Final Report

Flinders Island Airport Master Plan 2012

Prepared for Flinders Island Council

By Kneebush Planning Pty Ltd in association with Airports Plus Pty Ltd

2 May 2012 (Version 4.0)

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Executive Summary

Flinders Island Airport is a Certified Aerodrome owned and operated by the Flinders Council. The airport is an important asset for the Flinders Island community which must be carefully managed to ensure that the island's residents and businesses continue to benefit from its existence well into the future.

The primary use of Flinders Island Airport is for Regular Public Transport (RPT) services operated by Sharp Airlines which offers services to and from Melbourne (Essendon) and Launceston. The airport is also used for charter and freight services, emergency services and private/recreational flying.

Flinders Island Airport faces competition from at least four other aerodromes on the island which are capable of supporting operations using twin engine aircraft. However, Flinders Island Airport is the only certified airport on the island and the only airport with a published approach procedure allowing it to be used in marginal weather conditions.

This Master Plan provides Council with a long term (20 year) planning framework for the safe, secure, efficient, and sustainable use and development of the airport site. It provides clear direction as to how growth is to be accommodated, particularly continued growth and expansion of Regular Passenger Transport services and General Aviation activities. The Master Plan provides an optimal spatial outcome for the airport in keeping with commercial business objectives and environmental, planning, security and operational obligations.

The emphasis of the Master Plan is on aviation growth and development, and protecting the site for the future expansion of aviation facilities. However, parts of the site have been identified for possible future non-aviation uses on land that is not likely to be required for aviation purposes.

This report has been structured to provide a clear description of the issues that have been considered in the preparation of the Master Plan in Part A and the elements that comprise the Airport Master Plan itself in Part B. Part B includes a Land Use Plan for the airport based around a number of land use precincts, a Facilities Plan relating to the airport's physical infrastructure, and an Implementation Plan which outlines key actions to be undertaken.

Perhaps the most important issue arising from this Master Plan is the need to upgrade the existing runway pavements, particularly the Runway 14/32 pavement. The Master Plan recommends that Council undertake a full technical scoping study in relation to the runway pavements, with a full cost analysis, in order to confirm the works required to upgrade the runway pavements to an appropriate standard.

The Master Plan also recommends that an Airport Business Plan be prepared to support potential investment in infrastructure upgrades and non-aviation development on the airport site.

PART A: BACKGROUND INFORMATION

1 Introduction

Flinders Island Airport is a Certified Aerodrome owned and operated by the Flinders Council. The airport is an important asset for the Flinders Island community which must be carefully managed to ensure that the island's residents and businesses continue to benefit from its existence well into the future. To this end, the Council engaged Kneebush Planning Pty Ltd and Airports Plus Pty Ltd to prepare this Master Plan for the airport.

1.1 Overview of the Airport

Flinders Island Airport is located on the west coast of Flinders Island approximately 3km north of the Whitemark town centre. The airport site has a total area of approximately 134 hectares. Access to the airport is off Palana Road. The Existing Conditions Plan at Appendix 1 shows the airport site and surrounds.

The primary aviation facilities at Flinders Island Airport consist of two sealed runways, a sealed taxiway, a sealed apron, a grassed apron and a fuel storage facility. Adjacent to the sealed apron is a passenger terminal building with an associated car parking area. There is only one small hangar on the site at present.

The primary use of Flinders Island Airport is for Regular Public Transport (RPT) services operated by Sharp Airlines which offers services to and from Melbourne (Essendon) and Launceston. The airport is also used for charter and freight services, emergency services and private/recreational flying.

The airport site is currently zoned Public Purpose Zone under the Flinders Planning Scheme. The site is proposed to be zoned part Utilities Zone and part General Industrial Zone pursuant to the draft Planning Scheme which was on public exhibition at the time of writing.

Surrounding the airport site there is Parry's Bay to the west, rural land to the north, east and south, and a low density residential area to the south-east.

1.2 Purpose and Objectives of the Master Plan

The central goal of this Master Plan is to provide Council with a strategic planning document for the airport's future growth and development. This is the first Master Plan for Flinders Island Airport.

The Master Plan provides Council with a long term (20 year) planning framework for the safe, secure, efficient, and sustainable use and development of the airport site. It provides clear direction as to how growth is to be accommodated, particularly continued growth and expansion of Regular Passenger Transport services and General Aviation activities. The Master Plan provides an optimal spatial outcome for the airport in keeping with commercial business objectives and environmental, planning, security and operational obligations.

The emphasis of the Master Plan is on aviation growth and development, and protecting the site for the future expansion of aviation facilities. However, parts of the site have been identified for possible future non-aviation uses on land that is not likely to be required for aviation purposes.

The key objectives of the Master Plan are therefore to:

- Identify long term land use and facility development requirements for the airport.
- Identify strategies and facilities required to ensure the long term sustainability of the airport.
- Ensure that the airport is not inhibited by a lack of facilities or other constraints.
- Provide a clear direction as to how the airport should be developed.
- Support the growth of tourist passenger traffic.
- Facilitate General Aviation (GA) development.

1.3 Methodology and Consultation

The methodology used to prepare this Master Plan comprised the following stages and tasks:

Stage 1: Project Inception

- Inspection of the airport site and surrounds.
- Confirmation of scope of work, methodology and key issues.
- Initial consultation with Council officers, Councillors and key stakeholders.

Stage 2: Strategic Context

- Review of background information.
- Assessment of existing infrastructure.
- Identification of limiting factors / constraints.
- Identification of opportunities for growth / development.
- Identification of future land use requirements.
- Identification of future facility needs and improvements.
- Identification of Planning Scheme issues.

Stage 3: Draft Master Plan

- Preparation of draft Land Use Plan.
- Preparation of draft Facilities Plan.
- Preparation of draft Planning Scheme recommendations.
- Preparation of draft Implementation Plan.
- Preparation of draft Master Plan report.
- Stakeholder consultation on draft Master Plan.
- Consideration of stakeholder feedback.

Stage 4: Final Master Plan

- Finalisation of Master Plan
- Submission of final Master Plan to Council.

1.4 Report Structure

This report has been structured to provide a clear description of the issues that have been considered in the preparation of the Master Plan (Part A) and the elements that comprise the Master Plan (Part B).

1.4.1 Part A: Background Information

Section 2 of this report describes the Master Plan context, including the socio-economic context and underlying policy context. This section also sets out the strategic vision and objectives for the airport which provide broad guidance and direction for the future use and development of the airport.

Section 3 of this report outlines the airport's current situation. This includes a description of the airport's existing use, the airfield facilities, buildings and utility services.

Section 4 sets out the findings of the SWOT analysis that was undertaken to help set the scene for this Master Plan.

Section 5 of this report provides an analysis of the airport against relevant airport planning criteria. This includes a discussion of runway length, width and strength issues, the design aircraft and a forecast of future aircraft activity.

1.4.2 Part B: Airport Master Plan

Section 6 sets out the Land Use Plan for the airport, including a description of the Master Plan's land use precincts and general land use guidelines.

Section 7 sets out the Facilities Plan for the airport, which describes the major physical facility and infrastructure requirements.

Finally, section 8 of this report provides recommendations on how to best implement the Master Plan, including trigger points and estimated timing for key actions.

2 Master Plan Context

2.1 Socio-Economic Context

Flinders Island Airport is recognised as an important socio-economic asset for the Flinders Island community. As an airport serving an island, its importance for the transport of people and goods cannot be understated.

The airport is a vitally important transport hub on the island for residents, tourists, businesses, government and emergency services. Whilst there are other aerodromes/airfields on the island, the Flinders Island Airport is the main airport and the only one on the island with an RPT service. It is also the main airport used by the emergency services such as the air ambulance for patient transfers.

There are currently several businesses that either operate at airport or use the airport on a regular basis. These include Sharp Airlines, Flinders Island Car Rentals, Bass Strait Aviation and Flinders Island Hire & Drive. The airport is also used by a number of air charter businesses. Due to the RPT service, the airport is also vitally important for the island's tourism sector as a whole.

In addition to its commercial and community uses, the airport is also used by private individuals for private or recreational flying activities.

Flinders Island Airport is also unique in that it faces competition from at least four other aerodromes on the island which are capable of supporting operations using twin engine aircraft. The Flinders Island Airport is the only airport on the island with a published approach procedure allowing it to be used in marginal weather conditions.

2.2 Policy Context

2.2.1 Flinders Council Strategic Plan 2011

The Flinders Council Strategic Plan sets out the following vision for the Furneaux Community:

A thriving, inclusive and self reliant community that offers opportunities for current and following generations while maintaining the diversity, uniqueness and attractiveness of the natural environment.

The Strategic Plan recognises the importance of the Flinders Airport. In Section 1.2 – Infrastructure the plan states:

Given the "island nature" of Flinders municipal area, physical and communications access is critical, as is reliable, cost effective energy supply. While not areas of direct council DOMAIN, Flinders council will, as necessary, play a role in lobbying for services that are fit for purpose and do not disadvantage the Flinders community. Council's view of the importance of having appropriate access to Flinders is demonstrated in ownership of the airport, a registered facility that Council is advancing to a certified facility.

The Strategic Plan also states:

The Whitemark Airport provides good all-weather air access and in combination with a new regional air service provider provides additional scheduled services. The challenge with the airport is continuing to meet the recurrent expenditure and investment to comply with the standards required to support this service capability and certified airport classification. The airport upgrades currently underway provides the opportunity to consider an adjacent light industrial park adjacent to this facility, providing a useful consolidation of services in this area and freeing up residential land in Whitemark; such a development would ensure that both infrastructure and light industrial services could be effectively delivered.

