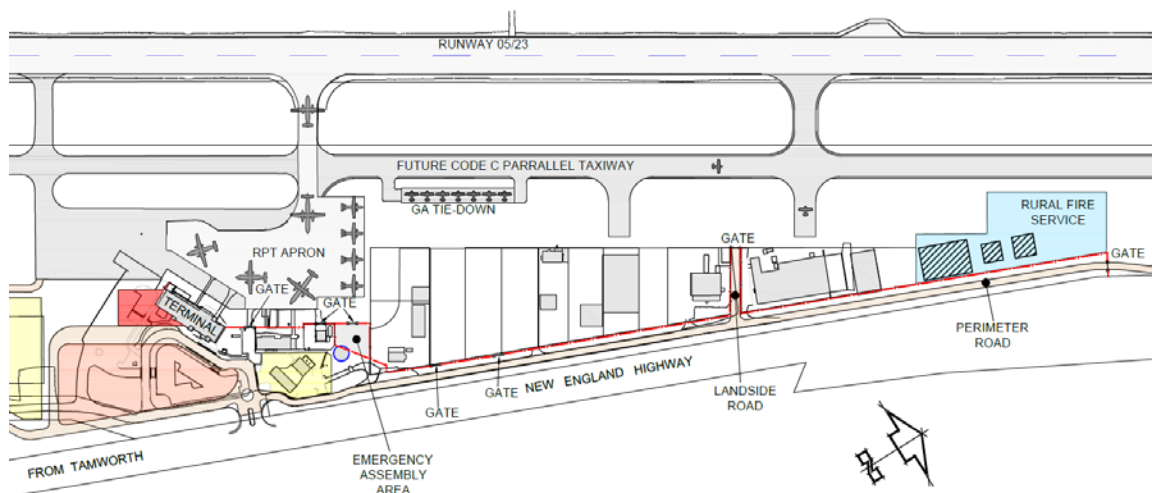
Figure 3-17: ***Security Fencing – Terminal Precinct and GA Area***

The Master Plan for Armidale Regional Airport that incorporates the issues and facilities discussed in the previous sections of this report is provided on Figure 4-1. An enlargement of the area that contains the main airport facilities is provided on Figure 4.2.

The Master Plan illustrates the extent of facility requirements based on the traffic projections for 2035 and the assumptions on the future types of traffic (and aircraft) envisaged to operate at Armidale Regional Airport. However, before any individual element contained in the Master Plan is to be implemented, it should be subject to a cost/benefit analysis to justify its development.

The Master Plan has been developed on the basis of retention and expansion of existing major facilities wherever possible, to cater for growth in demand and the possible introduction of larger aircraft types than those currently in use on airline services to regional cities.

Key features included in the Master plan include:

- The existing runway layout is retained. The existing main Runway 05/23 is adequate to cater for services by current aircraft types on present routes.

  A reserve is provided to extend the Runway 05/23 to the south-west by some 362m in order to preserve the potential for the operations of larger aircraft types up to domestic jet aircraft size, should the airlines wish to introduce these in the future.

  The existing 150m wide runway strip is retained.

  Runway End Safety Areas (RESAs) in accordance with the requirements of the *Manual of Standards Part 139 (Aerodromes)* are provided. Under current regulations, the RESA would need to be provided when the existing runway is extended. Provision of the RESA at the north-eastern end of the main runway requires acquisition of additional land

- Provision is made for the provision of a full length parallel taxiway to Runway 05/23, set out for Code C aircraft (e.g. Dash 8, B717, B737 series aircraft). Stage 1 of these works for a new parallel taxiway from the main apron to the north will commence in July 2014

- An indicative alignment of a future (partial) parallel taxiway has been nominated on the western site of Runway 05 such that any future development on that side of the airport would be subject to the relevant set- back criteria so as to enhance airfield operations and operational safety at the airport

- Future extension of the RPT apron would be to the south to provide up to five self-manoeuvring aircraft parking positions up to the Dash 8-400 size. Alternate parking arrangement to accommodate a domestic jet aircraft such as the B717-200 has also been considered, should such a requirement arise in the future.

- An apron edge taxiway (Code C standard) is provided, along with a second taxiway to/from the runway, to provide adequate taxiing circulation between the runway and apron positions

- The terminal would be extended to the south, with the airside face of the extension being parallel with the runway. A greater depth of terminal reserve has been proposed for the future terminal extension

- A helipad for visiting helicopters has been proposed to the south of the RPT apron expansion area such that rotary aircraft operations are "separated" from the fixed wing area movement areas, with distance separation to reduce potential noise nuisance and the effects of rotor down wash

- It is proposed to realign the landside access road to the terminal and to improve the airport entry and circulation to cater for increased traffic flows and access to the GA areas and the existing road house. A reserve has also been nominated for future car park extension

- More orderly parking arrangement has been proposed for itinerant GA aircraft parking in the GA area. Due consideration has been given to minimise impact on existing GA lease sites and to provide convenient airside access for each of the GA lease sites

- A hangar reserve has been nominated in the GA area to provide more opportunities for prospective operators to establish and/or expand their businesses at the airport

- A new Emergency Assembly Area with convenient landside access for emergency vehicles has been nominated within the existing GA area. These works are under construction.

- A remote but dedicated reserve has been incorporated for the NSW Rural Fire Service to cater for their operations during a bush fire emergency and possible fire control centre.

- Sites for possible non-aviation related commercial activity have been nominated to the south of the passenger terminal precinct.

On the basis of the proposed Airport Master Plan, the tract of existing airport land between Runway 05 and the New England Highway should be retained for aviation usuage or industrial development compatible with the airport.

Public access to this tract of land would need to be considered with due consideration to the airport security requirements and the planning criteria of the RMS in respect of entry to/exit from the New England Highway.

