Richmond Shire Council

Request for Tender

Richmond Aerodrome 09/27 Upgrade

Document Control

Date	Description	Author
09/10/2024	Initial Draft	Tyler Ybema
	Revised Draft	
	Updated Final Report	

Contact for enquiries and proposed changes

If you have any questions about this document or suggestions for improvements, please contact Richmond Shire Council.

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1. Introduction

1.1. Description and location of the project

Richmond Aerodrome (ICAO Code YRMD) is located approximately 3 km northwest of the township of Richmond in Queensland. It is situated between Townsville (500 km to the east) and Mount Isa (400 km to the west) (refer to Figure 1).

Rex Airlines operates weekly between Townsville and Mount Isa, landing in Hughenden, Richmond and Julia Creek twice daily on Monday, Wednesday and Friday. In addition to being a major transit stop between these towns, Richmond is known for its cattle farming industries and has increasingly become more popular for tourism. There are also plans for expansion to cater to future business opportunities and growth, with several mining companies having expressed interest in the greater Richmond region.

The existing Runway 09/27 is 1,524 m long with a paved width of 30 m. A previous cross runway is no longer in use.

1.2 Scope of works

Richmond Shire Council calls tenders for detailed design development for upgrading Runway 09/27 at Richmond Aerodrome with this document to be used for the construction phase.

The scope of this design includes the following:

- Construct a new runway that is 2,100 m in length where the existing runway is located.
- Provide a new RPT apron with three parking bays and a new taxiway connection linking to Runway 09/27.
- The design life for the runway and associated pavements is 20 years
- The design aircraft adopted is the Fokker F100.
- The runway extension will be 2,100 m longitudinally from the northwest end of the existing Runway 09/27.

- No environmental risk assessments and/or testing for PFAS or other contaminants have been undertaken by Richmond Shire Council. Where required, the Contractor is responsible for any contaminant testing.

1.3 Design Basis and Development

1.3.1 Previous design stages

Third-party engineers undertook a Pavement Conditions Assessment site inspection on 30 November 2021 (available upon request) to assess the condition of all existing airport infrastructure, including aircraft pavements, drainage infrastructure, pavement markings, and visual and navigational aids.

A Pavement Conditions Assessment report (23/12/2021) was completed to summarise the assessment and provide RSC with a detailed understanding of the existing airport infrastructure condition rates.

1.3.2 Design Philosophy

The design philosophy for the new runway must include the following:

- Compliance with Civil Aviation Safety Authority (CASA) Part 139 Manual of Standards (MOS) and other relevant standards, codes, and guidelines.
- Improve the runway's safety for pilots and passengers, improving safety and access for Rex Airlines and other potential airlines.
- Minimisation of the potential effect of any residual non-compliance.
- Avoidance/minimisation of health, safety, and environmental risks.
- Sustainable and cost-effective considerations, including material selection (location and availability) and constructability.

2. Design Traffic

2.1 Available Information

RSC provided the previous design information for design traffic calculation. The information relied upon is as follows:

- The largest aircraft currently regularly operating at Richmond Aerodrome is the SAAB 340 by Rex Airlines, which is used for both RPT and charter services (RSC, 2023).
- Future aircraft, understood to utilise Richmond Airport, is briefed to be a 100-seater jet aircraft, currently Fokker F100, operated by Alliance Airlines.
- Other aircraft include the RAAF C-27J Spartan, operated in Richmond for flood relief operations. It is noted that this aircraft is only intended to utilise Richmond Aerodrome in emergencies and is therefore not considered in the airfield planning and pavement design.

The SAAB 340B ceased production in 1999, and therefore, larger aircraft are likely to eventually operate in Richmond in the near future. RSC has indicated an allowance for Fokker F100 aircraft in the design of the runway, new taxiway, and apron.

2.2 Aircraft spectrum

The following aircraft were identified through consultation with RSC, and the associated aircraft code is presented in Table 1. The F100 is the critical aircraft for the pavement thickness design of civilian aircraft.

Generally, aircraft up to and including Code C can operate at MTOW (maximum take-off weight).

Table 1 Summary of aircraft and design weights

Aircraft model	Code	Design Aircraft Weight	Aircraft weight
SAAB 340	B	13.2	MTOW
ATR 42-600	C	18.6	MTOW
C-27J Spartan	M	30.5	MTOW
Fokker F100	C	43.1	MTOW

2.3 Aircraft movements

2.3.1 Current runway operations

The SAAB 340 is the primary aircraft utilising Runway 09/27 at Richmond Aerodrome. As no airfield planning or ATC data is available, it is unknown which end of the runway is predominantly used for arrivals and departures. A conservative approach was taken during concept design, assuming that 100% and 70% of aircraft arrive and depart at each runway end. In terms of backtracking for the existing runway, Richmond Shire Council notes the following assumptions:

- Code B and C arrivals on RWY 09 can almost always exit directly via the taxiway, removing the requirement to backtrack (refer to Figure 4).
- Code B and C arrivals on RWY 27 cannot stop before the taxiway and, therefore, nearly always need to backtrack from the northern RWY 09 threshold to the taxiway.
- Occasionally, Code B and C aircraft make an intersection departure from the taxiway when using RWY 09, removing the need to backtrack from the taxiway to the RWY 09 threshold.
- Code B and C aircraft utilising RWY 27 must backtrack to the runway threshold from the taxiway
- Code D and larger aircraft have not been considered.

2.3 Adopted Design for Traffic

Total traffic for the 20-year design life of the pavements was summed for the critical aircraft type and weight classification to account for differences in passes for arrivals and departures. Based on expressions of interest from three mining companies, it is assumed that 9 flights will operate per company each week, with a 3% growth rate applied. It is assumed that all arrivals and departures, regardless of direction and aircraft, require aircraft to backtrack.

The pavement design must be adopted with a 20-year design life, considering traffic distribution from 2025 to 2045. The design traffic for each runway end is presented in Table 2 below.

Parameter	Adopted Value
Opening year weekly traffic movements	9
Aircraft Model	Focker F100
MTOW	43.1t
Annual growth rate	3%
Annual arrivals/departures	936
Total arrivals/departures	25,151
Aircraft Movements (Including backtracking)	**50,301**

3. General Contractual Conditions

Tenders must be submitted no later than 2:00pm, Friday, 8th of November 2024. Quotations are to be submitted via email to: tenders@richmond.qld.gov.au

By signing the following, I am expressing an interest in submitting a tender for works regarding the Detailed Design for Richmond Shire Council Aerodrome Upgrade for Richmond Shire Council, and all the information provided regarding this tender is true and correct.

Tenderer: .....

Contact: .....

Address: .....

Telephone: ..... Fax: .....

Signature: ..... Date: .....

Email: .....