The "Strategic Conclusion" of Section 1.2 is:

Access to and within the islands, affordable energy, effective communications and sound environmental and physical infrastructure are critical to the viability of the Furneaux Group, Flinders Council must optimally invest capital and recurrent funds for the airport, local roads, community facilities, solid waste management and stormwater mitigation to meet needs and standards while urging other funders and providers to meet their community service obligations and so that the community are provided high quality, safe and affordable infrastructure and utilities.

The infrastructure strategies set out in the plan are:

Identify infrastructure objectives and standards for assets and develop a viable, asset lifecycle management and operational model;

Optimise infrastructure to support existing settlements and enhance sustainable development opportunities and remove impediments to growth;

Lobby utility and access providers to meet obligations so that infrastructure policy and service provision provides for relative equity; and

Pursue "best practice" delivery models that balance cost and outcomes.

The above matters were taken into account during the preparation of this Master Plan. It is considered that this Master Plan will assist Council in implementing the above strategies insofar as they relate to Flinders Airport.

2.2.2 Flinders Tourism 2020

Tourism is acknowledged as a key industry for the Flinders Island region and offers potential for substantial growth, positive economic return and contribution to liveability and lifestyle.

The document "Flinders Island Tourism 2020" sets out a long term plan for tourism development in the region. It provides a direction and commitment to the development of tourism in the region for the next 10 years and outlines the roles, responsibilities and actions of the industry.

Flinders Island Tourism 2020 contains the following vision:

> *To become Tasmania's leading nature based tourism destination and regarded as a highly desirable place to visit that protects and respects its environment.*

Air access is identified as a key factor in the potential growth of the island's tourism industry. The document states that "*aviation access must improve, particularly with increased flights to Victoria*". It also states that the "*use of larger aircraft over time will also be acceptable to more potential visitors"*.

2.2.3 Flinders Structure Plan

The Flinders Structure Plan (Pitt & Sherry, April 2011) was prepared to guide future land use and development on Flinders Island.

Section 4.1.3 of the Structure Plan discusses the island's port and airport facilities. It states:

> *As Flinders Municipality is remote from road access, port and airport facilities on the Island are critical pieces of infrastructure.*

This section of the Structure Plan highlights the importance of Flinders Island Airport in providing access to and from the island. It notes the results of the Flinders Island Visitor Survey Report (Tourism Tasmania, 2009) which found that 77% of trips completed by residents and VFR (visiting friends and relatives) visitors were by scheduled airline services.

Specifically in relation to the airport, the Structure Plan states:

> *As discussed above, the air services provide the key means of access to Flinders Island for visitors. As it provides the primary airfield on Flinders Island, there is a critical need to protect the functionality and efficiency of this transport infrastructure.*
>
> *Protect the functionality and efficiency of the Airport by:*
>
> - *limiting the development of sensitive uses around the airport to those that will not conflict with its operation;*
> - *limiting development around the airport to that which will not impact upon the efficiency or safety of its operation (i.e. height limits, emissions).*

Section 5.1 of the Structure Plan discusses the potential development of an industrial park at the airport. In this regard it states:

> *There has been some discussion of expanding light industrial activities at the Airport through the development of an 'industrial park' at this site.*
>
> *Such a proposal have strong merit, particularly as it offers a chance to improve the amenity of Whitemark by relocating industrial type uses out of the Town. The long term*

relocation of industrial uses to an industrial park may also allow greater consolidation of residential and commercial development within the Town proper.

However, there is a real risk that unfettered development at the Airport could draw commercial activity away from Whitemark – further diminishing the activity base in the Town. Therefore, the type of uses promoted within Whitemark and within any new 'industrial park' need to be carefully considered; and such implications need to be considered in any subsequent feasibility study underpinning such a project.

Once again, the above matters were taken into account during the preparation of this Master Plan. It is considered that this Master Plan will assist Council in implementing the above strategies.

2.3 Strategic Vision and Objectives

The following vision statement and objectives provide broad guidance and direction for the development of Flinders Island Airport. The development of the vision and objectives was guided by the Council's Strategic Plan, the Flinders Tourism 2020 strategy, the Flinders Structure Plan and discussions with key stakeholders.

2.3.1 Vision for Flinders Island Airport

Building on the vision statements contained in the Strategic Plan and tourism strategy, the vision for Flinders Island Airport is:

Flinders Island Airport is a critical transport hub servicing Flinders Island which will continue to be maintained, enhanced and protected to support the sustainable growth and development of the community and economy of the island.

2.3.2 Objectives for Flinders Island Airport

The key objectives for Flinders Island Airport are:

- Protect the airport's primary function for aviation.
- Recognise the airport as a valuable community and economic asset.
- Create positive gains for the community and economy.
- Support the growth of RPT and charter activities.
- Support aviation-related development on the site.
- Support the growth of tourist passenger traffic.
- Support the ongoing use by emergency services.
- Ensure that appropriate infrastructure is provided.
- Allow appropriate development of surplus land.
- Ensure compliance with CASA standards and requirements.
- Ensure that future development occurs in a planned and orderly manner in accordance with the long term vision for the airport.

3 Current Situation

The following section provides information regarding the existing site conditions and the surrounding land. The plan at Appendix 1 shows the existing airport site and surrounds.

3.1 Existing Activities

The primary activities at Flinders Island Airport revolve around the Regular Passenger Transport (RPT) service operated by Sharp Airlines which offers flights to and from Melbourne (Essendon) and Launceston. Copies of Sharp's flight schedules are attached at Appendix 2.

The RPT service currently uses Metro III/23 aircraft with 19 passenger seats.

Sharp Airlines and Flinders Island Car Rentals operate offices within the passenger terminal building on the airport.

The airport is also used for General Aviation (GA) purposes including:

- Charter and freight services (Bass Strait Aviation / Alliance)
- Emergency services (including patient transport)
- Private / recreational flying

3.2 Aviation Facilities

The primary aviation facilities at Flinders Island Airport consist of two sealed runways, a sealed taxiway, a sealed apron, a grassed apron and a fuel storage facility. These facilities are discussed further below.

3.2.1 Runway 14/32

Runway 14/32 is oriented north-west/south-east and is 1720m long and 30m wide. The runway strip associated with Runway 14/32 is 1840m long and 90m wide.

The surface of the runway is sealed and it has a published Pavement Classification Number (PCN) of 7 and a tyre pressure restriction of 610 kPa (88 PSI) which is in the low range of pavement ratings. Pavement strength is discussed further in Section 3.3 below.

Runway 14/32 is a Code 3 non-instrument approach runway. Aircraft operating on Runway 32 undertake normal left hand circuits. Right hand circuits are required when operating on Runway 14 due to high terrain to the north and east. As this is a non-instrument runway there are no published approach procedures that can be used by pilots to operate approaches to this runway in other than visual conditions.

Runway 14/32 is equipped with low intensity runway edge lights, threshold lights and runway end lights. There is no approach lighting or visual approach slope indicator system, nor are they required. The lights are operated by a pilot through the aerodrome's radio frequency.

This runway is considered suitable for current aircraft operations; however the runway pavement will continue to be damaged due to its low strength.

3.2.2 Runway 05/23

Runway 05/23 is oriented in the south-west/north-east direction and is 1070m long and 30m wide. The runway strip associated with this runway is 1190m long and 90m wide.

The surface of the runway is sealed and it has a published PCN of 7 and a tyre pressure restriction of 610 kPa (88 PSI) which is in the low range of pavement ratings. Pavement strength is discussed further in Section 3.3 below.

Runway 05 is a Code 2 instrument non-precision approach runway. Right hand circuits are required when operating on this Runway 05 due to high terrain to the north and east. Runway 05 has NDB and GPS non-precision approach procedures designed by Airservices Australia to allow aircraft to make a straight in approach with a minima for pilots to continue their intrument approach and not have the aerodrome in sight until only about 600 ft above the aerodrome elevation.

Runway 23 is a Code 2 non-instrument approach runway. Aircraft operating on Runway 23 undertake normal left hand circuits and as this is a non-instrument runway there are no published approach procedures that can be used by pilots to operate approaches to the runway.

Night landings are not permitted on Runway 23 and night take-offs are not permitted on Runway 05 due to terrain to the east.

Runway 05/23 is equipped with low intensity runway edge lights, threshold lights (Runway 05 only) and runway end lights. There is no approach lighting or visual approach slope indicator system, nor are they required The lights are operated by a pilot through the aerodrome's radio frequency.

This runway is considered suitable for current aircraft operations; however the runway pavement will continue to be damaged due to its low strength.

3.2.3 Taxiway

There is one short sealed taxiway connecting Runway 05/23 with the main apron parking area. It has a similar pavement strength as the runways as it was constructed at about the same time using the same materials.

The taxiway has blue edge lights and yellow holding point edge lights.

The taxiway is only suitable for aircraft with a wing span of up to 24m or an outer main gear wheel span of up to 6m.

This taxiway is considered suitable for current aircraft operations, with similar pavement reservations as the runways.

There is also a private unpaved taxiway leading to the private hangar area to the north of runway 05/23. This taxiway crosses a culvert (a bridge) and, due to the prepared taxiway width and the width of the culvert, is only suitable for aircraft with a maximum wingspan of up to 15m or an outer main gear wheel span of up to 4.5m.

3.2.4 Aprons

The airport has a sealed apron and two grassed aprons.

