Wangaratta Airport Master Plan

Appendix D



17.073.01 • August 2018

Wangaratta Aerodrome Master Plan 2017

Wangaratta Rural City Council

Aviation Consultants

MCa <Michael Connell & Assocs.>











Wangaratta Aerodrome Master Plan 2017

Wangaratta Rural City Council

Report

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August 2018





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Executive Summary

The Wangaratta Aerodrome Master Plan has been created to deliver a long term planning framework, enabling the Rural City of Wangaratta to build a strategy for developing a key infrastructure asset that is valued by aviation business operators, emergency services and the recreational flying community in Victoria.

The Master Plan was developed according to the guidelines and principles laid out in the *Regional Airport Master Planning Guideline* developed by the Australian Airports Association and builds upon the original Wangaratta Aerodrome Master Plan developed in 2003. In conjunction with the *Regional & Market Context* -*Wangaratta Aerodrome* produced by MCa, this Master Plan will provide a supporting strategy for aerodrome land planning and development until 2037.

The vision for Wangaratta Aerodrome is:

"To become a safe, economically viable, aviation hub, supporting regional business growth, community services and general aviation needs, while providing local employment opportunities and respecting environmental values"

The Rural City of Wangaratta have set the following key objectives for managing and developing Wangaratta Aerodrome in support of the vision:

- Protect the airport's primary function for aviation, including land-use planning, airspace protection and preventing encroachment of other municipal activities into areas impacted by aircraft activity
- Recognise the airport as a valuable community asset through engagement and understanding of the needs and concerns of aerodrome users and tenants
- Provide appropriate infrastructure to support future development at the aerodrome based on sound economic rationale
- Ensure compliance with CASA standards and requirements as required by a registered aerodrome
- Support aviation related development on the site for private aircraft, commercial operators, and emergency services / agencies
- Support the growth of existing businesses on the aerodrome site by providing them with the facilities and resources required to find / service more customers and provide local employment opportunities
- Facilitate opportunities for future aviation related businesses on aerodrome site by reducing or eliminating barriers, and actively marketing the benefits of flying at Wangaratta





The advantages and opportunities for Wangaratta Aerodrome are:

- A long runway (1640m) in excellent condition and good all-year round flying conditions in uncontrolled airspace, providing assurance for commercial joy-flight operators and event organisers
- Established aviation businesses on site that are looking to expand, generating regional income and employment
- Enthusiastic and engaged community of aerodrome users who want to see the aerodrome expand and thrive
- Convenient location next to the highway and close to regional visitor attractions

Key Findings

- The business tenants located at Wangaratta Aerodrome see tremendous value in the facility and are committed for the long term. In order to keep growing they need larger facilities and more workers. Multiple tenants expressed a desire to see more young people working at the airport.
- It would be beneficial for Council to consider additional safeguarding to protect aerodrome growth and airspace. The Airport Environs Overlays (AEO) do not correspond with the published noise contours, which are very dated, and there are no Design & Development Overlays (DDO) in place to protect against structures penetrating airspace protection surfaces.
- There is limited opportunity in the short to medium term of RPT services commencing at Wangaratta due to the size of the local market and proximity to Albury Airport. Given these constraints this Master Plan has stepped back from the previous Master Plan (2003) recommendations to develop a marked passenger apron and upgrade the grass runway.
- Facilities at the aerodrome for private operators are constrained by a shortage of individual hangar facilities.
- The width of the apron taxiway strip between the Aero Club building and fuel facility is only sufficient to allow the smallest classification of aircraft (Code A). If not addressed, this will impact the most practical development opportunities north and west of the Aero Club.

Key recommendations of the Master Plan are:

- Review zoning and Planning Scheme controls over the aerodrome to ensure it is responsive and allows future growth and development, using land-use plan to earmark future development precincts and safeguard access to the main runway. Using this approach will enable Council to manage the strategic development of the aerodrome into areas with medium to long-term opportunities, such as tourism or transport logistics. This approach will bring Wangaratta Aerodrome planning processes into line with comparable facilities in regional Victoria.
- Assessment of all land use and development proposals around Wangaratta Aerodrome should consider NASF guidelines promulgated by the Commonwealth Department of Infrastructure, Regional Development and Cities, and are a useful tool for all airport owners and operators. These guidelines have been adopted by the vast majority of airports and aerodromes in Australia





and are integrated into infrastructure development within and adjacent to airport boundaries as well as safety planning and community noise management.

- Prepare a new ANEF as well as N contours for the aerodrome to ensure up-to-date noise exposure forecasts are available for aerodrome safeguarding purposes. This will account for changes to the aircraft types and traffic volumes that are operating from Wangaratta since the previous ANEF.
 - An updated ANEF will enable Council to validate the coverage of the AEOs currently in place and adjust them if required.
 - N contours are a method of visualising the number of aircraft noise events above a certain decibel threshold within a geographic area.
- Applying DDOs to safeguard airspace protection surfaces will ensure that any assessment of future developments will include aircraft safety factors when considering building heights.
- Focus airport development on recreational aviation, local aviation business development with
 future options to expand into air freight. This takes advantage of both existing onsite businesses
 that are looking to grow and new ventures requiring a base for operations in the region.
 Expansion of private and recreational aircraft facilities will also encourage further interest in
 commercial aviation activity such as a private flight school, joy flights and tourism charters
- Leverage local interest in historical aviation, warbird aviation and networking connections with Temora to generate visitor interest. This would build upon the vintage aircraft restoration and flying activity that already occurs at Wangaratta Aerodrome on an ad-hoc basis, including several events covered in the media where RAAF veterans were given the opportunity to experience aircraft that they flew operationally. Discussions with Temora Historical Flight Club and Temora Aviation Museum have identified potential interest in hosting events and static displays at Wangaratta on an organised basis. Given the popular reception that unadvertised flying demonstrations have received, there is potential to generate considerable public interest, which could be supported by local community groups.
- Based on the traffic numbers provided by Air Ambulance Victoria, Council should investigate the case for providing a patient transfer station at the aerodrome where health services could provide care to patients boarding or disembarking from aircraft.

The concepts and development opportunities highlighted in the 2017 Master Plan have been examined by Michael Connell & Associates, who have presented the economic rationale supporting these plans in the Wangaratta Aerodrome – Business Case Report.





Overview 1

Wangaratta Aerodrome is located 7km directly south of the city, close to the Hume Highway and is owned and operated by the Rural City of Wangaratta (Council). The aerodrome was opened in 1984 on a site purchased by the City of Wangaratta in 1982. The site was a bus terminal before being converted into an aerodrome.

The aerodrome has two runways, one sealed (18/36 1,640m) and one grass (09/27 530m), providing for general aviation, emergency services and occasional RAAF flights. Wangaratta aerodrome is the only aerodrome serving the municipality. Airport facilities include a Regular Public Transport (RPT) apron, General Aviation (GA) apron and a terminal facility and various aviation support facilities. At present, the aerodrome does not host any RPT services.



Figure 1 - Wangaratta Aerodrome

Purpose and Objectives of the Master Plan 1.1

The Wangaratta Aerodrome Master Plan 2017 is the key strategic document which underpins all activities and decisions of Council in relation to the development of the aerodrome. It communicates Council's longterm future planning intentions and describes future development opportunities. The Master Plan also needs to reflect consultation with the local community and airport users, as well as environmental and regulatory obligations.

A previous Master Plan was developed in 2003 and has not been updated since its initial publication. The Wangaratta Aerodrome Master Plan 2017 aims to build on the previous Master Plan, encompassing a 20year planning horizon, covering existing aerodrome facilities as well as areas adjacent to the site that could be affected by any future developments or changes to planning overlays.

Strategic Vision and Objectives 1.2

In consultation with key stakeholders the following vision statement and objectives were providing broad guidance and direction for the future development of Wangaratta Aerodrome.







The vision for Wangaratta Aerodrome is:

"To become an economically viable aviation hub, supporting regional business growth, community services and general aviation needs, while providing local employment opportunities and respecting environmental values"

The key objectives for Wangaratta Aerodrome are:

- Protect the airport's primary function for aviation
- Recognise the airport as a valuable community asset
- Ensure planning and provision of appropriate infrastructure
- Ensure compliance with CASA standards and requirements
- Support aviation related development on the site
- Support the growth of existing businesses on the aerodrome site
- Facilitate opportunities for future aviation related businesses on aerodrome site

1.3 Methodology and Consultation

The Wangaratta Aerodrome Master Plan 2017 has relied upon internal Council resources, external expertise, as well as extensive stakeholder consultations. The final goal to develop a shared vision and future direction for the aerodrome was the driver for this approach.

A review of previous Master Plans, key strategic documents and studies was completed to understand the background and current situation of the aerodrome. The project team used the Regional Airport Master Planning Guideline developed by the Australian Airports Association's (AAA) as the framework for the preparation of the Wangaratta Aerodrome Master Plan 2017. The Master Plan was prepared using a four-stage process:

Stage 1 Prepare draft Master Plan structure using previous Master Plan, strategic documents, and AAA Stage 2 Desktop study and site investigation

Stage 3 Stakeholder consultation process and develop future **Stage 4** Draft Master Plan Review and consultation process

Figure 2 - Master Plan development stages

The team conducted an initial site investigation to capture the current operation and condition of the aerodrome. To7o completed a desktop study of publicly available information and data provided by Council to understand the current situation of the aerodrome, including but not limited to:

- Rural City of Wangaratta Municipal Land Strategy, 2004
- Wangaratta Freight and Land Use Study, 2016
- Economic Development Strategy 2016-2020
- Wangaratta Planning Scheme
- Wangaratta Aerodrome Master Plan Development, 2003
- Victorian Planning Scheme Overlays and Zoning Plans



Topo scheduled one-on one consultation with a variety of key stakeholders, as part of the community engagement process, to identify the key issues and opportunities required to develop an achievable vision and future direction for Wangaratta Aerodrome. Council organised a workshop to conduct a SWOT review and facilitate further discussion on the future direction and development of the aerodrome. Key stakeholders consulted included internal and external parties, landowners, existing airport lessees and freeholder owners and other interested organisations or individuals. Section 3.10 – Stakeholder Consultation covers the process in detail.

The Master Plan Final Draft includes the findings and outcomes of the stakeholder consultation process and incorporates feedback into future plans. Stakeholders and the general public will have further opportunity for providing feedback during the public display of the Master Plan.

1.4 Report Structure

The Master Plan is a comprehensive document that provides a framework for future planning of Wangaratta Aerodrome and is structured into the following sections:

	Section	Des	Description	
	Executive Summary		-	
1	Overview	٠	Brief description	
		•	Definition of objective and purpose of Master Plan	
		•	Methodology	
2	Master Plan context	•	Background of the aerodrome	
		•	Historical and social economic context of the	
			aerodrome	
		•	Regulatory and policy context	
		٠	Review of previous/current Master Plan	
3	Current situation	•	Description of current airport site, facilities,	
			activities	
4	SWOT analysis			
5	Critical airport planning parameters	•	Estimation of future traffic growth	
		•	Description of future aerodrome requirements	
			and considerations	
6	Aerodrome Land Use and	•	Key land use precincts	
	Development Plan	٠	Definition of a 20-year land use plan	
		٠	Overview of the 20-year aerodrome development	
			including facilities, ground transport,	
			environmental, heritage and safeguarding plans	
7	Implementation plan	•	Project implementation roadmap with trigger	
			points	

Table 1 - Master Plan structure and contents





2 Master Plan context

This section sets out the context for the Master Plan including the regulatory and policy environment that applies to the aerodrome.

2.1 Historical background

Wangaratta Aerodrome opened in 1984 on land purchased by the City of Wangaratta in 1982, replacing the previous aerodrome which was constrained both by the area of the site and by its proximity to residential areas in the City. A transport company, Delux Coaches, used the current terminal building as a terminus, which generated business for an on-site café and visitor traffic for Drage's Airworld, an historic aircraft museum located in the large hangar at the southern end of the apron and connected to the terminal.

When Delux Coaches ceased operations the museum and café could no longer generate enough custom to remain viable, resulting in the closure of both businesses, and the sale of the aircraft collection.

Precision Aerospace purchased the freehold for the hangar used by the museum and uses the facility for restoration of historic aircraft, specialising in the P40 Kittyhawk.

2.2 Regional context

Wangaratta is located in North-East Victoria and encompasses the Alpine Valleys of the King and lower Ovens Rivers. The Wangaratta Local Government Area (LGA) is part of the Hume Region and Hume Central Subregion, which comprises of four LGAs – Wangaratta, Benalla, Alpine and Mansfield.

Wangaratta Aerodrome is the closest airport serving Wangaratta and there are other airports within a onehour drive that provide alternatives for local and regional residents. Albury Airport is 85 kilometres northeast of Wangaratta Aerodrome and is a major regional gateway, providing RPT to capital cities, chartered flights, and pilot training services. A regional airport is also located in Benalla, which is of similar size to Wangaratta Aerodrome and offers similar facilities in addition to extensive gliding operations for which it is well known. There is a landing strip located at Milawa which is used by Brown Brothers as well as other private landing strips owned by private individuals.







Figure 3 - Rural City of Wangaratta



Figure 4 - Hume Central Subregion





2.3 Socio-Economic context

Wangaratta has a total population of 28,310 residents, which accounts for 44% of the Hume Central Subregion's residents. Population growth in the Wangaratta region is currently significantly above that forecast in the State Government of Victoria long term population projections for local government areas.

Wangaratta possesses a diverse workforce with a wide range of skills and strengths, particularly in the agriculture, manufacturing, food/wine, tourism, business services, transport / logistics, and health and education industries. Wangaratta currently provides around 11,200 local jobs in 3,000 businesses producing a gross regional product estimated at \$1.46 billion. Figure 6 details the industry sectors in Wangaratta.



Employment by occupation

Figure 5 - Employment by occupation (Source: Rural City of Wangaratta Economic Development Strategy 2016-2020)







REMPLAN

Figure 6 - Industry sectors in Wangaratta (Source: Rural City of Wangaratta Economic Development Strategy 2016-2020)

Tourism is one of the leading growth sectors for the Hume Region with over 6.5 million domestic visitors generating tourism expenditure exceeding \$1.3 billion per annum. Tourism products in Wangaratta and the broader region focuses on the Murray River, alpine environments, valleys, snow fields, cycling, historic sites and fine foods and wine.

There are several successful local businesses currently operating at Wangaratta Aerodrome. Aviation based businesses on site comprise Border Aerospace Fabrication (fabrication and restoration), North East Aviation (aircraft maintenance and servicing) and Classic Air Adventures (aviation tourism and classic aircraft restoration). These businesses have established a solid client base due to providing much needed services in the region and Victoria. These companies are well positioned for further growth subject to the availability of suitable facilities at Wangaratta Aerodrome.

The airport plays an important role in accommodating and supporting the following activities and services:

• Emergency services (including significant use by Air Ambulance Victoria)

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- Charter services
- Recreational aviation businesses (i.e. joy flights provided by Classic Air Adventures and Air Combat Australia)
- Private recreational aviation and aircraft storage
- Pilot training (provided by the Wangaratta Aeroclub)
- Heritage conservation / tourism (Warbird joy flights, maintenance, and restoration)

As a regional airport, Wangaratta Aerodrome plays a vital role in sustaining the regional economy and providing various social benefits, such as enabling access to specialist health, education, regional emergency services, commercial and recreational facilities and facilitating social connections.



Key Social Contributions to the Local Economy

Figure 7 - Social contributions of a regional airport (Connecting Australia – The Economic and Social Contributions of Australia's Airports, March 2012, Deloitte Access Economics)

Currently there are limited direct air freight shipments to / from Wangaratta Aerodrome as freight shipments are usually shipped by road to and from major airport hubs (Melbourne Airport is three hours by road). The Rural City of Wangaratta Economic Development Strategy 2016-2020 acknowledges Wangaratta Aerodrome as a valuable asset and its potential to support a logistics-based facility to leverage the growth in air freight demand, as well as its strategic location adjacent to the Hume Highway.





2.4 Regulatory context

2.4.1 Civil Aviation Safety Authority (CASA)

CASA is the authority responsible for the implementation and enforcement of safety regulations for civil aviation operations in Australia. Their authority is derived under the Civil Aviation Act 1988 and promulgated through Civil Aviation Safety Regulations 1988 (CASRs). CASA has powers to protect operational airspace or to curtail aircraft operations if they believe safety is compromised.

CASR Part 139 prescribes the requirements for aerodromes used in air transport operations. The Manual of Standards (MOS) Part 139 Aerodromes is made pursuant to CASR Part 139 and sets out the detailed standards and operating procedures for aerodromes used in air transport. The manual provides the rules, mandatory standards, procedures, and guidance information relating to the planning, design, and operation of Airports.

CASA conducts periodic inspections (surveillances) to ensure airport and aircraft operators meet their responsibilities under MOS 139. Aspects of aerodrome safety relevant to Wangaratta include;

- Aerodrome operation and maintenance
- Protection and use of runways, taxiways, and other movement areas
- Protection of airfield airspace
- Hazard and wildlife control
- Administration

The MOS 139 is currently under review to ensure that it aligns with current regulatory policy (including ICAO), industry developments and technology changes.

Wangaratta Aerodrome is a registered aerodrome meaning it must meet the following requirements:

- A trained Aerodrome Reporting Officer (ARO) employed to carry out aerodrome safety functions
- Published aerodrome details and NOTAMS in the En-Route Supplement Australia (ERSA)
- OLS obstacle monitoring.
- If RPT or charter operations with more than 9 passenger seats are introduced an Aerodrome Safety Inspection is required.

2.4.2 Airservices Australia (Airservices)

Airservices has responsibility for the management of airspace and air traffic, and to provide Australia's network of aviation users with facilities for aircraft navigation, communication and surveillance. Local governments are encouraged to seek advice from Airservices on any development that has the potential to impact an aviation facility's sensitive areas such as landing and navigational areas.

2.4.3 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) (EBPC Act)

The EBPC Act provides a legal framework to protect and manage nationally and internationally significant flora, fauna ecological communities and heritage places.





2.4.4 Planning and Environment Act 1987

The aerodrome is subject to planning policies and controls under the Planning and Environment Act 1987, which sets out broad objectives for planning in Victoria, and key planning procedures and systems. The Act establishes the following:

- The planning scheme system, which sets out how land may be used and developed
- Victoria Planning Provisions that set out the template for the construction and layout of planning schemes
- The procedures for preparing and amending the Victoria Planning Provisions and planning schemes
- The procedures for settling disputes, enforcing compliance with planning schemes and, and other administrative procedures

2.4.5 Environment Protection Act 1970 (Victoria)

The Environmental Protection Act aims to protect the environment in the state of Victoria through a legal framework. It applies to noise emissions, air, water and land in Victoria, the sea along the Victorian coast and the discharge of waste to the Murray River. The Act covers the following environmental issues:

- Pollution of air, land and water
- Waste
- Litter
- Noise
- Motor vehicles
- Hazardous chemicals
- Environmental audits

2.4.6 Local Government Act 1989 (Victoria)

As a Council, owned asset, the aerodrome is subject to the requirements of the Local Government Act 1989. This applies to the sale, lease, transfer exchange and use of land. Council must operate in accordance with the Local Government Act.

2.5 Policy context

This section details the relevant policies that influences the future use and development of Wangaratta Aerodrome. It is important to ensure that the Master Plan is consistent with the existing planning policies, strategic objectives and guidelines.

2.5.1 National Airports Safeguarding Framework (NASF)

The NASF is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports; and
- Improve safety outcomes by ensuring recognition of aviation safety requirements in land use planning decisions.

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

NASF was convened by Commonwealth, State and Territory Ministers at the Standing Council on Transport and Infrastructure (SCOTI) meeting on 18 May 2012. The agreement represents a collective commitment from Governments to ensure that an appropriate balance is maintained between the social, economic and environmental needs of the community and the effective use of airport sites. The Framework applies at all airports in Australia and affects planning and development around airports, including development activity that might penetrate operational airspace and/or affect navigational procedures for aircraft. Pursuant to the SCOTI agreement, it is the responsibility of each jurisdiction to implement the Framework into their respective planning systems.

NASF is comprised of a set of seven principles and seven guidelines. The NASF principles are:

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

The seven guidelines are:

- Guideline A: Measures for Managing Impacts of Aircraft Noise
- Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports
- Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports
- Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation
- Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports
- Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports
- Guideline G: Protecting Aviation Facilities Communication, Navigation and Surveillance (approved Nov. 2016)





Additional guidelines relating to Public Safety Zones and helicopter operations are proposed to be released by NASAG in the near future.

Copies of the full set of current guidelines can be found on the Department of Infrastructure and Regional Development's website at the following address:

www.infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/.

State Planning Policy Framework 2.5.2

The State Planning Policy Framework (SPPF) aims to ensure that appropriate land use and development policies and practices are implemented in the planning objectives in Victoria, ensuring a balance between community benefits, in terms of environmental, social and economic aspects, and a sustainable development.

The following SPPF policies apply to airport use and development:

Clause 18.04-2 Planning for Airports

In order to reinforce and protect the economic and infrastructure value in Victoria, this clause includes the following strategies:

- Protecting airports from incompatible land-uses.
- Ensuring that in the planning of airports, land-use decisions are integrated, appropriate land-use buffers are in place and provision is made for associated businesses that service airports.
- Ensuring the planning of airports identifies and encourages activities that complement the role of the airport and enables the operator to effectively develop the airport to be efficient and functional and contributes to the aviation needs of the State.

Clause 18.04-3 Planning for airfields

This clause reinforces the role of airfields as key centres of the State's economic and transport infrastructure. In order to facilitate the siting and extension of airfields and restrict incompatible land use and development in their proximity, this clause includes the following key approaches:

- Avoid the construction of new airfield in areas that could have a greater long-term value for other purposes.
- Integrate the location planning, nearby existing and potential development and the ground transportation system within the airfield operations.
- Avoid that existing and potential development prejudice the safety or efficiency of the airfield operations.
- Regulations take into negative effects from aircraft operations (such as aircraft noise) on the land in the proximity of the airfields.
- Avoid that existing and potential development prejudice any future extension or development of an airfield in accordance with an approved strategy or master plan.

Municipal Strategic Statement 2.5.3

The Municipal Strategic Statement (MSS) is part of the Wangaratta Planning Scheme and is similar to the SPPF, however applied at a local government level, with policies that reflect the planning objectives in the municipality.





The Wangaratta MSS suggests there is potential for Wangaratta Aerodrome to host a freight logistics facility for the packaging and distribution of regional product. However, this would require an upgrade to the utilities at the aerodrome site to support the facility.

Given the potential, the planning scheme provides a general strategic direction for Wangaratta Aerodrome to support, promote and develop freight logistics capability at Wangaratta Aerodrome.

2.5.4 Rural City of Wangaratta Economic Development Strategy 2016-2020

The economic development strategy acknowledges Wangaratta Aerodrome as a valuable asset and its potential to support a logistics centre. One of the key opportunities discussed in the development strategy is the development and promotion of Wangaratta Aerodrome as a successful aviation enterprise.

2.6 Previous Master Plan

The publication of the previous Wangaratta Aerodrome Master Plan in 2003 detailed a long-term planning strategy for the aerodrome. The 2003 Master Plan noted a reduction in growth due to the decline in charter services operating from the aerodrome, with an increase in flights undertaken by the Wangaratta Aero Club. Using the national projected growth rate for general aviation of 2%, it estimated that 23,475 movements would occur per annum by 2032.

The key development initiatives outlined in the 2003 Master Plan included the following:

- Upgrading the apron to accommodate Code C aircraft
- Inclusion of apron stand markings
- The reservation of vacant land to the north of the current terminal for terminal building expansion, triggered by demand for RPT services
- Vacant land towards the north of the current existing car park to be future parking space, once parking demand requires it
- Installation of an emergency power generation system at the aerodrome
- Regrading of the grass runway (runway 09/27)
- Construction of a portion of the parallel taxiway to the 18/36 runway
- Construction of a portion of the parallel taxiway to runway 09/27

The proposed land use plan in the previous Master Plan included a concept plan which detailed proposed developments such as the National Sport Aviation Centre, Aviation Industry and Specialist Training Facility



and Hangar/Aviation Related Storage. Future planning included a concept plan for a runway extension to the southern end of RWY 18/36.

Much of the proposed land use plan was not realised as a result of changes in political and economic conditions and the aviation environment in Australia. The 2017 Master Plan has considered the previous document in developing an updated land use strategy, tailored to current conditions, stakeholder feedback and future requirements.



Figure 8 - Land use plan from previous Master Plan





Current situation 3

The following section provides information regarding the existing situation, including site conditions at the aerodrome and surrounding land context. It also includes a SWOT analysis.

Ownership and management 3.1

Wangaratta Aerodrome is owned and operated by the Council. The aerodrome currently accommodates a number of businesses, an Aero Club, and recreational flyers that operate at the aerodrome and utilise the facilities.

Site description 3.2

Wangaratta Aerodrome is located along the Wangaratta - Kilfeera Road (Greta Rd) and 1.5km south of the Hume Freeway. The aerodrome site is currently zoned as Public Use Zone - Transport (PUZ4) under the Wangaratta Planning Scheme.

The aerodrome is equipped with two runways, one sealed (RWY 18/36 1,640m) and one grass (RWY 09/27 530m), providing general aviation, emergency services and occasional RAAF flights.

Wangaratta Aerodrome is the only aerodrome serving the City of Wangaratta. Aerodrome facilities include a parallel taxiway apron, terminal facility, three commercial hangars, a public hangar for aircraft storage and a few tie-down areas. An aircraft refuelling facility is also available adjacent to the apron. At present, the aerodrome does not support any RPT services.



Figure 9 - Wangaratta Aerodrome aerial view





Surrounding land 3.3

The aerodrome is located on a 117-hectare site and is surrounded by private rural land zoned as farming land (FZ). The Hume Freeway is located directly north of the aerodrome. as illustrated in Figure 10. There are several private residences located within the farming zones surrounding the aerodrome, and potentially livestock. The noise impacts of aerodrome activities should take these into consideration



Figure 10 - Zoning plan

Wangaratta town centre and residential area is located 7km north of the aerodrome site ensuring that encroachment and aircraft noise impacts are minimal. The surrounding terrain does not present any physical constraints in the future development or expansion of the aerodrome.

Planning for a housing development has commenced along Clarkes Lane, 3km to the north of the threshold of RWY 18. Although impacts of this development are not significant, it is an early indication that urban development is moving towards the aerodrome. Any residential development or construction of noise sensitive receptors (such as schools and medical facilities) south of Clarkes Road could potentially encroach into the noise contours for Wangaratta Aerodrome and constrain future growth opportunities. It is a recommendation of this Master Plan that a new ANEF and N-contours be prepared for the aerodrome to inform future land use planning is this area. Section 6.6 provides further detail with regards to airport safeguarding.

The surrounding land, including the aerodrome site, is subject to an inundation and flood overlay (FO), detailed in Figure 11. North East Catchment Management Authority (NECMA) have indicated a potential change in the flood overlay in the near future. The areas at both ends of RWY 18/36 are also protected by an

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Airport Environs Overlay (AEO), extending from both ends of the runway. There is, however, no Design & Development Overlay (DDO) in place protecting airspace surfaces.



Figure 11 - Development Overlays

3.4 Existing activities

This section describes the current aviation related and non-related aviation activities at Wangaratta Aerodrome, including any events and festivals.

3.4.1 Aviation activities

Aviation activity at the aerodrome consists of flights from local and regional light and recreational aircraft owners, Air Ambulance Victoria and occasional charter flights. In addition, customers for the aircraft maintenance, fabrication and restoration businesses also operate at the aerodrome. A number of recreational and pleasure flights operate at Wangaratta, including light aircraft, warbirds and jet trainers.

Tourism currently attracts a number of charter flights into Wangaratta Aerodrome. The proximity of Wangaratta to the snow fields in the Victorian Alps makes it a convenient location and attracts approximately three to four charter flights per year. A range of winery tours nearby Wangaratta, such as Brown Brothers, also attract charter flights from cities such as Melbourne and Brisbane.

The Wangaratta region is known for several events and festivals that attract visitors from Melbourne and beyond, throughout the year, listed in Table 2 below.

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Table 2 - Wangaratta major activities and events

January	Wangaratta Sports Carnival
	Opera in the Alps - Beechworth
February	Wangaratta Speedway Racing
	Wangaratta Marathon & Fun Run
March	Melbourne Food & Wine Festival – Longest Lunch
	GM Show & Shine
April	Easter Holidays
	Brown Brothers Easter Festival
	Pizzini Wines Easter Sunday Family Fun Day
	Golden Horseshoe Festival – Beechworth
	Bright Autumn Festival – Bright (extends into May)
Мау	Winton Valley Raceway
June	Rutherglen Winery Walkabout
	Glenrowan Trails, Tasting & Tales Festival
	King Valley Weekend Fit for a King
	King Valley Art Show
	Snowfields – Opening Weekend
July	Snowfields visitors
August	Sam Miranda Tour of the King Valley
	Victorian Junior Cycling Championships
	Snowfields visitors
September	Annual Spring Rally, Vintage Cars
	Snowfields visitors
October	Glenrowan Winemakers Show
November	Brown Brothers Annual Wine & Food Festival
	Wangaratta Festival of Jazz
	King Valley Wines – La Dolce Vita Festival
	Bright's Iconic Rod Run - Bright
All Year Round	Murray to Mountains Rail Trail
	Wine Regions – King Valley, Milawa, Glenrowan
	World Class Mountain Bike Trails – Beechworth / Bright
	Ned Kelly Touring Route
	Winton Wetlands - Benalla

The Victorian Jet Aerospace Association Inc. (VJAA) currently hosts events at Wangaratta Aerodrome three times per year, attracting 30-50 pilots, predominantly from Victoria, South Australia and New South Wales. These events consist of two-day weekend events held in July, September, and October. A larger three-day event is organised in April, drawing pilots from all parts of Australia and internationally. These events are organised in conjunction with Wangaratta Aerodrome and require CASA approval.





There were several impromptu warbird and historic aircraft displays operated by restoration and recreational aircraft enthusiasts which attracted local visitors from Wangaratta to the aerodrome to spectate. This supports the feedback that the local community considers the aerodrome an asset.

3.4.2 Non-aviation activities

There is a motorcycle license training course provider, RideSmart, which operates within a cordoned off area adjacent to the car park. This business operates mainly on weekends and uses a room at the Aero Club as an office.

3.4.3 Summary of aerodrome activities

In summary current activities at the aerodrome include the following:

- Aircraft repair, maintenance, fabrication, and restoration
- General aviation
- Events
- Recreational flying (i.e. Joy flights)
- Emergency services and patient transfer
- Flight training
- Charter flights
- Motorcycle license training

3.5 Existing facilities

The current facilities at Wangaratta Aerodrome include the following:

- A. 1640m sealed runway (18/36) Code 3C classification
- B. 530m grass runway (09/27) Code 1B classification
- C. 15m wide taxiways Code C
- D. Terminal building with commercial kitchen
- E. Apron/apron taxiway in front of the terminal Code C classification
- F. Parallel taxiway Code A classification
- G. Grassed tie-down areas for light aircraft parking
- H. Three commercial hangars
- I. Hobby hangar for private aircraft storage
- J. Aero Club building
- K. Car parking area
- L. Aircraft fuelling facility
- M. Decommissioned Non-Directional Beacon
- N. Illuminated wind indicator
- O. Decommissioned caravan park
- P. Strengthened helicopter apron







Figure 12 - Existing aerodrome facilities





3.5.1 Runway specifications

The aerodrome has two runways comprising a main runway and a secondary runway. The characteristics of each runway are detailed in Table 3.

Table 3 - Existing Runway Characteristics

	RWY 18/36	RWY 09/27
Runway Length	1640m	530m
Runway Width	зот	18m
Pavement Type	Flexible	Unsealed
Pavement Surfacing	Sprayed Seal	Grass
Runway Strip Width	150M	6om
	18 - 1700m	09 - 560m
Take-off distance available (TODA)	36 - 1700m	27 - 560m
	18 - 1640m	09 - 530m
Take-off Run Available (TORA)	36 - 1640m	27 - 530m
Accelerate-Stop Distance Available (ASDA)	18 - 1640m 36 - 1640m	og - 530m 27 - 530m
	18 - 1640m	09 - 530M
Landing Distance Available	36 - 1640m	27 - 530m
Pavement Classification Number (PCN)	PCN 12/F/B/800 (116 PSI) /T	Unrated

The runway strip for RWY 18/36 is 150m wide, consistent with a Code 3C classification. The clearance of the runway centreline to the centreline of the parallel apron taxiway is 112m, which is suitable for current non-precision runway operations. The primary runway has a published RNAV (GNSS) non-precision approach procedure for Runway 18.

3.5.2 Taxiways

Two 15m wide, Code C taxiways link the apron/apron taxiway to RWY 18/36. The pavement strength and characteristics are not available.

