

Fiji International

Airport Resurfacing

– partnering to add specialist
expertise and value



“A 400 metre section of the runway, the touchdown spot, was the most crucial. It was completed at 5am and planes landed one hour later.”



Analyse | Solve | Construct

**BITUMEN &
PAVEMENT**

Research | Design | Analysis

“Work was undertaken in a collaborative manner, completed on-time and was 100% compliant.”

Fiji Airports Limited, (a Fiji government corporation) required the main runway, a 10-12 year old hotmix pavement surface to be replaced as it was cracking and delaminating.

Blacktop Construction partnered with Pratap Asphalt Quarries Limited to construct the runway using high quality locally sourced aggregates, tailoring a mix design to work in with local materials.

The most critical requirement of the project was to ensure the strength of the 400 metre touchdown section of the runway was able to accommodate the huge sheer stresses that occur when aircraft tyres skid at the landing touchpoint.

A typical international asphalt mix design was developed to Federal Aviation Administration (FAA) standards, designed in New Zealand and laid by a local crew.

Test standard	FAA Marshall test.
Binder	Hard class 320 binder.
Mix characteristics	High levels of compaction, stiff as possible.
Weight of 747 on landing	350 tonnes at 250 kms per hour.
Force transferred on landing	Aircraft is still flying on descent -force from aircraft wings transferred to landing gear, 0-250kms in a second (at point of impact).
Pavement stress	High levels of stress on 50-100mm surface of pavement – high levels of friction and heat.
Largest aircraft that can land on pavement	Airbus A380.

Blacktop's role was that of a specialist advisor for the design, manufacturing, lay down, compaction and testing of the pavement. Site supervisory personnel and laboratory management personnel were provided to Pratap's Asphalt. This partnership provided Fiji airport authorities with the confidence that collectively the partners could deliver.

Some of the logistics involved with the project were challenging, particularly the need to ensure security of plant and personnel, plant and personnel had to be shipped to Fiji and the working window for construction was restricted to between 10pm – 5am with planes landing at 7am.

Critical success factors:

- Lay-down trial was conducted under the terminal in the bag and trolley area (this achieved success where others had failed)
- Runway was milled and paved on the first run (with no rejections)
- Positive relationships were developed with client
- Design work was completed in New Zealand where there was more specialist bitumen testing equipment available
- True commitment to a partnership, upskilling a local contractor thus adding value to the wider community
- A true collaborative partnership led to the development of shared expertise
- Non-binding risk-sharing belief between partners
- Project management skills – logistics for obtaining visas, foreign currency transactions, shipping and transportation.

Fiji's tourism industry is critically reliant on air transportation and during peak seasonal periods fully laden 747s make frequent landings at the airport.

By forming a partnership with a local contractor and developing a mix design utilising local aggregates, providing specialist equipment and expertise, Blacktop Construction has ensured Fiji's critical airport infrastructure has been rebuilt to international airport standards.