The sealed apron is located at the end of the taxiway and is provided mainly for short term parking of passenger or air ambulance aircraft, or aircraft using the fuel facility. A proposed extension is planned on the east side of the sealed apron, north of the fuel facility, to provide additional space for parking larger aircraft, such as the Fokker F50 used by the tourism charters. This apron has security floodlighting available.

The grassed apron is located immediately to the west of the sealed apron and is available for itinerant light aircraft parking.

There is also a small unpaved apron area in front of the private hangars located to the north of runway 05/23.

It is considered that the aprons, including the proposed extension, are suitable for current aircraft operations.

3.2.5 Fuel Storage Facility

The aviation fuel storage facility is operated by Sharp Airlines and is located adjacent to / on the west side of the main apron. The fuel is stored in a secure, bunded enclosure. The facility is a twin chambered tank storing Avgas and Jet A1 fuel. The total storage capacity is 55,000 lt.

The fuel storage facility is considered suitable for current aircraft operations.

3.2.6 Navigational Aids

A Non-Directional Beacon (NDB) is located off-airport approximately 1km to the south-east on Palana Road.

There is also an automatic weather station with the meteorological data being transmitted on the aerodrome's radio frequency (134.4 MHz).

3.3 Pavement Strength

Australia has adopted an international pavement strength classification system that matches an aircraft's classification, based on its actual weight, with a pavement classification. The system provides a pavement management tool that requires aircraft that cannot match the pavement classification to seek the approval of the airport owner before using any pavement.

The pavement classification basically has two components which provide an indication of the effect of an aircraft on the sub-grade, or underlying natural surface, and on the pavement itself (or the pavement's surface). The first part of the classification consists of a number combined with the type of pavement (flexible or rigid) and an indication of the strength of the sub-grade. The second component is a tyre pressure rating. Both the Pavement Classification Number and the tyre pressure can be determined empirically, based on the thickness of the pavement and the construction materials used, or they can simply be based on experience/usage if the pavement details are not known.

The Flinders Island Airport pavements are rated 7/F/B/610 which indicates that:

- The pavement is relatively low strength (7), but is about average for regional Australia;
- The pavement is a flexible pavement (F);
- The sub-grade is of a mid to low strength (B), consistent with the clay loams found on the airport; and
- The maximum tyre pressure is 610 Kpa.

The condition of the pavements indicates:

- That the pavement thickness and sub-grade strength are appropriate for the types of aircraft using the airport as there is no pavement deformations associated with sub-grade failures due to overloading; and

- The pavement material used in the most recent resurfacing is inadequate for the current aircraft operations and it does not have the structural strength to support the loads imposed through higher tyre pressures; the pavement surface has numerous localised wheel ruts. It is suspected that the most recent gravels added have a high clay content and round particles so that there is little interlocking between particles and, hence, little structural strength.

The pavement strength issue is discussed further in Part B of this report (section 7.2), particularly in relation to future requirements.

3.4 Buildings

The main building on the airport is the terminal building which is located on the south side of the main apron, in the south-east corner of the site. The terminal building is approximately 300m^2 in area and consists of a passenger waiting area, male/female toilets, an office and check-in counter for Sharp Airlines, and a counter for Flinders Island Car Rentals. On the east side of the building there is an external undercover baggage reclaim area.

The existing terminal building is space constrained. Whilst the current passenger check-in and lounge area in the terminal building is just adequate for handling a single RPT aircraft flight (19 seats) at a time, it is not adequate if there is a need to handle more than one passenger aircraft at a time.

The public space in the terminal is about 70m^2 and currently becomes unworkable if two aircraft arrive at about the same time with a total of about 76 combined passengers (i.e. 38 arrivals and 38 departures). With two full flights people have to wait outside as there is insufficient space inside. There appears to be about one meeter and greeter for every two passengers which adds to the building load.

The external baggage reclaim area is also less than ideal. In addition, Flinders Island Car Rentals have indicated a desire for their own separate office and check-in counter and it is understood that another rental car company may be interested in leasing some space in the terminal in the future.

The terminal would not be large enough if passenger screening and checked bag screening were introduced by the Commonwealth Government for aircraft down to the size of the current RPT aircraft operating into Flinders Island Airport.

Given the above, future expansion of the terminal has been identified in this Master Plan. This is discussed further in Part B (section 7.3) of this report.

To the south/west of the terminal building there are five buildings comprising a vacant dwelling, a workshop, the Airport Manager's office, a power station and a shed.

There is only one small hangar on the airport which is located on the opposite (north) side of Runway 05/23. This hangar is used for the storage of a private aircraft. Adjacent to this hangar is a small shed.

3.5 Ground Access

The main ground access to the airport is via an entry off Palana Road in the south-east corner of the site. The location of this entry is not ideal due to its proximity to the bridge over Pats River (less than 50m to the south) and because it is situated on a bend in Palana Road which restricts visibility. A new entry road has been identified in this Master Plan. This is discussed further in Section 7 of this report.

3.5.1 A car parking area is located to the south of the terminal building.

A secondary access road off Palana Road into the airport is located to the north of Runway 05/23. This primarily provides access to the private hangar.

3.6 Utility Services

The provision of utility services to the site is currently limited.

Reticulated water is currently sourced from the town water supply system. However the quality is not suitable for drinking. Tank water from the terminal building roof is used for drinking and hand washing.

There is no reticulated sewerage system. Wastewater from the terminal building is treated via an on-site septic tank system. The existing septic tank system is located immediately to the west of the terminal building and could be affected by future building works.

While the bio mass inflows are low, it has excessive peak flows, coinciding with aircraft arrivals and departures that a normal septic tank type system does not effectively handle. The peak flows have a “flushing” effect on a septic tank and interrupt the normal retention cycle resulting in poorly treated effluent. This can be partially accommodated through the use of a tank that is larger than normally required, so that the peak flow is considered as the “normal” flow, however these tanks have a maximum capacity after which a small package treatment plant would be required.

The capacity of a septic system can be increased by the addition of secondary treatment of the effluent (such as a Trickle Filter or Aeration Ponds) to achieve an effluent of a suitable quality, however it is generally not cost effective as the capacity gains can be met and exceeded through more efficient treatment plants.

Therefore, to cater for increases in the Terminal Building and other on airport developments a new efficient treatment plant should be installed to produce an effluent that meets community standards.

Reticulated electricity is currently supplied to the airport. The electricity supply is adequate for current needs and is likely to be adequate for the foreseeable future.

It is noted that Council is currently in the process of seeking funding to construct a 16.6kW solar power system on the airport. This project, called the Flinders Island Airport Carbon Neutral Project, aims to offset 100% of the airport’s electricity usage and associated carbon footprint. The proposed system comprises six freestanding solar tracking arrays each comprising fifteen 185w photovoltaic panels. This Master Plan identifies a suitable site for the proposed solar panel arrays (refer to Section 7 of this report).

Telecommunication services at the airport comprise only Telstra landlines and mobile phones. The stakeholder consultation did not identify this as an issue or problem for the airport.

There are no dedicated fire fighting services facilities on the airport. The stakeholder consultation did not identify this as an issue or problem for the airport.

Part B (section 7.6) of this report makes a number of recommendations for upgrading of the existing utility services.

4 SWOT Analysis

To help clarify the future direction of the airport and key issues to be addressed in the Master Plan, a SWOT analysis of the airport was undertaken. The following points summarise the airport's strengths/advantages, weaknesses/constraints, opportunities/prospects and threats/risks. The SWOT analysis was based on an assessment of the existing facilities, a review of background information, relevant policies and consultation with stakeholders.

4.1 Strengths and Advantages

The key strengths of the airport are considered to be:

- Council owned asset
- Certified aerodrome
- Non-Directional Beacon
- Published Non-Precision Instrument Approach (Runway 05 only)
- Runway lighting
- RPT passenger service
- Surrounding land use (mostly rural)
- Fuel facilities
- Proximity to Whitemark

4.2 Weaknesses and Constraints

The key weaknesses of the airport are considered to be:

- Runway orientation not ideal (prevailing wind direction from the west / south-west)
- Runway obstacles (hills/mountains to the north, east and south)
- Length of Runway 05/23 (only 1070m)
- Non-precision instrument approach procedures only on Runway 05 due to terrain
- Runway pavement strength (only PCN 7)
- Terminal building too small
- Wildlife hazards (minimised by existing fencing and management procedures)
- Nearby low density residential area (Bluff Road area)
- Planning controls not ideal (see section 6.8)
- Ageing infrastructure
- Water supply
- No reticulated sewerage
- Limited income streams

4.3 Opportunities and Prospects

The key opportunities for the airport are considered to be:

- Growth from tourism traffic
- New air services
- New runway to address current runway weaknesses
- General Aviation development (hangars)
- Land available for development
- Expansion of terminal building
- Improved planning scheme controls
- Other possible income streams from unused land (eg. industrial park)
- Solar energy facility
- Undercover car parking

- Environmentally friendly wastewater treatment plant

4.4 Threats and Risks

The threats to the airport are considered to be:

- Cost of air travel
- Nearby residential development
- Noise complaints
- Maintenance and upgrade costs
- Competition from other airports
- Lack of growth on the island
- Limited community involvement
- Wildlife strikes (minimised by existing fencing and management procedures)
- Changes in airport security requirements
- Construction of dwellings around the airport site
- Construction of structures around the airport which infringe the Obstacle Limitation Surfaces

Where possible, the Master Plan (Part B of this report) responds to the above strengths, weaknesses, opportunities and threats. It is noted, however, that many of the above matters are not directly relevant to the Master Plan and are therefore not specifically addressed.

5 Critical Planning Parameters

This section provides an analysis of the airport against relevant airport planning parameters to help guide the Master Plan.