The parallel taxiway apron is wide enough to accommodate Code A aircraft, given the apron taxiway centreline to building clearance of 17.9m at the narrowest point.

3.5.3 Terminal building

The terminal building was constructed in 1984 as a facility for the coach transport company and has an overall size of approximately 900m². It contains a lounge, full catering facilities, and can accommodate 40 people in the lounge area.

The existing building is more than adequate for current charter and event activity conducted at the aerodrome and remains unused for most of the time. Council are seeking a more productive medium to long-term role for this facility.





There is an internal link from the terminal building to the "Classic Air Adventures" commercial hangar, which Council leased to the freehold owner. This access is due to be removed due to building regulations and the terms of the lease arrangement.

3.5.4 Apron / apron taxiway

Wangaratta Aerodrome does not have a dedicated apron for aircraft parking, instead using the apron taxiway directly east of the terminal building as an aircraft parking area. The width of the apron / apron taxiway is sufficient to accommodate Code C aircraft between the two taxiways linking to RWY 18/36.

The current pavement strength of the apron / apron taxiway is unknown. The apron pavement was resurfaced in 2015 and some smaller fill has not been sufficiently sealed, resulting in some stone chips striking propellers, which can damage aircraft (i.e. stones and gravel chips can cause moderate damage to wooden propellers).

3.5.5 Aircraft parking

The hobby hangar is located north of the Aero Club building and consists of individually owned hangars by local residents and members of Wangaratta Aero Club, providing private aircraft parking. Several grass tiedown areas adjacent to the aircraft fuelling and north of the hobby hangar provide additional temporary parking for light aircraft. The current aircraft parking facilities are reaching capacity.

3.5.6 Commercial hangars (aircraft maintenance, restoration and fabrication facilities)

There are three commercial hangars located at Wangaratta Aerodrome. Various aircraft maintenance, fabrication and restoration businesses operate out of the commercial hangars. The larger commercial hangar located adjacent to the terminal building also provides recreational warbird and historical aircraft flights in addition to restoration and fabrication services.

3.5.7 Aero Club building

Wangaratta Aero Club occupy a building approx. 300m2, facing the parallel taxiway, south-west of the refuelling facility.

Members formed the club in the 1950s and relocated to the existing aerodrome during the 1980s. The building is used by members and visiting aviators for flying activities and socialising. The Aero Club also has an arrangement with RideSmart to use office space. The Aero Club building is conveniently located near the hobby hangar, where a several Aero Club members store aircraft. The Aerodrome Weather Information Service (AWIS) and other backend equipment are located in the Aero Club building.

3.5.8 Car parking area

The car parking area is located in front of the terminal building, accessible via Brian Higgins Drive. The capacity of the car park is around 180 spaces. The western side of the car park is cordoned off for motorcycle license training.

3.5.9 Aircraft fuelling facility

The aircraft fuelling facility is located on the eastern side of the parallel taxiway, opposite the hobby hanger. The facility was constructed in 2011/12 by Skyfuel, who still own and operate the business, which is a self-serve bowser paid by card. The facility currently provides Jet A1 fuel and Avgas.







Due to the parallel taxiway width, there are limitations for larger aircraft access the facility and potential blocking of taxiway access by refuelling aircraft.

3.5.10 Navigation aids

Navigational aids at Wangaratta Aerodrome include the following:

- Pilot Activated Runway Lighting
- Illuminated Wind Indicator
- Aerodrome Frequency Response Unit (AFRU)

Aerodrome lighting consists of the following:

- 18/36 Runway edge lighting
- 18/36 Runway threshold lighting
- 18/36 Runway end lighting
- Taxiway Edge lighting

3.6 Ground transport access

The only road access to the aerodrome is Brian Higgins Drive, off Greta Road, which leads to the car park. The road access has been subject to flooding in the past, potentially restricting access for some vehicles to the aerodrome site. It was noted that aerodrome should have appropriate signage at the aerodrome entrance.

Consultation with local aerodrome users have indicated the desire to reduce the speed limit on Greta Road, Brian Higgins Drive and the carpark. Council have commenced the process of reducing the limit on Brian Higgins Drive, including signage. The speed limit on Greta Road is set by VicRoads and Council are still determining whether to pursue this option.

3.7 Utility services

Water, electricity, and telecommunication services are currently available at the aerodrome site and are reticulated from the city supply. The aerodrome is serviced by the National Broadband Network (NBN).

3.8 Environmental values

3.8.1 Biodiversity

A query using the EPBC Act Protected Matters online reporting tool has identified three protected ecological communities, and various endangered species close to the aerodrome site, highlighted in Table 4. However, no protected species or areas have been identified on the aerodrome site. There are no known species of flora or fauna that will be affected by future development at Wangaratta Aerodrome, based on the Overlays in the Planning Scheme, and any future development would include the appropriate environmental safeguards.





Table 4 - Endangered habitats and species occurring in the area

Listed Threatened Ecological Communities				
Buloke Woodlands of the Riverina & Murray-Darling Depression	Endangered	May occur		
Bioregions				
Grey Box (Eucalyptus macrocarpa) Grassy Woodlands and	Endangered	May occur		
Derived Native Grasslands of South-eastern Australia				
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland	Critically	Likely to occur		
and Derived Native Grassland	Endangered			
Listed Threatened Species – Critically Endangered				
Regent Honeyeater (Anthochaera Phrygia)	Known to occur			
Curlew Sandpiper (Calidris ferruginea)	Known to occur			
Swift Parrot (Lathamus discolour)	Likely to occur			
Eastern Curlew (Numenius madagascarienis)	May occur			
Plains-wanderer (Pedionomus torquatus)	May occur			
Flathead Galaxias (Galaxias rostratus)	May occur			
Golden Sun Moth (Synemon plana)	May occur			

There are no known protected species of flora or fauna positively identified on site that require ongoing management or monitoring. The aerodrome operator has cleared most of the site of native vegetation and grasses. Further studies of local flora and fauna for future aerodrome developments maybe required subject to any discovery of protected species at the site.

The aerodrome is subject to some wildlife hazard risks. Aircraft owners have discovered plover eggs in hangars, fuel bowsers and aircraft which adult birds can fiercely protect. Cockatoos commonly roost in trees to the east of the aerodrome during harvest in sufficient numbers to present a risk to aircraft. Wildlife hazard risks such as these are managed through the issue of a NOTAM (Notice To Air Men) and relocation of eggs by aerodrome staff.





Stormwater & Inundation 3.8.2

Parts of the aerodrome site are subject to inundation and flooding with major airside infrastructure, such as the runway and buildings generally unaffected during a modelled 1 in 100-year event. Advice provided by the North-East Catchment Management Authority (NECMA) indicates that the area downstream of Brian Higgins Drive is at higher risk of inundation during this event. As such, it is recommended that developments downstream of Brian Higgins Drive have the appropriate provisions to manage local drainage impacts before development of the site. The full flood data enquiry is available in Appendix C:



Flood information.

Figure 13 - Modelled 1% AEP flood depth







Figure 14 - October 1993 flood imagery

3.9 Heritage values

No heritage overlays are applied at the aerodrome site and no cultural heritage survey was conducted onsite at the aerodrome as part of the 2017 Master Plan development.

A search using the Aboriginal Cultural Heritage Register and Information Systems (ACHRIS) for Victoria did not identify any known sites within the aerodrome boundary.





3.10 Stakeholder consultation

3.10.1 Key stakeholders

The Master Plan team contacted the following stakeholders as part of the consultation process:

Table 5 - Stakeholders engaged

Organisation
Brown Brothers
Hangar owner
Classic Air Adventures
Private Flight Training Instructor
RideSmart
CFA / Wangaratta Aero Club
Air Combat Australia
Border Aerospace Fabrication
Skyfuel
North East Aviation
Wangaratta Aero Club
North East Catchment Management Authority (NECMA)
Model Jet Club
Pel-Air (Air Ambulance)

3.11 Consultation process

The stakeholder consultation process consisted of the following steps:

- One-on-one interview with the listed stakeholders
- A workshop session with both aerodrome stakeholders and Council

The stakeholder consultation process was initiated at the beginning of Master Plan development with oneon-one interviews between consultants and aerodrome stakeholders listed in Table 5. Interviews were conducted face-to-face or via phone calls, if not available. The interviews involved gathering background information on stakeholder activities at the aerodrome, including an overview of future plans and requirements, concerns and general feedback.

A workshop was facilitated mid-way through the project to inform stakeholders of the development of the Master Plan, including the process and methodology. The aim of the workshop was to present a strategic vision and objectives that the stakeholders could agree on. The workshop also provided an opportunity for stakeholders to comment, contribute and provide feedback on the SWOT analysis, and initial draft concept and land use plans of the aerodrome.




3.12 **Consultation outcomes**

The following sections provide an overview of each stakeholder's activity at Wangaratta Aerodrome and an outline of their key concerns, issues, and wants and needs. A stakeholder workshop was carried out following the individual stakeholder interviews.

Table 6 - Individual consultation findings

Stakeholder overview	Key concerns/Issues/Requirements
Border Aerospace Fabrication Border Aerospace Fabrication deals with the maintenance and restoration of a wide variety of aircraft ranging from antiques, ex-military to general aviation. The business shares its facilities with an avionics company to provide a "complete package" service.	 The current width of the hangar is a key constraint with regards to the type of aircraft able to be serviced Current business space is a constraint, which has led to Border Aerospace Fabrication to utilise shipping containers outside the front of the workshop
Aero Club Member A former member of the Aero club, aircraft owner and leases a hangar at the aerodrome. Organises and supports activities promoting the aerodrome, such as school talks.	 The current width of the hangar is a key constraint with regards to the type of aircraft able to be serviced Current business space is a constraint, which has led to Border Aerospace Fabrication to utilise shipping containers outside the front of the workshop
Brown Brothers A winery business located at a 10-minute drive away from Wangaratta Aerodrome. The winery is equipped with a grass landing strip on-site, which can be utilised during the warmer and drier months. Brown Brothers is considering pursuing air freight options for the business and also utilising the aerodrome to promote their products.	 Wishes for facilities to support a delivery service. Would support a local tourism presence at the aerodrome (i.e. booth promoting local produce)
Pilot Instructor Carries out pilot training at the aerodrome for RA category (ultralight aircraft). Also, an owner of a hangar and leases a hangar on a 10-year lease with an option to extend a further 10 years.	 Development being held up by report into catchment hydrology by NECMA Lack of interest in aviation from the younger demographic Keen on Wangaratta Aerodrome to maintain a no landing fee policy Concerns regarding leasing terms for tenants

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Stakeholder overview	Key concerns/Issues/Requirements
Wangaratta Aero Club A local aeroclub operating at Wangaratta Aerodrome, with a club house adjacent to the apron. Supports General Aviation activities and part-time pilot training.	 Taxiways have a low bearing strength and are not consistent with the runway strength Limited hangar spaces and tie downs Leasing terms are too short and expensive, deterring investment A number of individuals interested in an "airpark" development at the aerodrome Fuel facility and apron currently presents a bottleneck
North East Aviation An aircraft maintenance business with a focus on aircraft mechanics, and airworthy and export certification. Currently, the business employs three full-time employees.	 Lack of hangars is a constraint for storing client aircraft Airfield area adjacent to grass East-West runway is subject to draining issues Issues with underground utilities impeding aerodrome developments Prefers to preserve the size of the current business
RideSmart RideSmart provides compulsory training for motorcyclists on an accredited VicRoads course located on a portion of the aerodrome Car Park. Training is usually conducted on Saturdays to Tuesdays and each training course lasts 2 days.	 Would like to relocate the business elsewhere on the aerodrome site if car park space is unavailable Concerned with losing business space when car parking is required for busy days
Skyfuel Provider of aircraft fuel at the aerodrome. Maintains the only aircraft fuel facility at the aerodrome.	 Inundation was a constraint when installing the fuelling facility Prefers that the aerodrome remain to be free of landing fees Competition with larger fuel companies an issue due to government funding supporting larger companies
Air Combat Australia A business currently operating out of Camden Airport, NSW providing pleasure flights in jet trainer aircraft (L ₃₉ "Albatross").	 Interested in establishing a base at Wangaratta Aerodrome Prefers a space at the aerodrome that offers frontage for potential customers

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Stakeholder overview	Key concerns/Issues/Requirements
Classic Air Adventures	
The business provides restoration,	Lack of hangar space is an issue
manufacturing, and maintenance services,	Inundation an issue for the aerodrome
with a focus on World War 2 war planes.	Concerned a flying school will disturb activities at the
Also provides joy flights on restored war	aerodrome
planes. Currently employs 10 people and	Terminal is under utilised
expected to increase to 20 in the future.	Leasing aerodrome space an issue
	Fuelling facility location is a key constraint
Victorian Jet Aerosport Association	
The Victorian Jet Aerosport Association is a	Expected to increase utilisation of Wangaratta Aerodrome from
model jet club with a commercial	six (6) days per annum to nine (9) days per annum
arrangement with RCoW for 15 years. The	
agreement allows access for the club	
members to utilise the North-South	
Runway (36/18) and hard stand in front of	
the terminal on various days of the year.	
The club typically holds three club meetings	
per annum, attracting 30-50 pilots from	
Victoria, NSW, and South Australia. The	
meetings generally consist of two-day	
events held on weekends in July,	
September and October.	
Air Ambulance Victoria	• In the 2017-18 FY, AAV used Wangaratta Aerodrome 371 times
	A total of 415 patients were transferred
	 Inbound patients 108
	 Outbound patients 307

3.13 Summary of observations from stakeholder feedback

This section lists some of the recurring feedback received from the stakeholder consultation process.

3.13.1 Flood Overlay

North East Catchment Management Authority (NECMA) have recently concluded a study for the region, including Wangaratta Aerodrome. The NECMA study indicates that the area downstream of Brian Higgins Drive is at risk from flooding and that appropriate provisions to manage local drainage impacts be in place for any developments in this area.

3.13.2 Runway 09/27

Extending and / or sealing RWY 09/27 is not recommended at this time, investment would be better directed towards other facilities.





3.13.3 Hangar Space & Tie Downs

Strong demand for more hangar space and expansion of existing hangar facilities plus more parking for visiting aircraft.

3.13.4 Security

Some reports of vandalism and theft from aircraft (specifically fuel), further action maybe required.

3.13.5 Hangar Leases – Commercial terms

Feedback received that hangar lease terms and conditions were not consistent with those available from other aerodromes (i.e. Bendigo, Benalla, Yarrawonga). The Council has since revised the lease terms and conditions with a lease term of 10 years.

3.13.6 Demography

Several general comments regarding the lack of young people entering aviation, for work or recreation.

3.13.7 Flight Training

General feedback is that the aerodrome should be limited to private flight training and a commercial flight school is not preferred.





4 SWOT Analysis

To support the development of the future direction of Wangaratta Aerodrome, the Master Plan team conducted a SWOT analysis. The following table summarises the aerodrome's key strengths, weaknesses, opportunities and threats/risks. The SWOT analysis was based on an assessment of the current aerodrome situation and background, as well as feedback from the stakeholder engagement process.

Table 7 - SWOT analysis

s	TRENGTHS	WEAKNESSES		
• • • •	Main runway strip length and condition Terminal building and catering facilities Airspace access for recreational aviation Favourable weather for year-round recreational flying No encroachment from urban development No noise complaints or abatement procedures Good road access Successful local businesses on site (employment) Popular venue for aviation events Engaged aviation community	• • • •	Existing site somewhat lacks frontage for development of logistics services / industry / air park, etc. Adjacent land subject to inundation Some difficulty for larger aircraft to refuel and potential blocking of taxiway access by refuelling aircraft Security Lack of tie-downs for visiting aircraft Insufficient hangar facilities Existing tenants unable to expand Maintenance costs for empty terminal building Limited revenue generation	
c	OPPORTUNITIES	т	HREATS & RISKS	
• • • •	Continued growth in private and commercial recreational aviation Recreational and private pilot training Business growth and increased employment Aviation related events bringing visitors to the town Increase capacity for visiting aircraft Hangar development Room adjacent to the aerodrome for development of local industry / air park Leverage public interest in air displays / historic aircraft (i.e. Temora model)	•	Competition from other airports (i.e. Bendigo, Benalla, Mangalore, Yarrawonga) Aerodrome security and security costs Ongoing maintenance costs, disrepair Revenue shortfall Not following through on Master Plan findings	





4.1 Strengths

Wangaratta Aerodrome enjoys several key advantages, which if appropriately leveraged, will serve as a foundation for future success. The aerodrome is undoubtedly viewed as an asset by Council and the local community, who are invested in seeing the aerodrome thrive.

Aviation related assets such as the main runway, taxiways and apron are in excellent condition and support a wide range of aviation related activities, which in turn generates work for a number of businesses involved in the maintenance, repair and restoration of aircraft. These growing businesses provide local employment and bring income into the region.

The location and accessibility of the aerodrome is convenient for local users and visitors from Melbourne, which encourages participation at events and joy flights.

Lastly, the geographic location of the aerodrome and prevailing weather patterns in the region ensure that great flying conditions exist for much of the year. When combined with uncontrolled airspace and no aerodrome fees, this presents a very attractive aerodrome for recreational flyers and private flight training.

4.2 Weaknesses

One disadvantage for Wangaratta Aerodrome is the constrained aerodrome site, limiting the potential opportunities for logistics and industrial developments, as well as expansion of existing businesses. The investigation of a logistics facility at Wangaratta Aerodrome has been highlighted in the Council's development strategy and planning schemes.

The lack of aircraft parking such as hangars and tie down areas is a known issue for the aerodrome. Local aerodrome users have noted aircraft parking on the apron taxiway due to the lack of hangars and tie-down areas, resulting in bottlenecks on the apron movement area.

Security has been mentioned as a factor at the aerodrome, due to the unobstructed access to the airfield and the lack of surveillance equipment on site. In recent years, there have been aircraft fuel thefts which poses a safety risk to aircraft.

Due to the proximity of RPT airports such as Albury Airport, the potential for RPT opportunities is unlikely at this stage. With the lack of landing fees and other sources of revenue, with the exception of leases, the aerodrome currently has a limited revenue stream.

4.3 Opportunities

There are opportunities for continued growth in private and commercial recreational aviation at Wangaratta Aerodrome. The excellent condition of the existing airfield infrastructure and the aerodromes geographic location is a valuable asset for pilot training, providing a range of flying conditions and scenarios.

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Existing businesses have expressed interest in expanding, providing opportunities for employment in the local area. External businesses have also expressed interest in establishing operations at Wangaratta Aerodrome, indicating potential commercial growth.

The land adjacent to the aerodrome site provides capacity for potential industrial, aviation and air park developments. There is available land situated adjacent to the airfield, as well as the Hume Highway which can be leveraged by a logistics, freight or transport business.

The operation of historic warbirds and aircraft at the aerodrome has attracted interest from the local public in the past, indicating the aerodromes potential to attract additional visitors.

4.4 Threats

Wangaratta is located close to other regional airports such as Bendigo (190km), Benalla (35km), Mangalore (120km) and Yarrawonga (50km) which are also looking to expand, increasing competition for recreational aviation business. The proximity to Albury Airport, which is a major regional hub, decreases the likelihood of RPT operations in the short to medium timeframe. Ongoing maintenance and security costs, as well as revenue shortfall contribute to the aerodrome operating on a loss.

The local community have expressed concerns that some of the goals of the previous Master Plan have not been realised.





5 Critical airport planning parameters

This section provides an analysis of the aerodrome against relevant airport planning parameters to help guide the Master Plan and achieve the strategic vision and objectives for Wangaratta Aerodrome. Key issues and recommendations are highlighted in **bold text** and are discussed further in Section 6 of this report. The key recommendations will also form part of the implementation plan set out in Section 7.

5.1 Forecast of future operations

In the 2003 Master Plan, it was estimated that 23,475 aircraft movements would occur at the aerodrome in 2032, building from a baseline of 14,000 movements in 2003. The general aviation industry in Australia has not experienced the growth forecast expected in 2003, due to a number of factors, including the slowdown in the economy during the GFC and a regulatory regime that is not geared to support this part of the aviation sector.

Wangaratta Aerodrome does not keep statistical records of aircraft activity. Therefore, an estimate of annual movements based on observations of aircraft by aerodrome staff and tenants will be the basis of this Master Plan. An aircraft movement is defined as a landing or take-off.

Aerodrome staff, tenants and users have indicated an approximate 10,000 movements per annum from observing current activity. Growth in general aviation in Australia has been stable at 1-2% per annum based on the Commonwealth Department of Infrastructure and Regional Development annual general aviation activity reports. In consideration of this, a 1.5% annual compound growth rate has been applied on the current total movements at Wangaratta Aerodrome to forecast 13,469 movements by 2037.



Figure 15 - Previous and current estimated and forecasted movements

5.2 Aerodrome Reference Code system

Australia has adopted the International Civil Aviation Organisation (ICAO) methodology using a code system known as the Aerodrome Reference Code (ARC) in the Manual of Standards (MOS) 139 –





Aerodromes. The ARC specifies the standards for individual aerodrome facilities which are suitable for use by aircraft within a range of performances and sizes.

The ARC is based on the characteristics of an aircraft rather than the aerodrome facility. Once the critical aircraft (or design aircraft) is determined, aerodrome facilities are designed, and maintained, to meet those characteristics. Table 8, extracted from MOS 139 describes the range of aircraft specifications associated with each code element of the ARC system. Currently, the main runway (RWY 18/36) at Wangaratta Aerodrome is capable of accommodating most Code 3C aircraft. The secondary runway is capable of accommodating Code 1B aircraft.

Aerodrome Reference Code				
	Code Element 1	Code Element 2		
Code	Aeroplane reference field	Code		Outer main gear wheel
number	length	letter	Wing span	span
1	Less than 800 m	А	Up to but not	Up to but not including
			including 15 m	4.5 m
2	800 m up to but not including	в	15 m up to but not	4.5 m up to but not
	1200 M		including 24 m	including 6 m
3	1200 m up to but not including	С	24 m up to but not	6 m up to but not
	1800 m		including 36 m	including 9 m
4	1800 m and over	D	36 m up to but not	9 m up to but not
			including 52 m	including 14 m
		E	52 m up to but not	9 m up to but not
			including 65 m	including 14 m
		F	65 m up to but not	14 m up to but not
			including 80 m	including 16 m

Table 8 - Aerodrome Reference Code (MOS 139- Aerodromes)

5.3 Pavement strength

In addition to the ARC, the Aircraft Classification Number (ACN) denotes the required pavement strength rating, usually represented by a Pavement Classification Number (PCN), to accommodate a certain aircraft. For a pavement to be determined suitable for an aircraft operation the designated PCN should match the ACN, which is determined by the aircraft manufacturer. When the ACN of the aircraft is greater than the PCN of the pavement, the pavement is classified as overloaded. Currently the runway pavement strength at Wangaratta Aerodrome is rated at PCN: 12 which is suitable for the design aircraft of the SAAB 340. Introduction of a larger Code 3C aircraft such as the Dash 8 Q400 would require the strengthening of the pavement to PCN: 16.5. The pavement strength of taxiways and aprons also need to match the ACN of the design aircraft.

5.4 Selected design aircraft

Determining whether runway length, width and pavement strength for an aerodrome is fit for purpose involves selecting a design aircraft that will be likely to operate at the aerodrome in the future. This is



usually based on an RPT aircraft frequently seen in Australia. Whilst Wangaratta Aerodrome does not currently have RPT services, it is considered important to plan for this to potentially occur within the lifetime of the Master Plan. For this reason, the critical aircraft nominated to be operating at Wangaratta Aerodrome should be Code 3C (See Table 9 for a list of aircraft in this category), which would be a typical size for a charter aircraft flying to Wangaratta, or an RPT service at some point in the future. The SAAB 340 (REX) and Dash-8 Q400 (QantasLink) are two of the more common regional passenger aircraft (Classification 3C) servicing regional centres in Australia at present. Whilst the forecasts do not envisage RPT services operating at Wangaratta Aerodrome in the foreseeable future, the recommended design aircraft is the Saab 340 which is also a common charter aircraft. However, the Master Plan will still aim to safeguard the aerodrome for some RPT operations occurring in the future and will also consider the Dash 8 Q400.

The Saab 340 is a Code 3C aircraft with an ACN of 5.7. The current runway meets the requirements to accommodate a Code 3C aircraft and a PCN rating of 12. The current primary runway (18/36) meets and exceeds all the requirements to accommodate the selected critical aircraft. Table 9 shows the characteristics of a range of typical aircraft.

The current configuration of RWY 18/36 is suitable for the Dash 8 Q400, with the exception of the pavement strength.

Aircraft	Seats	ARFL (m)	MTOW (kg)	ACN¹	Tyre Pressure (kPa)	CODE
Dash 8 Q300	50	1122	18642	10	805	2C
Dash 8 Q400	70	1354	29347	16.5	1020	3C
Jetstream 31	18	1440	6950	4.4	450	3C
ATR 72-600	50	1165	21566	12	748	3C
SAAB-340	35	1220	12370	5.7	655	3C
Metro III	19	991	6577	4	740	2B
Metro 23	19	1341	7545	4	742	2B
Challenger 604	12	1780	21617	13	1420	3B
Hawker 900	8	1513	12700	7	1300	3B
Learjet 55	8	1292	9298	6	793	3A
Fokker F50	50	1760	20820	10	552	3C
King Air 200	8	592	5670	3	730	1B

Table 9 - Characteristics of typical aircraft types

Note 1: For indicative purposes only. Specific values for particular aircraft should be obtained from the aircraft operator or the aircraft manufacturer.

Note 2: The ACN is based on the aircraft's maximum take-off weight on a flexible pavement with a subgrade rating of "B", as applicable to the current runway 18/36.





5.5 Runway End Safety Area (RESA)

The RESA at Wangaratta Aerodrome are 6om long and 6om wide and commence at either end of RWY 18/36. This is the minimum standard required for RESA but if air transport operations commence using jet aircraft then the RESA would need to be lengthened to 9om long. There is discussion in aviation regulation and planning areas that the RESA should be included as part of a public safety zone. In the future a public safety zone may be required at the ends of runways and that area is protected under planning schemes.

5.6 Navigation Systems

As air navigation practices and regulations in Australia move towards satellite-based technologies, older radio based navigational aids such as NDBs have been assessed concerning long-term viability. Airservices Australia has reviewed existing radio navigation equipment nationally to establish a Backup Navigation Aid Network (BNN) in the event of systemic issues with GPS / GNSS navigation. Airservices created a schedule for decommissioning any sites not selected as part of the BNN, which commenced in May 2016.

Airservices did not select the Wangaratta NDB as part of the BNN and no longer consider the aid a core component of the aviation navigation network in Australia. However, Airservices does not own the NDB at Wangaratta Aerodrome; as a private entity owns and operates it. **The NDB has recently been decommissioned, reducing maintenance, monitoring and utility overheads**. The area around the NDB is protected in accordance with the requirements detailed in Chapter 11 of the MOS 139 – Aerodromes.

A GPS based non-precision approach procedure is currently available on RWY 18. Precision approach procedures not available at Wangaratta Aerodrome given the constraints of the runway strip width discussed in Section 6.2.1. No additional Navigation System upgrades are required.





6 Aerodrome Land Use and Development Plan

The Land Use and Development Plan aims to provide a long-term direction for aerodromes future development and address the identified issues, as well as respond to the characteristics of the aerodromes identified in the SWOT analysis. This plan focuses on the key areas such as limited hangar availability and space, potential air park opportunities, potential industrial / freight opportunities, and development of adequate facilities to meet forecasted demand.

6.1 Land Use Plan

This section outlines the land use plan for Wangaratta Aerodrome, focusing on the Master Plan's land use precincts and general use guidelines. To assist Council in planning future use and development of the aerodrome site, a Land Use Precincts Plan has been prepared. This plan forms the basis of the Master Plan for the future use and development of the site. The proposed Land Use Precincts Plan can be found in Figure 16.

The Land Use Plan has been developed with specific focus on leveraging the potential economic and social benefits that the freight and general aviation industry will provide to the aerodrome.

Each precinct has a different purpose and characteristic, which are described in the following sections. This Master Plan identifies the following precincts:

- Airfield
- Existing Aviation Precinct
- General Aviation Expansion Precincts
- Potential Future Industrial Precincts
- Car Park Expansion







Figure 16 - Precinct plan





6.1.1 Airfield (AF)

The Airfield precinct contains the existing runways, taxiways, and apron areas. This precinct is the most important area at Wangaratta Aerodrome, and must be retained and protected for flight operations in accordance with CASA regulations. The Airfield precinct includes the runway strip for runway 18/36, which is Code 3C and is protected by a 150m wide runway strip, which includes correct markings with gable markers being located 90m wide marking the graded portion of the runway strip.

Runway 09/27 is a Code 1B non-instrument runway and should be protected for a 60m wide graded runway strip. Additional land to the east of the primary runway has been safeguarded for potential future extension of the secondary runway (09/27).

The precinct also allows for a northern extension of the parallel taxiway to provide access to the new aviation precincts. Tie down areas are also available in the Airfield precinct.

6.1.2 Existing Aviation Precinct (EAV)

The Existing Aviation Precinct includes three commercial hangars, the car park, airfield viewing area, Aero Club building and the terminal building. There are no significant changes envisioned for the existing aviation precinct and it should remain in the current configuration. There is currently a small space available between the two adjoining commercial hangars currently used for equipment storage, and some space in front of one of these hangars (landside), where the commercial hangars may potentially extend into. **The current airfield viewing area should be retained, as the area is known to generate local interest and attracts visitors to the aerodrome.**

6.1.3 General Aviation Expansion Precincts (GAE1 & GAE2)

The General Aviation Expansion (GAE) precincts are suitable areas for future additional development of hangar space for general aviation related purposes. The numbering of the General Aviation Expansion precincts aligns to the development stages, where development of GAE1 would occur prior to GAE2. The staging methodology allows the development of existing underutilised land immediately north of the car park before developing land further away from the Existing Aviation Precinct.

GAE1 is located west of the current Aero Club building and utilises the vacant space available that is close to the general aviation apron. The location also provides frontage to the road access, which is valuable for public facing aviation related businesses.

Located north of the existing east-west orientated hangar building, GAE₂ provides a suitable location for medium-term general aviation hangar expansion given its valuable location adjacent to the primary runway.

6.1.4 Potential Future Industrial Precincts (PFIA, PFI)

The inclusion of the Potential Future Industrial (PFI) precincts areas reflects the strategic interest by Wangaratta Aerodrome to support a freight and logistics facility as outlined in the MSS, The Rural City of Wangaratta Economic Development Strategy 2016-2020 and the Wangaratta Freight and Land Use Study (AECOM, 2016). This area may also be suitable for other forms of industrial or warehouse use subject to further investigation.





The proposed area for the PFI is located partly inside and partly outside the aerodrome boundary, north of Brian Higgins Drive, is shown in Figure 16. The PFI Aviation (PFIA) precinct, located north of GAE2 and outside the existing aerodrome boundary is recognised as valuable for aviation related industrial developments due to its proximity runway.

The zoning of the area allocated to the PFI precinct is either PUZ4 or Farming and will require a planning change to accommodate industrial use. The PFI precinct is located on both Council owned and privately-owned land, as well as outside the current airport boundary.

Any future industrial development on the aerodrome will need to consider impacts on the amenity of the surrounding area, particularly nearby dwellings. Whilst located in the Farming Zone, there are a number of dwellings located to the west and north-west of the proposed PFI precinct.

6.1.5 Car Park Expansion (CPE)

The car park expansion precinct provides for an extension to the existing car park to the to the west of the existing car park and south of the GAE1 precinct. The trigger for this development will be based on the future car parking demand. The car park also links the main entrance road to the GAE2 precinct.

6.1.6 Other Options

During the Master Plan development an Air Park precinct and a third General Aviation Expansion (GAE₃) precinct were identified as potential development opportunities.

Aerodrome Air Parks, also referred to as fly-in communities, involve residential developments on an aerodrome site, with residents owning hangars adjacent, or attached, to their homes providing easy access to a runway. Stakeholder feedback indicated that Wangaratta Aerodrome could have the potential support this model, which involves residential development on airport land and has been implemented at other aerodromes such as Yarrawonga and Temora, NSW. A parcel of land on the southern side of RWY 09/27 was earmarked as a potential location for this development, as it would keep it separate from the main aerodrome activities and provide direct access to the airfield.

The additional GAE₃ precinct was conceptually located on the northern side of RWY 09/27, immediately south of Brian Higgins Drive.

However, flood level assessment provided by NECMA on 14th November 2017, has recommended that the proposed site is not suitable for development due to an elevated risk of flood events. In consideration of the NECMA finding, it is deemed that neither development is possible unless the drainage and inundation issues are investigated in further detail.