MASTER PLAN

Fig 4.1

AIRPORT BOUNDARY

PERIMETER ROAD

GRASS RUNWAY 09/27 1116m x 30m

RESA (90x90)

EXTENDED AIRPORT BOUNDARY

TO GLEN INNES

GRASSED TAXIWAY
DME
NDB
GRAS
AWS

RELOCATED WINDSOCK

POSSIBLE LONG TERM FUTURE TAXIWAY

RUNWAY STRIP 2220m x 150m

RUNWAY 05/23 2100m x 45m

RESA (90x90)

FUTURE CODE C PARRALLEL TAXIWAY

GA TIE-DOWN

PERIMETER ROAD
COMMERCIAL

HELIPAD

TERMINAL

RPT
APRON

PERIMETER ROAD

ACCESS ROAD

NEW AIRPORT BOUNDARY

NEW ENGLAND REGIONAL COMPANION ANIMAL SHELTER

HOUSE

PROPOSED INDUSTRIAL LAND

FUTURE SALUMAREZ ROAD

FROM TAMWORTH

KIA ORA ROAD

NEW ENGLAND HIGHWAY

PROPOSED PRIMARY ACCESS (ROUNDABOUT)

CARPARK

COMMERCIAL

EMERGENCY ASSEMBLY AREA

HANGAR RESERVE

HELICOPTER MANOUVERING ZONE

LANDSIDE ROAD

GA FACILITIES

RURAL FIRE SERVICE

PERIMETER ROAD

TO ARMIDALE

RELOCATED
WINDSOCK

POSSIBLE LONG TERM FUTURE TAXIWAY

RUNWAY STRIP 2220m x 150m

RUNWAY 05/23 2100m x 45m

FUTURE CODE C PARRALLEL TAXIWAY

FUTURE CODE C PARRALLEL TAXIWAY

GA TIE-DOWN

HELICOPTER
MANOUVERING
ZONE

PROPOSED
LOGISTICS
BUILDING

RURAL
FIRE
SERVICE

RPT APRON

GATE

GA
FACILITIES

GA
FACILITIES

PERIMETER ROAD

GATE

GATE

GATE

TO ARMIDALE

TERMINAL

GATE

GATE

GATE

GATE

GATE

SECURITY
FENCE

PROPOSED
AIRBASE

COMMERCIAL

CARPARK

HANGER
RESERVE

NEW ENGLAND HIGHWAY

LANDSIDE
ROAD

PROPOSED
FIRE CONTROL
CENTRE

FROM
TAMWORTH

COMMERCIAL

EMERGENCY
ASSEMBLY
AREA

PROPOSED
PRIMARY
ACCESS
(ROUNDABOUT)

FACILITIES & GA AREA
MASTER PLAN

Fig 4.2

5.1 PROPOSED DEVELOPMENT STATEGY

5.1.1 Staging Philosophy

Due to operational requirements, funding limitations and other constraints and considerations, it is not usually possible to proceed directly from the existing to the Master Plan level of development in a quick and simple manner. Actual development of upgraded, expanded or new facilities is undertaken in a series of stages which are tailored to match the actual growth in traffic and to maintain the required level of service. The basic philosophy is to ensure that maximum use is made of existing infrastructure in each successive stage of development.

Prior to implementing any development works, a full business case should be prepared to confirm the requirement and justify the expenditure.

5.1.2 Proposed Development Strategy

From the review of existing airport facilities and the assessment of future aviation needs undertaken in this study, further airport development has been prioritised as follows:

- First priority   :   Operational safety improvements and airport security upgrade

- Second priority   :   Regulatory compliance (with *MoS Part 139*)

- Third priority   :   Cater for traffic growth.

The development strategy for the airport has been formulated on the basis of the above priorities, e.g.

a)   Upgrade of airport security, e.g. improved security fencing in terminal area, fencing in GA areas. Now completed.

b)   Operational safety improvements, e.g. formalised GA parking, parallel taxiway, dedicated NSW Rural Fire Service operational area (possibly in readiness for the next bush fire season). Taxiway works will commence in July 2014

c)   Regulatory compliance, e.g. compliance with MoS Part 139 standards for provision of RESAs

d)   Expansion of facilities to cater for traffic growth, e.g. apron and terminal expansion, car park expansion.

The development staging of Armidale Regional Airport is based on the current traffic growth projections and assumptions detailed in this report and outlined below.

The staged development items described assume that expanded physical facilities are provided to cater for traffic growth, rather than implementing management initiatives that might reduce the extent of airport facilities expansion,
e.g. by spreading the traffic peaks.

Three development stages are proposed, as follows:

- Near term   2014-2017

- Medium term   2017-2025

- Long term   2025-2035.

A brief description of each work item within each development stage, as well as likely triggers for each item, is provided in Table 5.1. The staged development works are illustrated on Figure 5.1.

Table 5.1 (Part 1): **Stage 1 – Major Implementation Items and Likely Triggers**

Priority	Development	Need for Development Item/Trigger
Near Term (2014 – 2017)	**Provide new emergency assembly area and access gate**	**Inadequacy of existing provision-completed**
	Runway 05/23 lighting upgrade/replacement	Facilitate low visibility take-off-underway
	First stage parallel Code C taxiway and taxiway lighting	Upgrade existing grass taxiway
	Provide first stage GA parking apron/tie-down area and associated Code A taxiway, including access to Lot 34	GA operational safety enhancement and demand
	Expand passenger terminal Stage 1	To improve passenger amenities
	Upgrade of airport entry, possibly providing an internal round-about	Ground access improvement
	Consult with NSW Rural Fire Service regarding establishment of their proposed facility. Provide apron, link taxiway, etc.	In preparation for NSW Rural Fire Service operational needs-(consultation underway)
	Relocate illuminated windsock and signal area –within lighting contract	To make way for helipad development and apron extension to the south
	Develop interim helipad for visiting helicopters	Improve operational safety
	Replace existing DME(I)	Age of current facility
	Provide Ground-based Regional Augmentation System (GRAS) for GPS navigation and landing	Industry progression

Table 5.1 (Part 2):   **Stage 2 – Major Implementation Items and Likely Triggers**

Priority	Development	Need for Development Item / Trigger
Medium Term (2017-2025)	Extend RPT apron and drainage to provide fourth bay Second stage GA tie-down area and access taxilane	Occasional congestion with itinerant or unserviceable aircraft occupying RPT position GA operational safety enhancement and demand If required, to satisfy demand
	Develop New Saumarez Road & highway intersection	To make way for runway extension
	Extend Runway 05/23 (30m wide with turning node)	To accommodate new aircraft types (e.g. Dash8-400)
	Provide new perimeter fencing around extended runway	To accommodate runway extension
	Provide airside perimeter road	Airside security enhancement
	Provide RESAs at both ends of Runway 05/23	Regulatory compliance, when runway extended
	Provide full length parallel taxiway	To reduce runway occupancy times
	Expand passenger terminal – Stage 2	Accommodate peak home passenger flow from large aircraft type and or multiple crowds/departures
	Upgrade car park and extend terminal access road system	Increased surface traffic from increased passenger numbers