5.1 Aerodrome Reference Code

Australia has adopted the International Civil Aviation Organisation (ICAO) methodology of using a code system, known as the Aerodrome Reference Code, to specify the standards for individual aerodrome facilities which are suitable for use by aircraft within a range of performances and sizes.

The Aerodrome Reference Code is based on the characteristics of an aircraft not the airport. Once the critical aircraft (or design aircraft) is determined then the aerodrome facilities are designed and built to meet those characteristics. Currently the aviation facilities at Flinders Island Airport are capable of handling a Code 3C aircraft. The one limiting factor, as discussed in Section 3.3 of this report, is pavement strength.

The table below indicates the aircraft characteristics that determine the Aerodrome Reference Code.

Table 1 - Aerodrome Reference Code extracted from MOS Part 139 - Aerodromes

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

5.2 Determining Runway Length, Width and Strength

Determining runway length, width and strength for an airport needs to be based on the critical aircraft that are likely to use the airport in the future. Usually this is based on RPT or charter aircraft.

There are a number of aircraft commonly used in the Australian aviation industry for regional passenger operations and for business charter. The most commonly used RPT aircraft operating in regional centres on the eastern seaboard are turbo prop aircraft such as the Dash 8, SAAB 340 and Metro III/23.

Commonly used business charter aircraft include the Canadair Challenger 604 which is used by the RAAF to transport VIPs and the Cessna Citation/Learjet or similar which are used by many businesses to transport senior management within Australia.

Table 2 below shows the characteristics of a range of typical aircraft.

Table 2 - Typical Aircraft Types[1]

Aircraft	Seats	ARFL (m)	MTOW (kg)	ACN[2]	Tyre Pressure (kPa)	CODE
Dash 8-300	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
B737-800	180	2256	70535	46	1400	4C
A320-200	180	2058	72000	40	1360	4C

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 sub-grade rating of "B".

The aircraft that service an airport may be large aircraft providing limited services or smaller aircraft providing a higher frequency of services. The option of a large aircraft with limited services generally results in an overall deterioration in passenger numbers as the infrequent services do not provide a convenience with people making alternative travel arrangements, such as chartering an aircraft. The net result may be a loss of services as passengers abandon the scheduled service.

The Aeroplane Reference Field Length (ARFL) published by aircraft manufacturers for each aircraft type is a guide only when determining suitable runway length; many other factors can also influence usable runway length including air temperature, runway slope and elevation. In practice, a longer runway length is usually required.

Runway length can therefore be a limiting factor for aircraft operations. The longer runway at Flinders Island Airport (Runway 14/32) is of an adequate length (1720m) for the aircraft types currently operating (Metro III/23) and would be suitable for larger passenger aircraft such as the SAAB 340 or Dash 8. However, current pavement strength would prevent or restrict these aircraft types from operating (see Section 3.3 above).

The pavement strength can also be a major limiting factor for aircraft operations. The construction materials used and the constructed depth of the pavement determine pavement strength. For a pavement to be determined suitable for an aircraft operation the designated Pavement Classification Number (PCN) should match the Aircraft Classification Number (ACN) which is determined by the aircraft manufacturer. ERSA also indicates that both runways

have a Pavement Classification Number (PCN) of 7. As the two runways are PCN 7 they are suitable for the current aircraft operations (Metro III/23 aircraft); however the tyre pressure rating is not suitable and the trigger for increasing the pavement strength may have arrived. In any event, a certain trigger would be the commencement of operations with larger aircraft, i.e. Fokker F50, Dash 8 etc.

The current pavement will not continuously support an aircraft that has a tyre pressure of greater than the published maximum tyre pressure of 610 kPA.

5.3 Aircraft Activity Forecast

A forecast of aircraft activity has been prepared to check that the current airport facilities are adequate for the potential growth in aircraft movements and also to indicate the timing for future airport infrastructure development. Historical records of annual aircraft activity (landings only) are provided in Table 3 below.

Table 3 – Historical Records of Annual Aircraft Activity (Landings Only)

Year	Commercial	Private	Military	RFDS	Helicopters	Total
1993/94	2046	559	11	30	19	2665
1994/95	2110	479	5	32	22	2648
1995/96	1815	395	3	30	70	2313
1996/97	1801	388	6	22	32	2249
1997/98	2384	358	4	21	24	2791
1998/99	2350	294	18	24	13	2699
1999/00	2410	280	28	23	12	2753
2000/01	2008	252	23	29	42	2354
2001/02	1837	336	1	41	46	2261
2002/03	1759	336	3	42	83	2223
2003/04	2030	318		23	7	2393
2004/05	1615	317		23	50	2005
2005/06	1641	251		24	24	1940
2006/07	1595	258		23	26	1902
2007/08	1423	194		17	24	1658
2008/09	1511	303		36	58	1908
2009/10	1339	228		33	21	1621
2010/11*						2066

*October 2010-October 2011

The above figures show that there has been an overall decline in aircraft activity at Flinders Island Airport over the last 17 years. This is consistent with recent trends within Australia.

The Commonwealth Department of Infrastructure and Transport produces aviation activity data annually. According to this data, General Aviation (GA) activity in Australia, in terms of hours flown, decreased by approximately 2% between 1999 and 2009. Over the same period, Regional airline activity decreased by approximately 26%.

The most pronounced trend in domestic GA in the past decade has been the growth of the Sport Aviation sub-sector. In terms of hours flown this sub-sector grew by approximately 84% between 1999 and 2009. The Training and Aerial Work sub-sectors were the only other sub-sectors to show an increase in hours flown (10% and 18% respectively). It is noted however, that none of these sub-sectors are major activities at Flinders Island Airport.

Given the above, if recent trends continue, it is expected that aircraft activity at Flinders Island Airport will remain within the range of 3,000 to 5,000 movements (landings and take-offs) per year for the foreseeable future. Even if modest growth were to occur (say 2% per annum) the total number of movements is not likely to exceed 6,000 movements for at least 20 years.

The forecast expectation of less than 6,000 movements per year in the life of this Master Plan is based on:

- Currently there are only about 1620 landings or 3240 movements per year;
- The segments of the aviation industry that service Flinders Island (RPT and Freight) are experiencing downturns in movements cross Australia, but specifically in the rural and regional airports, and there are no indications that these trends will not continue for some time, especially given the strength of the Australian dollar which makes external travel more attractive than internal travel;
- Flinders Municipality has a relatively stable population; the residential population growing by just 20 people from 2004 to 2008 which is approximately 0.5% per annum over this period[1]; and
- The Tasmanian Demographic Change Advisory Council's 'high growth' scenario for Flinders Municipality would see only modest population growth to 1,012 people in 2032. This equates to approximately 0.6% growth per annum and is only marginally above the observed growth in the population from 2004 to 2008 (0.5% p.a.)[2].

The capacity of the current runway and taxiway configuration is much greater than the number of aircraft movements forecast. The current runway configuration has the capacity for handling over 60,000 movements per annum and would be greater with the addition of parallel taxiways.

5.4 Passenger Activity Forecast

A forecast of passenger activity has also been prepared to check that the current airport support facilities are adequate for the potential growth in passenger movements and particularly to indicate the timing for future terminal expansion.

Historical records of annual passenger activity are provided in Table 4 below.

[1] Draft Flinders Structure Plan, April 2011.

[2] Draft Flinders Structure Plan, April 2011.

Table 4 – Historical Records of Annual Passenger Activity

Year	Passengers	Change	% Change
2003/04	15625		
2004/05	15424	-201	-1.3%
2005/06	15651	227	1.5%
2006/07	16651	1000	6.4%
2007/08	16880	229	1.4%
2008/09	17365	485	2.9%
2009/10	17843	478	2.8%
2010/11	18460	617	3.5%
2011/12*	6968		

*July-November 2011

The above figures show that passenger movements through the airport have increased every year for the last 6 years, with an average increase of 2.4%.

Table 5 below shows a forecast of passenger growth based on a compounding growth rate of 2.4% per annum.

Table 5 – Passenger Activity Forecast

Year	Passengers	Change	% Change
2010/11	18460		
2011/12	18903	443	2.4%
2012/13	19357	454	2.4%
2013/14	19821	465	2.4%
2014/15	20297	476	2.4%
2015/16	20784	487	2.4%
2016/17	21283	499	2.4%
2017/18	21794	511	2.4%
2018/19	22317	523	2.4%
2019/20	22852	536	2.4%
2020/21	23401	548	2.4%
2021/22	23962	562	2.4%
2022/23	24538	575	2.4%
2023/24	25126	589	2.4%
2024/25	25729	603	2.4%
2025/26	26347	618	2.4%
2026/27	26979	632	2.4%
2027/28	27627	648	2.4%
2028/29	28290	663	2.4%
2029/30	28969	679	2.4%
2030/31	29664	695	2.4%

As stated in Section 3.4 of this report, the existing terminal building is space constrained. The above figures, combined with Council's growth aspirations, indicate that expansion of the existing terminal building will be required in the short term (next 2-3 years).

Expansion of the terminal building has been identified in this Master Plan. This is discussed further in Section 7.3 of this report.

5.5 Selected Design Aircraft

The current passenger traffic is being comfortably catered for with the 19 seat Metroliner operated by Sharp aviation. If it is assumed that the passenger growth could be higher than the historical average (2.4%) due to developments in the tourism sector, it would not be unreasonable to forecast a growth rate of between 4% and 6%. Based on 19,000 annual passengers for the current year (cf 18,460 for 2010/2011) the growth rate indicates an annual passenger statistic of between 28,100 and 34,000 in 10 years and 41,600 and 61,000 in 20 years.