6.1.7 General Land Use Guidelines

Use and development of the aerodrome land and surrounding land should comply with the following general guidelines:





- Future use and development must comply with this Master Plan and be compatible with ongoing aerodrome operations.
- Reservation of aerodrome land for its designated use in accordance with the Land Use Precincts Plan.
- Development in any individual precinct should be undertaken in accordance with a detailed precinct development plan.
- Ensure that appropriate utility services are provided for new development.
- Ensure that industrial activities do not produce air emissions that are likely to impact on aviation activities.
- Ensure that surrounding lighting does not affect aerodrome operations.
- Ensure that buildings do not exceed the heights specified in the Obstacle Limitation Surfaces (OLS) chart that will affect flight paths or aerodrome operations.
- Ensure that neighbouring land uses are not sensitive to aircraft noise (residential use should be carefully considered).
- Ensure that land uses, and landscaping do not attract wildlife that could be a hazard to aircraft operations.
- Ensure that convenient, safe, and efficient vehicle access is provided within and to the site.
- Any future industrial development on the aerodrome must consider impacts on the amenity of the surrounding area, particularly nearby dwellings.

6.2 Facilities Development Plan

This section sets out the future facility development plan for Wangaratta Aerodrome. The plans provided are concept only and will require further detailed design. Planning and construction for all developments should be in accordance with CASA Regulations in MOS 139.

6.2.1 Runways

The current primary runway (18/36) is a 30m wide, 1640m sealed runway capable of accommodating most Code 3C aircraft and non-precision approaches.

The runway strip is 150m wide, which complies with CASA requirements for a 30m wide non-precision Code 3C runway. Gable markers at the aerodrome are correctly located either side of the runway at 150m concurring with ERSA. The current runway configuration is suitable for the design aircraft of the SAAB 340.

In the proposed timeframe of this Master Plan, the existing RWY 18/36 dimensions and pavement strength are suitable to support all operations at Wangaratta. However, depending on future aircraft traffic requirements, **Council should investigate strengthening the runway pavement to accommodate larger Code 3C aircraft, such as the Dash 8 Q400**.

To support precision approaches or be available for Code 4C aircraft without a CASA exemption requires a widening of the RWY 18/36 strip to 300m. It is not possible to widen the RWY 18/36 strip without constructing a new runway further east or relocating the terminal building and commercial hangars.

The secondary runway (09/27) is a 560m unsealed runway which is 18m wide and is suitable for Code 1B aircraft. The runway strip is 60m wide, which complies with CASA requirements for an 18m wide non-precision Code 1B runway. Gable markers at the aerodrome are correctly located either side of the runway





at 6om concurring with ERSA. The previous Master Plan included plans for an extension of RWY 09/27, with additional land acquired towards the East side of the primary runway in preparation for the upgrade.

During interviews, stakeholders informed the team that the primary purpose of grass RWY og/27 is for flight training purposes and private aircraft, notably those using a tail wheel.

Runway 09/27 is usually unavailable for 2-3 months during winter due to the wet ground. Pilots are notified of the runway status via NOTAM. Some pilots also highlighted some unevenness in the runway surface due to incidence of paspalam grass, other pilots did not seem concerned by this.

Previous master planning studies have proposed extending and sealing RWY 09/27, and land has been set aside for this purpose. This would improve the availability of the runway and enable use by larger aircraft in crosswind conditions although information gathered during the Master Plan process indicates very little demand for these scenarios and an upgrade would also remove a preferred surface for pilot training and tail-dragger aircraft.

This Master Plan recommends not upgrading RWY 09/27 until traffic demand warrants such an investment. Council should retain the land acquired for the extension should future planning studies identify a need.

6.2.2 Apron (Apron parallel taxiway)

Wangaratta Aerodrome does not have a separate apron for aircraft parking and aircraft usually park on the apron parallel taxiway or available tie-down locations. If an aircraft is parked on the apron parallel taxiway there is no access between the runway connecting taxiways via the apron parallel taxiway.

Given the low likelihood of RPT operations commencing during the tenure of this Master Plan, there is **no** recommendation to develop a permanent parking apron.

The pavement strength of the apron parallel taxiway is unknown and may require an overlay to support heavier aircraft. **Prior to any development to introduce regular Code 3C traffic, Council should consider geotechnical testing to assess the pavement thickness and subgrade strength.**

The width of the apron parallel taxiway located in front of the Aero Club building and commercial hangars is 14.98m, insufficient for Code C aircraft, with the required clearance between the taxiway centreline and buildings 26m as per MOS 139 – Aerodromes, which is also not available.

The width of parallel taxiway apron strip between the hobby hangar and fuelling facility is 32.02m and does not provide the required centreline clearance of 26m to either building for Code C aircraft.



Code A and Code B aircraft can use the parallel taxiway apron as far as the Aero Club without restrictions, beyond which point only Code A aircraft can use the parallel taxiway apron unrestricted. **The parallel taxiway apron strip will require widening in order to provide the required clearance from the Aero Club building for Code B (20m) or Code C (26m) in line with MOS 139 – Aerodromes, section 6.3.12**.

6.3.12 Width of Taxiway Strip

The width of the taxiway strip along the length of the taxiway on each side of the centreline of the taxiway must not be less than the following:

- (a) if the taxiway's code letter is F 51 m;
- (b) if the taxiway's code letter is E 43.5 m;
- (c) if the taxiway's code letter is D 37 m;
- (d) if the taxiway's code letter is C 26 m;
- (e) if the taxiway's code letter is B 20 m;
- (f) if the taxiway's code letter is A 15.5 m.

CASA Manual of Standards: MOS 139

The centreline of the parallel taxiway apron adjacent to the Aero Club building is 18m from the Aero Club building and 14m to the fuelling facility, as shown in Figure 17. To enable Code B aircraft to taxi past this point there needs to be a 20m clearance either side of the taxiway centreline. This can be achieved by relocating the fuel bowsers at the fuel facility from the west of the fuel tanks, to the north and south. Furthermore, additional apron space should be provided to enable refuelling aircraft to position to the north and south of the fuel facility, allowing taxiing traffic to pass, as shown in Figure 18. This would be a pre-requisite for the GAE 2 precinct, as well as providing access to the fuelling facility for larger aircraft in the future. For Code C aircraft to use the parallel taxiway apron north of the Aero Club building, there would need to be a study of fuel facility location.



Figure 17 - Current apron taxiway clearance to the Aero Club building and aircraft fuelling facility



As operations at the aerodrome expand to include the development of the GAE2 precinct, the parallel apron taxiway should be extended to service the precinct. Subject to the aircraft type serviced by the development of GAE2, it is recommended the parallel taxiway be constructed as Code B (10.5m inside a 40m wide strip) or Code C (15m inside a 52m wide strip) in accordance with MOS 139 - Aerodromes.

It was observed that there is some loose gravel present on the current apron, following the resurfacing works in 2015, which can cause propeller damage. **The apron / Parallel taxiway apron should be resealed and repaired**.

6.2.3 Taxiways

There are currently two taxiways linking RWY 18/36 to the apron / parallel apron taxiway. The two taxiways connecting to the runway are both 15m wide and are suited for Code 3C aircraft with a wheel span of less than 18m. This configuration is suitable for the SAAB 340 as the design aircraft, and the Dash 8 Q400.

The southern connecting Code C taxiway is located in the undershoot for RWY 27 / overshoot for RWY 09, representing a potential safety risk for aircraft entering or leaving the runway using this taxiway when aircraft are approaching or departing RWY 09/27. A review of aerodrome procedures and publications have not highlighted this risk factor. The Master Plan **recommends including a reference to this potential hotspot in the aerodrome manual and / or ERSA**. The **annual OLS survey should verify whether aircraft using RWY 18/36 are penetrating the runway approach surface for RWY 27.**

Subject to future demand, the concept plan details an additional taxiway to link the GAE2 precinct to the primary runway to improve capacity of the aircraft movement area, as well as an extension of the existing parallel taxiway to service the GAE 2 precinct. The current pavement grade of the taxiway is unknown and will need to be at a strength able to accommodate the nominated design aircraft.

6.2.4 Aircraft fuelling facility

The current fuelling facility is suitable for the forecast operations. Due to the complexity and cost associated with relocating the aircraft fuelling facility, **the concept plan recommends relocating the bowsers to the north and south of the fuel tanks and constructing additional apron space for refuelling aircraft.**, as shown in Figure 18.







Figure 18 - Aircraft fuelling apron

6.2.5 Hangars and aircraft parking

Feedback from the existing tenants of the commercial hangars indicated that hangar size is the main constraint for their commercial maintenance/fabrication/restoration facilities. The current commercial hangar sizes limit the type and number of aircraft worked on and these businesses will require additional space in the future in order to expand.

Information provided by Council and the stakeholder consultation process flagged the need for additional hangar space at the aerodrome. To address this, additional hangar spaces have been allocated in the GAE precincts, detailed in the concept plan shown in Appendix B: Concept Plan. An additional tie down area has been allocated opposite the GAE2 precinct. All hangar developments should provide adequate fencing and security measures to prevent inappropriate airside access.

These plans are concepts only and will require further detailed design in compliance with MOS 139 – Aerodromes. Development of the hangars, or any other building, must not penetrate the OLS.

The GAE1 precinct utilises the vacant land between the existing hangar and car park, west of the Aero Club building (see Figure 19). A key constraint for this development would be the Aero Club building, limiting the width of the clearance distance from the taxiway centreline. The existing width between the Aero Club building and the existing hangar to the north does not provide the required clearance to allow any aircraft to taxi into the hangars.

In consideration of this, a Code A taxiway is proposed to be linked to the Code B taxiway north of the existing hangar and terminating before the Aero Club building, creating a "looped" taxiway as shown



in Figure 19. This option will allow the Aero Club building to be retained, while allowing aircraft to taxi to the GAE1 precinct.

The taxiway strip for the "looped" Code A taxiway 31m wide and does not allow for aircraft to be parked in front of the hobby hangar.

An alternative potential solution to the taxiway clearance issue would be to relocate the Aero Club to another location, such as the terminal building, allowing access to the GAE1 development directly from the parallel taxiway apron (as shown in Figure 20). The Aero Club relocation option is discussed further in Section 6.2.6.



Figure 19 - GAE1 development ("looped" taxiway access)



Figure 20 - GAE1 development (Aero Club relocation)

The concept plans show hangars in the GAE2 precinct will be developed in road access-hangar-taxiway configuration "complexes" allowing for flexible staging as shown in

Figure 21.

The hangars in Stage 1 are suitable for Code B aircraft, with a taxiway strip of 40m and an additional 15m on each side to provide aircraft parking in front of the hangars, giving a total width of 70m.

Stage 2 allows for either a Code B compliant or Code C hangar complex, depending on future requirements. A Code C complex will require a total taxiway strip width of 82m, including 15m of aircraft parking in front of each hangar. Each complex option is illustrated in more detail in Appendix B: Concept Plans.







Figure 21 - GAE2 staging

6.2.6 Passenger terminal building

The current terminal building is more than spacious enough for current charter and event activity conducted at the aerodrome and remains unused for most of the time. Feedback during the stakeholder consultation process and previous Master Plan revealed that the terminal building is underutilised.

The building sits on two titles of different ownership, and there is existing access to the terminal from the adjacent commercial hangar building. Access to the passenger terminal building from this adjacent business will be restricted in the near future due to building regulations.

Relocation of the Aero Club into a portion of the passenger building is one of the proposed options for improved utilisation of the building. The current Aero Club building is about half the size of the current passenger terminal building. This provides an opportunity to alleviate both the taxiway and GAE1 expansion taxiway development limitations due to the current location of the Aero Club building. Currently, the passenger terminal building is not accessible to the public or visiting aircraft, contributing to the underuse of the building. The Aero Club occupying a portion of the terminal would add the benefit of building maintenance and allow visiting recreational flyers to access and use the facilities in the premises. Other potential uses for the remaining portion of terminal building can be the following:

- Open for itinerants and charter flights
- Exhibits (fixed or limited-time) such as historical aviation or regional promotion
- Community fund raising / function hall (in conjunction with events)
- Business offices / flying school / Aerodrome manager's office







A draft floor plan of the potential distribution of terminal building uses is shown in Figure 22.

Figure 22 - Potential terminal building uses

6.3 Ground Transport Plan

The current road access to Wangaratta Aerodrome is Brian Higgins Drive, off Greta Road. Brian Higgins Drive is currently suitable for the present activities at Wangaratta Aerodrome. **It is proposed that a new north-south road be constructed off Brian Higgins Drive located on the west of the car park expansion, to service the GAE2 precinct.**

Subject to future development, a potential future east-west road could be constructed north of Brian Higgins Drive, providing road access to into the PFI precinct with a possible connection to the new road west of the GAE₂ precinct. **An extension to car parking in the Car Park Expansion precinct (CPE), based on demand as the trigger for development is also outlined**.

6.4 Security

Wangaratta Aerodrome is not configured to allow for security controlled RPT operations, although adequate space within the terminal building is available should the requirement arise. Aerodrome fencing, and some security surveillance systems exist on the airport site but require updating. Some aerodrome tenants have private surveillance for their premises.





Some incidents of aircraft break-ins and fuel pilferage have been reported, indicating that a review of security arrangements would be beneficial. Council is aware of the recent focus by Federal and State governments on airport security and committed to ensuring that Wangaratta Aerodrome will remain compliant with all relevant regulations.

6.5 Environmental and Heritage Management Plan

As noted in Section 3.8, there are currently no known heritage and environmental protections over the aerodrome site. However, Council is committed to meeting the obligations under the EPBC Act and State legislation and reducing any adverse environmental and heritage impacts of aerodrome activities to a minimum.

The recommendation of the Master Plan is to conduct a Flora and Fauna Assessment prior to major development works.

6.6 Airport Safeguarding Plan

Airport sites are scarce and finding new appropriately located and unconstrained land to replace or expand existing airports is difficult. Existing airport sites in many cases pre-date significant urban/township development. Urban expansion and densification has increased tensions between residential and industrial development and airport operations.

The capacity of an airport to operate unencumbered is fundamentally dependent on what occurs on the land surrounding it. The erection of structures that physically intrude into the flight paths of arriving and departing aircraft can clearly limit or prevent use of the airport. So too can other developments that are less obvious. For example:

- Residential developments adjacent to airports and under flight paths may lead to complaints about aircraft noise and eventually lead to the introduction of curfews or even the closure of an airport
- Industrial activities that generate smoke or similar hazards may constrain use of an airport
- Other activities such as agriculture, animal husbandry or wetland developments may attract birds and/or wildlife species and pose a hazard to aviation.

6.6.1 National Airports Safeguarding Framework

As outlined in Section 2.5.1, the National Airports Safeguarding Framework (NASF) is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports; and
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions.

The assessment of all land use and development proposals around Wangaratta Aerodrome should

consider the NASF guidelines. This principle should be reflected in the Wangaratta MSS. The key issue in relation to airport protection is to ensure that the use and development of land surrounding the airport does not prejudice the ongoing operation of the airport. The two most important safeguarding requirements for smaller regional airports such as Wangaratta Aerodrome involve ensuring that:





- development proposals near the airport and under flight paths do conflict with the airport's airspace protection surfaces; and
- changes of land use near the airport and under flight paths are not for land uses that may be sensitive to aircraft noise (e.g. residential land uses) as defined by the applicable aircraft noise contours.

These two critical safeguarding matters, as they relate to Wangaratta Aerodrome, are discussed below.

6.6.2 Airspace protection surfaces

An Obstacle Limitation Surface (OLS) has been designed for Wangaratta Aerodrome which defines a set of invisible surfaces above the ground around the aerodrome. The OLS generally consist of various invisible surface components with specific characteristics depending on the runway configuration. The airspace above these surfaces forms the aerodrome's protected airspace. The OLS is designed to provide protection for aircraft flying into or out of the aerodrome when the pilot is flying by sight.

The CASA Manual of Standards Part 139 - Aerodromes defines Obstacle Limitation Surfaces (OLS) as: "A series of planes associated with each runway at an aerodrome that defines the desirable limits to which objects may project into the airspace around the aerodrome so that aircraft operations at the aerodrome may be conducted safely."





Airspace protection surfaces are critical for aerodrome safeguarding purposes, in relation to both onaerodrome and off-aerodrome development. Within the aerodrome site, airspace protection surfaces are particularly relevant for the development of landside facilities and will influence the location and height of future development on the site. Limiting the height of development close to runway(s) is critical. Future development areas on the aerodrome, particularly close to the runways, should have a maximum building height restriction applied, as per the aerodromes OLS plan, to ensure that buildings and other structures do not intrude into the applicable airspace surfaces.

MCa <Michael Connell & Assocs.>



The current Wangaratta Aerodrome OLS plan is shown in Appendix D: Obstacle Limitation Surface. The height of development further away from the runway(s) may increase in accordance with the applicable surfaces, based on Code number and precision or non-precision nature of the runway.

The previous Master Plan included an OLS plan which remains relevant today, as the current runway configuration remains the same. Council conduct an annual survey of obstacles within the OLS. The current OLS is shown in Appendix D: Obstacle Limitation Surface.

Appropriate airspace protection planning controls should be in place based on the applicable airspace surfaces, as recommeded in the *National Airports Safeguarding Framework, Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports.* Unlike many other aerodromes, **there is no Design & Development Overlay (DDO) in place to protect Wangaratta Aerodrome's OLS surfaces. It is a recommendation of this Master Plan that a DDO be applied for this purpose**.

The most recent OLS was prepared in the previous Master Plan in 2003. As the runway configuration has not changed since the previous Master Plan, the current OLS remains relevant. An OLS survey is carried out annually by Council, as per CASA requirements.

Some pilots remarked that tall trees are present in the approach path for RWY 27 affecting perception. Recent obstacle surveys have not identified any penetrations in the OLS for this approach but it a further discussion with local pilots and / or the Aero Club to understand the extent of the issue would be prudent.

6.6.3 Aircraft noise contours

The assessment of aircraft noise effects is an important consideration in the development of an aerodrome Master Plan. It aims to ensure that:

- Sensitive land uses are not located in areas of unacceptable aircraft noise;
- The amenity of surrounding developments is not adversely affected by aircraft noise; and
- Aerodrome operations are protected long term from conflicts due to the encroachment of inappropriate development into noise affected areas.

An Australian Noise Exposure Forecast (ANEF) is a contour map showing the forecast of aircraft noise levels that are expected to exist around an aerodrome in the future. Recommendations relating to land use within the ANEF contours are contained in *Australian Standard AS2021-2015* "*Acoustics – Aircraft Noise Intrusion – Building Siting and Construction*". These recommendations are summarised in Table 10 below. This is a summary, only the Australian Standard should be read for full details of the land use recommendations, and associated notes and conditions.



	ANEF Zone of Site				
Building Type	Acceptable ¹	Conditional ²	Unacceptable ³		
House, home unit, flat, caravan park	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF		
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF		
School, university	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF		
Hospital, nursing home	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF		
Public building	Less than 20 ANEF	20 to 30 ANEF	Greater than 30 ANEF		
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF		
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF		
Other industrial	Acceptable in all ANEF zones				

Table 10 - Building Site Acceptability Based on ANEF Zones (Based on Australian Standard AS2021-2015 Table 2.1)

Most airport Master Plans include an ANEF chart along with a discussion of its implications for land use on the airport site and on surrounding land.

The National Airports Safeguarding Framework Guideline A: Measures for Managing Impacts of Aircraft Noise, contains further information and recommendations regarding aircraft noise contours which should be considered by aerodrome operators. This includes the use of the "Number Above" noise metric (commonly referred to as N-contours) to supplement the ANEF.

The N-contour system is a complementary aircraft noise metric that shows the potential number of aircraft noise events above 6odB(A), 65dB(A) or 7odB(A) per day. It has some advantages over the ANEF system because it shows noise in a way that a person perceives it – as a number single events per day above a certain decibel level.

The most recent ANEF completed for Wangaratta Aerodrome was in 2003 as part of the previous Master Plan, a copy of that ANEF is attached at Appendix E: ANEF. To our knowledge N contours have never been prepared for the aerodrome.

The ANEF prepared in 2003 is now outdated and it is a recommendation of this Master Plan that a new ANEF as well as N contours be prepared for the aerodrome to ensure up-to-date noise exposure

¹ 'Acceptable' means that special measures are usually not required to reduce aircraft noise.

² 'Conditional' means that special measures (noise attenuation) are required to reduce aircraft noise.

³ 'Unacceptable' means that the development should not normally be considered.





forecasts are available for aerodrome safeguarding purposes, and to inform surrounding land use planning in accordance with NASF Guideline A. The ANEF should be endorsed by Airservices.

The Airport Environs Overlay (AEO) has been applied to the ends of the RWY 18/36, protecting the departure and arrival ends of the runway from any noise sensitive land uses that may prejudice aerodrome operations. However the boundaries of the AEO do not relate to an ANEF which they should do according to standard practice, and AEO Schedule 2 has not be applied. These matters should be addressed to ensure consistency with AS2021-2015. Using an up to date ANEF, the AEO should be amended in accordance with the new contours, including use of both AEO schedules 1 and 2.

6.6.4 Planning policies and controls

It is important to the future realisation of aeronautical opportunities at Wangaratta Aerodrome that the capability to undertake aircraft operations in accordance with prescribed safety standards and regulatory requirement is protected.

A number of planning tools and controls exist within the Victorian Planning Provisions for safeguarding Airports:

- The Local Planning Policy Framework, including the Municipal Strategic Statement and Local Planning Policies can be used to highlight the strategic importance of protecting the ongoing operation of the aerodrome;
- Zoning is used to ensure that future land use and development around the aerodrome is responsive to ongoing aviation activities; and
- Overlays such as the Airport Environs Overlay (AEO) and Design and Development Overlay (DDO) deal with matters such as protecting aircraft noise contours and operational airspace surfaces.

The existing planning policies and controls applying to Wangaratta Aerodrome were identified in Section 2.5.

The following recommendations are made to improve these policies and controls and enhance the safeguarding of Wangaratta Aerodrome:

- Amending the MSS to highlight the role and importance of the aerodrome as well as the need to safeguard its ongoing operation in accordance with the principles and guidelines of NASF.
- Amending the Zoning for the aerodrome from Public Use Zone 4 to Special Use Zone to allow and support more flexible land use and developments at the aerodrome, including nonaviation developments, consistent with the zoning applying to many other aerodromes in Victoria.
- Amending the Airport Environs Overlay to properly reflect updated ANEF contours. (and Australian Standard AS2021-2015), including use of both AEO schedules 1 and 2.
- Introduction of a DDOs to protect the aerodrome's Obstacle Limitation Surfaces (OLS).

A planning scheme amendment should be prepared incorporating these matters once the new ANEF has been prepared and endorsed by Airservices Australia.





In relation to amending the MSS, it is **recommended that Clause 21.08 be amended to highlight the economic development and tourism role of the aerodrome and the importance of safeguarding its ongoing operation**. This may be achieved simply by adding some dot points to the existing clause, such as:

- Wangaratta Aerodrome plays a valuable economic development and tourism role in the municipality with potential for expansion of its existing activities. This includes potential for a freight logistics facility associated with the aerodrome (discussed in Clause 21.11).
- Promote and develop Wangaratta Aerodrome as a tourism attraction and opportunity.
- Ensure the long-term protection of Wangaratta Aerodrome in accordance with Clause 18.04-2, the National Airports Safeguarding Framework and the Wangaratta Aerodrome Master Plan.

In Clause 21.11 of the MSS it is recommended that new strategic direction dot points be added regarding development opportunities and safeguarding the community asset, such as:

- Support and promote further General Aviation development at Wangaratta Aerodrome.
- Ensure the long-term protection of Wangaratta Aerodrome in accordance with Clause 18.04-2, the National Airports Safeguarding Framework and the Wangaratta Aerodrome Master Plan.

A draft Special Use Zone (SUZ) schedule for the aerodrome has been prepared for Council's consideration. This is attached at Appendix F. The proposed SUZ schedule is based on the schedules that apply at several other aerodromes in Victoria.

In addition, a draft map showing three proposed DDOs, as well as draft DDO schedules, have been prepared to protect the aerodrome's OLS, based on the approach adopted at several other aerodromes in Victoria and the OLS plan prepared by Connell Wagner (Appendix D). These documents are attached at Appendix G. The details of the proposed three DDOs are as follows:

DDO Number	OLS Surface	DDO Permit Trigger
DDO4	Take-off climb, approach and transitional surfaces (part)	Buildings or works above 153m AHD
DDO5	Take-off climb, approach and transitional surfaces (part)	Buildings or works above 170m AHD
DDO6	Inner Horizontal Surface	Buildings or works above 196m AHD

The proposed DDOs are based on the aerodrome's OLS and will help enforce height limits and minimise potential obstacles that could affect the aerodrome's operations. The DDOs require a permit for buildings or works that could potentially breach the applicable surfaces.





It is noted, however, that whilst the proposed DDOs are based on the OLS plan, they do not replicate the OLS height limits. This is because the OLS plan comprises a series of surfaces (many of which are not horizontal) which cannot be effectively translated directly into planning scheme height controls. The DDOs therefore adopt a conservative approach to height control in the vicinity of the aerodrome, consistent with the approach adopted at other aerodromes.





7 Implementation plan

This Master Plan provides Council with a strategic direction and guidelines for future development of Wangaratta Aerodrome. It is a strategic document that aims to assist Council in planning for the next 20 years. Implementation of this plan will require a number of actions to be undertaken.

7.1 Summary of key issues and recommendations

This section provides a summary of recommendations for the key issues highlighted throughout the report. Table 11 sets out the recommendations and actions, associated key trigger points and indicative timings arising from this Master Plan. The nominated period is indicative only and may change depending on a range of financial, operational, user group and community needs and demands. In addition to normal project procurement processes, some actions may require associated enabling activities such as lease renegotiations and potentially, the relocation of existing land uses / buildings.

The timings are defined as:

- Immediate term: 0-12 months
- Short term: 1-5 years
- Medium term: 5-10 years
- Long term: 10+ years

The advancements of major projects in the tables below will required detailed planning. The Wangaratta Aerodrome – Business Case Report has been written by Michael Connell & Associates in conjunction with the Master Plan to provide a more in-depth analysis of the economic case supporting future development at the aerodrome including the projects listed in the tables below, although further individual examination will be required for each project.

No.	Section	Summary of Action	Trigger Point / Rationale	Indicative Timing
1	3.4.1 Aviation Activities (p25)	Explore opportunities to link local community groups to events at the aerodrome (i.e. VJAA events)	Ongoing	Short Term
2	5.6 Navigation Systems (p46)	Review NDB viability as no longer required operationally by Airservices	Consultation with CASA and Aerodrome users	Short Term / Medium Term
3	6.1.2 Existing Aviation Precinct (p49)	Ensure no plans for development on the grass viewing area between the terminal building and commercial hangar.	Permits public access for viewing events, joy flights and meeting visitors	Medium Term

Table 11 – Master Plan recommendations





No.	Section	Summary of Action	Trigger Point / Rationale	Indicative Timing
4	6.1.3 General Aviation Expansion Precincts (GAE1 & GAE2) (p49)	GAE1 precinct development	Subject to decision concerning Aero Club location (Looped taxiway vs direct access)	Medium Term (Subject to funding / grant approval)
5	6.1.3 General Aviation Expansion Precincts (GAE1 & GAE2) (p49)	GAE2 precinct development	Completion of GAE1 development and sufficient growth to provide a business justification	Long Term (Subject to funding / grant approval)
6	6.1.4 Potential Future Industrial Precincts PFIA & PFI (p49)	Maintain the PFIA precinct for aviation related development	Protect available land adjacent to a runway which has higher value to an air freight operation	Long Term
7	6.2.1 Runways (p51)	Retain land acquired for extension of and sealing of RWY 09/27	Reserved for future use	Long term
8	6.2.2 Apron (Apron parallel taxiway) (p52)	Evaluate pavement strength of the taxiways and parallel taxiway apron	Regular (once per week) use of the aerodrome by Code C aircraft	As required
9	6.2.2 Apron (Apron parallel taxiway) (p52)	Widen parallel taxiway apron strip adjacent to Aero Club building to allow Code B	Planning for GAE1 precinct	Short Term (Subject to funding / grant approval)
10	6.2.2 Apron (Apron parallel taxiway) (p52)	Relocation of aircraft fuelling facility to comply with adjacent taxiway Code C requirements	Required if GAE2 development is supporting Code C aircraft	Long Term / As required (Subject to funding / grant approval)
11	6.2.2 Apron (Apron parallel taxiway) (p52)	Apron / Parallel taxiway apron resealing repairs	Following consultation with the Aerodrome User Group to assess extent of the issue	Short Term





No.	Section	Summary of Action	Trigger Point / Rationale	Indicative Timing
12	6.2.3 Taxiways (p54)	Construction of an extension to the parallel taxiway apron to Code C requirements	Required if GAE2 development is supporting Code C aircraft	Long Term / As required (Subject to funding / grant approval)
13	6.2.3 Taxiways (p54)	Review safety procedures regarding potential conflict area between RWY 27 approach path and traffic on RWY 18/36 (and southern link taxiway)	Consultation with CASA and Aerodrome Users Verification of annual OLS survey results	Short Term
14	6.2.4 Aircraft fuelling facility (p54)	Construct additional apron space to the north and south of the aircraft fuelling facility and relocate fuel bowsers	Commencement of GAE1 development to accommodate taxiway widening and reduce congestion	Short Term (Subject to funding / grant approval)
15	6.2.5 Hangars and aircraft parking (p55)	Additional tie down area opposite GAE2 precinct to increase aircraft parking	Commencement of GAE2 development	Long Term (Subject to funding / grant approval)
16	6.2.6 Passenger terminal building (p57)	Review location of Aero Club building	Planning phase for GAE1 precinct	Short Term
17	6.3 Ground Transport Plan (p58)	Construction of a new access road off Brian Higgins Drive and Car Park extension precinct to serve GAE2 precinct	Completion of GAE1 development and sufficient growth to provide a business justification	Long Term (Subject to funding / grant approval)
18	6.4 Security (p58)	Review of security facilities	Consultation with Aerodrome Users and local police	Short Term
19	6.5 Environmental and Heritage Management Plan (p59)	Flora and fauna assessment	Planning for GAE1 precinct	Medium Term





No.	Section	Summary of Action	Trigger Point / Rationale	Indicative Timing
20	6.6.1 National Airports Safeguarding Framework (p59)	Assessment of all land use and development proposals around Wangaratta Aerodrome should consider NASF guidelines	Upon adoption of Master Plan	Ongoing
21	6.6.3 Aircraft Noise Contours (p61)	Prepare a new ANEF as well as N contours for the aerodrome to ensure up-to-date noise exposure forecasts are available for aerodrome safeguarding purposes.	Upon adoption of Master Plan	Short Term
22	6.6.4 Planning policies and controls (p63)	Amending the MSS to highlight the role and importance of the aerodrome as well as the need to safeguard its ongoing operation in accordance with the principles and guidelines of NASF.	Upon adoption of Master Plan	Short Term
23	6.6.4 Planning policies and controls (p63)	Amending the Zoning for the aerodrome from Public Use Zone 4 to Special Use Zone to allow and support more flexible land use and developments at the aerodrome.	Upon adoption of Master Plan	Short Term
24	6.6.4 Planning policies and controls (p63)	Amending the Airport Environs Overlay to properly reflect updated ANEF contours.	Upon endorsement of the ANEF to ensure consistency with contours.	Short Term
25	6.6.4 Planning policies and controls (p63)	Introduction of Design and Development Overlays (DDO) for airspace protection surfaces (OLS).	Upon adoption of Master Plan	Short Term
26	6.6.4 Planning policies and controls (p63)	Clause 21.08 of MSS to highlight the economic development and tourism role of the aerodrome and the importance of safeguarding its ongoing operation	Upon adoption of Master Plan	Short Term
27	6.6.4 Planning policies and controls (p63)	Clause 21.11 of the MSS, additional bullet points regarding development opportunities and safeguarding community asset	Upon adoption of Master Plan	Short Term

7.2 Master Plan next steps

The following table sets out the key actions required to implement this Master Plan. It includes trigger points and a broad indication of likely timing for each action.



Airport Master Plans are typically reviewed every five years to ensure they address any changes in relevant circumstances or conditions. One of the actions in the Implementation Plan therefore is to review this Master Plan in 5 years. For this reason, the Implementation Plan below focuses on the first five years of the planning period. However, based on current information these actions are expected to cover the critical matters. Other actions may be required but they are likely to be related to non-aviation/industrial development and will be market driven.

Indicated costs are rough order of magnitude (-25% / +75%), exclusive of contingency, and are valid as of January 2018. Hangar development costs are based on established practices whereby Council prepares the site and concrete base and the customer funds the construction of the structure.