Table 5.1 (Part 3):   **Stage 3 – Major Implementation Items and Likely Triggers**

Priority	Development	Need for Development Item / Trigger	
Long Term (2025-2035)	Extend RPT apron (fifth position)	Occasional congestion with itinerant or unserviceable aircraft occupying existing RPT position(s)	
	Provide "loop" apron edge taxiway system to serve expanded apron	Provide two entry/exit taxi routes to RPT apron (avoid head to head conflict between arriving and departing aircraft)	
	Provide Code A service taxilane	Improve operational safety (to cater for traffic growth)	
	Provide serviced site(s) for commercial activities	If required, to satisfy demand Upgrade engineering services (e.g. power, water, sewerage, communications) To service expanded airport facilities	
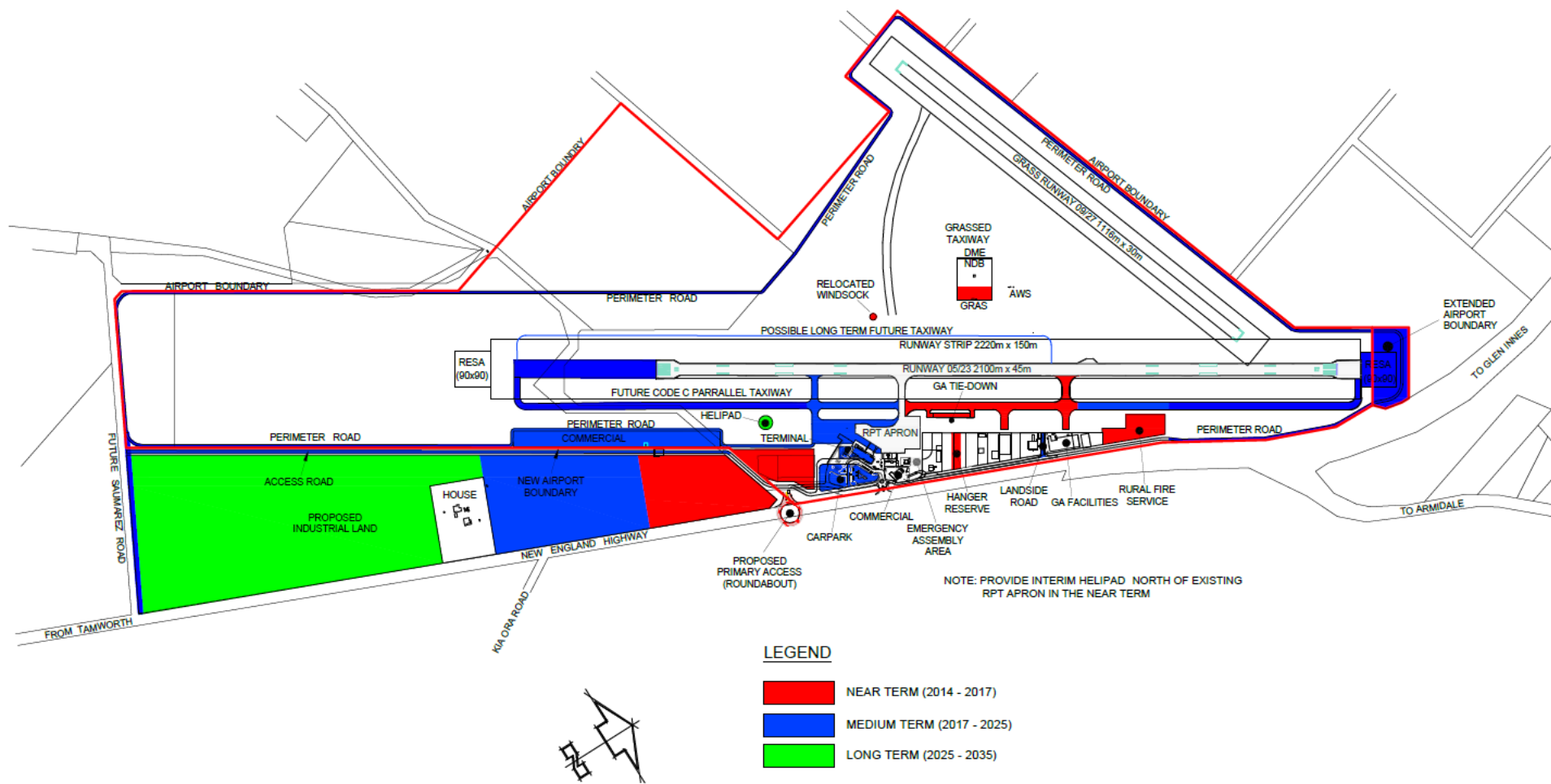
STAGED DEVELOPMENT

Fig 5.1

5.2   INDICATIVE BUDGET ESTIMATES

Indicative budget cost estimates were prepared for each of the development works in each development stage described in Table 5.1. The cost estimates are based on standard rates from recent similar works. All costs are in (2013) Australian dollars.

The cost estimates include allowances for preliminaries, design fees and costs and project contingencies.

The estimates exclude legal fees and costs, statutory fees, escalation, finance costs, etc.

Budget cost estimates for each of the proposed stages of facility development are summarised as follows:

- Near term development   (2014-2017) $7.6 million

- Medium term development   (2017 – 2025) $9.5 million

- Long term development   (2025 – 2035) $4.2 million.

The indicative budget cost estimates for each major development activity in each of the development stages are provided at Appendix C.