Using the Dash 8 Q400, with a capacity of 70 passengers, as an example, 34,000 passengers per year equates to approximately 1 service per day, or, using a SAAB 340 with 32 passengers, it equates to approximately 3 services per day. Therefore, commercially it will be more appropriate to consider a SAAB 340 type aircraft as the design aircraft, with a capacity of 32 passengers, instead of a larger aircraft with only one viable service per day. However, it should be noted that even a SAAB 340 type service will probably not become sustainable until there is at least 25,000 passengers per annum on a city pair. The Launceston – Flinders Island city pair service currently has about 15,000 passengers per annum.

Therefore, for the purpose of this Master Plan the critical design aircraft selected is the SAAB 340.

This aircraft can operate at Code 3C aerodromes and Flinders Island Airport's primary facilities are built to Code 3C standard. This aircraft is also in keeping with the existing pavement strength restrictions (the SAAB's ACN is acceptable but its tyre pressure is slightly higher than the airport's published tyre pressure restrictions but less than the Metro's tyre pressure).

A heavier aircraft such as the Dash 8 Q400 could be used as the design aircraft if it were planned to significantly upgrade the pavements. In addition, aircraft used for RPT operations above 20,000 kg MTOW also trigger the requirements for the implementation of increased security requirements, including the screening of passengers, carry-on baggage and check-in baggage and upgrading of the physical security of the airport such as installation of security cameras.

In any event both the SAAB 340 and Dash 8 Q400 are Code 3C aircraft.

In summary, the design aircraft should have Code 3C characteristics to continue to protect the airport for this type of aircraft operation and the MTOW of the design aircraft may increase over time subject to pavement strength.

5.6 Possible New Runway

As indicated in the SWOT analysis, the construction of a new runway was identified as an opportunity to address the weaknesses with the existing runways. Those weaknesses are:

- Runway orientation not ideal (prevailing wind direction from the west / south-west)
- Runway obstacles (hills/mountains to the north, east and south)
- Length of Runway 05/23 (only 1070m)
- Runway pavement strength (only PCN 7)

For this reason consideration was given to the potential for a new 1,800m runway to be constructed which could address, or minimise, the above issues. An optimal alignment was determined having regard to runway obstacles (hills/mountains to the north, east and south). This alignment is shown on the Possible New Runway Plan at Appendix 3. A new runway would replace both of the current runways as it would be better aligned to the prevailing winds and would not have the same operational restrictions caused by the high terrain to the north and to the east; there would be circuit restrictions so that all aircraft would operate away from the high terrain but the approaches would not be restricted.

The proposed new runway would have to comply with the CASA standards, as published in the Manual of Standards Part 139 – Aerodromes, which include the provision of a runway strip 60 m longer than each end of the runway and a 90 m long Runway End Safety Area beyond the ends of the runway strip. These require an area that is 150m wide and 2,100m long. The planning has also made provision for a 1000m long public safety zone from the end of the runway strip, as forecast by the Federal Government in the recently published White Paper on

Aviation. This paper indicates that the Federal Government plans to introduce a requirement for Public Safety Zones at the ends of runways within about 5 years. Whilst there are no published standards or guidelines in the White Paper, this Master plan has applied the dimensions currently applied by the Queensland Government through Queensland State legislation.

The cost of a runway pavement has been estimated at between $5,000 and $10,000 per lineal metre for a runway suitable for the types of aircraft best suited for Flinders Island. This produces an indicative costing of between $9 and $18 million dollars for a new runway. The cost to reconstruct the existing runway 14/32 has been estimated at $5 million.

The new runway would result in all aircraft operations overflying the low density subdivision located to the south-east of the airport (Bluff Road area), potentially causing a deterioration of the quiet amenity currently enjoyed by the airport's neighbours.

Taking the above into consideration, a new runway cannot be justified in the life of this Master Plan (20 years) for the following reasons:

- Construction cost (indicative costs are in the order of $9-$18 million);
- Land acquisition costs to construct to the north-west;
- Potential impact on low density residential area to the south-east of the airport; and
- The existing runways are operationally suitable for the current and the 20 year forecast aircraft movements, with reconstruction requirements to improve the pavement strength.

Therefore the recommendations of this study in relation to a new runway are:

- Upgrade the existing runway and taxiway pavements; and
- Review the requirement again as part of a Master Plan review in 5 years.

PART B: AIRPORT MASTER PLAN

6 Land Use Plan

This section sets out the land use plan for the airport, including a description of the Master Plan's land use precincts and general land use guidelines.

6.1 Land Use Precincts Plan

To assist Flinders Council in planning future use and development of the airport 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 Land Use Precincts Plan for the airport is attached at Appendix 4

The Land Use Precincts Plan shows the following four (4) precincts:

- Airside Operations Precinct
- Airport Support Services Precinct
- General Aviation Hangar Development Precinct
- Light Industrial Development Precinct

Each of the land use precincts shown on the plan has different characteristics and objectives. These details are discussed in the following sections of this report. The use of the precincts shown on the Land Use Precincts Plan should be consistent with the following broad guidelines. Facility (physical infrastructure) requirements are discussed in Section 7 of this report.

6.2 Runways Precinct

The Runways Precinct contains the two existing runways and associated runway strips. It has an area of approximately 49.5 hectares. This precinct must be retained and protected for runway operations in accordance with CASA requirements.

6.3 Airport Support Services Precinct

This precinct contains the existing taxiway, aprons, fuel facility, passenger terminal, car parking and other airport support facilities. This precinct has an area of approximately 8.5ha.

More detailed plans have been prepared for this precinct, comprising an Airport Support Services Precinct Plan (Appendix 5) and a Terminal Area Sub-Precinct Plan (Appendix 6) to show how the land in this precinct should be used and developed in the future. A number of changes and enhancements to this precinct are recommended. This is discussed further in Section 7.2 of this report.

6.4 General Aviation Hangar Development Precinct

This precinct contains the existing private hangar building. This precinct is designated for further General Aviation (non-commercial) hangar construction, and should be reserved for that purpose. This precinct has an area of approximately 6.0ha.

This precinct should be used only for hangar purposes or activities directly related to aircraft storage, loading or unloading.

6.5 Industrial Development Precinct

This precinct comprises land not required for airport/aviation purposes and is set aside for possible future industrial development, in accordance with the strategic directions set out in Council's Strategic Plan and Flinders Structure Plan (as outlined in Section 2.2 of this report).

This precinct is approximately 11.5ha in area.

Land uses in this precinct could take the form of aviation-related industrial activities not requiring airside access, or non-aviation industrial activities, provided such activities do not have the potential to interfere with aircraft operations (see section 6.7). However, the following quote from the Flinders Structure Plan is noted:

However, there is a real risk that unfettered development at the Airport could draw commercial activity away from Whitemark – further diminishing the activity base in the Town. Therefore, the type of uses promoted within Whitemark and within any new 'industrial park' need to be carefully considered; and such implications need to be considered in any subsequent feasibility study underpinning such a project.

6.6 Surplus Land

There is a large amount of land within the boundaries of the airport that is not included in a designated precinct on the Land Use Precincts Plan. This land could be considered as "surplus land".

Like the Light Industrial Development Precinct, the surplus land is not currently required for any particular or identified airport/aviation purpose. However, whilst this land may not be directly required for airport purposes, it should remain in Council ownership in order to provide a safeguarding buffer.

6.7 General Land Use Guidelines

Use and development of the airport 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 airport operations.
- The airport land should be reserved for its designated use in accordance with the Land Use Precincts Plan.
- Development in any individual precinct should be undertaken in accordance with the 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 lighting does not impact on airport operations.
- Ensure that buildings do not exceed the heights specified in the Obstacle Limitation Surfaces (OLS) chart that will impact on flight paths or airport operations.
- Ensure that land uses are not sensitive to aircraft noise (residential uses should generally be discouraged).
- 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.

6.8 Flinders Planning Scheme

6.8.1 Airport Site

The airport site is currently zoned Public Purpose Zone under the Flinders Planning Scheme. The intent of this zone is:

> *The zone is intended to accommodate existing and future public areas, facilities and services, including schools, hospitals, government offices, nursing homes, airports and the like.*

Within this zone all use or development not indicated on the zoning plan (public purpose) is prohibited. The current zoning is therefore likely to be problematic for uses which are not for a "public purpose" such as private commercial uses in the Airport Support Services Precinct or private industrial uses in the Industrial Development Precinct.

The airport site is proposed to be zoned part Utilities Zone and part General Industrial Zone pursuant to the draft Planning Scheme which was on public exhibition at the time of writing. The General Industrial Zone is proposed to apply to the precinct nominated in this Master Plan for industrial development. This zoning arrangement is considered satisfactory provided the provisions of the Utilities Zone are tailored to provide for and require all land use and development to be in accordance with this Master Plan.

6.8.2 Airport Protection

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. This primarily involves ensuring that:

- development proposals near the airport and under flight paths do conflict with the airport's Obstacle Limitation Surfaces (OLS); and
- changes of land use near the airport and under flight paths are not for land uses which may be sensitive to aircraft noise (e.g. residential land uses).

The Flinders Planning Scheme map currently shows an "Airport Buffer" overlay covering land outside the airport under the approach/departures paths of the two runways. The draft Planning Scheme retains this buffer.

The Airport Buffer overlay in the draft Planning Scheme should be reviewed to ensure that it provides adequate and appropriate protection for the airport particularly having regard to the airport's OLS chart and Australian Noise Exposure Forecast (ANEF) contours. This includes the provisions of the associated Airport Impact Management Code.