Action	Trigger Point	Indicative Timing	
Master Plan / Strategic			
Commence Community Engagement	Council approval to release the Draft Master Plan for community comment	February 2018	
Release of Final Masterplan	Council adoption of the Master Plan	Immediately upon adoption by council – 2018	
Master Plan review		5 years from adoption	
Planning			
Review the zoning and Planning Scheme controls over the aerodrome to ensure it is responsive and allows future growth and development.	Adoption of Master Plan	Short term	
Undertake a planning scheme amendment	Adoption of Master Plan	2018	
Implement Design & Development Overlays for airspace protection	Adoption of Master Plan	2018	
Operational Management			
Commission an Australian Noise Exposure Forecast (ANEF) report and preparation of N contours Obtain endorsement from Airservices Australia	Adoption of Master Plan	2018	
Review NDB status and ongoing retention requirements	Adoption of Master Plan	2018	

Table 12 - Implementation Plan





Action	Trigger Point	Indicative Timing
Review safety procedures concerning potential conflict area between RWY 27 approach surface and southern exit taxiway	Adoption of Master Plan	2018
Review airport security	Adoption of Master Plan	2018
Marketing and Public Awareness		
Leverage local interest in historical aviation, warbird aviation and networking connections with Temora	Ongoing	2018-19
Continue working with tour operators and recreational aviation business (including flying schools) to establish and grow more businesses at the site	Ongoing	2018-19
Infrastructure		
 GAE1 Precinct Development Taxiway - \$125K Hangar Site Preparation & Base - \$90K Apron - \$90K Parallel Taxiway Apron Strip Widening - \$85K Fuel Bowser relocation – unknown Drainage / Sewerage / Utilities 	Adoption of Master Plan Economic justification Sufficient demand Funding availability (Public / Private / Grant)	Short – Medium Term
GAE2 Precinct Development – Stage 1 Hangar Site Preparation & Base - \$56K Apron - \$210K	GAE1 Completion Adoption of Master Plan Economic justification Sufficient demand Funding availability (Public / Private / Grant)	Medium Term

Future land-use and infrastructure development 7.3

In addition to the 5-year horizon of the implementation plan, there are further developments discussed in the Master Plan. These future concepts are outlined in Table 13 below.




Table 13: Future infrastructure development

Action	Trigger Point	Indicative Timing
Access road link – Brian Higgins Drive to GAE2 precinct	GAE2 Precinct Development	Medium Term / Long Term
• Road - \$225K		
GAE2 Precinct Development – Stage 2	GAE1 Completion	Long Term
• Taxiway - \$125K	Economic justification	
• Parallel Taxiway Extension - \$375K	Sufficient demand	
• Hangar Site Preparation & Base - \$115K	Funding availability (Public /	
• Apron - \$455K	Private / Grant)	
Tie-down parking area		
Drainage / Sewerage / Utilities		
New Code C taxiway linking the parallel taxiway	GAE ₂ Precinct Development	Long Term
apron to RWY 18/36 adjacent to GAE2	Traffic demands	
Access road link – Brian Higgins Drive to GAE2 precinct	GAE2 Precinct Development	Long Term
• Road - \$225K		
Runway strengthening	Demand or introduction of aircraft	Medium Term /
PEIPrecinct	Subject to business case and demand	Long Term / Future plan
	Cubiact to business sace and	Long Torm /
	demand	Future Plan
Car Park Expansion	Subject to demand	Long Term / Future Plan





References 8

Economic Development Strategy 2016-2020, Wangaratta Rural City Council

Manual of Standards Part 139 – Aerodromes, Civil Aviation Safety Authority January 2017

Final Report Wangaratta Aerodrome Master Plan Development, Connell Wagner July 2003

Connecting Australia – The Economic and Social Contributions of Australia's Airports, March 2012, Deloitte Access Economics

Appendix A: Precinct Plan



Legend

Airfield (AF)



Car Park Expansion (CPE)

Existing Aviation Precinct (EAV)

General Aviation Expansion 1 (GAE1)



General Aviation Expansion 2 (GAE2) Potential Future Industrial Aviation (PFIA) Potential Future Industrial (PFI)



Appendix B: Concept Plans











Appendix C: Flood information

CMA Reference No. : Document No. : Applicant Ref No.:

Date :

14 November 2017

Email enquiry 30 August 2017

F-2017-0157

Rob Morris To70 Aviation Pty Ltd 70 Racecourse Road North Melbourne, VIC, 3051

Dear Rob,

Flood enquiry location : Street : Cadastral :

Brian Higgins Drive, Laceby, VIC, 3678 Lot 2, PS326830, Parish of Laceby

Regarding :

Flood Enquiry

Thank you for your enquiry of 30 August 2017, received at the North East Catchment Management Authority (the Authority) on 30 August 2017. I apologise for the delay in providing the information below as we were awaiting supply of data from recent flood modelling in the area.

The North East CMA is a statutory referral Authority for floodplain management under Section 55 of the Planning and Environment Act 1987.

Below is the Authority's understanding of the application:

The applicant(s),	Rob Morris
of	To70 Aviation Pty Ltd
	70 Racecourse Road
	North Melbourne, VIC, 3051
representing landowner	Rural City of Wangaratta

requests information relating to the following;

Proposed Development T	ype:	Flood Level Enquiry
Proposed Development D	escription:	Wangaratta Airport Master Plan

on the above mentioned flood enquiry location. The Authority's assessment of the above information has determined that the flood enquiry location is covered by the following Zones and Overlays in the Wangaratta Planning Scheme Zone(s): PUZ4 – Public Use Zone Schedule 4 (Transport)
Overlay(s): FO – Floodway Overlay

Flood levels for the 1% AEP (100 year ARI) flood event have not been designated or declared for this area under the *Water Act 1989.* The Authority's best estimate of the 1% AEP flood level for the location described above varies from RL 152.9 metres AHD (southern end of runway) to RL 151.5 m AHD (northern end of runway) (from Wangaratta Urban Waterways Flood Study (2017). In proximity to the existing hangars and infrastructure the 1% AEP level is RL 152.7 m AHD. These levels are derived from a recent flood study and are 0.3-0.6 m lower than historic levels (from October 1993 flood event) previously used to define 1% AEP level in this area.

Consequently the Authority advises that in the 1% AEP flood event land upstream of Brian Higgins Drive will be subject to extensive flooding from the Fifteen Mile Creek system (One Mile Creek and Three Mile Creek). Limited flooding is

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Diverse, healthy landscapes; vibrant communities



Ph: 1300 216 513 Fax: 02 6043 7601 Website: <u>www.necma.vic.gov.au</u> Email: <u>necma@necma.vic.gov.au</u> ABN 53 229 361 440 expected downstream of Brian Higgins Drive however shallow flooding may occur in drainage depressions closer to Greta Road. Flooding around existing infrastructure downstream of Brian Higgins Drive is likely to be limited to drains and depressions. Flooding would also be expected in the drains both east and west of the runway and may extend to the edges of the runway. The extent and depth of flooding in the 1% AEP event is shown in Figure A (attached).

Any further development should be restricted to the land downstream of Brian Higgins Drive. Any development of the land downstream of Brian Higgins Drive (and specifically within approximately 400 m of Greta Road) would need to make appropriate provision to manage local drainage impacts.

The extent of flooding in October 1993 (now considered to be larger than 1% AEP in this area) is shown in Figure B (attached) and can be taken to represent conditions in approximate 0.5% AEP event.

Please note, this document contains flood level advice only and does not constitute approval or otherwise of any development at this location.

Should you have any further queries, please do not hesitate to contact Tim Loffler on 1300 216 513. To assist the Authority in handling any enquiries please quote F-2017-0157 in your correspondence with us.

Yours sincerely,

Tim Loffler Floodplain Specialist

Definitions and Disclaimers

- The area referred to in this letter as the 'proposed development location' is the land parcel(s) that, according to the Authority's
 assessment, most closely represent(s) the location identified by the applicant. The identification of the 'proposed development
 location' on the Authority's GIS has been done in good faith and in accordance with the information given to the Authority by
 the applicant(s) and/or the Rural City of Wangaratta.
- While every endeavour has been made by the Authority to identify the proposed development location on its GIS using VicMap Parcel and Address data, the Authority accepts no responsibility for or makes no warranty with regard to the accuracy or naming of this proposed development location according to its official land title description.
- AEP Annual Exceedance Probability is the likelihood of occurrence of a flood of given size or larger occurring in any one year. AEP is expressed as a percentage (%) risk and may be expressed as the reciprocal of ARI (Average Recurrence Interval).

Please note that the 1% probability flood is not the probable maximum flood (PMF). There is always a possibility that a flood larger in height and extent than the 1% probability flood may occur in the future.

- 4. ARI Average Recurrence Interval is the likelihood of occurrence, expressed in terms of the long-term average number of years, between flood events as large as or larger than the design flood event. For example, floods with a discharge as large as, or larger than the 100 year ARI flood will occur on average once every 100 years.
- AHD Australian Height Datum is the adopted national height datum that generally relates to height above mean sea level. Elevation is in metres.
- 6. No warranty is made as to the accuracy or liability of any studies, estimates, calculations, opinions, conclusions, recommendations (which may change without notice) or other information contained in this letter and, to the maximum extent permitted by law, the Authority disclaims all liability and responsibility for any direct or indirect loss or damage which may be suffered by any recipient or other person through relying on anything contained in or omitted from this letter.
- 7. This letter has been prepared for the sole use by the party to whom it is addressed and no responsibility is accepted by the Authority with regard to any third party use of the whole or of any part of its contents. Neither the whole nor any part of this letter or any reference thereto may be included in any document, circular or statement without the Authority's written approval of the form and context in which it would appear.
- The flood information provided represents the best estimates based on currently available information. This information is subject to change as new information becomes available and as further studies are carried out.

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Diverse, healthy landscapes; vibrant communities



FIGURE A - Modelled 1% AEP flood depth



FIGURE B - October 1993 flood imagery

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Diverse, healthy landscapes; vibrant communities

Appendix D: Obstacle Limitation Surface





Appendix E: ANEF (2003)



Appendix F: Special Use Zone Draft and Design and Development Overlay Amendments

SCHEDULE 8 TO THE SPECIAL USE ZONE

Shown on the planning scheme map as **SUZ8**.

WANGARATTA AERODROME

Purpose

To provide for the use of the land for the purpose of an aerodrome and complementary uses.

To ensure that the use and development of the land does not prejudice or interfere with the operation of the aerodrome.

To ensure that use and development of the aerodrome takes place in an orderly and proper manner and does not cause loss of amenity to the surrounding area or neighbourhood.

To provide for use and development in accordance with the current approved Master Plan for the aerodrome.

1.0 Table of uses

Section 1 - Permit not required

Use	Condition
Airport	Must be generally in accordance with the Wangaratta Aerodrome Master Plan.
Car park	Must be anticallary to the use of the land for Airport.
Informal outdoor recreation	
Mineral exploration	
Mining	Must meet the conditions of Clause 52.08.
Heliport	
Helicopter landing site	
Minor utility installation	
Natural systems	
Stone exploration	
Any use listed in Clause 62.01	Must meet the requirements of Clause 62.01.

Section 2 - Permit required

Use	Condition
Agriculture (other than Intensive animal husbandry)	
Caretaker's house	
Car park — if the Section 1 condition is not met	
Convenience restaurant	
Convenience shop	
Education centre	Must be associated with the aviation industry and be generally in accordance with the Wangaratta Aerodrome Master Plan.
Group accommodation	Must be in association with an Education centre.
Industry (other than Abattoir)	Must be generally in accordance with the Wangaratta Aerodrome Master Plan.
Leisure and recreation	
Office	
Residential college	Must be in association with an Education centre.
Retail premises	Must be anticallary to the use of the land for Airport.

Use	Condition
Transport terminal (other than Airport and Heliport)	
Utility installation (other than Minor utility installation)	
Warehouse	Must generally be in accordance with the Wangaratta Aerodrome Master Plan.

Any other use not in Section 1 or 3

Any use in Section 1 – if the condition is not met

Section 3 - Prohibited

Use

Abattoir

Accommodation (other than Caretaker's house, Residential college and Group accommodation) Brothel Childcare centre Cinema based entertainment facility Hospital Intensive animal husbandry

2.0 Use of land

Use of land must not prejudice or interfere with the operation of the aerodrome in any way. All land use must be generally in accordance with the Wangaratta Aerodrome Master Plan.

Application requirements

An application to use land must be accompanied by the following information:

- a plan and/or a statement showing how the proposed use will not prejudice or interfere with the operation of the aerodrome;
- the purpose of the use and types of activities which will be carried out; and
- the likely effects, if any, on the aerodrome and adjacent land including traffic, light spill and hours of operation.

Decision guidelines

Before deciding on an application to use land, the responsible authority must consider:

- the existing and likely future use of the aerodrome;
- the effect that the proposed use may have on the aerodrome and existing uses;
- the movement of pedestrians, cyclists and vehicles (both road and air), emergency services and public transport;
- the availability of and connection to services;
- the need for and provision of car parking;
- the effect that the proposed use may have on the amenity of the area;
- the National Airports Safeguarding Framework; and
- the Wangaratta Aerodrome Master Plan.

3.0 Subdivision

A permit is required to subdivide land.

Subdivision must not prejudice or interfere with the operation of the aerodrome in any way.

Application requirements

An application to subdivide land must be accompanied by the following information:

- the purpose of the subdivision;
- a plan showing how the subdivision will complement the aerodrome;
- the intended outcome of the subdivision and use of the lots once the subdivision is completed;
- the strategic impact on the aerodrome; and
- the likely effects of the subdivision on the aerodrome and the adjacent land.

Decision guidelines

Before deciding on an application to subdivide land, the responsible authority must consider:

- the existing and likely future use of the aerodrome;
- the effect that the proposed subdivision may have on the aerodrome and existing uses;
- the movement of pedestrians and cyclists and vehicles (both road and air), emergency services and public transport;
- the availability of and connection to services;
- any relevant CASA regulations that may be applicable;
- the effect that the proposed subdivision may have on the amenity of the area
- the National Airports Safeguarding Framework; and
- the Wangaratta Aerodrome Master Plan.

4.0 Buildings and works

A permit is required to construct a building or construct or carry out works.

This does not apply to a building or works which are for an Airport or aviation-related use and, in the opinion of the responsible authority, are consistent with the current approved Master Plan and Obstacle Limitation Surface (OLS) plan for the aerodrome.

Buildings and works must not prejudice or interfere with the operation of the aerodrome in any way.

Application requirements

An application to construct a building or construct or carry out works must be accompanied by the following information:

- A plan drawn to scale which shows:
 - the boundaries and dimensions of the site;
 - · adjoining roads;
 - the location, height and purpose of buildings and works on adjoining land;
 - relevant ground levels;
 - the layout of existing and proposed buildings and works;
 - all driveway, car parking and loading areas;
 - proposed landscape areas; and
 - all external storage areas.
- Elevation drawings to scale showing the colour and materials of all buildings and works.
- Construction details of all drainage, driveways, vehicle parking and loading areas.

Decision guidelines

Before deciding on an application to construct a building or construct or carry out works, the responsible authority must consider:

- the existing and likely future use of the aerodrome;
- the movement of traffic and provision of car parking;
- the interface with adjoining land, especially the relationship with the aerodrome;
- the appearance of the proposed buildings and works;
- the availability of connection to services;

- any relevant CASA regulations that may be applicable;
- the effect that the proposed buildings and works may have on the amenity of the area;
- the National Airports Safeguarding Framework;
- the Wangaratta Aerodrome Master Plan; and
- the Wangaratta Aerodrome Obstacle Limitation Surface (OLS) plan.

5.0 Exemptions from notice and review

An application is exempt from the notice requirements of section 52(1)(a), (b), and (d), the decision requirements of section 64(1), (2), and (3) and the appeal rights of section 82(1) of the Act. This exemption does not apply to land within 30 metres of land (not a road) which is in a Residential Zone, land used for hospital or school or land in a Public Acquisition Overlay to be acquired by a hospital or school.

6.0 Advertising signs

None specified.

SCHEDULE 4 TO THE DESIGN AND DEVELOPMENT OVERLAY

Shown on the planning scheme map as DDO4.

WANGARATTA AERODROME – OBSTACLE HEIGHT AREA NO.1

1.0 Design objectives

- To ensure that all buildings and works are within specified height limits.
- To ensure that appropriate external building materials are used, to avoid creating a hazard to aircraft flight paths in the vicinity of Wangaratta Aerodrome.
- To ensure that flight paths associated with Wangaratta Aerodrome are protected from the encroachment of inappropriate obstacles which may affect the safe and effective operation of the Aerodrome.

2.0 Buildings and works

A permit is not required to:

- Construct a building or construct or carry out works, for height which does not exceed 153 metres Australian Height Datum (AHD).
- Construct a building or construct or carry out works on the Aerodrome site which, in the opinion of the responsible authority, is consistent with the Wangaratta Aerodrome Master Plan and Obstacle Limitation Surface (OLS) plan.

The following buildings and works requirements apply to an application to construct a building or construct or carry out works:

- An application for buildings and works must be accompanied by:
 - The AHD of the highest point and the four corners of the building.
 - The natural ground level of the site.
 - Northings and eastings (geographic coordinates).
 - Description of roof colour and materials.

3.0 Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The Wangaratta Aerodrome Master Plan.
- The Wangaratta Aerodrome OLS plan.
- National Airports Safeguarding Framework, Guideline F Managing the Risk of Intrusions into the Protected Operational Airspace of Airports.
- The location and height of the proposed development.
- The need to prevent buildings or structures from being built which could interfere with and cause a safety hazard to aircraft operations.
- Natural surface level survey to determine the AHD level of the proposed development site.
- The suitability of building design and the potential impact of building materials on the flight path of aircraft.
- The views of the Wangaratta Aerodrome Manager.
- The need to require independent aeronautical advice so as not to interfere with or cause a safety hazard to aircraft operations.

SCHEDULE 5 TO THE DESIGN AND DEVELOPMENT OVERLAY

Shown on the planning scheme map as DDO5.

WANGARATTA AERODROME – OBSTACLE HEIGHT AREA NO.2

1.0 Design objectives

- To ensure that all buildings and works are within specified height limits.
- To ensure that appropriate external building materials are used, to avoid creating a hazard to aircraft flight paths in the vicinity of Wangaratta Aerodrome.
- To ensure that flight paths associated with Wangaratta Aerodrome are protected from the encroachment of inappropriate obstacles which may affect the safe and effective operation of the Aerodrome.

2.0 Buildings and works

A permit is not required to:

- Construct a building or construct or carry out works, for height which does not exceed 170 metres Australian Height Datum (AHD).
- Construct a building or construct or carry out works on the Aerodrome site which, in the opinion of the responsible authority, is consistent with the Wangaratta Aerodrome Master Plan and Obstacle Limitation Surface (OLS) plan.

The following buildings and works requirements apply to an application to construct a building or construct or carry out works:

- An application for buildings and works must be accompanied by:
 - The AHD of the highest point and the four corners of the building.
 - The natural ground level of the site.
 - Northings and eastings (geographic coordinates).
 - Description of roof colour and materials.

3.0 Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The Wangaratta Aerodrome Master Plan.
- The Wangaratta Aerodrome OLS plan.
- National Airports Safeguarding Framework, Guideline F Managing the Risk of Intrusions into the Protected Operational Airspace of Airports.
- The location and height of the proposed development.
- The need to prevent buildings or structures from being built which could interfere with and cause a safety hazard to aircraft operations.
- Natural surface level survey to determine the AHD level of the proposed development site.
- The suitability of building design and the potential impact of building materials on the flight path of aircraft.
- The views of the Wangaratta Aerodrome Manager.
- The need to require independent aeronautical advice so as not to interfere with or cause a safety hazard to aircraft operations.

SCHEDULE 6 TO THE DESIGN AND DEVELOPMENT OVERLAY

Shown on the planning scheme map as **DDO6**.

WANGARATTA AERODROME - OBSTACLE HEIGHT AREA NO.3 (INNER HORIZONTAL SURFACE)

1.0 Design objectives

- To ensure that all buildings and works are within specified height limits.
- To ensure that appropriate external building materials are used, to avoid creating a hazard to aircraft flight paths in the vicinity of Wangaratta Aerodrome.
- To ensure that flight paths associated with Wangaratta Aerodrome are protected from the encroachment of inappropriate obstacles which may affect the safe and effective operation of the Aerodrome.

2.0 Buildings and works

A permit is not required to:

- Construct a building or construct or carry out works, for height which does not exceed 196 metres Australian Height Datum (AHD).
- Construct a building or construct or carry out works on the Aerodrome site which, in the opinion of the responsible authority, is consistent with the Wangaratta Aerodrome Master Plan and Obstacle Limitation Surface (OLS) plan.

The following buildings and works requirements apply to an application to construct a building or construct or carry out works:

- An application for buildings and works must be accompanied by:
 - The AHD of the highest point and the four corners of the building.
 - The natural ground level of the site.
 - Northings and eastings (geographic coordinates).
 - Description of roof colour and materials.

3.0 Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The Wangaratta Aerodrome Master Plan.
- The Wangaratta Aerodrome OLS plan.
- National Airports Safeguarding Framework, Guideline F Managing the Risk of Intrusions into the Protected Operational Airspace of Airports.
- The location and height of the proposed development.
- The need to prevent buildings or structures from being built which could interfere with and cause a safety hazard to aircraft operations.
- Natural surface level survey to determine the AHD level of the proposed development site.
- The suitability of building design and the potential impact of building materials on the flight path of aircraft.
- The views of the Wangaratta Aerodrome Manager.
- The need to require independent aeronautical advice so as not to interfere with or cause a safety hazard to aircraft operations.





Appendix G: Public exposure draft comments and responses

Resp	Response to the Wangaratta aerodrome Master Plan27/05/2018				
No.	Comment	Feedback Reference	MP Section	Response	
1.1	Existing commercial hangars prefer to modify/extend into adjacent space (Recommended Layout A1)	Pg. 3	6.1.2, Appx. B	The draft master plan currently identifies the space between Border Aerospace Fabrication and North East Aviation as a possible expansion location for both commercial hangars.	
1.2	New commercial hangars prefer frontage to the runway and should be located north of the existing hangars (Recommended Layout A ₃ a)	Рд. з	6.2, Аррх. В	This will involve adding commercial hangars in the GAE 2 precinct. This can be amended in the master plan without changing the precinct approach.	
1.3	Preferred hangar layout A3	Pg. 3 & Pg. 9	6.2.5	 The proposed commercial hangars adjacent to the car park will require the adjacent taxiway being compliant with Manual of Standards 139 – Aerodromes (MOS 139). If all buildings remain at current locations the taxiway will not have the required strip width for aircraft to taxi into the hangars. To resolve this issue the draft master plan proposes the following options: Developing the "looped" taxiway Relocating the Aeroclub and removing the building 	
1.4	Preferred hangar layout A1a	Pg. 4 & Pg. 8	6.2.2, 6.2.4	The flight line between the fuel bowser and hobby hangar in this option results in the taxiway being too narrow for compliance with Code C operations under MOS 139, restricting further aerodrome development opportunity. Fuel bowser adjustment already detailed in draft MP (rotate bowser 90 deg). We understand that there are existing grass tie-down areas south and north of the fuel bowsers and feel that overlaying these areas should not be a priority at this time given the current needs of the aerodrome. However, this can be amended in the Master Plan if deemed necessary and agreed by Council.	
1.5	Preferred hangar layout A3a	Рд. 9	3.8.2, 6.1.6, Appx. C	The findings provided by NECMA indicated that the land to the south of Brian Higgins Drive was more liable to inundation and flooding. Given that there are more suitable areas for cost effective land development to the north and west of the current airport precinct, this Master Plan does not explore options to the south of Brian Higgins Drive.	

Wang	aratta Draft Airpo	rt Masterplar	1 2018 Subn	nission Response. 03/05/202	18
No.	Comment	Feedback	MP	Response	
		Reference	Section	•	
2.1	Description of Essential Aviation Infrastructure Previous decommissioni ng of the NDB AWIS and backend equipment housed in the aeroclub buildings since 1988. Secondary WIDI installed at the northern end of RWY18/36. RNAV (GNSS) RWY 18, non- precision approach path as published in the DAP	Pg. 1	5, 5.6	Acknowledged – Master Plan will be updated to include these items, except the Secondary WIDI which is not categorised as a formal aerodrome asset	
2.2	Movement estimates are overstated	Pg. 2	5.1	The feedback received concerning aircraft movements was anecdotal, there are no systems in place to accurately capture this data. The Master Plan can be adjusted to end to movements as suggested in the feedback response. There is an important consideration on how this affects glider operations at Wangaratta Aerodrome that use the runway strip adjacent to the main runway. MOS 139 requires that glider operations cannot be conducted on an adjacent runway strip an aerodrome with more than 10k movements. Subsequent recording of movements by ARO's at the aerodrome have found movement rates to be consistent with the original Master Plan forecast. Council are considering a methodology for obtaining a more data driven traffic recording system	5- ; at
2.3	Accuracy as fundamental Wangaratta Aerodrome ERSA has out of date information Council website contains out of date information about aerodrome	Pg. 2	N/A	The ERSA information for Wangaratta Aerodrome should be updated to remove FAC reference to National Sport Aviation Centre, which ceased trading several years ago. Draft Master Plan reflects the current information on the ERSA. Council website should be updated to reflect current information available from Airservices Australia.	

Wang PREL	Wangaratta Draft Airport Masterplan 2018 Submission Response. 03/05/2018 PRELIMINARY DRAFT RESPONSE – INCOMPLETE 03/05/2018			
No.	Comment	Feedback Reference	MP Section	Response
2.4	Repeating of Obsolete Data Inclusion of the blowkarts (windsurfers) as being a current activity within the precinct in the master plan is incorrect.	Pg. 2	3.10.1	Acknowledged – Master Plan will be updated to reflect this information.
2.5	The executive summary Recommendati ons for re- drafting the Vision, Objectives section and adding an additional Mission section	Pg. 3	Executiv e Summa ry, Chapter 1	The Executive Summary can be updated to capture any agreed changes to the objectives by Council and Stakeholders.
2.6	Stakeholder Engagement	Pg. 5	3.10	Comments unrelated to material in Master Plan – No action required. Master Plan has been updated to include a summary of the stakeholder consultation process.
2.7	Hangar Provision Suggests hangar layout	Pg. 8	6.2.5, Аррх. В	Refer to comments 1.2-1.5.
2.8	Residential Airpark Recommendati on of an alternative airpark.	Pg. 11-12	6.1.6	The recommended airpark layout and location in the response does not consider aircraft access to the runways. Airpark facilities in Victoria are developed on freehold land parcels and experience at other locations has raised issues with how to control what is developed and what to do if a significant number of lots are not taken up. There are a number of these facilities being developed around Victoria, so some caution against building into an oversupplied market would be prudent. Further investigation into an Airpark facility would be best done in conjunction with a developer that was willing to share some of the capital risk of the venture. Some consideration of potential locations may also be worth investigating, as the initial area proposed in the draft Master Plan looked at the land south of the grass runway that has been dropped following the NECMA inundation study. There may be an option to develop a strip along the northern edge of the PFI area for an airpark facility with north facing dwellings placed north of an E-W taxiway which could also be used by commercial tenants to south.
2.9	Industrial development PF1 should not be held entirely as an industrial area.	Pg. 12	6.1	The precinct plan is a high-level planning guide. We feel that a suitable alternative use within this precinct could be an airpark precinct, as this portion of land is appropriately separated from the rest of the airport. The precinct plan can be adjusted upon further recommendations and agreement with Council.

Wang PREL	Wangaratta Draft Airport Masterplan 2018 Submission Response. 03/05/20 PRELIMINARY DRAFT RESPONSE – INCOMPLETE 03/05/20			
No.	Comment	Feedback Reference	MP Section	Response
2.10	GPS non- precision approach Master plan to recognise RNAV (GNSS) approaches on RWY 18 and explore opportunity for RNAV on RWY 26	Pg. 14	3.5.10	Acknowledged – Master Plan will be updated to include the RNAV approach on RWY 18, as per 2.1
2.11	Telecommunica tions Master plan to acknowledge existing telecommunica tion infrastructure (NBN etc.)	Pg. 16	3.7	Acknowledged – Master Plan will be updated to include this.

2.12	RWY 18 – Grass Right and RWY	Pg. 16-17	3.4.1	Acknowledged – See response 2.2 for feedback on glider operations.
	36 Grass Left			See below the aerodrome regulations for locating glider runway strips.
	Master plan to acknowledge the runway			8.1.1 6.7.1 Location of Glider Runway Strips
	strip is currently used for glider operations			8.1.1.1 6.7.1.1 Where the physical characteristics of the site allow it, and where the expected number of powered aircraft movements does not exceed 10 000 per annum, the glider runway strip may be located within an existing runway strip.
				Note: Movement for an aircraft is defined in section 1.2 as either a take-ofj landing by the aircraft.
				8.1.1.2 6.7.1.2 Subject to CASA's approval, glider operations may be carried out from runways normally used by powered aircraft.
				8.1.2 6.7.2 Dimensions of Glider Runway Strips
				8.1.2.1 6.7.2.1 Where it is located outside an existing runway strip, the width of a glider runway strip must not be less than 60 m
				 8.1.2.2 6.7.2.2 If contra-circuit directions are to be approved and fully independent operations conducted, the separation distance between the centreline of the two glider runway strips must not be less than 120 m.
				8.1.2.3 6.7.2.3 Where a glider runway strip is to be located either wholly or partly within an existing runway strip, it must have a length which is sufficient for glider operations, and a width of not less than 37.5 m measured:
				8.1.2.3.1 (a) where there is flush-mounted lighting or no runway lighting, from the existing runway edge, as shown in Figure 6.7-1 below; and
				8.1.2.3.2 (b) where there is elevated runway lighting, or where physical features such as stone filled rubble drains, steep or rough shoulders exist, from three metres clear of the runway lights or such physical features, as shown in the Figure 6.7-1 below.
				Run way 7
				(a) Parallel to Runway with Flush Mounted Lighting or with no Runway Lighting
				Rumvay — 3
				(b) Parallel to Runway with no Runway Lighting
2.13	Helipad &	Pg. 18	3.5	The existence of the test pad and its conversion into a helipad were not advised during
	refuelling/servic e pads			the consultation process, nor do they exist in any airfield documentation or gazetted publications such as ERSA.

Wang PREL	Wangaratta Draft Airport Masterplan 2018 Submission Response. 03/05/201 PRELIMINARY DRAFT RESPONSE – INCOMPLETE 03/05/201			
No.	Comment	Feedback	MP	Response
		Reference	Section	
	Master plan to acknowledge the existence of a test pad converted to a helipad.			Furthermore, the area is not correctly marked or maintained as a documented Helicopter Landing Site (CAAP 92-2). The Master Plan will be updated to reflect the comments in the response but also add a recommendation to formalise the documentation and ensuring that the site is correctly marked as an HLS if that is the intended long-term use.

David M Jacobson comment 16/04/2018			
No.	Comment	Feedback Reference	Response
3.1	Concern over wind-shear events caused by the proposed developments.	N/A	The developments considered in the Master Plan are not within the 'assessment trigger area' as described in the National Airports Safety Framework (NASF) guidelines. It is specified in the Master Plan that any construction should be subject to detailed design before implementation that will consider effects such as wind-shear. A section can be added to the Master Plan, including the attached graphic, to discuss this issue further if required. Figure 1: Assessment trigger area around runways, within which buildings should be assessed (Source: NASF Guideline B, DIRDC)

BUSINESS CASE REPORT - WANGARATTA AERODROME

MCa <Michael Connell & Assocs.>

JANUARY 2018
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Executive Summary

A. Regional and Industry Context

- Wangaratta is a regional hub that services a broader regional catchment of over 63,000 in the Central Hume Region. It has a diverse economic base covering: manufacturing; agriculture and food/wine; transport and logistics; health services networks; education; and tourism. Total employment grew by over 1000 jobs between 2011 and 2016.
- Over 12,000 jobs are located in 3000 businesses in Wangaratta LGA and these are servicing regional, national and international markets. The larger employers in the region are in textiles; wood products; and health services.
- The size and structure of the regional economy have implications for the freight task and the potential demand for air freight. Road and rail transport provide the majority of regional freight movements within Wangaratta and the Hume Region and link industry with inter-regional/intercity supply chains and with ports and airports.
- The industries located in Wangaratta LGA generally are users of road freight for inputs and for transport of products to markets. Given the mix of industries and businesses the use of air freight would be limited. Little of the production out of the region is high value/low volume/time sensitive products. However premium wines and other niche products are in this category for deliveries for online sales.
- Tourism products in the Wangaratta LGA and broader Central Hume Region are based around the quality of the natural environment and the region's heritage assets. There is a major focus on the Murray River, alpine environments, valleys, snow fields, cycling, historic sites, fine food and wine.
- Wangaratta is centrally located for access to the High Country Tourist Region, with most visitors travelling by car. It has passenger rail (VLine services and NSW Train Link XPT service). Air access is generally via RPT services from Albury Airport. General aviation use and some special charters are via local airports. Some charter flights use Wangaratta Aerodrome during the snow season and for major regional events.