AAE	Australian Air Express
AsA	Airservices Australia
AWIS	Automatic Weather Information Service
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations
DME	Distance Measuring Equipmwnt
DoTaRS	Department of Transport & Regional Services GA
	General Aviation
GRAS	Ground-based Regional Augmentation System
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System
LPI	Land & Property Information Office
MoS	Manual of Standards Part 139 - Aerodromes
MTOW	Maximum Take-off Weight (of aircraft)
NDB	Non-Directional Beacon
PAPI	Precision Approach Path Indicator
RESA	Runway End Safety Area
RFS	NSW Rural Fire Service
RPT	Regular Public Transport
RMS	Roads & Maritime Services of NSW
SBAS	Satellite-based Augmentation System
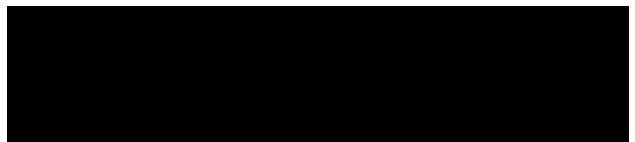
ARMIDALE AIRPORT MASTER PLAN
NOTES ON CONSULTATION – QANTASLINK (EASTERN AUSTRALIA AIRLINES)

Discussion between Keith Randall (Network Services Manager)/Roy Ng at Qantas Domestic Terminal, Sydney on 02 September 2003

1.   Current Eastern Australia Fleet

1.1   15 x DH8-100/200 (36 seats)

         5 x DH8-300 (50 seats)

1.2   Fleet planning likely to address aircraft age (DH 8-100) and growth in seat demand

         Retiring DH 8-100 fleet and replace with DH 8-300 as required

         Still need to retain DH 8-200 at least for Mt Hotham and Lord Howe services DH 8-200

         better performance with up-rated engines

1.3   Impulse Airlines for B717 details (separate AOC)

2.   Current Operations

2.1   Primary RPT operator applying DH 8-100/200 for Armidale route

2.2   Typical weekday schedule:

         0630   Overnight aircraft ARM-SYD
         0840 - 0950   SYD-ARM-SYD
         Lunch time   SYD-TMW-ARM-TMW-SYD
         Mid-afternoon   SYD-ARM-SYD
         Evening   SYD-ARM, then overnight

2.3   Mostly DH 8-100/200 service unless special request (e.g. major event)

2.4   Average load factor SYD-ARM : (not available)

         Average load factor ARM-SYD : (not available)

2.5   Majority of pax traffic on Sydney/Armidale sector (no breakdown data available)

2.6   More diversions at ARM due low clouds and fog

3.   Traffic Growth

3.1   Discussed traffic growth in regional NSW in general terms

3.2   Traffic growth driven by underlying regional GDP growth at around 3% p.a. is not unreasonable.

4.   RPT Apron

4.1   Existing apron configuration is adequate for DH8-100/200 operations

4.2   One over-night aircraft at ARM, leaving for SYD first thing in the morning. Using only one position at this time, but a second position would provide for contingency

4.3   Unlikely to double frequency in future years to cater for traffic growth scenario on this route, but enlarging parking positions for 50 seats aircraft (DH 8-300) and even 70 seats (DH 8-400) would not be unreasonable.

5.   Engineering Support

5.1   Engineering support at SYD, TMW and Mildura

          Discussion between Captain Mario Cipollone (Technical Manager)/Roy Ng at Qantas Domestic Terminal, Sydney on 18 September 2003

6.   Current Operations

6.1   DH 8-300 also applied on Armidale service as part of network

7.   Future Outlook

7.1   Larger aircraft size with double the seating capacity of current 36 seats aircraft is not unreasonable in 20 year planning horizon for master plan

7.2   Dash 8 aircraft is most suitable for regional route service such as Armidale, with quick turn-around time and no need for push-back operations of jet aircraft

7.3   Indicative runway length requirement for Dash 8-400 based on Bombardier published planning manual:

          For ARM-SYD, at ISA + 15°C, MTOW and at 10° flaps = 2120m

          May be able to operate on existing runway at 15° flaps, but would be subject to performance penalty in take-off climb phase with potential payload reduction around 17% (or about 12 passengers out of the 70 seats aircraft in typical configuration)

8.   Master Planning Considerations

8.1   Recognised the lack of real estate at ARM that it would not be practical to provide the full 300m wide runway strip for precision instrument approach runway. Hence, 150m strip width for non-precision instrument approach runway is realistic for the airport master plan.

8.2   Existing high ground at the 05 end of runway could be an issue for future runway extension. This would be highlighted as an issue in the master plan study.

8.3   Lowering the landing minima at ARM would be potentially advantageous for flight operations. Work undertaken by AirServices Australia CNS-ATM Implementation Group is some way from widespread industry acceptance of *high resolution* satellite based GPS approaches at regional airports in Australia.

Maintaining system reliability and operational integrity in today's environment is the challenge to the industry.

The concept of Ground-based Regional Augmentation System (GRAS) is gaining industry support and Armidale would be a perfect example where this technology would improve marginal weather operation without great expenses and also potentially reduce costs associated with the maintenance of conventional navigation aids.

Discussion with Glenn Fitzpatrick (National Airports Manager), Ann-Marie Jackson (Airport Manager – Sydney) and Roy Ng at Sydney Terminal 2 on 02 September 2003. Further input from Glenn Fitzpatrick by email on 17 September 2003

1.   Current Rex Fleet

1.1   20 x SAAB 340 A/B (36 seats)

           7 x Metro 23 (19 seats)

1.2   Fleet renewal being considered by the airline in next 2 years

2.   Current Operations

2.1   Not currently operating to Armidale

2.2   Focusing on route consolidation and fine-tuning schedules in response to market demand.

3.   Market Assessment

3.1   Rex will respond to market as required.

           Historical data indicated that the market was not sufficiently strong for the airline to commit to an Armidale service. REX would however be interested in operating to Armidale in the future.

3.2   Rex will continue to look for opportunities and respond to the market demand Has withdrawn services to Coffs Harbour due to market demand with the introduction of a jet service operated by Virgin Blue. Downgraded the Sydney- Parkes-Bathurst route from a SAAB 340 to Metro 23 to meet market demand and improve yield

3.3   Armidale is also prone to diversions due to elevation and fog potentials

4.   Traffic Growth

4.1   Discussed traffic growth in regional NSW in general terms

4.2   Market strength and yield are majors factors for the airline's consideration to commit to a new route/service

4.3   Traffic growth driven by underlying regional GDP growth at around 3% p.a. is not unreasonable.

5.   **Rex Indicative Interest on Armidale Service**

5.1   Authority licensing of the route and Rex is successful in its tender

5.2   Potential spin-off from this route sector would be passenger feed onto Rex network and budget operator Virgin Blue network

5.3   At Elevation 3556 feet, SAAB 340A/B at MTOW would require runway length 1800m

5.4   A runway length of 2000m should meet regional jet operational requirements

5.5   Minimum allowance should be for at least 2 aircraft on RPT apron at any one time

ARMIDALE AIRPORT MASTER PLAN
NOTES ON CONSULTATION – AT ARMIDALE DUMARESQ COUNCIL

Discussion held on 10 September 2003

Present: Mr Shane Burns   General Manager, Armidale Dumaresq Council Mr

            John Hadfield   Admin Manager, Armidale Dumaresq Council

            Mr Stuart Allardice   Tourism & Marketing Manager, Armidale Dumaresq Council

            Mr Alan Harvey   Transport Operations Manager, Armidale Dumaresq Council

            Mr Glen Chapman   Armidale Chamber of Commerce
            Mr Roy Powell   Centre for Agricultural and Regional Economics Pty Ltd
            Mr Roy Ng   Associate Director, Airplan

1.   Council's & Local Business Aspirations for the Airport

1.1   Armidale is a growing regional centre and the airport is an important transport infrastructure for the region. Airport is self-funding and a viable business unit for the Council.