It is noted that a 2005/6 ANEF was prepared for the airport in 2001 by AOS Airport Consulting. A copy of this ANEF is attached at Appendix 7. Given the fact that this ANEF was prepared over 10 years ago, Council should give consideration to getting an updated ANEF prepared for the airport.

6.8.3 National Airports Safeguarding Advisory Group

A key initiative of the Commonwealth Government's Aviation White Paper (released December 2009) is to safeguard airports and the communities in their vicinity and to develop, with state, territory and local governments, a national land use planning regime to apply near airports and under flight paths. The National Airports Safeguarding Advisory Group (NASAG), comprising high-level Commonwealth, State and Territory transport and planning officials, has been

formed to develop a national land use planning regime to apply near airports and under flight paths.

Prior to implementing any new land use planning controls around Flinders Island Airport, Council should investigate and consider the work being undertaken by NASAG. It may be premature to implement new planning controls until the Commonwealth has provided its response to any NASAG recommendations.

7 Facilities Plan

This section outlines the future facility (physical infrastructure) requirements for Flinders Island Airport.

7.1 Runways

As stated in Sections 3.2 and 5.5 of this Master Plan, the existing runways have some weaknesses. However, the option of building a new runway in the short to medium term has been rejected at this stage. As such, this Master Plan recommends protection, maintenance and strengthening of the existing runways.

As the runways are suitable for the design aircraft that have been adopted for this Master Plan there is no operational or commercial reason to extend either of the runways within the life of this Master Plan.

Council could plan to acquire land to the north of Runway 14/32 to provide for a possible extension to this runway at some time in the future, but the acquisition should only occur if the subject land is put on the market as there is no justification for any compulsory acquisition at this stage. It is noted that any extension of the runway by more than 79m would change it from a Code 3 runway to a Code 4 runway. This would trigger a number of changes including widening of the runway to 45m and changing the Obstacle Limitation Surfaces (OLS).

Runway 05/23 should be maintained and strengthened only. This runway is confined between Parry's Bay to the west and Palana Road to the east and there is no justification for any extension; it is only used by the larger aircraft during strong westerly winds when its current length is more than adequate.

7.2 Pavement Strength

The strength of a pavement is generally designed to both bear the effect of any load imposed on it and to spread that load onto the normally much weaker local sub-grade, or the naturally occurring materials on which the pavement is constructed. Each of these characteristics requires differing pavement properties and have different failure modes.

If a pavement does not distribute a load onto the sub-grade so that the sub-grade can support the load the pavement will fail over an area with a depression forming, followed by a collapse of the pavement and sub-grade structure.

If a pavement cannot itself support a load the pavement will fail immediately under the point where the load was applied. For example, it will form wheel ruts without any overall loss of the surface shape. In other words, over a large area the pavement will be level and uniform except for where a wheel has passed, where there will be a rut with associated heaving of the dislocated pavement material. This is generally caused through the addition of a low quality pavement material on top of a reasonable pavement so that the inability to support a load is

generally confined to the top layer of the pavement. It can also occur when low strength clay lumps become mixed with the pavement material through inadequate quality control.

As stated above, in airports the measure of a pavement's strength is expressed as a Pavement Classification Number (PCN), with the numerical component providing a measure of the pavement's ability to spread a load onto the sub-grade and the tyre pressure component providing a measure of the pavement's ability to support a load. The rating of Flinders Island Airport's existing pavements was discussed in section 3.3 of this report.

The Flinders Island Airport pavements have numerous "rut" type failures that indicate the presence of a low quality pavement material/gravel as part of the pavement profile. There is no indication that the sub-grade is failing due to excessive loads caused by overloading or by the pavement not being able to spread the load onto the sub-grade. Some time ago anecdotal evidence is that the then gravel runways were resurfaced with locally sourced gravel and a bitumen seal applied. The local gravel has been tested and shown to be not suitable for pavement construction. It is not now used for any pavements at Flinders Island Airport; however the poor quality pavement material still exists in the current pavements.

It is recommended that Council undertake a full technical scoping study in relation to the runway pavements, with a full cost analysis, in order to confirm the works required to upgrade the runways to an appropriate standard. This study should be undertaken by a consultant with airport pavement experience.

One possible option is that the pavements could be upgraded by removing approximately 150mm of the pavement in and around the current and future failed sections and replacing it with a crushed rock that complies with the Tasmanian Department of Infrastructure and Resources specification for Road Base A pavement material. The 150mm depth is based on some limited analysis of the pavement through in-situ observations and testing, and is a thickness that can be efficiently excavated and replaced. Thinner excavations may be possible but generally the effected pavement is about 150mm thick.

7.3 Airport Support Facilities

Concept plans have been prepared for the Airport Support Services Precinct to show future facility requirements for this precinct and where these facilities should be developed. These plans are an Airport Support Services Precinct Plan (Appendix 5) and a Terminal Area Sub-Precinct Plan (Appendix 6).

The key elements of these plans are:

- A new apron and "Commercial GA" hangar area to the west of the existing sealed apron and terminal building (where the grassed apron is currently located). This is where hangars for commercial GA operators should be located, particularly charter operators.
- A new taxiway linking the existing sealed apron to Runway 05/23 to service the new apron and Commercial GA hangar areas.
- "Future Terminal Extensions" on the east and west sides of the existing terminal building to provide for expansion of the terminal building in the future. Expansion of the terminal may occur on a staged basis, with one side being stage 1 and the other side being stage 2. The exact details of any terminal extension, including timing, location, size and design, will need to be the subject of a separate study undertaken by a consultant experienced in terminal design.

- A designated undercover patient transfer facility for the Royal Flying Doctor Service ("RFDS Shed") to the west of the terminal building for use by the air ambulance. It is envisaged that this facility will consist of a carport-like structure for the road ambulance to park under when unloading patients prior to transfer to the air ambulance aircraft (and vice-versa). Council could also consider providing an extendable/retractable covered walkway to provide temporary shelter between the carport structure and the aircraft.
- An undercover pickup and drop-off area and a pedestrian path/crossing in front of the terminal building to improve pedestrian access to and from the terminal building.
- A new car parking area on the existing triangular grassed area to the west of the existing car park. This car park is intended to provide a dedicated car parking area for staff, aircraft operators and buses so that the main car park can be reserved for RPT and charter passenger's vehicles.
- A designated parking area for rental cars to the east of the terminal building.
- A "Commercial Development Area" in the south-east corner of the site. This area is set aside for commercial development opportunities such as undercover car parking, boat storage, bus operator shed and rental car depot.
- A "New Entry / Exit Road" to the north of the Commercial Development Area to provide improved and safer vehicular access to and from the airport.
- Relocation of the existing windsock currently located to the east of the fuel facility to a more appropriate location near the threshold of Runway 23.
- A site for a possible future wastewater treatment plant (refer to section 7.6).
- A site for the proposed solar panel arrays.

7.4 Hangar Facilities

Future hangar developments should be constructed in either the:

- Commercial GA Hangar Area; or
- GA Hangar Development Precinct.

Hangars constructed in the Commercial GA Hangar Area will need to be limited in size and carefully located so as not to affect the operation of the airside area and terminal zone. Whilst the east-west dimension (width) of the hangars is not a major issue, the north-south dimension (depth) would need to be a maximum of about 20m. Prior to the construction of any hangars in this area, a hangar layout plan / building envelope plan should be prepared to ensure that future development does not prejudice airside and terminal operations. In addition to setting out appropriate building envelopes for the hangars, the plan should confirm the details of the Commercial GA Apron and Future Taxiway shown on the Airport Support Services Precinct Plan (Appendix 5).

If an operator requires a hangar that is too large for the Commercial GA Hangar Area, an alternative location will need to be considered, including the GA Hangar Development Precinct on the opposite side of Runway 05/23.

In the GA Hangar Development Precinct there is space available to build many more new hangars. Hangars in this precinct should be constructed side-by-side with their aircraft access doors facing the airside area and with landside access from the rear via the secondary access

road off Palana Road (as is the case with the existing hangar in this precinct). As with the Commercial GA Hangar Area, a hangar layout/envelope plan should be prepared prior to the construction of new hangars in this precinct to ensure that the hangars are constructed in a planned and coordinated manner.

7.5 Industrial Development

Industrial development should be located only in the Industrial Development Precinct.

A detailed precinct development plan should be prepared prior to any development in this precinct. As a minimum this plan should set out the internal road and lot layout proposed for this precinct to ensure that any development proceeds in a planned and coordinated manner. Environmental issues will also need to be identified and managed.

It should also be noted that development of land in this precinct for any form of industrial use or activity will likely be constrained by the lack of utility services currently available in this area. The feasibility of providing services to this precinct will need to be investigated.

7.6 Utility Services

The existing situation with respect to utility services was outlined in Section 3.6 of this report. The following upgrades to the existing utility services are likely to be required to support the future development of the airport:

- An on-site water treatment system to treat the town water with the intent of making it suitable for drinking and hand washing. This system, combined with rainwater tanks, should be adequate for the next few years at least.
- A small Bio-cycle plant to service all existing and future premises in the Airport Support Services Precinct. The treated effluent can then be disposed of by irrigation. The Bio-cycle plant should be located in the area shown on the Airport Support Services Precinct Plan (Appendix 5) and a Terminal Area Sub-Precinct Plan (Appendix 6).

8 Implementation Plan

This Master Plan provides Flinders Council with a strategic direction and guidelines for future development of Flinders Island Airport. 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.

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.