B. Air Freight Operations

Nationally the freight industry is experiencing a growing requirement for air freight with most of this via major city airports for low weight, high value and time dependent products.

- Products moved include pharmaceuticals, high tech equipment and orders from local and offshore online businesses. The expansion of online businesses has led to a growth in parcel delivery businesses (eg. Australia Post and their Star Track acquisition).
- There has also been major growth of linked businesses based in hubs around airports, including aircraft servicing, airfreight services and other support services. These hubs have also become locations for business that benefit from proximity to airports.
- Direct airfreight shipments to and from the Wangaratta Region are limited. Freight that may be air freighted (interstate or international) is usually shipped by road to Melbourne and/or Sydney Airports for international/domestic flights.
- A recent report by AECOM report indicates that Wangaratta has 15 years supply of zoned industrial land and another 15 years of potential supply within adjacent unzoned areas. It emphasises the need to protect employment zones and the airport.¹ The report recommends amendments to the Municipal Strategic Statement to provide policy support for: ongoing protection of the site for a freight and logistics hub, industrial precincts and the airport zone.²
- There is some future potential for airfreight covering regional high value/ low volume agribusiness products (eg. premium wine and beverages; gourmet cheeses; hazelnuts, truffles etc.)

¹ Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P14

² Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P35

C. Role of Regional Airports

Regional airports play a major role economic, social and community role. They are important for medical emergency use; firefighting and other uses. They also provide pilot training, recreational flying and aircraft maintenance services.³

The Regional Airport Infrastructure Study report had a number of key findings, which related to the situation of Wangaratta Aerodrome. These include: important social and economic roles of local airports in communities across Australia; the financial stress that many regional airport owners face from the costs of maintaining and operating the airport; and challenges in upgrading facilities to meet future aviation needs.⁴

Airports are not passive assets and, whether large or small, must be actively managed and to comply with regulatory requirements. The costs of maintaining and upgrading infrastructure including terminal facilities and runways have increased faster than other infrastructure costs.

Most regional airports are owned and operated by local councils. Many face issues that relate to balancing community needs and commercial outcomes for airport assets. For smaller aerodromes this has implications for funding of operations, maintenance and upgrades, with some not being able to maintain the asset.⁵

- Airport Revenues: Rents vary greatly between airports based on size and location and the demand for space. While larger airports tend to set rents at market rates, many smaller aerodromes offer leases at concessional rates in order to maintain tenants and activities at the site, or to attract new businesses or recreational flyers.
- Many smaller regional aerodromes have no landing charges and offer relatively low site rents for aero clubs and recreational flyers. The rates for aviation businesses located on site are usually below market rates. This is largely the case at Wangaratta.
- There are a range of services delivered by local government, which have an operating deficit and are cross subsidised. This usually includes areas like library services, community centres and sports and recreation centres. For these services the community and health benefits are recognised as important.

D. Wangaratta Aerodrome

Activities

The aerodrome is an active hub with a range of activities.

- It plays an important role in supporting a range of activities and services: emergency services (including significant use by Air Ambulance Victoria); charter services; recreational aviation (eg. joy flights provided by Classic Air Adventures and Air Combat Australia); pilot training (provided by the local Aero club); and heritage conservation/tourism (War bird joy flights, maintenance and restoration).
- It is an aviation services hub for several aircraft maintenance, fabrication and restoration businesses that operate in commercial hangars.
- Border Aerospace Fabrication (fabrication and restoration); North East Aviation (aircraft maintenance and servicing); and Classic Air Adventures (aviation tourism and classic aircraft restoration). These businesses have an established client base and provide services for the Wangaratta area and regional Victoria. These businesses are positioned for further growth subject to the availability of suitable expanded facilities at the aerodrome.
- Air Combat Australia wants to establish Wangaratta as its operational base for Victoria.
- Non-aviation related activities include a motor bike licence training course operating at the aerodrome car park, mostly on weekends. There is also hiring of the tarmac and terminal for events.

³ Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting P8

⁴ Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting. (Report to Australian Airports Association)

⁵ Australia's Regional Airports - Facts, Myths And Challenges The Facts > Australia's Airports P70

Financials

- Total revenue averaged \$59,110 over the 4 year period and operating expenses averaged \$146,187, thus producing an average annual deficit of -\$87,076. (59.6% of operating expenses).
- The major sources of revenue were <u>aviation related</u> \$34,271 (58.7%); <u>user fees for hire of facilities</u> \$7246 (12.3%) and <u>other revenue</u> \$17,144 (29.0%) for grazing, house rental and motor cycle training.
- Aviation related revenue is made up of rent from site leases for occupants of the Hobby Hangar and rents for the two commercial hangars and for office space in the terminal building.

The following table compares Wangaratta Aerodrome with the averages from the survey. The gap for Wangaratta is broadly in line with the average for Non-RPT airports – deficit of \$87,000 or 59.6% gap (cf. survey average \$83,000 and 45.6%). The major difference is in revenue size and mix, with Wangaratta not having landing charges and significant non-aviation rent revenue.

	Average 2014/15	Average 2014/15	Average 4 years 2013/14 -2016/17				
	RPT airports	Non-RPT airports	Wangaratta Aerodrome				
Revenue & Expenditure							
Revenue (Average)	\$2.28 million	\$99,000	\$59,110				
Expenditure (Average)	\$2.36 million	\$182,000	\$146,187				
Shortfall (Average)	-\$80,000 (3.4%)	-\$83,000 (45.6%)	-\$87,076 (59.6%)				
Type of Revenue							
Aeronautical-related (such as landing fees and passenger head taxes)	74.3%	51.8%	0% No landing fees				
Other revenue - receipts from the lease of land to airport tenants, car parking, and advertising revenue	25.7%	48.2%	100% Leases of hangars/terminal space - \$34,721 (58.7%); Other rents/charges (non-aviation) - \$17,144 (29.0%) \$7246 facilities hire (12.3 %)				

Comparison of Financials - Regional Airports Average & Wangaratta

Source: Regional Airport Infrastructure Study - Economic Contribution and Challenges of Regional Airports in Australia, September 2016 - ACIL Allen Consulting. (Report to Australian Airports Association) P20; and Wangaratta data from Council.

Capital Spending and Maintenance

- Keeping the aerodrome operational requires capital expenditure and annual spending on maintenance of buildings and the precinct. This is a major issue for Wangaratta Aerodrome as it has an ongoing operational deficit and does not generate a surplus to cover future capital requirements.
- Total capital spending over the 4 years 2013/14 to 2016/17 was \$201,391, with the major component being Aerodrome Pavement Resealing of \$192,711 (\$159,208 in 2013/14).

Funding Issues

- The major ongoing funding requirements from Council are for capital investment, site and building maintenance, management and regulatory compliance.
- Revenues are from site leases, commercial hangar leases and hiring charges generated may cover part of the operating costs, but cannot generate sufficient revenue to cover major maintenance costs or site or buildings upgrades. Council owners of regional aerodromes have usually sought funding from government (State and Commonwealth) as part of cocontributions.

E. Future Directions

Master Plan

The Master Plan is a document that has to allow for regional demographic, business, consumer trends and aviation development patterns over a 30+year period. It has to allow for potential long term demand for air services. This includes: air travel patterns (eg. regular flights and charter flights); growth in the tourism market; industry changes; and use of air freight to meet consumer and business requirements for time sensitive products.

It is important that the Master Plan and Council decisions take account of long term development trends in: the region; in aviation; travel patterns; and in industry (logistics, services, tourism). This involves reserving adjacent land for aviation activity and for businesses that may benefit from operating within the aerodrome precinct.

The Master Plan allows for a staged development of precincts in response to emerging demand over an extended time period

- The major identified opportunities are: continued growth in private and commercial recreational aviation; recreational and private pilot training; expansion of aviation businesses on site; aviation events (using the tarmac and terminal); and reservation of adjacent land for industrial development (for aviation linked services, air freight services and light industrial activities). It also includes provision of an adjacent area for an airpark.
- Consultations revealed that there is identified regional demand for additional hangar space at the aerodrome. Future development of new hangars would be on the basis of site leases. However for individuals or groups to develop hangars, it will be important that long term leases are provided. This enables loan finance to be obtained from financial institutions, and also the possibility for individuals to exit by selling their hangar with a long term site lease attached. Short term leases make it difficult to secure funding or to sell a hangar.

Future Financials

Some indicative financial modelling was undertaken for a 10 year period from 2018/19 based on the proposed implementation plan for the Master Plan. This covered: the existing leases under the new rates; development of the aerodrome with the 2 new commercial hangars (subject of a RDV funding application); and the initial development of GAE1 Precinct covering - 6 hobby hangar leases and 2 additional commercial hangars.

The modelling and projections show in summary that:

- The extension of hangars at the aerodrome and its development as an aviation servicing hub will potentially improve the overall financials from an operating deficit of \$87,076 (annual average for 4 years to 2017/16) to a deficit of around \$13,000 from 2023/24. This is based on the growth in revenue from commercial aviation hangar leases and some growth in user charges.
- While the aerodrome approaches break-even on operations, it does not generate any accumulated surpluses to cover capital works and major future asset maintenance requirements. Capital investment will need to be covered by Council funding or grants from government programs (State and Commonwealth).

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Revenue										
Total Aviation Related Leases (Current)	40,550	41,563	42,603	43,668	44,759	45,878	47,025	48,201	49,406	50,641
New Commercial Hangars (2- RDV										
Funding)	37,341	38,275	39,232	40,212	41,218	42,248	43,304	44,387	45,497	46,634
GAE1 New Hobby Hangars (6)	-	5,400	5,535	5,673	5,815	5,961	6,110	6,262	6,419	6,579
GAE 1 New Commercial Hangars (2)			19,616	20,106	20,609	42,248	43,304	44,387	45,497	46,634
Other Leases	18,245	18,701	19,169	19,648	20,139	20,643	21,159	21,688	22,230	22,786
User Charges (events)	9,906	10,302	10,714	11,142	11,588	12,052	12,534	13,035	13,556	14,099
Total Operations Revenue	106,041	114,241	136,867	140,450	144,128	169,029	173,436	177,960	182,604	187,373
Operating Result										
Total Operations Expenses	160,903	164,925	169,048	173,274	177,606	182,046	186,598	191,263	196,044	200,945
Net Revenue - Expenses	- 54,861	- 50,684	- 32,181	- 32,825	- 33,478	- 13,017	- 13,162	- 13,303	- 13,440	- 13,573
Courses MCo modelling & englysis - January 2018										

Table 1. Summary – Wangaratta Aerodrome Operations: 10 Years

Source: MCa modelling & analysis, January 2018



Source: MCa modelling & analysis February 2018

Economic Benefits

The operation of the aerodrome generates economic benefits to Wangaratta LGA through having an aviation cluster of businesses servicing aircraft, events staged on the site, and the potential for a boost in visitors to the region through Air Combat Australia's operations, future charter flights and development of an air show.

The economic benefits arise from:

- Businesses activity on site, the direct jobs and the indirect/induced jobs generated in the region. This covers additional jobs through expansion of existing businesses and new businesses attracted
- Visitor spending related to events staged (Jet club) and customers for aeronautical tourism companies. This is based on overnight stays and day visitors.

Future development could generate a significant aviation cluster.

- The initial development of the Aerodrome with two additional commercial hangars and the establishment of Air Combat Australia operations would lead to an additional 10.4 FTE jobs (9 direct on site jobs and 1.4 indirect/induced jobs).
- The development of an additional 2 commercial hangars (1 in 2020/21 and 1 in 2023/24) would create a further 11.5 new FTE jobs (10 direct on site and 1.5 induced indirect jobs.
- This new development combined with the current employment on site could lead to an aviation services cluster with a total of 40 direct on site FTE jobs by 2023/24 (and 6 indirect/induced jobs).

There are also major social and community benefit related to the need for emergency services to have air access (eg. fire protection; air ambulance etc.) to a region. These social benefits are not quantified.

The benefit cost analysis is indicative only. A full benefit cost analysis would need to be prepared for each specific proposed investment or funding proposal. Development of the aerodrome would generate positive benefits compared with costs.⁶

The development over a 10 year period would provide major boost to regional income (employee income and business profits). Based on the modelling and estimates the expansion of the airport would yield positive Benefit Cost Ratios (BCRs) for various discount rates. For a discount rate of 7% the BCR is 5.2 and 4.0 for a 10% discount rate.

⁶ Costs are those associated with development of the aerodrome, and cover the new commercial hangars and expansion associated with the GAE1 Precinct development.

Where site rents or hangar rents can be regarded as concessional it is important that the rationale and cost is transparent and a value assigned. For example, it is recognised as an economic development initiative or as a way of supporting the community safety functions of the aerodrome.



Source: MCa modelling and analysis February 2018

1. Introduction

This report provides a business case analysis for the development of Wangaratta Aerodrome and has been prepared by MCa <Michael Connell & Assocs.> as member of the Master Plan project team.

The report outlines the regional economic and industry context for the airport.

It provides an assessment of the role of regional airports and the challenges that local government owners face in operating and maintaining small aerodromes.

A detailed analysis is provided of the current operations of the Aerodrome and its financials. This includes an examination of current rents and comparisons with other small regional airports.

The initial future development associated with the implementation of the Master Plan is examined in terms of its impacts on financial performance and its economic impacts.

It should be noted that the financial analysis and economic impact assessment of the future expansion of the aerodrome are indicative and based on a range of assumptions that are documented in this report. Achieving these indicative outcomes will require active management of the aerodrome, and the attraction of additional aviation businesses to the site.

2. Regional Context

2.1 Overview

Regional Economy

- Wangaratta Local Government Area (LGA) is part of the Hume Region (2016 population 282,253) and the Hume Central Subregion (which comprises 4 adjacent LGAs Wangaratta, Benalla, Alpine and Mansfield).
- Central Hume Region had a population of 63,092 in 2016. The Central Hume Region comprises the regional market for many Wangaratta based businesses and for other services, including health services.
- Recent population growth for Wangaratta LGA (as reflected in ABS Census 2016) is significantly above that contained in the Victorian Government's long term population projections.⁷
- The size and structure of the regional economy have implications for the freight task and the potential demand for air freight. Road and rail transport provide the majority of regional freight movements within Wangaratta and the Hume Region and link industry with inter-regional supply chains and with ports and airports.
- Wangaratta LGA is a regional hub with a diverse economic base covering: agriculture; manufacturing; food/wine; tourism; business services; transport and logistics; health; and education. The larger employers in the region are in textiles; wood products; and health services.

Tourism and Travel

- Tourism products in the Wangaratta LGA and broader Central Hume Region are based around the quality of the natural environment and the region's heritage assets. There is a major focus on the Murray River, alpine environments, valleys, snow fields, cycling, historic sites, fine food and wine.
- Wangaratta is centrally located for access to the High Country Tourist Region, with most visitors travelling by car. It has passenger rail (VLine services and NSW Train Link XPT service). Air access is generally via RPT services from Albury Airport. General aviation use and some special charters are via local airports. Some charter flights use Wangaratta Aerodrome during the snow season and for major regional events.
- Airports: there are several in the Hume Region including: Albury Airport the nearest commercial
 passenger services and air freight options; Benalla Airport general aviation and gliding
 (upgraded in 2016); Mangalore Airport operates as a training hub and for general aviation, and
 has been suggested as a freight hub/intermodal for the Lower Hume Sub Region (around the
 Seymour area). Shepparton Aerodrome has been the subject of a feasibility study on a future
 site and on passenger flights and air freight.

Freight Movements

- Wangaratta is centrally located on the major national transport corridor (Hume Highway). The key
 freight tasks servicing industry in the Wangaratta region are: trans-national or international
 movements by road to Melbourne or Sydney (via the Hume Corridor) then transfer on to rail,
 sea or air; inter-capital movements between capital cities, mainly by road transport; intra-regional
 movements; and intra-city/local movements by road.⁸
- The industries located in Wangaratta LGA generally are users of road freight for inputs and for transport of products to markets. Given the mix of industries and businesses the use of air freight would be limited. Little of the production out of the region is high value/low volume/time sensitive products. However premium wines are in this category for deliveries for online sales.

⁷ Victoria in Future 2016 (VIF2016), Department of Land, Water and Planning. https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future-2016 (access October 2016)

⁸ Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P15; Freight Directions in the Hume Region Detailed Report June 2013 RDA

2.2 Regional Economy

2.2.1 Major Centres

Within the Hume Region the major cities are Wodonga, Shepparton and Wangaratta.

- **Wodonga** has a strong manufacturing base that is supported by access to road and rail transport along the Hume transport corridor, as well as freight transport and logistics capability. Other key sectors are retail, healthcare, public administration (including defence), agriculture and tourism.
- **Shepparton** is a service hub for the Goulburn Valley Region, offering higher education, specialist health services and cultural facilities. Major industries in the region are irrigated and dry land agriculture, grazing, manufacturing (including food processing), the equine industry and viticulture. The gross value of agricultural and horticultural production in the Goulburn Murray Irrigation District is around \$2.2 billion and contributes about 25% of the total value of Victoria's agricultural product.
- **Wangaratta** is a regional hub with significant manufacturing, food, tourism, business services, health and education sectors. The LGA has significant primary industries such as agriculture, forestry, horticulture, livestock and mixed farming.⁹

2.2.2 Wangaratta Economy

Wangaratta has a substantial regional economy that services a broader regional catchment of over 63,000 in the Central Hume Region. It has a diverse economic base covering: manufacturing; agriculture and food processing; transport and logistics; health services networks; and tourism. Total employment grew by over 1000 jobs between 2011 and 2016.

- Over 12,000 jobs are located in 3000 businesses in Wangaratta LGA and these are servicing regional, national and international markets (See Appendix A).
- Key sectors of employment include: health care and social assistance 2346 persons; manufacturing - 1178 (textiles, beverage and food processing, metal and timber products, equipment manufacturing); retail -1370; education and training - 1035 (primary schools, secondary schools, TAFE, and University); agriculture and forestry - 914 (mainly livestock and grains); and tourism.¹⁰
- The larger employers in the region are in textiles, wood products and health services.
- There are a diverse range of businesses in agribusiness including livestock, viticulture, and niche products. The region has some of Victoria's top wineries.
- Wangaratta LGA experienced an increase of 1038 jobs between 2011 and 2016, with most of this growth in services, and with the major growth being in: health (206); education and training (151); construction (131); transport, postal and warehousing (74); administrative support services (71); and accommodation and food services (54). There were employment falls in several sectors (eg. manufacturing -152).

⁹ State of The Hume Region 2010–2012 A Progress Report On The Hume Strategy For Sustainable Communities , August 2012 P3 10 Economic Development Strategy 2016-2020, Wangaratta Rural City Council

Wangaratta LGA	Jobs		Jobs		Change
Industry Sector	2011	Share %	2016	Share %	2011-16
Agriculture, forestry and fishing	846	7.5	914	7.4	68
Mining	15	0.1	39	0.3	24
Manufacturing	1,330	11.8	1,178	9.6	-152
Electricity, gas, water and waste services	31	0.3	58	0.5	27
Construction	570	5.1	701	5.7	131
Wholesale trade	310	2.7	254	2.1	-56
Retail trade	1,356	12.0	1,370	11.1	14
Accommodation and food services	839	7.4	893	7.3	54
Transport, postal and warehousing	393	3.5	467	3.8	74
Information media and telecommunications	150	1.3	126	1.0	-24
Financial and insurance services	208	1.8	174	1.4	-34
Rental, hiring and real estate services	122	1.1	105	0.9	-17
Professional, scientific and technical services	387	3.4	397	3.2	10
Administrative and support services	326	2.9	397	3.2	71
Public administration and safety	778	6.9	785	6.4	7
Education and training	884	7.8	1,035	8.4	151
Health care and social assistance	2,140	19.0	2,346	19.1	206
Arts and recreation services	119	1.1	143	1.2	24
Other services	410	3.6	443	3.6	33
Inadequately described/Not stated	60	0.5	486	3.9	426
Total	11,274	100.0	12,312	100.0	1,038

Source: ABS Census 2011 & 2016- Working Population Profile.

Table 3. Jobs by Industry Sector - Wangaratta Statistical Area 2 (SA2) 2011 & 2016

Wangaratta SA2	Jobs		Jobs		Change
Industry Sector	2011	Share %	2016	Share %	2011-16
Agriculture, forestry and fishing	66	0.7	87	0.9	21
Mining	8	0.1	6	0.1	-2
Manufacturing	882	9.6	696	7.1	-186
Electricity, gas, water and waste services	31	0.3	59	0.6	28
Construction	449	4.9	540	5.5	91
Wholesale trade	291	3.2	220	2.2	-71
Retail trade	1,285	14.0	1,275	13.0	-10
Accommodation and food services	619	6.8	646	6.6	27
Transport, postal and warehousing	303	3.3	347	3.5	44
Information media and telecommunications	146	1.6	121	1.2	-25
Financial and insurance services	198	2.2	165	1.7	-33
Rental, hiring and real estate services	117	1.3	101	1.0	-16
Professional, scientific and technical services	318	3.5	337	3.4	19
Administrative and support services	271	3.0	342	3.5	71
Public administration and safety	766	8.4	768	7.8	2
Education and training	766	8.4	905	9.2	139
Health care and social assistance	2,102	23.0	2,298	23.4	196
Arts and recreation services	113	1.2	122	1.2	9
Other services	382	4.2	399	4.1	17
Inadequately described/Not stated	44	0.5	365	3.7	321
Total	9,157	100.0	9,803	100.0	646

Source: ABS Census 2011 & 2016- Working Population Profile.

Table 4. Major Businesses in Wangaratta LGA

Sector	Major Businesses
Manufacturing	Australian Weaving Mills, Australian Country Spinners, Alpine MDF, Alpine Truss, Merriwa
-	Industries.
Wineries	Several large wineries including Brown Brothers, Pizzini, Dal Zotto and Chrismont.
Agriculture	Livestock farmers and grape growers but also includes niche industries like green tea, capsicum and
	kiwi fruit.
Health	North East Health - Wangaratta - 222-bed hospital providing a range of healthcare and servicing
	Central Hume Region.

Source: Hume Strategy Regional Plan - Key Priorities 2015 – 2017, RDA, December 2015 P7

2.2.3 Tourism

Across the Hume Region tourism is one of the growth sectors.

- With over 2.5 million domestic overnight visitors, 4 million domestic day visitors and tourism expenditure exceeding \$1.3 billion per annum.¹¹ Tourism contributes significantly to income and jobs in the region's economy.
- Tourism products in the Wangaratta LGA and broader Central Hume Region are based around the quality of the natural environment and the region's heritage assets. There is a major focus on the Murray River, alpine environments, valleys, snow fields, cycling, historic sites, fine food and wine. ¹²
- Wangaratta also hosts a number of large regional sports, cultural, arts, and wine/food events each year. These include Wangaratta Festival of Jazz, La Dolce Vita, Wangaratta Marathon and Fun Run, Sam Miranda Cycle Tour, Wangaratta Cup, Stitched up Festival, Feast of Art, and Brown Brothers Annual Wine and Food Festival.
- Tourism growth is occurring in towns within proximity to Wangaratta, including Milawa, Myrtleford, Bright, Beechworth and the King Valley.

2.3 The Freight Task

2.3.1 Regional Freight Requirements

The size and structure of the regional economy have implications for the freight task and the potential demand for air freight. Road and rail transport provide the majority of regional freight movements within Wangaratta LGA and the Hume Region and link industry with inter-regional supply chains and with ports and airports.



Source: Investing and Living in Victoria's Hume Region, Regional Development Australia Hume, June 2015 P13

A number of reports have focused on freight and logistics issues in Wangaratta and the broader Hume Region.

¹¹ Hume Strategy Regional Plan - Key Priorities 2015 - 2017 December 2015 RDA P12

¹² Hume Regional Plan - The Hume Strategy for Sustainable Communities July 2010, Department of Planning and Community Development

Table 5. Regional Reports – Hume Region

Reports Covering Freight Issues	
Freight Directions in the Hume Region Detailed Report June 2013	Hume Regional Plan - The Hume Strategy for Sustainable
RDA	Communities July 2010, Department of Planning and Community
	Development
State of The Hume Region 2010–2012, A Progress Report On The	Hume Strategy Regional Plan - Key Priorities 2015 – 2017
Hume Strategy For Sustainable Communities, August 2012	December
Wangaratta Freight and Land Use Study, Final Report AECOM	Economic Development Strategy 2016-2020, Wangaratta Rural
July 2016	City Council

The key freight tasks servicing industry in the Wangaratta region are: trans-national or international movements - by road to Melbourne or Sydney (via the Hume Corridor) then transfer on to rail, sea or air; inter-capital between capital cities, mainly by road transport; intra-regional between locations within the region; and intra-city local movements by road.¹³

- Most of the freight requirements are from 2 industrial areas; Southern Industrial Precinct, which such has trucking companies, and manufacturers; and the Northern Industrial Precinct, with larger businesses, including timber product manufacturers.
- Agriculture is a major industry generating freight transport in the region. Major freight generating areas and activities include Milawa, for food and wine producers that distribute products across Australia and overseas; and King Valley/Whitfield/Cheshunt, which is largely a wine, dairy, cattle, agriculture producing region (40 kilometres to the south of Wangaratta). Australian wine exports have experienced strong growth in recent years and this is projected to increase with free trade agreements with Japan, Korea and China.¹⁴
- The number of manufacturing businesses in central Wangaratta has decreased (manufacturing employment in the LGA declined by 152 between 2011 and 2016).¹⁵ At the same time other freight intensive sectors such as transport; postal, warehousing and wholesale have experienced growth.
- In 2015 there were a total of 1442 businesses in those sectors that are intensive users of freight services in the LGA, with 528 businesses in the Wangaratta city area and adjacent areas (SA2). These sectors are agriculture and forestry; manufacturing, wholesaling, retail and transport, postal and warehousing. (See Appendix B).

2.3.2 Freight Movements - Wangaratta and Region

The freight industry moves a wide range of products in and out of the Hume Region for businesses located in the region. These movements are: to markets, wholesalers and ports outside the region; supply of inputs to local businesses; and consumer products. Road and some rail transport account for most of regional freight movements.

Freight movements and the mode used are determined by a number of factors. These include: the origin and destination; the weight and volume of the goods; the distance to be transported; time requirements for delivery; product type (eg. perishable/ refrigerated); and product value (high value or commodity). ¹⁶

- Rail is typically used for medium and long distance transport and for heavy and/or bulk commodities.
- Road freight is efficient for short distances with a diversity of origins/destinations or for long haul to distribution centres. This has become increasingly important with the growth in use of third party logistics providers with warehousing facilities.
- Air freight is usually used for high value/smaller products and for time sensitive freight.

Wangaratta is centrally located on the major national transport corridor (Hume Highway) and has direct access to four capital cities within 24 hours by road or rail.

• **Rail:** Wangaratta has good rail access for freight and passengers). It is located on the North East railway line, which connects Melbourne to Benalla, Wangaratta, Wodonga and Sydney. Passenger services are by V/Line and NSW TrainLink.

¹³ Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P15; Freight Directions in the Hume Region Detailed Report June 2013 RDA

¹⁴ Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P15

¹⁵ ABS Census 2016, Working Population Profile.

¹⁶ Freight Directions in the Hume Region Detailed Report June 2013 RDA P3-4

- Road: Wangaratta is located on the Hume Highway. The Hume Freeway provides an efficient road corridor, which creates effective road transport options north and south from the Hume Region. There are a number of road freight operators located in the region and servicing major businesses. Road transport in the LGA accounted 237 jobs in 2016 and postal and couriers services 101 jobs.¹⁷
- Intermodals: currently there is no intermodal freight hub in Wangaratta that would allow access to the rail network, however a potential future site was identified in south-west Wangaratta in a 2016 report.¹⁸

The industries in Wangaratta LGA generally are users of road freight for inputs and for transport of products to markets. Given the mix of industries and businesses the use of air freight is currently limited. Little of the production out of the region is high value/low volume/time sensitive products. However interest has been expressed by the wine industry for premium wine shipments.

2.3.3 Air Freight Operations

Nationally the freight industry is experiencing a growing requirement for air freight with most of this via major city airports for low weight, high value and time dependent products.

- Products moved include pharmaceuticals, high tech equipment and orders from local and offshore online businesses. The expansion of online businesses has led to a growth in parcel delivery businesses (eg. Australia Post and their Star Track acquisition).
- There has also been major growth of linked businesses based in hubs around airports, including aircraft servicing, airfreight services and other support services. These hubs have also become locations for business that benefit from proximity to airports.

Direct airfreight shipments to and from the Wangaratta Region are limited. Freight that may be air freighted (interstate or international) is usually shipped by road to Melbourne and/or Sydney Airports for international/domestic flights.

There is some future potential for airfreight covering regional high value/ low volume agribusiness products (eg. premium wine and beverages; gourmet cheeses; hazelnuts, truffles etc.).

2.3.4 Industrial Land and Logistics

The AECOM report indicates that Wangaratta has 15 years supply of zoned industrial land and another 15 years of potential supply within adjacent unzoned areas. It emphasises the need to protect employment zones and the airport.¹⁹ The AECOM report recommends amendments to the Municipal Strategic Statement to provide policy support for: ongoing protection of sites for a freight and logistics hub, industrial precincts and the airport zone.²⁰

There are several operating and proposed intermodals in the broader region.

- Wodonga: there is a major freight and logistics precinct at Wodonga (Logic logistics hub)
- Beveridge Freight and Logistics Precinct feasibility study on securing future private investment for development of an interstate freight terminal at Beveridge.
- Shepparton has an intermodal site (GV Link Goulburn Valley Freight and Logistics Centre) and is seeking investors.²¹

2.4 Tourism in the Region

2.4.1 Wangaratta Region

Wangaratta is a central city in the North East with access to major tourism locations in the region.

 These include: the wine and food areas of Milawa, King Valley and Rutherglen, Beechworth and Glenrowan; National Parks and High Country areas, Winton Wetlands; Kelly Country – Glenrowan; Beechworth; Murray to Mountains Rail Trail (100 kilometres of sealed trails linking Wangaratta, Beechworth, Rutherglen and Bright).²²

¹⁷ ABS Census 2016 Working Population Profile data.

¹⁸ Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P14

¹⁹ Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P14

²⁰ Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P35

²¹ http://greatershepparton.com.au/assets/files/documents/business/COGS_GVLINK_Freight_Book.PDF

²² http://www.victoriashighcountry.com.au/towns-villages/wangaratta/; http://www.visitwangaratta.com.au/

- The North East's/ High Country attractions included Nature national parks, walks/hikes, trails; Adventure skiing, cycling, water sports, mountain bikes; Gourmet food, wine, craft beer, ciders; Activities -, fishing, horse riding, camping.
- Wangaratta stages a number of sports, cultural, arts and tourism events each year. These
 include: Wangaratta Festival of Jazz, La Dolce Vita, Wangaratta Marathon and Fun Run, Sam
 Miranda Cycle Tour, Wangaratta Cup, Stitched up Festival, Feast of Art, Brown Brothers
 Annual Wine and Food Festival, Kelly Country Classic and more.



Table 6. Travel Distances from Wangaratta City Centre

Journey: Wangaratta to:	Distance (kms)	Travel Time – Driving
Melbourne	250	2 hours 41 mins
Beechworth	36kms	30 mins
Milawa	22kms	20 mins
King Valley	39 kms	36 mins
Winton	33 kms	22 mins
Myrtleford	46 kms	34 mins
Chiltern	46 kms	34 mins
Rutherglen	39kms	31 mins
Glenrowan	15kms	15 mins
Yarrawonga	55 kms	43 mins
Benalla	48 kms	32 mins
Albury Airport	76 kms	53 mins
Mansfield	103 kms	1 hour 8 mins
Mt Buffalo	100kms	1 hour 45 mins
Mt Beauty	108kms	1 hour 35 mins
Bright	83 kms	1 hour 5mins
Shepparton	120 kms	1 hour 20 mins

Source: Google Maps 2017

2.4.2 Travel to the Region

Travel Mode

The main access to the High Country Tourist Region from Melbourne and Sydney is by road via the Hume Highway.

- In the Central and Upper Hume Regions, the Hume Highway passes the cities/towns of Benalla, Glenrowan, Wangaratta and Albury Wodonga.
- VLine passenger rail (3 services per day) provides access from Melbourne to Wodonga via Wangaratta and other towns in the Central Hume Region. The NSW Train Link Melbourne/Sydney XPT service (2 services per day) stops in Benalla, Wangaratta and Albury.
- Passenger air access is via Albury Airport (RPT services), with daily flights from Melbourne Sydney and 3 flights per week from Brisbane. General aviation and some charters are via local airports.