1.2   Development of business and marketing strategies to promote air traffic growth in the region.

2.   Potential for Runway Extension for Jet Aircraft Operations

2.1   Land available to the south for future runway extension to cater for jet aircraft operations

2.2   Discussed key drivers for future air traffic growth at Armidale but no evidence of significant growth in demand to warrant viable jet aircraft operations by airlines

2.3   Majority of current air traffic is the Sydney-Armidale sector, where the foreseeable demand and sector length are unlikely to support viable jet aircraft services

2.4   As land is available to the south and designated for special use (airport), approach for master plan is to preserve the opportunity such that runway extension would not be precluded in the future. This would provide for the long term viability of the airport at the existing site.

3.   RPT Passenger Traffic Data & Future Demand

3.1   Council's data on RPT passenger traffic from 1988/89 indicated a steady growth over the last decade despite the pilot strike in 1989 and recent tragic events and shocks adversely affecting the world aviation industry, including the demise of Ansett Airlines in September 2001.

3.2   Council's historical RPT passenger data indicated growth trend of around 3% p.a.

3.3   Also discussed that similar traffic growth trend could be sustainable by the underlying regional GDP growth at around 3% p.a. based on GDP statistics for

the past 10 years published by the NSW Department of State & Regional Development

3.4 At 3% growth p.a., annual RPT passenger traffic is envisaged to almost double in the 20 years planning horizon currently being considered for the airport master plan

3.5 Tourism arrivals breakdown to the Armidale region is reported as: 94% by road, 4% by air, 2% by rail

4. Potential Generators for Air Traffic Growth

4.1 Anecdotal evidence of increasing economic activity in the region based on increasing enquiries on real estate, business rentals, job opportunities

4.2 In 2001/02 several local businesses (supplying goods outside the region) achieved about 10% growth; e.g. New Horizon (exporting educational softwares worldwide), Veterinary Health Research – VHR (veterinary chemical research & development, disease diagnostic laboratory, grazier consulting services), and Star Systems (supplying computer softwares for agricultural businesses)

4.3 Current project to develop a world class walking trial with transport links to Coffs Harbour

4.4 Armidale has a matured conference market, with about 240 business/education conferences held in 2002

4.5 Armidale's attraction as an event venue; e.g. Australian Dance Festival scheduled for April 2004 (bi-annual festival) had been a significant attraction for visitors from around the country

4.6 Tourism in Armidale is still in infancy, with potentials for growth

4.7 Recent addition of new Tamworth-Armidale-Brisbane service (since mid-July 2003) by Sunshine Express

5. Threats to Air Traffic Growth

5.1 No population growth, but also no population loss from the region

5.2 Strong competition from road

5.3 High cost of air fares, no alternative to Qantaslink services

5.4 Leakage to Coffs Harbour, with people driving to Coffs Harbour to take advantage of budget air fares to Sydney being offered by Virgin Blue

5.5 Low clouds and fog

6. Other Potential Demand

6.1 Military training – no demand except for high altitude training for *Hercules* and *Caribou* transport aircraft

Discussion between David Boundy (General Manager)/Alan Harvey (Council's Transport Operations Manager)/Roy Ng at Armidale on 10 September 2003

1.   Primary Activities at Armidale

1.1   Operating a fleet of agricultural aircraft for aerial application of superphosphate throughout the New England region

1.2   Main base at Armidale, with other bases at Tamworth, Glen Innes and Guyra. Operational area from the Queensland border south to Willow Tree south of Tamworth, and east to the Coast and to Narrabri in the west.

1.3   Spread an estimated 680,000 tonnes of fertiliser over the past 39 years, and also carried out seeding, spraying and other aerial work.

1.4   Aircraft maintenance from routine maintenance to repairs and rebuilds of various aircraft types for customers and insurance claims.

1.5   Well-equipped workshop at Armidale can cater for aircraft up to 5700kg and can also design, build and modify aircraft to equip magnetometers, airborne cameras, lazer altimeters, GPS equipment, etc.

1.6   Currently carries out aircraft maintenance for about 38 customers

1.7   Also responsible for recovery operations at the airport

1.8   Recent association with Geophysical Technology Ltd (Aust) on aerial and geophysical survey mapping worldwide

1.9   Also carry out aircraft spraying work in a hangar on an adjacent site belonging to the Council (Airport operator/owner)

1.10   Handling agent for Mobil with the existing Avgas dispenser in adjacent lease

2.   Current Fleet based at Armidale

2.1   2 x Pacific Aerospace 750hp turbo-prop Cresco 8 x

           Fletcher 400hp FU24

2.2   All aircraft are dedicated to Aerial agricultural activities

2.3   No landing charges for home-based aircraft – included in lease rental

2.4   Existing leased site adequate for current activities and for parking home-based fleet within site boundaries

3.   Business Outlook

3.1   No impediment at existing leased site for business growth

3.2   Business is strong but existing site is adequate in the foreseeable future

3.3   Diversification into business of similar nature but impeded by the terms of the existing lease which restricts the application of airport land only to aviation related use

3.4   Planning some extension to landside frontage of existing hangar

4.   Helicopter Noise Nuisance

4.1   Close proximity to Fleet Helicopters located on adjacent lease with helicopter noise nuisance

ARMIDALE AIRPORT MASTER PLAN
NOTES ON CONSULTATION – NIFTY COURIERS

Discussion between Neville Northey (Principal)/Roy Ng at Armidale on 11 September 2003