The implementation of this Master Plan would benefit from the preparation of a Business Plan for the airport to support potential investment in such things as:

- Runway pavement upgrades
- Terminal improvements/expansion
- Utility upgrades
- Commercial GA Hangar Area
- Commercial Development Area
- Industrial Development Precinct

This would entail an analysis of the airport's business potential, estimating investment costs and modelling the revenue flows from the investment. It should also include an industry overview and market analysis about trends and competition, discussion about products and services offered at the airport and possible future changes, review of the legal and regulatory context, and management policies and procedures used in the conduct of the airport.

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 forecast increases in aviation activity over the planning period. Other actions may be required but they are likely to be related to non-aviation/industrial development and will be market driven. It is envisaged that the Business Plan will have its own Implementation Plan which will address such actions in more detail.

Table 6: Implementation Plan

Action	Trigger Point	Indicative Timing
Adopt Master Plan	Finalisation of Master Plan	Immediate
Preparation of Airport Business Plan	Adoption of Master Plan	Immediate – 12 months
Pavement Upgrade Scoping Study and Cost Analysis	Adoption of Master Plan	Immediate – 12 months
Preparation of development plan for Commercial GA Hangar Area	Adoption of Master Plan	Immediate – 12 months
Designated parking area for rental cars	Adoption of Master Plan	Immediate – 12 months
Relocation of the existing windsock	Adoption of Master Plan	Immediate – 12 months
Preparation of development plan for General Aviation Hangar Development Precinct	Adoption of Master Plan	1-2 years
Runway pavement upgrades	Completion of Pavement Study and Business Plan	1-2 years
Preparation of development plan for Industrial Development Precinct	Adoption of Master Plan / development proposal	1-2 years
Undercover pickup and drop-off area and pedestrian path/crossing in front of the terminal building	Adoption of Master Plan	1-2 years

Expand terminal building	Demand / increased RPT passenger numbers	1-2 years
Utility service upgrades	Demand / increased passenger numbers	1-2 years
Construction of Undercover Patient Transfer Facility	Demand by air ambulance	1-2 years
Construction of new entry/exit road	Adoption of Master Plan	2-3 years
Construction of new car park west of existing car park	Demand / construction in Commercial GA Hangar Area	2-3 years
Construction of infrastructure for the Commercial GA Hangar Area	Development proposal / demand for commercial hangar sites	When required
Construction of new east-west taxiway	Demand / construction of hangar(s) in Commercial GA Hangar Area	When required
Construction of infrastructure for the General Aviation Hangar Development Precinct	Development proposal / demand for GA hangar sites	When required
Construction of infrastructure for the Industrial Development Area	Development proposal / demand for industrial land	When required
Review Master Plan	5 years from adoption of Master Plan	5 years

Appendix 1

FLINDERS ISLAND AIRPORT MASTER PLAN

EXISTING CONDITIONS PLAN

- CONTOURS
- CADASTRE
- EXISTING RUNWAYS
- TERMINAL AREA
- AIRPORT BOUNDARY

DRAWING NO:	FIAMP-001
REVISION NO:	C
DATE:	17 OCTOBER 2011
SCALE:	1:15,000 @A4
GCS:	GDA94 MGA55

Meters
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HARVEST DIGITAL PLANNING

Appendix 2

Flinders Island - Flight Schedules

From 16th April 2012 – 7th October 2012

✈Flinders - Launceston

Flinders Island - Launceston	Departure time	Arrival Time	Flight No.	Frequency	No. Stops
	0855	0930	SHARP802	M T W T F S .	NON-STOP
	1455	1530	SHARP806	M . W . F . .	NON-STOP
	1655	1730	SHARP808	M T W T F . .	NON-STOP
	1655	1730	SHARP814	. . . . . Su	NON-STOP
Launceston to Flinders Island	**Departure time**	**Arrival Time**	**Flight No.**	**Frequency**	**No. Stops**
	0800	0835	SHARP801	M T W T F S .	NON-STOP
	1000	1035	SHARP803	M . W . F . .	NON-STOP
	1600	1635	SHARP811	. . . . . Su	NON-STOP
	1600	1635	SHARP807	M T W T F . .	NON-STOP

✈Flinders Island to Melbourne (Essendon)

Flinders Island - Essendon	Departure time	Arrival Time	Flight No.	Frequency	No. Stops
	1055	1200	SHARP804	M . W . F . .	NON-STOP
Essendon to Flinders Island	1330	1435	SHARP805	M . W . F . .	NON-STOP

Note: Please refer to our website www.sharpairlines.com.au for flight availability on public holidays

Reservations
www.sharpairlines.com.au
1300 55 66 94

Office Hours
Monday to Friday - 7am to 7pm EST
Saturday - 8am to 12pm EST
Sunday - 1pm to 6pm EST
Public Holidays - 10am to 5pm EST

Appendix 3

FLINDERS ISLAND AIRPORT MASTER PLAN

POSSIBLE NEW RUNWAY PLAN

- CONTOURS
- CADASTRE
- EXISTING RUNWAYS
- POSSIBLE NEW RUNWAY
- AIRPORT BOUNDARY

DRAWING NO:	FIAMP-005
REVISION NO:	C
DATE:	17 OCTOBER 2011
SCALE:	1:15,000 @A4
GCS:	GDA94 MGA55

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Appendix 4

FLINDERS ISLAND AIRPORT MASTER PLAN

LAND USE PRECINCTS PLAN

AIRPORT BOUNDARY

PRECINCTS

- A — RUNWAYS
- B — AIRPORT SUPPORT SERVICES
- C — GENERAL AVIATION HANGAR DEVELOPMENT
- D — INDUSTRIAL DEVELOPMENT

DRAWING NO:	FIAMP-002
REVISION NO:	E
DATE:	24 FEBRUARY 2012
SCALE:	1:15,000 @A4
GCS:	GDA94 MGA55

Meters
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HARVEST DIGITAL PLANNING

Appendix 5

FLINDERS ISLAND AIRPORT MASTER PLAN

AIRPORT SUPPORT SERVICES PRECINCT PLAN

AIRPORT BOUNDARY

DRAWING NO:	FIAMP-003
REVISION NO:	E
DATE:	23 FEBRUARY 2012
SCALE:	1:2,500 @A4
GCS:	GDA94 MGA55

Meters
0 25 50 100

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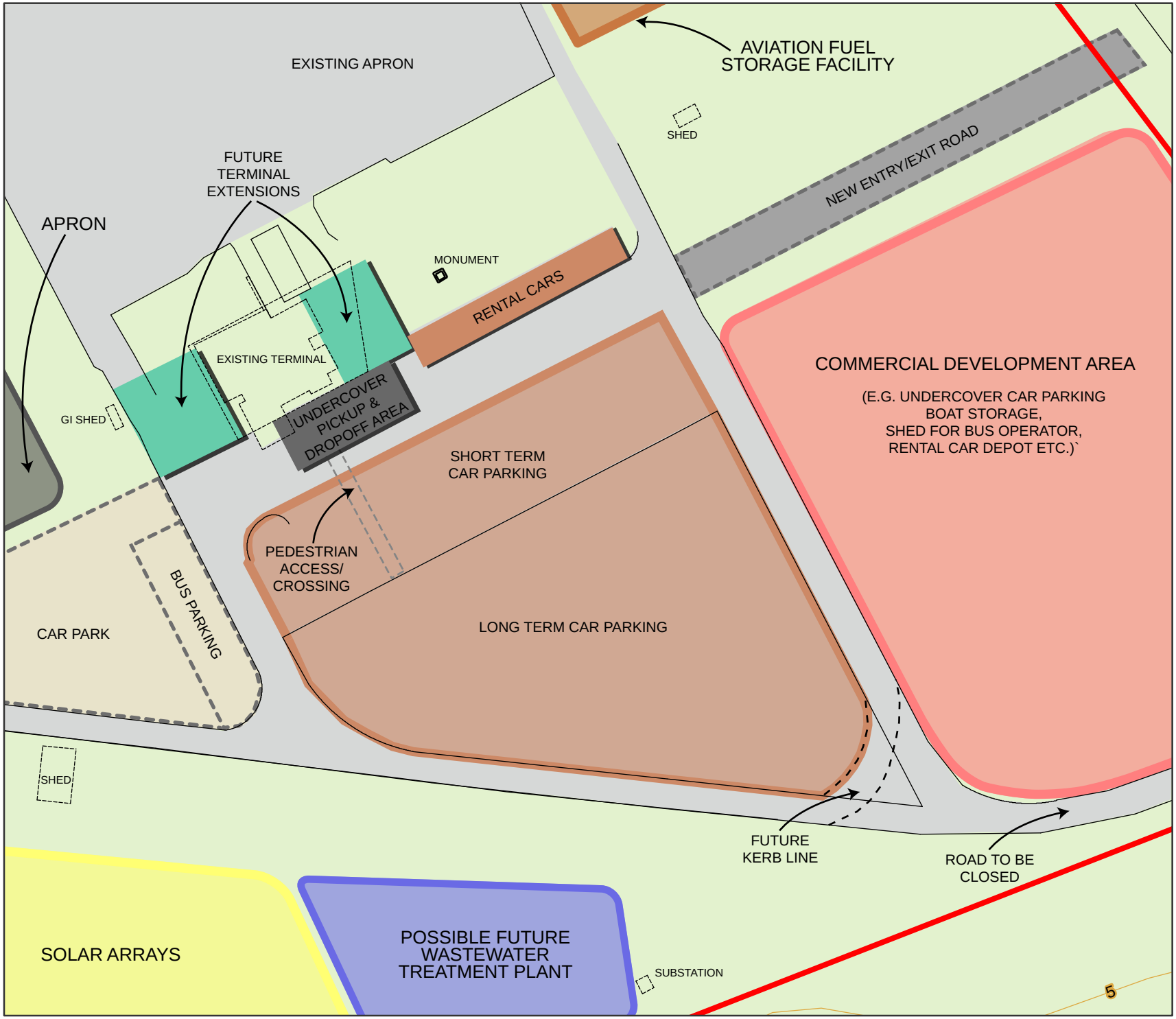
HARVEST DIGITAL PLANNING