Table 7. Flights – Albury Airport

Return Flights		
Destinations	Weekdays (daily flights)	Weekends (total flights)
Sydney to Albury		
REX	4	3
Qantas Link	4	6
Virgin	2	3
Melbourne to Albury		
Rex	3	2
Brisbane to Albury		
JetGo	1	2

Source: Albury Airport websites (September 118 2017) http://www.flyalbury.com.au/flights/daily-flight-schedules

Table 8. Rail Travel to Wangaratta Station

Rail	Weekdays (daily)	Weekends (Sat & Sunday)
VLINE (Melb/Albury)	3	3
NSW Train Link - Melbourne/Sydney XPT	2	2
Source: VLine website (Sept 18 2017)		

https://www.vline.com.au/getattachment/90b9a59e-f637-4c36-973c-02e404ba4266/Albury-Wodonga-Melbourne-(via-Wangaratta,-Bena-(1))

Passenger Flights – Wangaratta Airport

With the proximity to Albury Airport (under 1 hours travel time by road) and the frequency of passenger flights to Melbourne and Sydney, a RPT service to Wangaratta Airport is not likely to be sustainable.

Future flights are likely to be restricted to: special charters for events or luxury travel packages; and private light aircraft use.

3. Role of Regional Airports

3.1 Regional Airports Ownership

Several studies have been undertaken for the Australian Airports Association, which provide information on regional airports, including the results of surveys.²³ The latest report was completed in September 2016 by ACIL Allen Consulting.

- In Australia, there are around 250 airports, which receive Regular Public Transport (RPT) services, and 2000 much smaller airfields and landing strips scattered across the country.
- Many regional airports are owned and operated by local councils. Many face issues related to balancing community needs and commercial outcomes for airport assets. For smaller aerodromes this has implications for funding of operations, maintenance and upgrades, with some not being able to maintain the asset.²⁴

Airports & Local Government

"The vast majority of regional airports and aerodromes are owned and operated by local government. While councils make every effort to ensure funding is made available for their aerodrome, the reality is that airports must compete with other community infrastructure projects and services for an often very limited pool of funding, particularly capital funding. Unfortunately, this inevitably results in a number of regional aerodromes not having access to the funding they require to maintain and improve infrastructure. In the worst cases this might mean an inability to maintain safe operations and, ultimately, some may be forced to close."

Source: Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting. (Report to Australian Airports Association) P1

Aerodrome Local Ownership Plans (ALOP)

Many of Australia's airports/aerodromes (including Wangaratta) were originally established by the Australian Government, generally for military use. When they were no longer required for defence purposes, these airports were transferred to the ownership of the relevant local government authority under **Aerodrome Local Ownership Plans (ALOP)** or were sold to private interests. The ALOP agreements (from the early 1990's) under which these transfers took place impose obligations on the recipient local government authority to maintain and operate the airport as an airport. ²⁵

ALOP Agreements - Extracts

"The agreements under which those airports were transferred to local government ownership include clauses which require, for example, that the local government body:

- "(a) shall operate and maintain the aerodrome, open to the public, in compliance with Civil Aviation Regulations ...
- (b) shall be solely responsible for developing, operating and maintaining the aerodrome including visual aids and associated equipment to [CASA] standards...

(c) shall permit open, unrestricted and non-discriminatory access to the aerodrome by airline and aircraft operators on reasonable terms and conditions, consistent with the physical limitations of the aerodrome ...

(e) shall be responsible for the safety of the aerodrome \ldots

(f) shall be responsible for the security of the aerodrome ...

(g) shall take such action as is within its power to prevent the restriction of aircraft operations to and from the aerodrome by objects, such as buildings, other structures, trees or other natural objects ...

(h) shall take such action as is within its power to:

(i) create land-use zoning around the aerodrome which will prevent residential and other incompatible development in areas which are, or may be, adversely affected by aircraft noise;

(ii) prevent the introduction of activities likely to create a hazard to aircraft ...".

Source: Australia's Regional Airports - Facts, Myths And Challenges , Australia's Airports Association P30

²³ Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting. (Report to Australian Airports Association); Australia's Regional Airports Facts, Myths & Challenges November 2012, Australian Airports Association (AAA); Connecting Australia – The Economic and Social Contributions of Australia's Airports, May 2012, Deloitte Access Economics - A report for Australian Airports Association.

²⁴ Australia's Regional Airports - Facts, Myths And Challenges The Facts > Australia's Airports P70

²⁵ Australia's Regional Airports - Facts, Myths And Challenges, Australia's Airports Association P30

The ALOP agreements require the consent of the Secretary of the Department of Infrastructure and Transport for a Council to sell or lease the airport where the alternative use would result in the closure of the airport or it no longer continuing to operate as an airport. ²⁶ These clauses are similar to those for privatised airports.

3.2 Role of Regional Airports

3.2.1 Regional Airports

Regional airports play a major role economic, social and community role. They are important for medical emergency use; firefighting and other uses. They also provide pilot training, recreational flying and aircraft maintenance services.²⁷

"Regional airports play vital roles in sustaining regional economies and communities, enabling access to specialist health, education, commercial and recreational facilities, and facilitating social connections. Regional airports are also a key facilitator of tourism, which is a significant economic driver for many regional communities. Regional airports save lives by facilitating medical evacuations, collection and delivery of organ donations and search and rescue. They also protect Australia's physical assets by enabling firefighting in areas where road transport is impossible or would be too late."

Source: Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting. (Report to Australian Airports Association) Pii

3.2.2 Passenger RPT Services

There are 317 Australian airports which are certified (190) or registered (127) by the Civil Aviation Safety Authority (CASA) as having significant current RPT or charter use or potential use. ²⁸

- Airlines have scaled back RPT services to smaller airports and have focused on profitable routes to major regional centres. These centres operate as regional hubs for residents, business visitors and tourist.
- While the number of destinations has been reduced the number of passengers travelling to the regional hub destinations have increased dramatically, with annual growth averaging 3.3% per year projected to 2025.²⁹
- Flights to smaller airports are largely charters associated with special tours or regional events, and this is the case with Wangaratta.

3.2.3 Social Contributions

A 2012 airports survey identified the key contributions of local aerodromes/airports. Three of these issues are important for Wangaratta Aerodrome: significant recreational use; aeronautical businesses on site; and emergency services use.³⁰

²⁶ Australia's Regional Airports - Facts, Myths And Challenges , Australia's Airports Association P30

²⁷ Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting P8

²⁸ CASA certified airports are able to be used by RPT or charter aircraft with more than 30 passenger seats; CASA registered airports have been checked and verified by a qualified person approved by CASA for use at least once a week by RPT or charter aircraft with more than 9 but not more than 30 passenger seats. Report Australia's Regional Airports Facts, Myths & Challenges November 2012 Australian Airports Association (AAA) P30

²⁹ Report Australia's Regional Airports Facts, Myths & Challenges November 2012 Australian Airports Association (AAA) P4 & 8

³⁰ Connecting Australia – The Economic and Social Contributions of Australia's Airports, May 2012, Deloitte Access Economics - A report for Australian Airports Association P46

Key Social Contributions to the Local Economy



Source: AAA Regional, Rural and Remote Airports Survey, March 2011

Source: Connecting Australia – The Economic and Social Contributions of Australia's Airports, May 2012, Deloitte Access Economics - A report for Australian Airports Association P46

3.3 Key Issues for Regional Airports

The Regional Airport Infrastructure Study report had a number of key findings, which related to the situation of Wangaratta Aerodrome.

These include: important social and economic roles of local airports in communities across Australia; the financial stress that many regional airport owners face from the costs of maintaining and operating the airport; and challenges in upgrading facilities to meet future aviation needs.³¹

Airports are not passive assets and large or small must be actively managed and to comply with regulatory requirements. The costs of maintaining and upgrading infrastructure including terminal facilities and runways have increased faster than other infrastructure costs.

"Australia's regional airports face significant challenges in maintaining the service they provide to their local communities. Many regional airports in Australia are operating at a loss each year, and are heavily dependent upon cross-subsidisation by their local government owners who face multiple and competing demands on their limited financial resources."

Source: Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting. (Report to Australian Airports Association) Piii

³¹ Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting. (Report to Australian Airports Association)

3.4 Financial Situation – Regional Airports

3.4.1 Financial Performance

The survey data for 2014/15, shows the average financial performance for regional airports. In all 61% of regional airports had budget deficits in the survey year (2014-15), and nearly 40% expected continuing budget deficits over the period to 204/25.³²

- On average the RPT regional airports had \$2.28 million in revenues in 2014-15 (compared with an average expenditure of \$2.36 million (on operations and maintenance) a 3.4% funding gap. While the operators of non-RPT regional airports had \$99,000 in revenues in 2014-15 compared with an average expenditure of \$182,000 (a 45.6% gap).³³
- As many as 50% may be operating at a loss each year and rely on cross-subsidisation by their local government owners.
- On average, the survey found that non-wage maintenance costs made up 25% of the total expenditure of the regional airports with RPT services and 49% for non-RPT regional airports. The most significant cost to an airport is routine maintenance that is required for an operational aerodrome.

The following table compares Wangaratta Aerodrome with the averages from the survey. The gap for Wangaratta is broadly in line with the average for Non-RPT airports – deficit of \$87,000 or 59.6% gap (cf. survey average \$83,000 and 45.6%). The major difference is in revenue size and mix, with Wangaratta not having landing charges and significant non-aviation rent revenue.

	Average 2014/15	Average 2014/15	Average 4 years 2013/14 -2016/17
	RPT airports	Non-RPT airports	Wangaratta Aerodrome
Revenue & Expenditure			
Revenue (Average)	\$2.28 million	\$99,000	\$59,110
Expenditure (Average)	\$2.36 million	\$182,000	\$146,187
Shortfall (Average)	-\$80,000 (3.4%)	-\$83,000 (45.6%)	-\$87,076 (59.6%)
Type of Revenue			
Aeronautical-related (such as landing	74.3%	51.8%	0%
fees and passenger head taxes)			No landing fees
Other revenue - receipts from the lease	25.7%	48.2%	100%
of land to airport tenants, car parking,			Leases of hangars/terminal space -
and advertising revenue			\$34,721 (58.7%); Other rents/charges
			(non-aviation) - \$17,144 (29.0%)
			\$7246 facilities hire (12.3 %)

Table 9. Summary Financials Regional Airports 2014/15 & Wangaratta Comparison

Source: Regional Airport Infrastructure Study - Economic Contribution and Challenges of Regional Airports in Australia, September 2016 - ACIL Allen Consulting. (Report to Australian Airports Association) P20; and Wangaratta Aerodrome financial data from Council.

3.4.2 Businesses at Airports

On airport aviation related businesses either have site leases and build their own premises or lease airport-owned buildings. Most of the businesses are in the aeronautical and related industries or providing services to passengers.

Many urban and larger regional airports have also diversified activities to include non-aeronautical businesses located in adjacent business parks. These tend to be: freight and logistics centres; businesses that have a dependence on air service accessibility (eg. export/import); and other commercial and industrial businesses that benefit from proximity.³⁴

3.4.3 Airport Leases

Rents vary greatly between airports based on size and location and the demand for space.

While larger airports tend to set rents at market rates, many smaller aerodromes offer leases at concessional rates in order to maintain tenants and activities at the site, or to attract new businesses or recreational flyers.

³² Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting. (Report to Australian Airports Association) Pi

³³ This expenditure is for operations and does include capital works and infrastructure upgrades.

³⁴ Source: Connecting Australia – The Economic and Social Contributions of Australia's Airports, May 2012, Deloitte Access Economics -A report for Australian Airports Association P8

Many smaller regional aerodromes have no landing charges and offer relatively low site rents for aero clubs and recreational flyers. The rates for aviation businesses located on site are usually below market rates. This is largely the case at Wangaratta.

- There are a range of services delivered by local government, which have an operating deficit and are cross subsidised. This usually includes areas like library services, community centres and sports and recreation centres. For these services the community and health benefits are recognised as important.
- For local aerodromes the major social and community benefit relates to the need for emergency services to have air access (eg. fire protection; air ambulance etc.) to a region.
- There are significant economic benefits from having aircraft servicing businesses on site and these are usually servicing local recreational aircraft and those from a much broader region.

Where site rents or hangar rents can be regarded as concessional it is important that the rationale and cost is transparent. For example, it is s recognised as an economic development initiative or as a way of supporting the community safety functions of the aerodrome.

4. Wangaratta Aerodrome - Current Operations

4.1 Wangaratta Aerodrome

Wangaratta City Council owns and operates the Aerodrome, which is located 7km directly south of the city, close to the Hume Highway.

- It has a sealed runway and grass runway and is generally used for small scale general aviation, charter flights, aviation training, and emergency operations (eg. Rural Ambulance Victoria and fire services) and occasional RAAF flights.
- The aerodrome facilities include a Regular Public Transport (RPT) apron, General Aviation (GA) apron and a terminal facility and various aviation support facilities. At present, the aerodrome does not host any RPT services.
- Current activities at the airport include the following: aircraft repair, maintenance, fabrication and restoration; general aviation; recreational flying (eg. joy flights); emergency services; flight training; charter flights; and motor bike licence training.
- Use Levels: estimates of aviation use include: around 6-10 GA flights per day; and 6 Air Ambulance flights (including helicopters) for primarily patient transfers rather than medivac emergency flights. Charter use is mainly for flights for the snow season, wineries and festivals and events.
- Air freight services current do not operate, however the potential to develop freight services has been identified in several reports.³⁵ For example, the 2016 Wangaratta Freight and Land Use Study noted that the Wangaratta Planning Scheme references the potential for a freight logistics facility associated with the airport, which could be used as a cluster for packaging and distribution of regional product (eg. for wine industry and niche high value products).³⁶

4.2 Airports in the Region

There are several other regional airports in the broader region.

Airport	Description
Albury Airport	Is approximately 85 kilometres north-east of Wangaratta Aerodrome (1 hour drive) and is a major
	regional gateway, providing RPT, charter and pilot training services and some freight services.
Benalla Airport	Is of similar size of Wangaratta aerodrome and offers similar services in addition to extensive
	gliding operations. A Stage 1 Redevelopment was completed in 2016 – covering fencing, fuel
	facilities, improved gliding strip and runway maintenance. ³⁷
Mangalore Airport	Operates as a training hub and for general aviation. ³⁸ It has been suggested as a freight hub for
	the Lower Hume Sub Region (around Seymour area) with funding provided for a feasibility
	study. ³⁹ The airport is situated near the convergence of the Hume and Goulburn Valley corridors
	and there are options for an Intermodal Freight Logistic Precinct adjacent to the airport site.
Shepparton Aerodrome	A feasibility study has been completed and includes identification of future airport sites to allow
	for passenger flights and air freight. 40

Table 10. Airports in the Region

4.3 Activities on Site

4.3.1 Existing Activities

The aerodrome performs a number of roles

 It plays an important role in supporting a range of activities and services: emergency services (including significant use by Air Ambulance Victoria); charter services; recreational aviation (eg. joy flights provided by Classic Air Adventures and Air Combat Australia); pilot training (provided by the local Aero club); and heritage conservation/tourism (War bird joy flights, maintenance and restoration).

^{35,} Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P11, P13, 14

³⁶ Wangaratta Freight and Land Use Study, Final Report AECOM July 2016 P7

³⁷ http://www.benalla.vic.gov.au/Your-Council/Major-Projects/Benalla-Airport-Masterplan

³⁸ http://mangaloreairport.com.au/airport/airpot-vision/

³⁹ Central Hume Sub Region Plan 2010-20, Department of Planning and Community Development P39; Freight Directions in the Hume Region Detailed Report June 2013 RDA P10-11, P32

⁴⁰ Hume Strategy Regional Plan - Key Priorities 2015 – 2017 December 2015 RDA P7 & P13

- It is an aviation services hub for several aircraft maintenance, fabrication and restoration businesses that operate in commercial hangars.
- Non-aviation related activities include a motor bike licence training course operating at the aerodrome car park, mostly on weekends. There is also hiring of the tarmac and terminal for events.

4.3.2 Businesses on Site

There are several successful local businesses currently operating at Wangaratta Aerodrome.

- Border Aerospace Fabrication (fabrication and restoration); North East Aviation (aircraft maintenance and servicing); and Classic Air Adventures (aviation tourism and classic aircraft restoration). These businesses have an established client base and provide services for the Wangaratta area and regional Victoria. These businesses are positioned for further growth subject to the availability of suitable expanded facilities at the aerodrome.
- Air Combat Australia wants to establish Wangaratta as its operational base for Victoria.
- Other activities include: Ridesmart-motorcycle licence training; NE Windsports-blowkart competitions; and Victorian Jet Aerosport Association (model aircraft) club days and national competitions.

Business	Activity	Facilities	
Aviation Businesses on Sit	te		
Border Aerospace Fabrication (fabrication and restoration)	Maintenance and repair of aircraft (antique, ex- military, GA) Want to expand business with larger bangar	Leases commercial hangar	
North East Aviation (aircraft maintenance and servicing)	Focuses on aircraft mechanics, and airworthy and export certification. Shares facilities with an avionics company to provide a "complete package" service.	Leases commercial hangar	
Classic Air Adventures (aviation tourism and classic aircraft restoration)	Provides restoration, manufacturing, and maintenance services, with a focus on World War 2 war planes. Also provides joy flights on restored war planes.	Owns large freehold hangar and rents office space in terminal. Lack of hangar space is an issue Terminal is under utilised	
Other Aviation			
Air Combat Australia	A business currently operating out of Camden Airport, NSW providing pleasure flights in jet trainer aircraft 120 flight per year – each person 5- 10 spectators From Wangaratta expect to deliver 180 flights. Also investigating Bendigo airport	Need hangar with apron and landside (car park) access for customers and spectators.	
Other Site Users			
Ridesmart	Motorcycle training – 2 day course (Sat-Tues)	Use car park and Aero Club room for training. Used for last 10 years.	
NE Windsports	Blowkarting	Use the caravan park site. Hosted Victorian State Blowkarting championships for 4- 5 years – using main runway.	
Victorian Jet Aerosport Association	Model jet club with a commercial arrangement with Council (for 15 years)	Use runway, hardstand and facilities for club flying days. Holds three club meetings per annum, generally consist of two-day events held on weekends in July, September and October. Every April - international invitation event (3-days) involves hiring the terminal building for catering. Future - expect to increase utilisation of Wangaratta Airport from six (6) days per annum to nine (9) days per annum The club also host events at Mangalore (3 per annum) and Leongatha (2 per annum).	

4.4 Aerodrome Financials

4.4.1 **Revenue & Expenditure- Operations**

The following table shows the revenue and operations spending for the aerodrome. This is based on financial information provided by Wangaratta Council.

- Total revenue averaged \$59,110 over the 4 year period and operating expenses averaged • \$146,187, thus producing an average annual deficit of -\$87,076. (59.6% of operating expenses).
- The major sources of revenue were aviation related \$34,721 (58.7%); user fees for hire of • facilities \$7246 (12.3%) and other revenue \$17,144 (29.0%) for grazing, house rental and motor cycle training.
- Aviation related revenue is made up of site leases for occupants of the hobby hangar and • rents for the two commercial hangars and for office space in the terminal building.

For 2013/14 - 2015/16 lease revenue has been estimated based on the annual adjustment factor in rents being 2.5%.

	2013/14	2014/1J	2013/10	2010/11	years	years	
							Share of
Revenue	Estimated	Estimated	Estimated	Actuals			Revenue
Aviation Related							
Total Aviation Related	\$33,414	\$34,270	\$35,149	\$36,050	\$138,883	\$34,721	58.7
User Fees (Hire of Facilities)	7,523	6,325	5,611	9,525	\$28,984	\$7,246	12.3
Other							
	A (A) (A)	A (A A A A A A A A A A	<u> </u>	<u> </u>	<u> </u>	A	
Total Other (actuals)	\$16,498	\$16,921	\$17,355	\$17,800	\$68,574	\$17,144	29.0
Total Deserves Asiation 9 Others	* 57.405	*57 547	* 50.445	ACO 075	¢000 444	¢50.440	400.0
Total Revenue Aviation & Other	\$57,435	\$57,517	\$38,115	\$63,375	\$236,441	\$59,110	100.0
	Actuals	Actuals	Actuals	A atuala			
Expenses	Actuals	Actuals	Actuals	Actuals			Share of Expenses
Expenses Employee & Other Costs	Actuals	Actuals	Actuals	Actuals			Share of Expenses
Expenses Employee & Other Costs Employee Costs (Total)	Actuals	Actuals	Actuals 45,563	Actuals	\$152,513	\$38,128	Share of Expenses 26.1
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total)	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724	Actuals 58,387 88,040	Actuals 45,563 64,634	Actuals 13,678 57,581	\$152,513 \$289,978	\$38,128 \$72,495	Share of Expenses 26.1 49.6
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724 32,675	Actuals 58,387 88,040 32,639	Actuals 45,563 64,634 38,522	Actuals 13,678 57,581 38,420	\$152,513 \$289,978 \$142,256	\$38,128 \$72,495	Share of Expenses 26.1 49.6 2000000000000000000000000000000000000
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724 32,675	Actuals 58,387 88,040 32,639	Actuals 45,563 64,634 38,522	Actuals 13,678 57,581 38,420	\$152,513 \$289,978 \$142,256	\$38,128 \$72,495	Share of Expenses 26.1 49.6 2000000000000000000000000000000000000
Expenses Employee & Other Costs Employee Costs (Total) Materials & Services (Total) Materials & Maintenance	Actuals 34,884 79,724 32,675 147,283	Actuals 58,387 88,040 32,639 179,066	Actuals 45,563 64,634 38,522 148,719	Actuals 13,678 57,581 38,420 109,679	\$152,513 \$289,978 \$142,256 \$584,747	\$38,128 \$72,495 \$35,564 \$35,564 \$146,187	Share of Expenses 26.1 49.6 24.3 24.3 100.0

Table 12. Wangaratta Aerodrome Financials 2013/14-2016/17

Net Revenue - Expenses Source: Information provided by Wangaratta Council November 2017 & MCa analysis, February 2018

-\$89,849

-\$121,550

-\$90.603

-\$46.304

-\$348.306

-\$87.076

-\$89.849

0/ Cha



Source: Information provided by Wangaratta Council November 2017 & MCa analysis, February 2018

4.4.2 Revenue - Wangaratta Aerodrome

Lease Revenue

The following table shows details of the lease payments for site leases, the commercial hangars and other payments related to the site. Total revenue from leases in 2026/17 was **\$53,850** - Aviation related leases were **\$36,050** and other leases were **\$17,800**. The hobby hangar rents are based on a rate of \$3 per m2. This has been increased to \$6 per m2 under new leases being issued from December 2017.

Lessee	Agreement (WIM)	Property Description	Annual Rent
Aviation Related Leases			
			\$451.13
			\$442.80
			\$885.60
			\$648.00
			\$399.60
			\$459.00
			\$648.00
			\$10,410.84
			\$12,600.00
			\$9,105.30
		Total Aviation Related Leases	\$36,050.27
Other Leases			
			\$400.00
			\$1,000.00
			\$200.00
			\$100.00
			\$4,400.00
			\$11,700.00
		Total Other Leases	\$17,800.00
		Total – All Leases	\$53,850.27

Based on the <u>total areas</u> of the hangars and the rents paid, the rental rate per m2 is an average of \$2.00 per m2 for site rents and \$23 per m2 for the rent of the commercial hangar buildings. The site rent paid for hobby hangars is \$3 per m2, with this being increased to \$6 per m2 from December 2017.

Table 14. Rents and Site Areas – Wangaratta Aerodrome 2016/17

	Area	Total Rent	Rent/m2
Hangar Leases (2016/17)	m2	\$	\$
Site Rents			
Hebby Honger (8 site roote)	1080	2024	\$2.00 – based on total
Commercial Hangar Ponte	1900	3934	alea ol haliyai
Total	2960	\$26,945	

Source: Wangaratta Council Information, November 2017 and MCa analysis

Other Site Revenue

The other revenue generated from the site is user fees for events staged at the aerodrome (using the runway and terminal building) by the Victorian Jet Aerosport Association and NE Windsports.

Table 15. Other Revenue - Wangaratta Aerodrome

	13/14 Actuals	14/15 Actuals	15/16 Actuals	16/17 Actuals	Total - 4 years	Average 4 years
Other Revenue						
User Fees (Hire of Facilities)	7,523	6,325	5,611	9,525	\$28,984	\$7,246

Source: Wangaratta Council Information, November 2017 and MCa analysis

Source: Wangaratta Council Information, November 2017

4.4.3 Comparisons with Other Airports

Financial Results

The following table compares Wangaratta's revenues and expenditure with averages from the 2014/15 airports survey by ACIL Allen Consulting.⁴¹ Wangaratta's overall performance broadly aligns with the average for Non-RPT airports.

	Average 2014/15	Average 2014/15	Average 4 years 2013/14 -2016/17
	RPT airports	Non-RPT airports	Wangaratta Aerodrome
Revenue & Expenditure			
Revenue (Average)	\$2.28 million	\$99,000	\$59,110
Expenditure (Average)	\$2.36 million	\$182,000	\$146,187
Shortfall (Average)	-\$80,000 (3.4%)	-\$83,000 (45.6%)	-\$87,076 (59.6%)
Type of Revenue			
Aeronautical-related (such as landing	74.3%	51.8%	0%
fees and passenger head taxes)			No landing fees
Other revenue - receipts from the lease	25.7%	48.2%	100%
of land to airport tenants, car parking,			Leases of hangars/terminal space -
and advertising revenue			\$36,050 (59.0%); Other rents/charges
			(non-aviation) - \$17,800 (29.1%)
			\$7246 facilities hire (11.9%)

Table 16. Summary Financials Regional Airports 2014/15 & Wangaratta Comparison

Source: Regional Airport Infrastructure Study - Economic Contribution and Challenges of Regional Airports in Australia, September 2016 - ACIL Allen Consulting. (Report to Australian Airports Association) P20; and Wangaratta Aerodrome data from Wangaratta Council.

Leases and Rents

Fees for hangars at airports can comprise: site lease charges for hangar sites with lessees constructing their own hangars on the leasehold sites; lease fees for use of Council owned and erected hangars (which may be share by several users or house a commercial operation); and payments to private hangar owners for having aircraft in the hangars.

Lease charges vary with the size of aerodromes and their proximity to major population centres. Small local aerodromes generally have charges at the lower end of the scale.

Comparisons were made of: rents at other regional airports (for site leases and hangars); purchase prices of hangars on leasehold sites. For site rent comparisons a notional 15m x 15 m (225 m2) was used. Indicative costs of constructing basic hangars were also examined.

Table 17. Site Leases - Rents Comparisons

Aerodrome	Hangar Site Rents	Example
	(own hangar on site)	< notional 225m2 site>
Wangaratta	\$3.00 per m2	225m2 site: \$ 675 per year
Benalla (old rate)	\$0.75 per m2	225m2 site: \$ 169 per year
Benalla (proposed new rate) ⁴²	\$5.00 per m2	225m2 site: \$1125 per year
Narromine (NSW)	\$6.82 per m2	225m2 site: \$1536 per year (\$128 per month)
Cessnock (NSW)	\$6.93 per m2	225m2 site: \$1560 per year (\$130 per month)
Bathurst (NSW)	\$6.66 per m2	225m2 site: \$1500 per year
South Grafton (NSW)	\$5.33 per m2	225m2 site: \$1200 per year
Emerald (Qld)	\$4.26 per m2	225m2 site: = \$960 per year (\$80 per month)
Gympie (Qld)	\$8 per m2 (old)	225m2 site: \$1800 per year
	\$13 per m2 (new)	225m2 site: \$2925 per year

Source: Derived from airport and aviation websites (accessed November 2017)

⁴¹ Regional Airport Infrastructure Study - Economic Contribution And Challenges Of Regional Airports In Australia, September 2016 ACIL Allen Consulting. (Report to Australian Airports Association P20

⁴² http://www.benallaensign.com.au/2017/07/07/3294/hangar-anger-at-fees

This following table shows rents for the use of hangar space at several aerodromes. These are mainly rents charged by hangar owners for recreational aircraft use. They are not rents for fully fitted out commercial hangars for use by aviation businesses. The Camden and Bankstown are rents for individual smaller hangars.

Tuble for Hungar I		
Aerodrome	Rents - Hangar Space	Annual Rate
Gympie (Qld)	\$50 per week per aircraft	\$2600 per year
Moruya (NSW)	\$70 per week per aircraft	\$3640 per year
West Sale (Vic)	\$27 per week per aircraft	\$1404 per year
Riddell (Vic)	\$66 per week per aircraft	\$3432 per year
Caboolture (Qld)	\$62.50 per week per aircraft (\$ 250 per month)	\$3000 per year
Somersby (NSW)	\$75 per week per aircraft (\$300 per month)	\$3600 per year
Camden (NSW)	\$550 per month	\$6600 per year
Bankstown (NSW)	\$550 per month	\$6600 per year

Table 18. Hangar Rents Comparisons - Selected Aerodromes

Source: Derived from airport and aviation websites (accessed November 2017)

The follow table shows indicative prices of hangars for sale, which are located on leasehold sites at aerodromes.

Location	Hangar Details
Airport Moorabbin Vic	2 leasehold hangars from \$58,000 each
Taree Airport NSW	24m x 18m. Mezzanine floor 18m x 7m approx. Two offices, water, power, telephone, air
	conditioner. 12m x 6m concrete apron. \$135,000
Jacobs Well Heck FieldGold Coast	Hangar 12 X 12 Steel on concrete pad. Heck Field, Jacobs Well. Required to be member of
Qld.	Aviation Sports Club. \$85,000 (with 18 years on lease)
Sunshine Coast Airport Qld	Sunshine Coast Airport. 13m x 12m hangar in private 6 hangar complex. \$175,000
Kilcoy Airfield. Qld	\$91,000 - with 34 year lease - with club membership
Wagga Wagga NSW	In the light aircraft precinct -15m x 15m. Power connected and water & sewage services
	available. \$94,500 – with long lease.

Table 19. Leasehold Hangar Sales

Source: http://www.aviationtrader.com.au/advert_category/hangars/ (Accessed November 2017)

The following are indicative costs for the construction of basic modular steel hangars constructed on aerodrome sites.⁴³

Table 20. Indicative Construction Costs of Hangars

Туре	Description
Small to medium hangars	Small to medium hangars: approximately 12m x 15m. Cost range: \$40,000- \$50,000 (depends on size and
	fit out). Site preparation and concrete slab additional.
Medium hangars	Medium hangars - space for multiple aircraft and for extra storage or workshops. 18m x 21m.
-	Cost range: \$50,000 – \$80,000 (depends on size and fit out). Site preparation and concrete slab additional.
Large hangars	Large hangars include room for multiple airplanes, accommodation and office space. Cost range: \$80,000
	- \$140,000 (depends on size and fit out). Site preparation and concrete slab additional.

Source: <u>http://www.centralbuild.com.au/blog/cost-to-build-a-hangar/</u> (Accessed November 2017). Hangars are modular steel construction.

⁴³ These are indicative prices from company (Central Steel Build – Kyneton Victoria) that constructs modular steel buildings, including hangars.

4.5 Capital Spending & Maintenance

Keeping the aerodrome operational requires capital expenditure and annual spending on maintenance of buildings and the precinct. This is a major issue for Wangaratta Aerodrome as it has an ongoing operational deficit and does generate a surplus to cover future capital requirements.

4.5.1 Capital Spending

Total capital spending over the 4 years - 2013/14 to 2016/17 was \$201,391, with the major component being Aerodrome Pavement Resealing of \$192,711 (\$159,208 in 2013/14).

Table 21. Capital Spending - Wangaratta Aerodrome

Aerodrome Capital Spending					
Project	2013/14 Actuals \$	2014/15 Actuals \$	2015/16 Actuals \$	2016/17 Actuals \$	Total 4 Years
Capital Spending					
01200 Aerodrome Pavement Resealing	159,208	0	11,541	21,961	192,711
01697 Aerodrome Renewal	0	0	0	8,680	8,680
Total Capital Spending	\$159,208	0	\$11,541	\$30,641	\$ 201,391

Source: Wangaratta Council Information, November 2017

4.5.2 Maintenance Spending

Maintenance spending is part of operations expenditure and the total averaged \$35,564 per year over the 4 year period (or 24% of total operating expenses). The major component was maintenance of the aerodrome terminal building (average of \$26,547).