1.   Primary Activities at Armidale

Has been engaged in air freight business for 15 years

Acting as local agent for Australian Air Express (primarily same-day freight) and TNT, and also handles own business

Started road freight 18 months ago (since collapse of Hazelton Airlines)

2.   Freighter Operations

2.1   AAE currently contracted from Crane Air (at Bansktown) a Cessna 310 (334kg max payload at full tank of fuel) for ARM-TMW-SYD freighter runs

AAE freighter aircraft originates and terminates at ARM (via TMW to SYD) Cessna leaves

ARM at 6.00pm (Monday – Thursday) for SYD

Cessna returns from SYD at 6.00am (then parked in GA area for the rest of the day and over the weekend)

2.2   Friday night, Cessna freighter does not operate. Freight is put as belly freight in Qantaslink RPT aircraft (Dash 8) – averaging 110kg

2.3   Would like AAE to bring in a Piper Chieftain (more payload and 50% more volume for bulky freight)

3.   Road Freight Business

3.1   Services Glen Innes, Inverell, Bingara, Warialda, Uralla and Walcha – 600km round trip

3.2   Truck leaves Armidale at 7.30am and returns at 5.00pm

4.   **Business Trends**

4.1   Average air freight 260kg per night

4.2   Handles about 120kg inbound air freight, rest by road

4.3   TNT truck brings in about 350kg/week

4.4   Nifty Courier handled 4014kg AAE freight at ARM previous week and another 1500kg in regional areas

4.5   AAE's freight constitutes around 87% of the market, but slow growth

5.   **Existing Lease Area**

5.1   A portion of the old terminal building, besides Aircrew Check & Training

5.2   Dedicated parking spaces in front of building, but spatial conflict with the present only Airside Access Gate to RPT apron.

5.3   Existing lease area ideal for operation, only meters from aircraft

5.4   No requirement for additional space. Direct airside frontage is not essential for current operations.

Discussion between Rod Andrews (Chief Pilot)/Roy Ng at Armidale on 11 September 2003

1.   Primary Activities at Armidale

1/3 business – flying training (private & commercial licences, instrument training, twin engine training). Integrated course with The New England Aviation Camp via aviation training through TAFE as a part of the course in general Introduction to Aeroskills aimed at secondary students in Years 10 and 11. The camp is designed to be co-educational with accommodation for students being shared between The Armidale School and the New England Girls School.

1/3 business – air charter

1/3 business – Handling agent for Shell depot at the airport, servicing RPT aircraft and GA aircraft

Aircraft hire – very small part of current business

2.   Business Trends

2.1   Have been operating at Armidale for past 13 years at average 1% growth p.a.

2.2   Flying training business was fairly static through 1999 – 2001, but is now increasing 3 - 5% p.a.

2.3   Business declined from 1996 to 2000, but picking up again in 2003

2.4   Aircraft charter growth is strong, around 5% expected next year

Clients: graziers, business people, university, government, hospital/medical transfer

3.   Current Fleet based at Armidale

Twin-engine aircraft   1 x twin-engine Piper Chieftain (9 seats)

2nd Chieftain being added to fleet at Armidale 1 x

Cessna 310 (5 seats)

1 x Piper Comanche (3 seats)

Single engine   1 x Piper Warrior

1 x Piper Arrow

4.   Aircraft Parking Requirements

4.1   GA fleet parking is adequate within existing lease site

4.2   Taxiing access for aircraft would need to be defined

5.   Shell Installation

5.1   Occasional congestion with parked aircraft at the northern end of RPT apron is a problem for bowser truck access/egress from the existing parking shed

5.2   Define taxilane for aircraft accessing the new Avgas dispenser is required

6.   Opinion on Armidale Airport

6.1   Airport is easily accessible

6.2   Modern terminal and good for passenger handling

6.3   Good visual aids; e.g. strobe lights at thresholds

6.4   Good navaids: Airservices NDB and Council's DME

6.5   MBZ would be better for straight-in approaches and facilitates cost savings in fuel

        Currently, CTAF will require ground support for straight-in approaches

6.6   GPS approach (with reduced minima) at the airport would be good

Discussion between Claire Mullin (in the absence of Lachlan Onslow, Director/Chief Pilot who is attending emergency services for the NSW Rural Fire Service)/Roy Ng at Armidale on 11 September 2003

1.   Primary Activities at Armidale

20% business in flight training (started in 2000)

75% in aerial work (fire fighting, aerial survey, power line inspection 5% in

scenic and joy ride (covering 7 national parks)

Charter work - negligible

2.   Current Fleet based at Armidale

2.1	Fixed wing	1 x Cessna 182 (3 passenger + pilot)
		Power line inspection
		Air charter; e.g. pilot transport for NSW Rural Fire Fighting Service and reconnaissance work for fire spotting
2.2	2 x piston engine helicopters	Bell 47 is dedicated to flying training
		Kawasaki KH 4 is dedicated to joy flights, aerial survey, power line work
2.3	3 x turbine engine helicopters	1 x Hughes MD500E
		2 x Bell 206 Jet Rangers

3.   Helicopter Parking and Operations

3.1   Parking for home based fleet of 5 helicopters is adequate within existing lease site

3.2   Hangar – maintenance of own aircraft only

3.3   Currently, no conflict with fixed wing aircraft operations

3.4   Current operations – helicopter lift-off and landing at existing lease site, crosses Runway 05/23 for left hand circuit training using the grass runway 09/27 for easterly wind conditions and right hand circuits for westerly wind conditions

3.5   No experience with helicopter noise complaints at this time, except for Superair in adjacent lease site

4. **Business Trends**

4.1   NSW Rural Fire Fighting Service has asked all operators including Fleet Helicopter to invest on medium lift helicopters (e.g. Squirrel), but Fleet Helicopters consider this is not a really viable proposition unless sufficient work can be found for such medium lift helicopters outside the fire season

4.2   Business expected to remain strong

4.3   Business diversification in hand, including new fuel truck to service other customers and acting as on-airport representative for Avis Car Hire

4.4   Night VFR training is offered as an add-on to existing curriculum

5. **Mobil Avgas Dispenser**

5.1   Agency for Mobil already transferred to Superair

5.2   Dispenser occupies separate lease site, and not related to current Fleet Helicopters lease

6. **Current Expansion Programme**

6.1   Addition of a demountable unit for joy flight customer handling and training classrooms

6.2   Storage area for rental cars

6.3   Car wash facility

6.4   All of the facility development is located within the existing lease site

7. **Master Plan & Helicopter Noise**

7.1   Potentials for conflict between fixed wing and rotary aircraft operations as traffic and training activities increase in time