Appendix 6



FLINDERS ISLAND AIRPORT MASTER PLAN

TERMINAL AREA SUB-PRECINCT PLAN

AIRPORT BOUNDARY

DRAWING NO:	FIAMP-004
REVISION NO:	E
DATE:	23 APRIL 2012
SCALE:	1:750 @A4
GCS:	GDA94 MGA55

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HARVEST DIGITAL PLANNING

Appendix 7

AVERAGE DAILY AIRCRAFT MOVEMENTS

Runway 05

	Arrival			Departure			All
Aircraft	Day	Night	Total	Day	Night	Total	Movements
AC50	0.02	0.00	0.02	0.02		0.02	0.04
BEC200	0.01	0.00	0.01	0.01		0.01	0.02
BEC58P	0.07	0.00	0.07	0.07		0.07	0.14
CNA441	0.01	0.00	0.01	0.01		0.01	0.02
DC3	0.00	0.00	0.00	0.00		0.00	0.00
DHC6	0.17	0.01	0.18	0.18		0.18	0.35
FK27	0.00	0.00	0.00	0.00		0.00	0.01
GASEPF	0.03	0.00	0.04	0.04		0.04	0.07
GASEPV	0.05	0.00	0.05	0.05		0.05	0.11
HELICO	0.01	0.00	0.01	0.01		0.01	0.02
HS748A	0.01	0.00	0.01	0.01		0.01	0.01
S-76	0.00	0.00	0.00	0.00		0.00	0.00
Total	0.39	0.02	0.41	0.41		0.41	0.81

Runway 14

	Arrival			Departure			All
Aircraft	Day	Night	Total	Day	Night	Total	Movements
AC50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BEC200	0.00		0.00	0.00		0.00	0.00
BEC58P	0.00	0.00	0.00	0.00	0.00	0.00	0.01
CNA441	0.00		0.00	0.00		0.00	0.00
DC3	0.00		0.00	0.00		0.00	0.00
DHC6	0.01	0.00	0.01	0.01	0.00	0.01	0.02
FK27	0.00		0.00	0.00		0.00	0.00
GASEPF	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GASEPV	0.00	0.00	0.00	0.00	0.00	0.00	0.01
HELICO	0.00		0.00	0.00		0.00	0.00
HS748A	0.00		0.00	0.00		0.00	0.00
S-76	0.00		0.00	0.00		0.00	0.00
SF340	0.03	0.00	0.03	0.03	0.00	0.03	0.07
Total	0.06	0.00	0.06	0.06	0.00	0.06	0.12

Runway 23

	Arrival			Departure			All
Aircraft	Day	Night	Total	Day	Night	Total	Movements
AC50	0.12		0.12	0.11	0.01	0.12	0.23
BEC200	0.07		0.07	0.07	0.00	0.07	0.14
BEC58P	0.40		0.40	0.38	0.02	0.40	0.80
CNA441	0.07		0.07	0.06	0.00	0.07	0.13
DC3	0.01		0.01	0.01	0.00	0.01	0.02
DHC6	1.00		1.00	0.95	0.05	1.00	2.00
FK27	0.02		0.02	0.02	0.00	0.02	0.04
GASEPF	0.21		0.21	0.20	0.01	0.21	0.41
GASEPV	0.30		0.30	0.29	0.02	0.30	0.61
HELICO	0.06		0.06	0.06	0.00	0.06	0.13
HS748A	0.04		0.04	0.03	0.00	0.04	0.07
S-76	0.01		0.01	0.01	0.00	0.01	0.02
Total	2.30		2.30	2.19	0.12	2.30	4.60

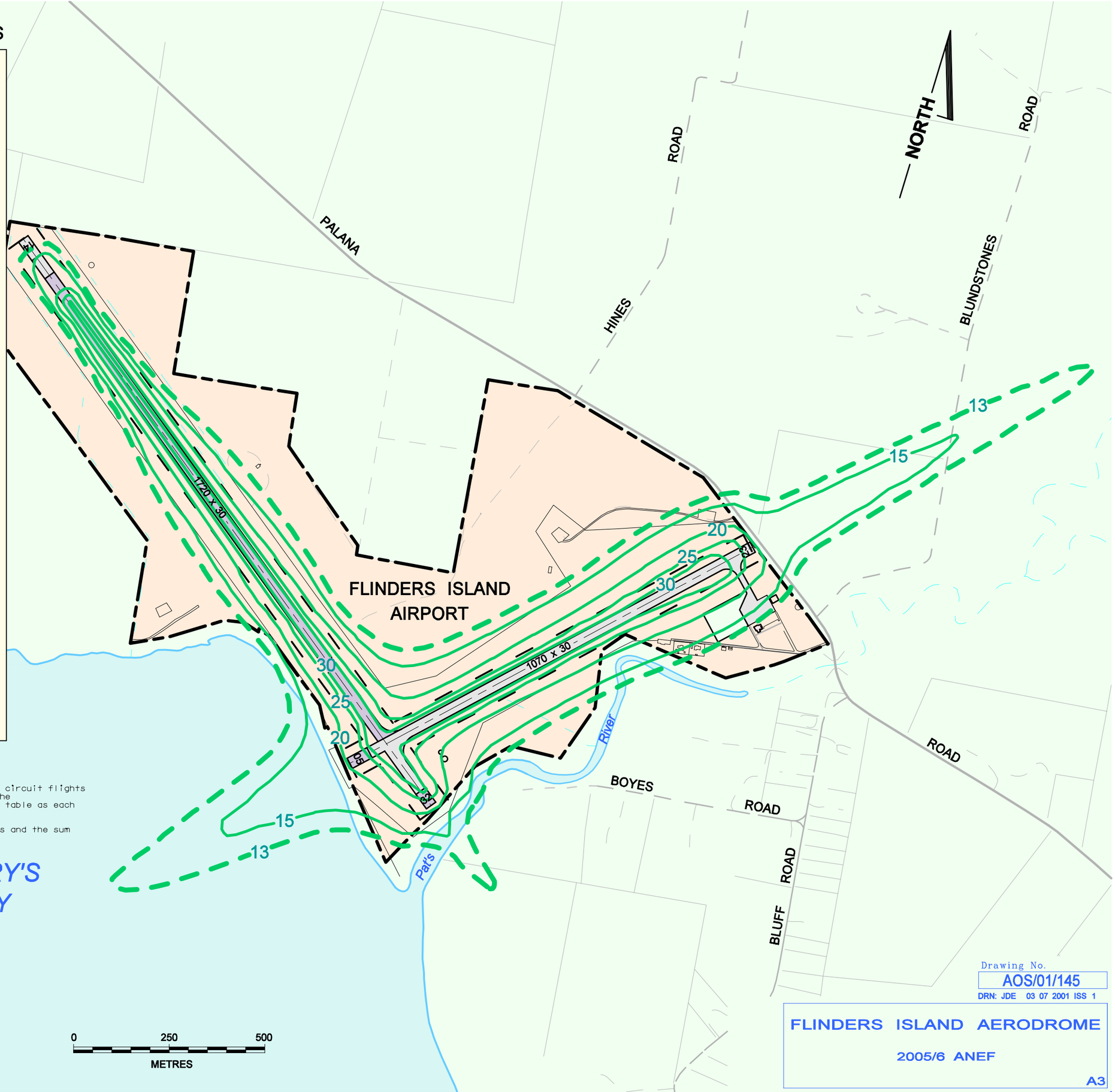
Runway 32

	Arrival			Departure			All
Aircraft	Day	Night	Total	Day	Night	Total	Movements
AC50	0.02	0.00	0.02	0.02	0.00	0.03	0.05
BEC200	0.01	0.00	0.01	0.01	0.00	0.01	0.03
BEC58P	0.08	0.00	0.09	0.08	0.00	0.09	0.17
CNA441	0.01	0.00	0.01	0.01	0.00	0.01	0.03
DC3	0.00	0.00	0.00	0.00	0.00	0.00	0.01
DHC6	0.20	0.01	0.21	0.20	0.01	0.21	0.43
FK27	0.00	0.00	0.00	0.00	0.00	0.00	0.01
GASEPF	0.04	0.00	0.04	0.04	0.00	0.04	0.09
GASEPV	0.06	0.00	0.06	0.06	0.00	0.06	0.13
HELICO	0.01	0.00	0.01	0.01	0.00	0.01	0.03
HS748A	0.01	0.00	0.01	0.01	0.00	0.01	0.01
S-76	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SF340	0.59	0.03	0.62	0.59	0.03	0.62	1.24
Total	1.05	0.06	1.11	1.05	0.06	1.11	2.22
TOTAL	3.79	0.08	3.87	3.70	0.17	3.87	7.74

NOTES:

* Touch & Go movements were composed of 83% touch-go landings and 17% circuit flights (5 to 1 ratio). The number of touch-go / circuit operations used in the Integrated Noise Model was half the number of movements shown in this table as each operation was counted as two movements; a take-off and a landing.

Where figures have been rounded, discepancies may occur between totals and the sum of the component parts.



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