Table 22. Materials & Maintenance Expenditure - Spending - Wangaratta Aerodrome

	2013/14 Actuals	2014/15 Actuals	2015/16 Actuals s	2016/17 Actuals ¢	Total - 4 years ¢	Average 4 years ¢
Materials & Maintenance	Ψ	Ψ	Ψ	Ψ	Ψ	Ψ
00191 Aerodrome Terminal (only) materials contract payments						
& maintenance	23,509	28,156	24,849	29,676	106,190	26,547
00259 Airworld Hangar No 1 & 2 materials contract payments &						
maintenance	0	721	2150	118	2,990	747
00263 Residence - Airworld materials contract payments&						
maintenance	9166	3762	11522	2767	27,217	6,804
01708 Airworld – former National Sports Aviation Centre -						
materials contract payments & maintenance	0	0	0	5859	5,859	1,465
Total M&M Materials & Maintenance	\$32,675	\$32,639	\$38,522	\$38,420	\$142,256	\$35,564
Total All Operating Expenses	\$147,283	\$179,066	\$148,719	\$109,679	\$584,747	\$146,187

Source: Wangaratta Council Information, November 2017

5. Future Development

5.1 Future Directions

5.1.1 Vision and Objectives

The vision for Wangaratta Aerodrome is:

"To become an economically viable aviation hub, supporting regional business growth, community services and general aviation needs, while providing local employment opportunities and respecting environmental values"

The Rural City of Wangaratta has set the following key objectives for managing and developing Wangaratta Aerodrome in support of the vision:

- Protect the airport's primary function for aviation, including land-use planning, airspace
 protection and preventing encroachment of other municipal activities into areas impacted by
 aircraft activity.
- Recognise the airport as a valuable community asset through engagement and understanding of the needs and concerns of aerodrome users and tenants.
- Provide appropriate infrastructure to support future development at the aerodrome based on sound economic rationale.
- Ensure compliance with CASA standards and requirements as required by a registered aerodrome.
- Support aviation related development on the site for private aircraft, commercial operators, and emergency services / agencies.
- Support the growth of existing businesses on the aerodrome site by providing them with the facilities and resources required to find / service more customers and provide local employment opportunities.
- Facilitate opportunities for future aviation related businesses on aerodrome site by reducing or eliminating barriers, and actively marketing the benefits of flying at Wangaratta.⁴⁴

5.1.2 Site Advantages

The Aerodrome is located on an approximately 117-hectare site and is surrounded by private rural land. The Hume Freeway is located just north of the Aerodrome. The Wangaratta Aerodrome site is currently zoned as Public Use Zone – Transport (PUZ4). Surrounding land is zoned as farming land (FZ).

Wangaratta Aerodrome has a number of advantages that provide a foundation for future development.

- These include: existing infrastructure including runway and aprons, a large terminal building (commercial kitchen, offices and open space) and car park; 3 operating aviation services businesses on site that currently employ around 17 persons; an Aero Club with an active membership; and a significant requirement for air ambulance use (because of Wangaratta's role as a regional health services hub).
- Three businesses operated in hangars: the largest hangar is privately owned on freehold land; and the other 2 lease Council owned hangars. Two of the businesses are seeking to expand but require additional hangar space, as they are constrained in their existing hangars.
- Air Combat Australia is seeking to establish its Victorian business at Wangaratta. The aerodrome is seen as having a number of advantages including: being in the centre of the North East tourist area, with large number of short stay and day visitors; having unrestricted air space; and car parking available on site.

⁴⁴ Wangaratta Aerodrome Master Plan 2017 (Final Draft), Wangaratta Rural City Council, February 2018

5.1.3 Opportunities and Constraints

Opportunities

The master plan identifies future uses and opportunities.

- The major identified opportunities are: continued growth in private and commercial recreational aviation; recreational and private pilot training; expansion of aviation businesses on site; aviation events (using the tarmac and terminal); and reservation of adjacent land for industrial development (for aviation linked services, air freight services and light industrial activities). It also includes provision of an adjacent area for an airpark.
- Consultations revealed that there is identified regional demand for additional hangar space at the aerodrome.
- There are also ongoing requirements for use for Air Ambulance services and other emergency services (including firefighting).

Constraints

The major issues identified include: limited revenue generation opportunities; ongoing requirements for maintenance and investment in site upgrades; concerns about short term leases for hangar sites; no landing fees – which are seen as an advantage for operations; some constraints on the existing Council owned site and a need to rezone/acquire adjacent land; and a need to attract younger people into the aviation servicing sector.

Wangaratta Aerodrome has not been configured to allow for security controlled RPT operations. However the terminal building could easily be configured for any future requirement. The aerodrome currently lacks adequate fencing and security equipment.

5.2 Aerodrome Development - Planning for the Future

5.2.1 Recognising Long Term Requirements

The Master Plan is a document that has to allow for regional demographic, business, consumer trends and aviation development over a 30+year period. It has to allow for potential long term demand for air services. This includes: air travel patterns (eg. regular flights and charter flights); growth in the tourism market; industry changes; and use of air freight to meet consumer and business requirements for time sensitive products.

It is important that the Master Plan and Council decisions take account of long term development trends in: the region; in aviation; travel patterns; and in industry (logistics, services, tourism). This involves reserving adjacent land for aviation activity and for businesses that may benefit from operating within the aerodrome precinct.

- As a regional aerodrome, there is an important community role in providing access for health services and emergency services operations.
- The major ongoing funding requirements from Council are for capital investment, site and building maintenance, management and regulatory compliance.
- Revenues are from site leases, commercial hangar leases and hiring charges and may cover part of the operating costs but cannot generate revenue to cover major maintenance costs or site or buildings upgrades. Council owners of regional aerodromes have usually sought funding from government (State and Commonwealth) as part of co-contributions.
- Where rental rates are below market rates, it is important that these are transparent and the economic development functions or community functions are recognised and assigned a value. They need to be recognised as costs incurred by Council that are related to industry development or community protection.

The Master Plan allows for a staged development of precincts in response to emerging demand over an extended time period.

5.2.2 Airport Master Plan

The following table outlines the precincts proposed in the master plan.

Table 23. Master Plan P	recincts
Precincts	Description
Existing Aviation Precinct	The Existing Aviation Precinct includes three commercial hangars, the car park, Aero Club building and the terminal building. It is envisioned that there will be no changes to the existing aviation precinct and should remain in the current configuration. The Existing Aviation Precinct includes the three commercial hangars, airfield look out space, current car park, Aero Club building and main terminal building.
Potential Future Industrial Precincts	The inclusion of the Potential Future Industrial (PFI) precincts areas reflects the strategic direction for Wangaratta Aerodrome to support a freight and logistics facility outlined in the Wangaratta Planning Scheme and The Rural City of Wangaratta Economic Development Strategy 2016-2020. The proposed area for the PFI is located outside the airport boundary, north of Brian Higgins Drive. The PFI (Aviation) precinct, located north of GAE2 is recommended to be reserved for aviation related industrial developments due to its valuable location adjacent to the primary runway. It is important to note that the area allocated to the PFI precincts is currently zoned as Farming and will require amendment to accommodate industrial use.
General Aviation Expansion Precincts	 The General Aviation Expansion (GAE) precincts are suitable areas for future additional development of hangar space for general aviation related purposes. The General Aviation Expansion precincts are numbered according to the development stages, where GAE 1 should be developed before GAE 2. GAE 1 is located west of the current Aero Club building and utilises the vacant space available that is adjacent to access to the general aviation apron. The location also provides frontage to the road access, which is valuable for aviation related businesses. GAE 2 located north of the existing hangar, provides a suitable location for general aviation hangars given its valuable location adjacent to the primary runway. It is envisioned that the hangars will be developed in a road access-hangar-taxiway configuration allowing for flexible staging. GAE 3 is located parallel to the secondary runway and is envisioned as a long-term expansion area, where the development is triggered by future general aviation demand.
Car Park Expansion	The car park expansion is an extension to the existing car park to the West and South of the GAE 2 precinct. The trigger for this development will be based on the future car parking demand. The car park also links the main road to the GAE 2 precinct.
Airpark	Air park development was identified through the stakeholder consultation process as a potential opportunity at Wangaratta Aerodrome. Many stakeholders indicated that Wangaratta Aerodrome has the potential to mirror the Temora Airport Air Park model, which involves residential development on airport land. The logical location for this development would be at the Southern side of the secondary runway (09/27) along Brian Higgins Drive, due to the convenient, direct access to the main road and airfield.

Source: Wangaratta Aerodrome Master Plan 2017- Wangaratta Rural City Council, To70 Aviation Australia Pty Ltd, February 2018 P49-52

Precinct Plan,



Source: Wangaratta Aerodrome Master Plan 2017- Wangaratta Rural City Council, To70 Aviation Australia Pty Ltd, February 2018 P48

5.3 Aerodrome Expansion – Short Term

5.3.1 Current Demand for Hangar Space

Information from Council and from the stakeholder consultations identified some initial demand for hangar space.

- The aeronautical businesses on site require larger hangars to further develop their businesses, and Air Combat Australia requires a hangar as a base for their Victorian operations.
- There is a current demand for up to 6-8 hangar spaces for recreational aviation use.

5.3.2 Development Funding

In response to this identified demand Wangaratta Council is currently seeking funding from the Victoria Government for the construction of two new commercial hangars. This is to support the expansion of aviation businesses and attract aeronautical tourism companies to Wangaratta.

- Total project costs are \$827,000, with the Council contributing \$413,500 and a matching amount being sought from the State Government.
- The operation of the businesses housed in the new hangars is expected to generate an additional 13 full time equivalent jobs -this would take onsite jobs to around 30 (up from 17 currently).⁴⁵

If successful, the tender process and construction would occur between April and December 2018.

5.3.3 Future Leases and Rentals

Commercial Hangars

Lease arrangements and annual rentals will need to be set for the two new commercial hangars.

Current Hangars: the current total annual rent for the two commercial hangars is \$23,010 (area 980m2): Hangar 1 (530 m2 - and Hangar 2 450 m2 - This represents a rate per m2 of \$23.

Table 24. Existing Rents on Commercial Hangars

Commercial Hangars	Current Rents	Hangar Area m2	Rate per m2
Total	\$23,010	980	-

Source: MCa analysis, November 2017. Note: hangar areas are estimates.

New Hangars: the follow table shows the rents based on alternative rental returns. For example, based on Council funding contributions only and if a target return of 6% was required, the total annual rent would be \$24,810 or an average of \$12,405 per hangar. If the return was based on the total cost, then the rents would be double (ie. total \$49,620 and average \$24,810).

Table 25. Comparison of New Hangar Annual Rents - based on Rental Returns

Tuble 20. Companion of New Hangar Annual News Subca of Newal Netanio						
New Commercial Hangars	Based on	Based on				
Rental returns	Total Cost = \$827,000	Council Contribution = \$413,500				
Total Rent Annual - Two Hang	gars					
10%	82,700	41,350				
8%	66,160	33,080				
7%	57,890	28,945				
6%	49,620	24,810				
5%	41,350	20,675				
Rent Annual - Single Hangar						
10%	41,350	20,675				
8%	33,080	16,540				
7%	28,945	14,473				
6%	24,810	12,405				
5%	20,675	10,338				

Source: MCa analysis, November 2017

⁴⁵ Based on information provided by Wangaratta Council and the Council's funding submission to Regional Development Victoria (Regional Jobs and Investment Packages – Local Infrastructure Program.

Based on the information in the RDV application and the indicative costs in the Master Plan, the costs of construction of 700m2 commercial hangar was estimated at \$233,000. With an 8% yield this would imply an annual rent of \$18,671. This figure is used in the 10 year financial modelling.

Site Leases

The occupants of the hobby hangar pay pro-rata site leases for Council owned land, with the hangar building being privately owned. The master plan recommends that land in the aviation zone remain owned by Council and rented on the basis of site leases.

Future development of new hangars would be on the basis of these site leases. However for individuals or groups to develop hangars, it will be important that long term leases are provided. This enables loan finance to be obtained from financial institutions, and also the possibility for individuals to exit by selling their hangar with a long term site lease attached. Short term leases make it difficult to secure funding or to sell a hangar.

New lease terms were introduced in December 2017: leases for 10 years and 1 further term of 9 years and 6 months.

Based on the total areas of the hangars and the rents paid, the current rental rate per m2 is an average of \$3.00 per m2 for site rents and \$23 per m2 for the rent of the commercial hangar buildings. The rate for site leases was increased to \$6 per m2 in December 2017.

Site leases values are determined by: the size and activity levels at an aerodrome; the possible commercial uses of land in the aviation zone; commercial/industrial property values in an area; and the demand levels for sites and hangars. They vary substantially between aerodromes in regional and metropolitan areas.

Table 26. Rents and Areas – Wangaratta Aerodrome 2016/17

Hangar Leases (2016/17)	Estimated Area Leased m2	Total Rent \$	Rent/m2 \$
Site Rents			
Hobby Hangar (8 site rents)	1328	\$3934	\$3.00
Commercial Hangar Rents			
Total	2308	\$26,945	

Source: Wangaratta Council Information, November 2017 and MCa analysis

We do not have any current valuations of land at the aerodrome. We recommend that the Council owned aerodrome land and adjacent sites be valued prior to the next stage of development of the aerodrome.

Some indicative valuations can be estimated using the current site rents and alternative rental yields. The hobby hangar is approximately 1980 m2 and the total site rent is \$3934 or \$2.00 per m2.

- Based on a 10% yield this values the site at \$39,600 or \$20 per m2.
- Based on an 8% yield this values the site at \$49,177 or \$24.84 per m2.
- Based on a 6% yield this values the site at \$65,569 or \$33.12 per m2.

Table 27. Rents and Areas – Wangaratta Aerodrome Current 2016/17

	Site	Annual Rent		Site Value	Site Value
	Area m2	Rent	Rent/m2	Estimate \$	Estimate \$ per m2
	1980		\$2.00 (ave for		
Hobby Hangar (Current rents)		\$3934	total area)		
10% Yield				\$39,600	\$ 20.00
8% Yield				\$ 49,177	\$24.84
6% Yield				\$ 65,569	\$ 33.12

Source: MCa analysis November 2017

The following table shows site rents based on <u>indicative site values</u> (\$ per m2) and alternative yields. For example if the site was valued at \$30 per m2, total value would be \$59,400 and if a 10% rental yield was sought total rent would be \$5960 or \$3 per m2.
Table 28. Indicative Site Value and Rents

		Total Rent Based on Yield \$			Rent /m2 Based on Yield \$			
Indicative Site Value \$ /m2	Site Value \$	10%	8%	6%	10%	8%	6%	
<hangar a<="" th=""><th>rea 1980m2</th><th></th><th></th><th></th><th></th><th></th><th></th></hangar>	rea 1980m2							
20	39,600	3960	3168	2376	2.00	1.60	1.20	
30	59,400	5940	4752	3564	3.00	2.40	1.80	
40	79,200	7920	6336	4752	4.00	3.20	2.40	

Source: MCa analysis November 2017

The following table shows the current sale price of serviced industrial land in Wangaratta, which values the sites at around \$47-48 per m2.

Table 29. Comparison – Price of Serviced Industrial Land - Wangaratta

Site		Sale Price Site	Sale Price
	Area m2	\$	\$/m2
Vacant Land – Industrial Estate			
Murrell St Wangaratta (Lot 8)	3837	\$180,000 (plus GST)	\$46.90
Murrell St Wangaratta (Lot 9)	3312	\$160,000 (plus GST)	\$48.30
Services to site include power (25kVa),			
water, sewerage & phone			

Source: https://www.realcommercial.com.au/property-land+development-vic-wangaratta-502639782

5.3.4 Capital Investment Requirements

The following tables show the implementation plan and indicative capital costs for each stage of expansion of the aerodrome.⁴⁶

Table	30	Implementation Plan	1
IUNIC	50.		1

Action	Trigger Point	Indicative Timing		
5 Years – Implementation Plan				
Infrastructure				
 GAE1 Precinct Development Taxiway - \$125,000 Hangar Sites - \$90,000 Apron - \$90,000 Parallel Taxiway Apron Strip Widening - \$85,000 Fuel Bowser relocation – unknown Drainage / Sewerage / Utilities 	Adoption of Master Plan Economic justification Sufficient demand Funding availability (Public / Private / Grant)	Short – Medium Term		
GAE2 Precinct Development – Stage 1 Hangar Sites - \$56,000 Apron - \$210,1000	GAE1 Completion Adoption of Master Plan Economic justification Sufficient demand Funding availability (Public / Private / Grant)	Medium Term		
Future Development				
Access road link – Brian Higgins Drive to GAE2 precinct • Road - \$225,000	GAE2 Precinct Development	Medium Term / Long Term		
GAE2 Precinct Development – Stage 2 Taxiway - \$125,000 Parallel Taxiway Extension - \$375,000 Hangar Sites - \$115,000 Apron - \$455,000 • Tie-down parking area • Drainage / Sewerage / Utilities	GAE1 Completion Economic justification Sufficient demand Funding availability (Public / Private / Grant)	Long Term		
New Code C taxiway linking the parallel taxiway apron to RWY 18/36 adjacent to GAE2	GAE2 Precinct Development Traffic demands	Long Term		
Runway strengthening	Demand or introduction of aircraft with classification > ACN 12	Medium Term / As required		
PFI Precinct	Subject to business case and demand	Long Term / Future plan		
PFIA Precinct	Subject to business case and demand	Long Term / Future Plan		
Car Park Expansion	Subject to demand	Long Term / Future Plan		

Source: Wangaratta Aerodrome Master Plan 2017- Wangaratta Rural City Council,

To70 Aviation Australia Pty Ltd, February 2018 P69-71 (Note hangar site costs cover site preparation and slab only.)

⁴⁶ These are indicative costs only. Any future investment decisions would require technical assessments, design and full costing by a quantity surveyor.

The following estimates are for the stage development of infrastructure at the aerodrome. For hobby hangars additional costs would be incurred by the leasees in constructing hangars on the prepared sites. For commercial hangars, Council would fund the construction of hangars and then lease then to aviation services countries.

Some estimates of hangar construction costs were developed, based on information in the RDV funding application.⁴⁷ These indicative estimates were used in calculating rents for the leasing of the commercial hangars and are included in the financial analysis in Section 5.4.

The cost of developing a commercial hangar (700m2) covering site preparation, utilities to site, construction was estimated at \$233,383 (2017prices). The lease would be responsible for internal fit-out.

laurenter eut Demuinere ente	Indicative Costs
E Veen Implements	\$
5 Year - Implementation Plan	
GAE1 Precinct Development	
Taxiway	\$125,000
Hangar Sites	\$ 90,000
Apron	\$ 90,000
Parallel Taxiway Apron Strip Widening	\$85,000
Fuel Bowser relocation	unknown
Drainage / Sewerage / Utilities	unknown
Total Estimate	\$ 390,000
GAE2 Precinct Development – Stage 1	
Hangar Sites - \$56K	\$ 56,000
Apron - \$210K	\$ 210,000
Total	\$ 266,000
Total - Initial Implementation	\$656,000
Future Development	
Access road link – Brian Higgins Drive to GAE2 precinct	\$ 225,000
GAE2 Precinct Development – Stage 2	
Taxiway	\$ 125,000
Parallel Taxiway Extension	\$ 375,000
Hangar Sites	\$ 115,000
Apron	\$455,000
Total Stage 2	\$1,295,000
Total All	\$ 2,176,000

Table 31. Indicative Costings Infrastructure Development – Wangaratta Aerodrome

Source: Wangaratta Aerodrome Master Plan 2017- Wangaratta Rural City Council, To70 Aviation Australia Pty Ltd, February 2018 P69-71

⁴⁷ Wangaratta Council Application to Regional Development Victoria (Regional Jobs and Investment Packages – Local Infrastructure Program), October 2018

5.4 Financials - Aerodrome Operations

The following shows indicative financials for the operations of Wangaratta Aerodrome over a 10 year period from 2018/19 to 2027/28. The modelling is based on the assumptions in the table below.

Operations revenue estimates cover:

- Rents from existing hobby hangars based on new site rate of \$6 per m2 and 2.5% annual adjustments.
- Rents for existing 2 commercial hangars with 2.5% annual adjustments.
- RDV funding application: 2 new commercial hangars being constructed and operational in 2018/19.
- GAE1 Precinct Development : 6 additional hobby hangars being leased from 2019/20
- GAE1 Precinct Development : 2 additional commercial hangars constructed and leased from 2021/20 and 2023/24.
- All aviation related leases are increased by 2.5% per year.
- Continuation of non-aviation site leases, with rents adjusted by 2.5% per annum.
- User charges for use of site for events increased by 4% per year (assumes increase in events as aerodrome is developed.

Operations expenditure is based on the average expenditure pattern for the 4 years to 2016/17, with 2.5% annual increases. Staffing was increased to a 0.6 manager position. It is assumed that construction and infrastructure projects would be managed by other Council staff.

The financial modelling covers operations revenue and expenditure. Expenditure includes repairs and maintenance but not capital costs.

Assumptions	Description
Revenue - Operations	
Hobby Hangars -Existing (7 leases)	Rents: based on \$6 per m2 (increased from \$3 in Dec 2017 & 2.5% annual adjustment)
Existing Commercial Hangars (2)	Existing rents & 2.5% annual adjustment
New Commercial Hangars	Assumes 700m2 and 8% yield on total hangar costs (site + construction). Estimated site
- RDV Development (2)	preparation, slab, hangar construction and utilities. =\$ 233,383.
	8% yield = \$18,671 annual rent & adjusted 2.5% per annum
	(From 2018/19)
New Commercial Hangars	Assumes 700m2 and 8% yield on total hangar costs (site + construction). Estimated site
GAE1 Precinct Develop (2)	preparation, slab, hangar construction and utilities. =\$ 233,383 .
	8% yield = \$18,671 annual rent & adjusted 2.5% per annum
	(1 from 2020/21 & 1 from 2023/24)
Hobby Hangars –New (6 leases)	Rents: based on \$6 per m2 (increased from \$3 in Dec 2017 & 2.5% annual adjustment)
GAE1 Precinct Develop	(From 2019/20)
Other site leases (non -aviation)	Based on revenue - average 4 years to 2016/17 increased by 2.5% per year
User Charges (events)	Based on revenue - average 4 years to 2016/17 increased by 4% per year
Expenditure - Operations	
Staffing	Assumes 0.6 manager position from 2018/19. Salary based on Victorian Local Government
	Award 2015 – FWA (Level 11 position). Full time annual salary \$70,122 (based on \$1348.50
	per week) – 0.6 position = \$42,073. On costs 21% of salary - \$8835. Total labour cost -
	\$50,909.
	Annual adjustment 2.5% per year
Other Operating Spending	Based on spending - average 4 years to 2016/17. Annual adjustment 2.5% per year

Table 32.Assumptions in Operations Modelling

Source: MCa modelling & analysis January 2018

The modelling and projections show in summary that:

- The extension of hangars at the aerodrome and its development as an aviation servicing hub will potentially improve the overall financials from an operating deficit of \$87,076 (annual average for 4 years to 2017/16) to a deficit of around \$13,000 from 2023/24. This is based on the growth in revenue from commercial aviation hangar leases and some growth in user charges.
- While the aerodrome approaches break-even on operations, it does not generate any accumulated surpluses to cover capital works and major future asset maintenance requirements. Capital investment will need to be covered by Council funding or grants from government programs (State and Commonwealth).

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Revenue										
Total Aviation Related Leases (Current)	40,550	41,563	42,603	43,668	44,759	45,878	47,025	48,201	49,406	50,641
New Commercial Hangars (2- RDV Funding)	37,341	38,275	39,232	40,212	41,218	42,248	43,304	44,387	45,497	46,634
GAE1 New Hobby Hangars (6)	-	5,400	5,535	5,673	5,815	5,961	6,110	6,262	6,419	6,579
GAE 1 New Commercial Hangars (2)			19,616	20,106	20,609	42,248	43,304	44,387	45,497	46,634
Other Leases	18,245	18,701	19,169	19,648	20,139	20,643	21,159	21,688	22,230	22,786
User Charges (events)	9,906	10,302	10,714	11,142	11,588	12,052	12,534	13,035	13,556	14,099
Total Operations Revenue	106,041	114,241	136,867	140,450	144,128	169,029	173,436	177,960	182,604	187,373
Operating Result										
Total Operations Expenses	160,903	164,925	169,048	173,274	177,606	182,046	186,598	191,263	196,044	200,945
Net Revenue - Expenses	- 54,861	- 50,684	- 32,181	- 32,825	- 33,478	- 13,017	- 13,162	- 13,303	- 13,440	- 13,573

Table 33. Summary – Wangaratta Aerodrome Operations: 10 Years

Source: MCa modelling & analysis, February 2018



Source: MCa modelling & analysis February 2018

		l	Voar									
			1	2	3	A	5	6	7	8	9	10
		Average		-	J		J	U U	'	U U	J	10
	2016/17	4 Years	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Revenue												
Total Existing Hobby Hangars	2.024	2 700										
(7 leases)	3,934	3,789	7,631	7,821	8,017	8,217	8,423	8,633	8,849	9,070	9,297	9,530
Total Aviation Related												
Leases (Current)	36,050	34,721	40,550	41,563	42,603	43,668	44,759	45,878	47,025	48,201	49,406	50,641
Expansion												
RDV Proposal												
New Commercial Hangar 1			18,671	19,137	19,616	20,106	20,609	21,124	21,652	22,193	22,748	23,317
New Commercial Hangar 2			18,671	19,137	19,616	20,106	20,609	21,124	21,652	22,193	22,748	23,317
Total			37,341	38,275	39,232	40,212	41,218	42,248	43,304	44,387	45,497	46,634
GAE1 Precinct Develop				- 100								
Total New Hobby Hangars (6)				5,400	5,535	5,673	5,815	5,961	6,110	6,262	6,419	6,579
New Osciencia III Inc. 2					40.040	00.400	00.000	04.404	04.050	00.400	00 740	00.047
New Commercial Hangar 3					19,010	20,106	20,609	21,124	21,002	22,193	22,748	23,317
Total New Commercial					-	-	-	21,124	21,002	22,195	22,740	23,317
Hangars					19 616	20 106	20 609	42 248	43 304	44 387	45 497	46 634
				= 100	05.454	20,100	20,000	12,210	10,001	50.040	54.040	50,000
Total GAE 1 Development			•	5,400	25,151	25,780	26,424	48,209	49,414	50,649	51,916	53,213
Total Expansion			37,341	43,675	64,382	65,992	67,642	90,457	92,718	95,036	97,412	99,847
Total Aviation Revenue			77,891	85,238	106,985	109,660	112,401	136,335	139,744	143,237	146,818	150,489
Other Revenue												
Total Other Leases (Current)	17.800	17,144	18,245	18,701	19,169	19.648	20,139	20.643	21,159	21.688	22.230	22,786
User Charges (events)	9.525	7.246	9.906	10.302	10,714	11.142	11.588	12.052	12.534	13.035	13.556	14.099
Total Other Revenue	27,325	24,390	28,151	29,003	29,882	30,790	31,727	32,694	33,692	34,723	35,786	36,884
											· · ·	
Total All Revenue	63,375	59,110	106,041	114,241	136,867	140,450	144,128	169,029	173,436	177,960	182,604	187,373
Operating Expenses												
Employee Costs (Total-												
Wages & On costs)	13,678	38,128	50,909	52,181	53,486	54,823	56,194	57,598	59,038	60,514	62,027	63,578
Materials & Services (Total)	57,581	72,495	74,307	76,165	78,069	80,020	82,021	84,071	86,173	88,328	90,536	92,799
Materials & maintenance												
T (1000	00 100	0.5 - 5 - 6		00				10.0==	44.000	40.101	10 10 1	44
I otal M&M	38,420	35,564	35,687	36,579	37,494	38,431	39,392	40,377	41,386	42,421	43,481	44,568
Total All Expanses	100 670	146 407	160.002	164 005	160.049	472 074	177 606	102.046	106 500	101 262	106.044	200.045
Operating Result	109,079	140,187	100,903	104,920	109,048	1/3,2/4	177,000	102,040	100,398	191,203	190,044	200,945

Table 34. Indicative Financials – Wangaratta Aerodrome Operations: 10 Years

 Net Revenue - Expenses
 -46,304
 -87,076

 Source: MCa modelling & analysis
 February 2018

-54,861

-50,684

- 32,181

-32,825 -33,478 -13,017

- 13,162

-13,303

-13,440

- 13,573

5.5 Economic Impacts

5.5.1 Aviation Cluster

Commercial Hangars – Current Proposed Development

The operation of the aerodrome generates economic benefits to Wangaratta LGA through having a small aviation cluster of businesses servicing aircraft, events staged on the site, and the potential for a boost in visitors to the region through Air Combat Australia's operations and future charter flights.

In response to this identified demand Wangaratta Council is currently seeking funding from the Victoria Government for the construction of two new commercial hangars. This is to support the expansion of aviation businesses and attract aeronautical tourism companies to Wangaratta. Total project costs are \$827,000, with the Council contributing \$413,500 and a matching amount be sought from the State Government. The operation of the businesses housed in the new hangars is expected to generate an additional 13 full time equivalent jobs -this would take onsite jobs to around 30 (up from 17 currently).

The economic benefits arise from:

- Businesses activity on site, the direct jobs and the indirect/induced jobs generated in the region. This covers additional jobs through expansion of existing businesses and new businesses attracted
- Visitor spending related to events staged and customers for aeronautical tourism companies. This is based on overnight stays and day visitors.

The following show the likely impacts for the initial development of the Aerodrome with two additional **commercial hangars and the establishment of Air Combat Australia operations. The expansion would** lead to a total of 34.5 FTE jobs (30 direct on site jobs and another 4.5 jobs induced in the region) in 2019/20.

Commercial Hangars – Future Development – GAE1 Precinct

The development of the GAE1 Precinct as outlined in the master plan creates the opportunities for additional hobby hangars (to meet identified demand for 6-8 hangar places) and for additional commercial hangars.

- In the financial modelling the initial GAE1 development includes 6 hobby hangar leases from 2019/20 and 2 additional commercial hangars 1 in 2020/21 and 1 in 2023/24.
- Based on additional aviation services being located in these commercial hangars, with each employing 5 persons, this would create an additional 10 direct on site jobs and 1.5 induced indirect jobs.

Future Employment – Aviation Cluster

Combining the current employment on site with the additional businesses attracted, direct employment in the aviation cluster could total 40 direct FTE jobs by 2023/24. This activity would generate 6 indirect/induced FTE jobs elsewhere in the region, for a total 46 FTE jobs.

	FTE
Businesses at Wangaratta Aerodrome	No.
Current Jobs – Aviation Services	
Direct On Site Jobs	17.0
Indirect/induced Jobs	2.6
Total Current Jobs	19.6
Initial Jobs – Aviation Services (2 additional hangars – RDV application)	
Direct On Site Jobs	9.0
Indirect/induced Jobs	1.4
Total New Jobs	10.4
Total Existing & New Jobs Aviation Services	
Direct On Site Jobs	26.0
Indirect/induced Jobs	3.9
Total Jobs	29.9
Air Combat Australia	
Direct On Site Jobs	4.0
Indirect/induced Jobs	0.6
Total Jobs	4.6
Total Future Jobs (2019/20)	
Direct On Site Jobs	30.0
Indirect/induced Jobs	4.5
Total Jobs	34.5
GAE1 Precinct – Initial Development (2 commercial hangars) – 2023/24	
Direct On Site Jobs	10.0
Indirect/induced Jobs	1.5
Total Jobs	11.5
Total Future Jobs (2023/24)	
Direct On Site Jobs	40.0
Indirect/induced Jobs	6.0
Total Jobs	46.0
Source: MCa analysia Eabruary 2018	

Table 35. Jobs at Wangaratta Aerodrome – Current and Future (no.)

Source: MCa analysis , February 2018

5.5.2 Visitors to the Region

The other impact is related to visitors to the region associated with Air Combat Australia flights and events staged at the Aerodrome (eq. Victorian Jet Aerosport Association).

These activities were modelled based on visitor/participant information from the two organisations and are estimated to generate a total of 4.1 FTE jobs in the region (mainly in accommodation and food service).

The attraction of other major aviation events would generate additional regional impacts.

Table 36. Economic Impact of Visitors – Jobs Generated in Tourism Sector

Economic Impact – Jobs Generated Tourism Sector	Total Jobs Annual
Direct Jobs FTE	3.6
Indirect/induced Jobs FTE	0.5
Total Jobs	4.1

Source: MCa analysis, February 2018

In addition, the funding submission to Regional Development Victoria, identified the potential to develop an air show modelled on the Temora Air Show.⁴⁸ Temora attracts a total of 10,000 visitors over a 2 day period. If a Wangaratta event was established this would have an impact on the region through visitor spending (covering accommodation, meals and other spending).

⁴⁸ Wangaratta Council Application to Regional Development Victoria (Regional Jobs and Investment Packages - Local Infrastructure Program), October 2018

5.5.3 Construction Impacts - Initial Development

The development of the aerodrome and additional hangars will generate local jobs in construction. The following analysis covers: the proposed development of 2 new commercial hangars (RDV funding application); and initial development of the GAE1 Precinct (to 2023/24).

This construction activity would generate a total of 12.9 FTE jobs (10.9 direct and 2.0 indirect/induced).