7.2   May be an issue in the long term and consideration should be made in the master plan

7.3   Suggestion is made for Fleet Helicopters to review future operational plan in terms of potential for traffic conflict and noise nuisance, including more orderly operational procedures and future flight paths to minimise aircraft noise to the surrounding community

7.4   Fleet Helicopters are not concerned at this stage with these issues

Discussion between Andrew Halls (E-Ticket as Local Agent)/Roy Ng at Armidale Airport on 11 September 2003

1. **Daily RPT Service at Armidale**

1.1 New RPT service started recently at Armidale since 14 July 2003 using 19-seat Metro 23 aircraft

BNE-TMW-ARM-BNE route, 7 days/week

Current schedule, the flight arrives ARM at 14.50 hours, departs at 15.10 hours.

1.2 Reasonably good load factor, with Armidale contributing on average about 1/3 the passengers

2. **Business Trend**

2.1 Trend indicates recently good demand, equivalent to about 1½ service on this sector

2.2 With other airlines having withdrawn RPT services from adjacent centres at Inverell, Glen Innes, there could be potential for future traffic growth

3. **RPT Apron & Terminal**

3.1 Use Bay 2 normally, no clash with Qantaslink and convenient to terminal

3.2 Passenger terminal is fine, but potential OH&S issue due to man-handling of heavy baggage trolleys

4. **Sunshine Express Current Fleet Mix**

3 x Fairchild Metro 23

2 x Shorts

1 x Embraer Bandeirante

Telecon discussion between Phil Laffer (General Manager)/Roy Ng at Armidale Airport on 29 September 2003

5. **Original Market Assessment**

5.1 Noted previous attempts by several operators on ARM-BNE sector had been unsustainable

5.2 Market wanted morning and evening services to/from Brisbane daily, but considered that demand would not be sustainable

6.   **Current RPT Service**

6.1   Gap in one aircraft at Brisbane for launching BNE-TMW-ARM-BNE service daily

6.2   Enabled Sunshine Express to keep cost down for this service to serve TMW and ARM

6.3   This triangular service is one of the best performing in Sunshine Express network

Load factors: 60% first month, 67% second month, currently around 64% Current

market response to the afternoon service is good with sufficient yield for
the airline

6.4   Metro 23 is limited to 17 passenger seats due to high airport elevation

6.5   Airline is happy with current level of facilitation for its service

7.   **Business Trend**

7.1   Continue with once-a-day service for the next 12 months No

longer term business plan at this stage

7.2   No potential for air freight at this time

AAE is ferrying freight via Sydney to Brisbane

Telecon discussion between Andrew Murray (Principal)/Roy Ng on 29 September 2003

1.   Primary Activities at Armidale Airport

1.1   Developed and operated petrol kiosk and convenience store under Ampol franchise since 1996

1.2   No a service station, and does not prepare take-away food

1.3   High proportion of business is attributed to highway traffic patrons

1.4   Business was not designed to attract trucks or road trains

2.   Issues with Existing Site

2.1   Primarily a commercial venture on airport land with highway frontage

2.2   Existing leased site is sufficient, no justification to attract passing trucks

2.3   Problem with visual access being obscured by trees. Only small shrubs on the highway frontage instead of trees which require constant trimming.

2.4   Long term lease on existing site with 29 ½ years to go

3.   Business Trends

3.1   Although business does not rely on air traffic, it is doing quite well with airport businesses staff and personnel

3.2   Expects future growth in aviation related activities such as industrial/commercial centres will help its business to growth

4.   Expansion Plans

4.1   Owns all improvements made on the site

4.2   Only upgrading of toilet facilities to meet demand

4.3   Envisaged small make-overs on existing facilities every five years

Telecon discussion between Capt Gordon Smith (Chief Pilot/CFI)/Roy Ng on 01 October 2003

1.   Business Type/Activities

Advance   pilot   training   and   flying   licence   upgrade   (not   catering for private/commercial licence)

Class rooms and flying training

Capt. Gordon Smith is a CASA certified testing officer and has also conducted endorsement training for aeroplane types.

Primary clients are commercial and charter airlines have been established at Armidale Airport for 8 years Business has grown 800% over the 8 years

2.   Business Trends

2.1   Strong business growth, with Corporate Office at Armidale

2.2   Currently operating 25 aircraft, but only 3 based at Armidale

Crew strength 16 – 18, but only 2 are based at Armidale

2.3   Developing off-site flying schools in South Australia and Sydney

2.4   Further business growth by expansion elsewhere, and not at Armidale

3.   Current Fleet based at Armidale

3.1   Twin-engine aircraft   1 x Piper Comanche
         Single engine   1 x Cessna 172
                                   1 x Piper PA 28

3.2   Planning to add in next 12 months a turbo-prop aircraft (up to 60ft wing span – Code B) to fleet for training international pilots

Have brought in turbo-prop (visiting) aircraft previously for such purpose

4.   Aircraft Parking Requirements

4.1   Currently parking aircraft fleet in 'public' area in front of Armidale Airways

4.2   Parking area deteriorated since its use by fire bombers last season

4.3   With constant student movements between class rooms and aircraft, would prefer dedicated parking area adjacent to class rooms.

5.   **Existing Lease**

5.1   Currently occupying a greater portion of the old terminal building

5.2   Happy with current lease, on a 12 monthly renewal basis

5.3   No lease for aircraft parking area

5.4   Would consider classrooms, Offices and aircraft parking area on a lease site

6.   **Opinion on Armidale Airport**

6.1   Existing airport facilities are very good for operations. Council has been pretty good in maintaining runway surfaces, runway lighting, etc.

6.2   Helicopter operations at airport – no conflict with their aircraft training operations. Good rapport between all operators.

6.3   Cross wind grass runway is used quite a lot, especially for touch & go and pilot perception training

6.4   Future addition of Ground-based Regional Augmentation System (GRAS) for GPS approach would be very good

Discussion between Tony Griffiths (Aviation Officer)/Roy Ng by phone on 12 November 2003

1.   Largest Fire Bombing Aircraft Type

Air Tractor AT-802 Wing

span = 18.06m Length =

19.87m MTOW = 7250kg

Runway length requirements = around 1,000m

2.   Peak Operations

2.1   Day light hours (dawn to dusk)

2.2   Could be as many as 6 aircraft at a time

2.3   Refilling two aircraft with their turbine running at two loading points at a time, with one aircraft behind the other @ 3-4 minutes refilling time/aircraft

3.   Airside Requirements

3.1   Direct access to 40m deep x 50m wide adjacent to taxiway or temporary taxiway, to be roped off at that time

3.2   Preferred site which would have minimal impact on other users

3.3   Propeller wash and dust are usual issues with others

3.4   Support equipment include portable water tank, hoses, trailers, flat top truck

3.5   Street fire hydrant point if possible, otherwise water tanker support which will include semi-trailer sized vehicle.

3.6   May require up to 6 aircraft parking positions and 12 helicopter parking spots.

3.7   At least one 'hot' refuelling (engines running) spot for helicopters with access for fuel tanker.

4.   Landside Support Area

4.1   Landside road access

4.2   Adjacent area for operating crew rest facilities and amenities, and equipment storage (building or shed if available, otherwise RFS tents or on-site cabins)

ARMIDALE REGIONAL AIRPORT REVIEW OF MASTERPLAN 2014

Notes on consultation with Airport User Group - Don Tydd and Peter Sniekers

1. Council need to encourage competition on the Armidale – Sydney route

2. Encourage the development of a Armidale – Brisbane route

3. Ensure that there is a third counter for a third operator

4. Extend facilities for future operations

5. Look at a full time or part time Airport Manager's position.

6. Passenger terminal expansion to cater for lounges and kiosk facilities.

7. Landing aids should be good enough for the next few years.

Notes on consultation with Robert Gordon – National Farmers Federation

1. Council needs to look at a part time Airport Manager position.

2. Farmers needs are similar to the community.

3. Paid parking is an issue. Farmers cannot be dropped at airport and need vehicle and as such not in favour of paid parking. Should be subside by the government.

4. Capital expenditure on airports should be a Federal Government responsibility. Local funding should be a last resort.

5. A short term parking area should be considered in front of the terminal for drop offs and pick ups.

6. Discussions with the Business Council in Armidale should take place to investigate air freight services.

7. Air services should have stability, adequacy and affordable.

Notes on consultation with Andrew Hall – Qantas Link Airport Manager

1. Check In counter space needs to have 3 desk positions.

2. Office space needs to double in size.

3. Staff area needed for lockers and change room.

4. Carparking is an issue and there is a need for short term parking

Notes on consultation with Lachlan Onslow and Mark Watson- Fleet Helicopters

1. Upgrade of airport water supply essential as is delaying expansion of hangar facilities.

2. Need to remove G.A. parking in front of hangar as down draught from helicopter operations could result in damage and injury.

3. Need a link for direct access to the new parallel taxiway.

4. Extension of the runway will be required sooner than later to cater for larger aircraft.

5. Investigate an aircraft museum to the south of the terminal precint which could be co- located with a transport museum.

6. Would like to investigate purchase of Council owned hangar next to Edwards Aviation

**Notes on consultation with Brad Edwards- Edwards Aviation.**

1. Would like to discuss with Council lease of land next to existing hangar for expansion of business.

2. Need a direct access from apron area to new parallel taxiway.

Notes on consultation with David Boundy – Superair

1. A face to face meeting was not held with David Boundy but in email correspondence he requested that his facility continued to have direct access to the main runway.

Notes on Consultation with Rural Fire Service

1. Bidding for funding will need to be done at the State Level

2. Phase 1 of the works is the airbase infrastructure

3. Cost is expected in the order of $320,000 to $340,000 without road works

4. Roadworks and carpark would be included in stage 2

5. Control Centre and carpark are expected to cost in the order of $2.0m

6. 4 bay shed and logistic centre would cost in the order of $150,000
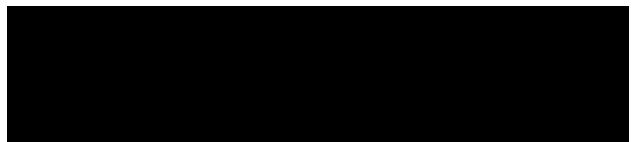
Near Term (2014 – 2017)

Item	Cost estimate
Review & adjust current security perimeter fencing alignment	(say) $30,000
Upgrade airside security fencing in terminal precinct & GA area	Completed
Inspect & upgrade stock proof boundary fencing	Completed
Airside perimeter road	$360,000
New Emergency Assembly Area	$51,000
Runway 05/23 lighting upgrade/replacement & windsock relocation- underway	$1,242,000
First stage Code C parallel taxiway & lighting	$1,708,190
Expand Passenger Terminal/carpark stage 1	$1,730,000
First stage GA apron/tie-down areas & dedicated taxilanes	$1,500,000
Airside facilities & services for dedication NSW Rural Fire Service Area	$490,000
Upgrade landside access near airport entry	$50,000
Interim helipad for visiting helicopters & service road	$40,000
New DME	$290,000
Ground-based Regional Augmentation System	$90,000

Total: $7,581,190

Say: $7,600,000

Medium Term (2017 – 2025)

Item	Cost estimate
First stage extension to RPT apron with drainage, apron lighting, markings	*Completed*
Second stage GA apron/tie-down areas & access taxi lanes	$250,000
Infrastructure extensions to commercial sites	(say) $50,000
New Saumaresz Road & highway intersection	$600,000
Runway 05/23 extension (30m wide), associated lighting & markings	$1,500,000
Airside security fencing extension for runway extension	$120,000
Airside perimeter road extension	$420,000
Provide RESA at both runway ends	$1,000,000
Second stage extension to RPT apron with drainage, apron lighting, markings	$700,000
Loop apron edge taxiway to expanded apron	$240,000
Helipad for visiting helicopters & service road	$40,000
Expand passenger terminal Stage 2	$3,940,000
Upgrade car park and terminal access road system	$450,000
Total	$9,310,000
Say	**$9,500,000**

Longer Term (2025 – 2035)

Item	Cost estimate
Relocate Aero Club	$400,00
Extend Code C parallel taxiway to full length	$3,240,000
Code A service taxi lane	$60,000
Upgrade engineering services	$290,000
Infrastructure extensions to commercial sites	(say) $70,000
Total	$4,060,000
Say	**$4,200,000**