 Table 37. Development of Aerodrome - Indicative Costs

Developments	Total Cost \$
Current Development	
Commercial Hangars (2) developed 2018/19	\$827,000
GAE1 Precinct - Initial Development (2019/20 -2023/24)	
Aerodrome Infrastructure & Facilities	\$390,000
Hangars (2 commercial hangars & shared hobby hangar)	\$700,152
Total GAE 1 Development	\$1,090,152
Total Development (2018/19 to 2023/24)	\$1,917,152

Source: Masterplan 2017 and MCa analysis February 2018

Table 38. Jobs Generated by Construction

Construction Phase Jobs			
		Indirect/Induced	
Aerodrome Development	Direct Jobs	Jobs	Total Jobs
(2018/19 to 2023/24)	FTE	FTE	FTE
Construction Jobs On site (LGA & Region)	9.0	1.6	10.6
Materials Jobs (State-wide)	1.9	0.3	2.2
Total Jobs - Construction Phase	10.9	2.0	12.9

Source: MCa modelling and analysis February 2018

5.5.4 Benefit Cost Analysis

The following benefit cost analysis is indicative only. A full benefit cost analysis would need to be prepared for each specific proposed investment or funding proposal.

The benefits generated from an investment are the increase in regional income (direct and induced) generated by the increase in activity and employment. This income comprises income to employees (wages) and business income (profits). The following analysis is based on estimates of the increase in regional income associated with additional employees and the growth in businesses operating at the aerodrome covers the 10 year period 2018/19 to 2027/28. Over this 10 year period regional income would be \$29.5 million higher due to the expansion of the aerodrome.

Costs are those associated with development of the aerodrome, and cover the new commercial hangars and expansion associated with the GAE1 Precinct development.

Based on the modelling and estimates the expansion of the airport would yield positive Benefit Cost Ratios (BCRs) for various discount rates. For a discount rate of 7% the BCR is 5.2 and 4.0 for a 10% discount rate.



Source: MCa modelling and analysis February 2018

	Discount	Discount	Discount	
10 Years : 2018/19 to 2027/28.	Rate 4%	Rate 7%	Rate 10%	
Costs				
Capital Costs <2018 prices (\$)	1,917,152	1,917,152	1,917,152	Development cost estimates from Table 37. Covers infrastructure costs and costs of constructing hangars.
Costs - Asset Maintenance (10 y ears)	958,576	958,576	958,576	Asset maintenance at 5% of capital cost per year (\$95,858) – total for 10 years
Total Costs	2,875,728	2,875,728	2,875,728	
Benefits (total 10 Years)				
Increase in regional income (10 years)				
Employee Income (\$)	17,801,596	17,801,596	17,801,596	Increase in wages of additional employees in on-site jobs and indirect/induced jobs. Total for 10 years.
Business Profits (\$)	11,700,000	11,700,000	11,700,000	Estimate of increase in gross profit of new businesses locating at aerodrome. Total for 10 years.
Total Benefits (\$)	29,501,596	29,501,596	29,501,596	
Total Benefits (\$) Present Value	19,930,221	14,997,115	11,374,142	
Net Present Value (\$)	17,054,493	12,121,387	8,498,414	
Benefits & Cost				
Benefit Cost Ratio (BCR)	6.93	5.22	3.96	

Table 39. Benefit Cost Analysis Wangaratta Aerodrome Expansion – 10 Years

Source: MCa modelling and analysis February 2018

References

ABS Census 2011 – Working Population Profile

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ABS Estimated Resident Population, Local Government Areas, Victoria, July 2017

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Victoria's High Country Destination Management Plan 2013–2023, Prepared by Tourism North East Updated March 2016

Wangaratta Council Application to Regional Development Victoria (Regional Jobs and Investment Packages – Local Infrastructure Program), October 2018

Wangaratta Freight and Land Use Study, Final Report AECOM July 2016

Appendix A: Industries and Businesses



Wangaratta Regional City LGA

Source: ABS Regional Data (Wangaratta RC LGA) Wangaratta Statistical Area 2 (SA2)



The following tables show the total number of businesses in all industry sectors. In 2015 there were a total of 3050 businesses in Wangaratta LGA, of which over half (1628) were located in the Wangaratta city area and adjacent areas (SA2).

mangaratta Eo		•		
2011	2012	2013	2014	2015
942	932	932	930	908
3	4	3	3	3
144	142	129	123	122
9	9	8	9	11
458	461	453	448	465
84	79	72	69	73
199	211	206	197	185
125	125	122	120	118
162	153	151	158	154
9	10	9	9	11
148	152	154	153	157
215	214	219	219	228
184	187	186	179	179
65	68	69	69	70
5	4	4	3	3
32	34	30	31	34
126	128	130	132	138
38	37	36	31	32
127	125	126	134	132
29	37	36	31	27
3104	3112	3075	3048	3050
	2011 942 3 144 9 458 84 199 125 162 9 148 215 184 65 5 32 126 38 127 29 3104	2011 2012 942 932 3 4 144 142 9 9 458 461 84 79 199 211 125 125 162 153 9 10 148 152 215 214 184 187 65 68 5 4 32 34 126 128 38 37 127 125 29 37 3104 3112	2011 2012 2013 942 932 932 3 4 3 144 142 129 9 9 8 458 461 453 84 79 72 199 211 206 125 125 122 162 153 151 9 10 9 148 152 154 215 214 219 184 187 186 65 68 69 5 4 4 32 34 30 126 128 130 38 37 36 127 125 126 29 37 36 3104 3112 3075 <td>2011201220132014$942$$932$$932$$933$$3$$4$$3$$3$$144$$142$$129$$123$$9$$9$$8$$9$$458$$461$$453$$448$$84$$79$$72$$69$$199$$211$$206$$197$$125$$125$$122$$120$$162$$153$$151$$158$$9$$10$$9$$9$$148$$152$$154$$153$$215$$214$$219$$219$$184$$187$$186$$179$$65$$68$$69$$69$$5$$4$$4$$3$$32$$34$$30$$31$$126$$128$$130$$132$$38$$37$$36$$31$$127$$125$$126$$134$$29$$37$$36$$31$</td>	2011201220132014 942 932 932 933 3 4 3 3 144 142 129 123 9 9 8 9 458 461 453 448 84 79 72 69 199 211 206 197 125 125 122 120 162 153 151 158 9 10 9 9 148 152 154 153 215 214 219 219 184 187 186 179 65 68 69 69 5 4 4 3 32 34 30 31 126 128 130 132 38 37 36 31 127 125 126 134 29 37 36 31

Table 1. Number of Businesses – Wangaratta LGA 2011-2015

Source: ABS Regional Statistics by LGA, 2011-2016, Wangaratta RC LGA

Number of Businesses – Wangaratta (SA2)					
Industry Sector	2011	2012	2013	2014	2015
Agriculture, forestry and fishing	204	198	191	192	174
Mining	0	0	0	0	0
Manufacturing	79	81	71	63	59
Electricity, gas, water and waste services	6	6	5	5	7
Construction	284	288	281	274	290
Wholesale trade	60	58	51	46	51
Retail trade	162	174	169	164	156
Accommodation and food services	83	82	81	76	72
Transport, postal and warehousing	86	80	85	88	88
Information media and telecommunications	7	7	6	6	8
Financial and insurance services	114	117	120	115	119
Rental, hiring and real estate services	172	175	172	169	174
Professional, scientific and technical services	122	125	121	113	113
Administrative and support services	47	49	50	49	48
Public administration and safety	4	3	3	3	3
Education and training	23	21	20	21	20
Health care and social assistance	112	113	114	115	122
Arts and recreation services	22	22	22	19	19
Other services	95	93	94	98	97
Currently unknown	12	12	15	12	8
Total	1694	1704	1671	1628	1628

Table 2. Number of Businesses – Wangaratta Statistical Area 2 (SA2) 2011-2015

Source: ABS Regional Statistics by LGA, 2011-2016 Wangaratta Statistical Area 2 (SA2)

Appendix B: Freight Intensive Industries

B.1 Number of Businesses

The freight intensive industries in Wangaratta and the number of businesses in each are summarised in the table below. These are for Wangaratta LGA in total, and for a smaller area (Wangaratta Statistical Area 2 – SA2) that covers Wangaratta City and adjacent areas.

In 2015 there were a total of 1442 businesses in those sectors that are intensive users of freight services in the LGA, with 528 businesses in the Wangaratta city area and adjacent areas (SA2). These sectors are agriculture and forestry; manufacturing, wholesaling, retail and transport, postal and warehousing.

Table 40. Number of Dusinesses - Treight intensive Sectors 2011-2015 - Wangaratta LGA & SA	Table 4	40. Number	of Businesses	- Freight Intensiv	e Sectors 2011	-2015 – Wangara	tta LGA & SA2
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Number of Businesses					
Freight Intensive Sectors	2011	2012	2013	2014	2015
Wangaratta LGA					
Agriculture, forestry and fishing	942	932	932	930	908
Manufacturing	144	142	129	123	122
Wholesale trade	84	79	72	69	73
Retail trade	199	211	206	197	185
Transport, postal and warehousing	162	153	151	158	154
Total	1531	1517	1490	1477	1442
Wangaratta Statistical Area 2 (SA2)					
Agriculture, forestry and fishing	204	198	191	192	174
Manufacturing	79	81	71	63	59
Wholesale trade	60	58	51	46	51
Retail trade	162	174	169	164	156
Transport, postal and warehousing	86	80	85	88	88
Total	591	591	567	553	528

Source: ABS Regional Statistics by LGA, 2011-2016, Wangaratta RC LGA & Wangaratta Statistical Area 2 (SA2)

B.2 Industry Characteristics

Some data is available on industries in Wangaratta LGA covering output, regional exports/imports and employment.⁴⁹

- The value of the output of the freight intensive industries was \$1.4 billion, with the major sectors being: manufacturing (\$838.8 million); agriculture (\$211.6 million) and wholesale trade (\$117.7 million); and retail (\$145.3 million).
- Exports out of the region by manufacturers were \$576.1 million and the value of imports (materials/components was \$454.6 million.
- Exports out of the region by agriculture were \$126.2 million and the value of imports (materials/equipment etc.) was \$52.6 million.
- Exports out of the region by wholesalers were \$28.9 million and the value of imports (materials/equipment/products etc.) was \$26.8 million.

Table 41. Value of Output – Freight Intensive Industries – Wangaratta LGA 2015

Freight Intensive Sectors	Output \$m
Agriculture, Forestry & Fishing	\$211.590
Manufacturing	\$838.850
Wholesale Trade	\$117.743
Transport, Postal & Warehousing	\$97.994
Retail	\$145.298
Total Freight Intensive Industries	\$1,411.48

Source: Remplan Economy Profile 2015 http://www.economyprofile.com.au/humeregion/industries/

^{49 :} Remplan Economy Profile 2015 http://www.economyprofile.com.au/humeregion/industries/

Freight Intensive Sectors	\$ m	\$m
	Regional Exports	Regional Imports
Agriculture, Forestry & Fishing	\$126.169	\$52.595
Manufacturing	\$576.111	\$454.577
Wholesale Trade	\$28.877	\$26.784
Transport, Postal & Warehousing	\$20.947	\$21.482
Retail	\$9.356	\$20.901
Total Freight Intensive Industries	\$761.460	\$576.340

Table 42. Value of Regional Exports & Imports – Freight Intensive Industries – Wangaratta LGA 2015

Source: Remplan Economy Profile 2015 http://www.economyprofile.com.au/humeregion/industries/

Table 43. Value of Output - All Industries - Wangaratta LGA 2015

Industry	Hume Reg	ion	Wangaratta LGA		
	\$ million	%	\$ million	%	
Agriculture, Forestry & Fishing	\$2,307.235	7.6%	\$211.595	6.8%	
Mining	\$88.793	0.3%	\$2.810	0.1%	
Manufacturing	\$8,836.474	29.0%	\$838.850	27.1%	
Electricity, Gas, Water & Waste Services	\$908.335	3.0%	\$19.659	0.6%	
Construction	\$2,934.428	9.6%	\$248.023	8.0%	
Wholesale Trade	\$1,077.770	3.5%	\$117.743	3.8%	
Retail Trade	\$1,263.227	4.2%	\$145.298	4.7%	
Accommodation & Food Services	\$1,093.669	3.6%	\$112.960	3.6%	
Transport, Postal & Warehousing	\$1,130.224	3.7%	\$97.994	3.2%	
Information Media & Telecommunications	\$413.025	1.4%	\$70.530	2.3%	
Financial & Insurance Services	\$897.105	2.9%	\$124.731	4.0%	
Rental, Hiring & Real Estate Services	\$2,946.494	9.7%	\$314.974	10.2%	
Professional, Scientific & Technical Services	\$906.442	3.0%	\$103.916	3.4%	
Administrative & Support Services	\$541.158	1.8%	\$103.465	3.3%	
Public Administration & Safety	\$1,848.841	6.1%	\$152.647	4.9%	
Education & Training	\$1,024.025	3.4%	\$107.393	3.5%	
Health Care & Social Assistance	\$1,544.384	5.1%	\$245.940	7.9%	
Arts & Recreation Services	\$190.856	0.6%	\$22.951	0.7%	
Other Services	\$471.263	1.5%	\$57.309	1.8%	
Total	\$30,423.747	100.0%	\$3,098.787	100.0%	

Source: Remplan Economy Profile http://www.economyprofile.com.au/humeregion/industries/output

Another indicator of the size and scale of freight intensive sectors is employment .

- In 2016 there were a total of 4183 jobs in these sectors 1178 in manufacturing; 914 in agriculture, 467 in transport and warehousing, 254 in wholesale trade and 1370 in retail.
- Within manufacturing, the major industries are food production 209, beverages (mainly wine) 256, textiles 187, wood products 208. There were also jobs spread across the metals fabrication, engineer and equipment sectors.

Table 44. Employment in Freight Intensive Industries – Wangaratta RC LGA 2016 (Jobs no.)

Sector	Jobs
Agriculture, forestry and fishing	914
Manufacturing	1178
Wholesale trade	254
Transport, postal and warehousing	467
Retail	1370
Total Freight Intensive Sectors	4183

Source: ABS Census 2011 - Working Population Profile (Latest available job data)

industry	Males	Females	Persons
Agriculture, forestry and fishing			
Agriculture, forestry and fishing, nfd	7	3	13
Agriculture	582	272	848
Aquaculture	0	0	0
Forestry and logging	18	3	17
Fishing, hunting and trapping	3	0	5
Agriculture, forestry and fishing support services	19	14	33
Total	625	287	914
Manufacturing			
Manufacturing, nfd	66	6	70
Food product manufacturing	118	94	209
Beverage and tobacco product manufacturing	164	88	256
Textile, leather, clothing and footwear manufacturing	128	56	187
Wood product manufacturing	188	16	208
Printing (including the reproduction of recorded media)	7	8	12
Basic chemical and chemical product manufacturing	15	3	18
Polymer product and rubber product manufacturing	3	3	3
Non-metallic mineral product manufacturing	28	9	33
Primary metal and metal product manufacturing	31	4	35
Fabricated metal product manufacturing	41	7	50
Transport equipment manufacturing	27	8	36
Machinery and equipment manufacturing	45	3	44
Furniture and other manufacturing	16	4	25
Total	875	304	1 178
Wholesale trade	010	504	1,170
Wholesale trade nfd	0	3	4
Basic material wholesaling	76	15	
Machinery and equipment wholesaling	28	15	31
Motor vehicle and motor vehicle parts wholesaling	20	5	25
Grocery liquor and tobacco product wholesaling	32	20	54
Other goods wholesaling	26	20	/7
	20	0	10
Total	103	67	254
Transport postal and warehousing	195	07	2.54
Transport, postal and warehousing	20	3	26
Road transport	20	41	20
Pail transport	200		10
Water transport	0	0	0
Air and snace transport	0	0	0
All and space transport	0	0	0
Postal and courier nick up and delivery services	65	37	101
Transport support sonvices	16	11	27
Warehousing and storage services	10	16	55
	42	106	467
Potoil	303	100	407
Retail trade ofd	20	24	12
Motor vehicle and motor vehicle parts retailing	101	24	156
Fuel retailing	26	29	56
Food retailing	172	20	<u> </u>
Other store based retailing	2/2	456	606
Total	583	78/	1 370
Total Freight Intensive Sectors	302	704	1,370
Total	2 638	1 5/9	/ 102
ισιαι	2,030	1,340	4,103

Table 45. Employment in Freight Intensive Industries – Wangaratta RC LGA 2016 (Jobs no.)

Source: ABS Census 2011 – Working Population Profile

Disclaimer

Disclaimer

This report is for the use only of the party to whom it is addressed and for the specific purposes to which it refers. We disclaim any responsibility to any third party acting upon or using the whole or part of the report and its contents.

This report (including appendices) is based on estimates, assumptions and information sourced and referenced by

MCa < Michael Connell & Assocs.>. These estimates, assumptions and projections are provided as a basis for the reader's interpretation and analysis. In the case of projections, they are not presented as results that will actually be achieved.

The report has been prepared on the basis of information available at the time of writing. While all possible care has been taken by the authors in preparing the report, no responsibility can be undertaken for errors or inaccuracies that may be in the data used.

Historical Geotechnical Report

Appendix E



ABN 91 006 855 689

SOIL TESTING & GEOTECHNICAL CONSULTANTS

ACN 006 855 689

A REPORT ON THE SOIL INVESTIGATION AND PAVEMENT DESIGN FOR

WANGARATTA AERODROME PAVEMENT

BRIAN HIGGINS DRIVE LACEBY

Report N°: 4180161-1

Unit 2 / 45 Hovell Street WODONGA VIC 3690 Telephone (02) 6024 4343 Head Office: 10 Latham Street (P O Box 537) Mornington 3931 Tel: (03) 5975 6644 Fax: (03) 5975 9589 Also at: Mildura (03) 5023 2870 - Mitcham (03) 9874 5844 - Wonthaggi (03) 5672 3900

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- APPENDIX A SITE PLAN
- **APPENDIX B LOGS OF BORING**
- **APPENDIX C ENGINEERING DATA**

CLIENT	:	Rural City of Wangaratta
		62-68 Ovens Street
		WANGARATTA VIC 3676

- AUTHORISED BY : Mr Bernard Dowsley
- PROJECT : Wangaratta Aerodrome Pavement Brian Higgins Drive LACEBY
- **COMMISSION** : Carry out appropriate insitu soil tests and observations at one location as shown on the attached plan (Appendix A).

Recommend a pavement composition for the access road in accordance with the method outlined in AUSTROADS (2012): 'Guide to Pavement Technology Part 2: Pavement Structural Design' using the indicative traffic loading provided in the above design guide.

1 INTRODUCTION:

1.1 Aim

This report discusses the field investigation carried out on 25 May 2018 and the subsequent laboratory tests for the proposed construction of access road pavement.

The report closes with a recommendation for the pavement composition and any other treatment that may be appropriate for the construction process based on the field and laboratory data.

1.2 Statement of Expected Pavement Performance

The pavements recommended in this report have been designed using state of the art technology in pavement design. The essential part of the design is to ensure that each layer within the pavement is compatible - in terms of characteristics and strength - with those of the adjacent layers, so that the overall pavement performance criteria can be met. The pavements recommended in this report may not meet specific standardisation requirements of some local authorities and therefore such standard pavements may not be applicable for the project reported on herein.

It is expected that the subgrade will exhibit a characteristic deflection - that is a rebound deflection of the mean plus 1.5 times the standard deviation - of up to 4mm on completion of preparation as detailed. It is also expected that prior to asphalting the base course will have similar deflections of up to 2mm after preparation.

The pavement has been designed for a theoretical life of 20 years based on the traffic loadings nominated. At the end of its life, a pavement is expected to have deviations (ruts) and surface cracking (crazing).

2 SOURCE OF INFORMATION:

- 2.1 Civiltest Pty Ltd Field and Laboratory data collected and recorded.
- 2.2 AUSTROADS (2012): 'Guide to Pavement Technology Part 2: Pavement Structural Design'
- 2.3 VICROADS Code of Practice RC 500.22 "Selection and Design of Pavements and Surfacings".

3 INVESTIGATION:

3.1 Field Work

The field work was carried out on 25 May 2018 by mechanically augering a test bore at the approximate location as shown on the attached plan (Appendix A).

California Bearing Ratio (CBR) values were obtained from the bore site using a 9kg Dynamic Cone. Insitu moisture contents were also obtained throughout the bore to assist in the assessment of the CBR values.

Insitu moisture contents were determined on the bulk samples.

All the field data is presented on the log of boring (Appendix B).

3.2 Laboratory Work

A representative subgrade sample of the predominant subgrade material type was remoulded in a CBR mould using standard compactive effort at approximately the optimum moisture content. The sample was then soaked for four days under a 4.5kg surcharge before being tested to determine the laboratory soaked CBR value.

Classification tests (Plasticity Index and Sieve Analysis) were carried out on the predominant subgrade material type to assess the reactivity and the drainage characteristics for the site.

All the laboratory data is attached (Appendix C).

4 FINDINGS:

4.1 Field Work

The test bore revealed that the soil profile consists of clayey/silty SAND underlain by sandy CLAY followed by clayey SAND.

The insitu CBR values - determined using a 9kg dynamic cone - of the subgrade material ranged from 12.0% to 22.0% at insitu moisture contents of 5.0% and 7.6% respectively. There was no correlation between the insitu moisture contents and CBR values in the field at this site.

4.2 Laboratory Work

The results of the laboratory tests are set out in the table below:

Bore Hole No.	Material Description	Sample No.	CBR %	Density t/m ³	Moisture %	Reactivity	PI %	%Pass 0.075mm	Swell %
1	Sandy CLAY	184-701A	7	1.83	12.5	High	5	59	2.5

5 DESIGN SUBGRADE VALUE AND SUBGRADE DELINEATION:

After reviewing the soil profiles in the field and the laboratory test results, it was considered that a subgrade design CBR value of 7.0% should be adopted for sandy CLAY subgrade materials for the pavements in this project.

6 TRAFFIC LOADINGS:

In the absence of site specific traffic data, the following traffic loading has been obtained from Table 12.2 of AGPT02 AUSTROADS (2012) 'Guide to Pavement Technology Part 2: Pavement Structural Design'. A maximum design loading of 8 x 10^4 Equivalent Standard Axles (ESA) has been adopted. The receiver of the report should check if the assumption made in regards to the design traffic loading is correct. Civiltest Pty Ltd should be contacted if the design traffic loading differs, so that a review of the recommendations can be made.

7 DISCUSSION:

It has been established that the subgrade design CBR value is 7.0% and the design traffic loading is 8 x 10^4 ESA. Therefore, for a 95% reliability level in pavement performance, the overall pavement depth should be 250mm.

Due to the highly expansive nature of the subgrade soils, a minimum cover over the subgrade has been recommended based on VicRoads Code of Practice RC500.22.

For expansive subgrade soils, it is recommended that a minimum capping layer of 150mm of lower subbase quality material, in-situ stabilised material, or Type A capping layer material should be placed and compacted over the subgrade prior to the construction of the pavement. The capping layer should extend for a distance of \geq 1.5 metre behind the back of kerb and channel or the edge of pavement if there is no kerb or channel.

It is likely that the subgrade material at the time of construction will have CBR values at or just below the design value. This will not cause any premature failure in the pavement system as the CBR values will gradually reach equilibrium but at a faster rate than the increase in traffic loadings. A lower CBR value at the time of construction will cause difficulties in the construction process, particularly when compacting the crushed rock layers to the required density.

In this case, by mixing the subgrade material with Calcium Oxide (Lime) and a small amount of cement, an amelioration of the material will occur by increasing the plastic limit of the CLAY subgrade material and consequently the CBR value will increase at the same moisture content.

8 **RECOMMENDATIONS**:

8.1 Flexible Pavements

		Depth 00mm
WEARING COURSE	Asphalt Type N	
(30mm thick)	10mm Stone	
	C320 Binder	30mm
PRIMER (if not subject t	o traffic) otherwise 7mm size primer sea	
BASE	Class 2 Fine Crushed Rock	
(100mm thick)	Compacted to not less than	
	98% of AS 1289, 5.2.1	
	(Modified Compaction)	
		130mm
SUBBASE	Class 3 Crushed Rock or	
(140mm thick)	Soft Ripped Rock	
	Compacted to not less than	
	95% of AS 1289, 5.2.1	
	(Modified Compaction)	070
	Turne A Consting Lover	270mm
(150mm thick)	Type A Capping Layer	
(150mm thick)	loss then 05% of 051280	
	5 1 1 (Standard Compaction)	
	or Class 4 Crushed Rock or	
	Soft Rinned Rock	
	compacted to not less than	
	98% of Δ S 1289 5.1.1	
	(Standard Compaction)	
	Material to have swell $\leq 1.5\%$	
	and assigned CBR $\geq 6.0\%$.	420mm
SUBGRADE	Material as found	
	Compacted to 95% of	
	AS 1289 5.1.1 (Standard	
	Compaction) at a moisture	
	content between 90% and	
	120% of Optimum Moisture	
	Content for a depth of	
	150mm	

The pavements recommended above are based on the pavement design guides mentioned at the front of this report. The thickness of asphalt nominated may not be what is preferred by the local authority, but the local authority preferred depth of asphalt may not fit well with the appropriate design guide for this project.

It should be noted that more asphalt does not necessarily make a better pavement. Therefore if a greater depth of asphalt is required by the local authority for the pavement then the overall pavement depth can remain the same but the subbase layer can be reduced by the extra asphalt thickness over and above that recommended.

8. **RECOMMENDATIONS (CONT.)**:

The soft rock recommended in the above pavements should have the physical properties as set out below:

Plasticity Index of not more than 15.

California Bearing Ratio after compaction on the road bed, not less than 15.

The product of the percentage passing 0.425mm and the plasticity index should not be greater than 600.

The grading after compaction on the road bed (i.e. soft ripped rock and/or Class 4 crushed rock) should be within the following limits:

Sieve Size mm	75	4.75	0.075
Percentage Passing %	100	40-60	20-40

The pavements in this report will be difficult to construct if the insitu subgrade CBR value at the time of compacting the crushed rock layers is any less than that set out below, even though it is anticipated that after construction the untreated subgrade material will have a CBR value of 7.0% in the upper 100.

Depth Below	00 - 100	100-200	200-400	400-600
Subgrade Level	mm	mm	mm	mm
Insitu CBR Value (%)	8.0	7.5	7.0	6.0

For the purposes of determining spread rates, calcium oxide can be taken to be DME Quicklime, cement to be ordinary Portland Cement and the insitu material to have a density of 1.60t/m³.

The above recommendations have been made based on (I) the field investigations for the project, (2) the laboratory work detailed within this report, (3) information received from Rural City of Wangaratta and (4) information from the references mentioned in Section 2. SOURCE OF INFORMATION. Therefore if it is found that during construction, conditions differ widely to those described in this report or information received is found to be incorrect, then the recommendations made in this report may need to be amended.

The recommendations given in this report have been based largely on the soil conditions encountered at the time of the field investigation. Under inclement weather or prolonged wet weather conditions, the soil conditions noted and reported in this report could vary. It is advisable to undertake construction during and following good weather conditions - i.e., dry weather conditions - <u>not</u> during or following inclement weather or prolonged wet weather conditions.

It is also assumed that the pavements will be using established sound engineering practices by a contractor experienced in this field of work using purpose built equipment.

ZHAN TANG (Mr) GEOTECHNICAL ENGINEER CIVILTEST PTY LTD

REF: JT/JK/ZT/km

27 June 2018

APPENDIX A

SITE PLAN

LOCATION OF TEST SITE

WANGARATTA AERODROME PAVEMENT, BRIAN HIGGINS DRIVE LACEBY





NOT TO SCALE

THIS SKETCH IS NOT INTENDED TO BE AN ACCURATE DEPICTION OF THE NUMBER, SIZE OR LOCATION OF TREES AND/OR SHRUBS

APPENDIX B

LOG OF BORING

CIVILTEST P	/L.		ENGINEERING LOG	Report Number: 4180161
Soil Testing & G	eotechnic	al Consulta	ants	
CIV-DOC-001-011-SD	2	ISSUE # 6 - 2	2 January 2015	BORE HOLE 1
Field	Depth	Soil	Field C.B.R.	Test Methods
Moisture		Class		Moisture content: AS 1289.2.1.1
Content (%)	(m)			DCP CBR: AS 1289.6.3.2, RC 402.01
				SAND, clayey
				Brown
				Moist, Medium dense
	0.200			Trace of gravel
		x	200	SAND. silty clayey
				Pale brown
			300	Moist
		_ ^		Medium dense
			400	
		×		Trace of graver
5.0	0.500	×	500	
		x	600	
	0.700	x	700	
		:.		CLAY, sandy
				Orange mottled red grey
		:.	800	Moist
				Hard
			900	
76	1 000			
1.0	1.000		1000	
			1100	
		••		
	4 0 0 0		1200	
 	1.200	<i>:</i> .	1200	
				SAND, clayey
			1300	Brown orange
				Moist
			1400	Medium dense
	1.500		1500	
				END OF BORE (25/05/18)
Ref: JJ/JK/km				

APPENDIX C

ENGINEERING DATA

Material Test Report

Report Number:	4180161-2			
Issue Number:	1			
Date Issued:	07/06/2018			
Client:	Rural City Of Wangaratta			
	62-68 Ovens Street, Wangaratta Vic 3676			
Contact:	Bernard Dowsley			
Project Number:	4180161			
Project Name:	Wangaratta Aerodrome - Pavement			
Project Location:	Laceby			
Work Request:	701			
Sample Number:	184-701A			
Date Sampled:	25/05/2018			
Sampling Method:	AS1289 1.2.1 6.5.3 - Power auger drilling			
Sample Location:	BH 1 (0.2m - 1.0m)			

Particle Distri	bution (AS12	89 3.6.1)				
Sieve	Passed % Passing R Limits		Retained %	Retai Limits	Retained Limits	
19 mm	100			0		
13.2 mm	100			0		
9.5 mm	100			0		
6.7 mm	100			0		
4.75 mm	100			0		
2.36 mm	98			2		
1.18 mm	94			4		
0.6 mm	85			9		
0.425 mm	78			7		
0.3 mm	72			6		
0.15 mm	64			8		
0.075 mm	59			5		
Atterberg Lim	it (AS1289 3.	1.2 & 3.2	2.1 & 3.	3.1)	Min	Max
Sample Histo	ry			Air Dried		
Preparation M	lethod		[Dry Sieve		-
Liquid Limit (9	%)			21		
Plastic Limit (%)			16		
Plasticity Inc	lex (%)			5		
Linear Shrink	age (AS1289	3.4.1)			Min	Max
Linear Shrink	age (%)			2.5		
Cracking Cru	Cracking					
California Bea	aring Ratio (A	S 1289 6	6.1.1 &	2.1.1)	Min	Max
CBR taken at				2.5 mm		
CBR %				7		
Method of Co	mpactive Effo	ort		Sta	ndard	
Method used	to Determine	MDD		AS 1289 5.1.1 & 2.1.1		
Maximum Dry	/ Density (t/m	3)		1.83		
Optimum Moi	sture Conten	t (%)		12.5		
Laboratory De	ensity Ratio (%)		98.5		
Laboratory M	oisture Ratio	(%)		98.5		
Dry Density after Soaking (t/m ³)				1.76		
Field Moisture	13.0					
Moisture Content at Placement (%)				12.4		
Moisture Content Top 30mm (%)				17.1		
Moisture Content Rest of Sample (%)			15.9			
Mass Surcharge (kg)			4.5			
Soaking Period (days)			4			
Swell (%)			2.5			
Oversize Material (mm)				19		
Oversize Mat	erial Included			Excluded		
	1					

CIVIL

Civiltest Pty Ltd Wodonga Laboratory 2/45 Hovell Street Wodonga Vic 3690 Phone: 02 6024 4343 Email: troy@civiltest.com.au Accredited for compliance with ISO/IEC 17025 - Testing

NCAL CONSULTANTS



UN

Approved Signatory: Troy Purcell Laboratory Manager NATA Accredited Laboratory Number: 19977

Particle Size Distribution



Material Test Report

Report Number:	4180161-2
Issue Number:	1
Date Issued:	07/06/2018
Client:	Rural City Of Wangaratta
	62-68 Ovens Street , Wangaratta Vic 3676
Contact:	Bernard Dowsley
Project Number:	4180161
Project Name:	Wangaratta Aerodrome - Pavement
Project Location:	Laceby
Work Request:	701



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ΝΑΤΑ WORLD RECOGNISED

Approved Signatory: Troy Purcell Laboratory Manager NATA Accredited Laboratory Number: 19977

Moisture Content AS 1289 2.1.1					
Sample Number Sample Location		Moisture Content	Material		
184-701B	BH 1 (0.5m)	5.0 %	**		
184-701C	BH 1 (1.0m)	7.6 %	**		

pitt&sherry

Wangaratta Airport Infrastructure Development Plan

(Supplement to the Wangaratta Aerodrome Master Plan 2017)

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